सी डी एफ डी
CDFD

वार्षिक प्रतिवेदन
अप्रैल 2018 से मार्च 2019

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CDFD

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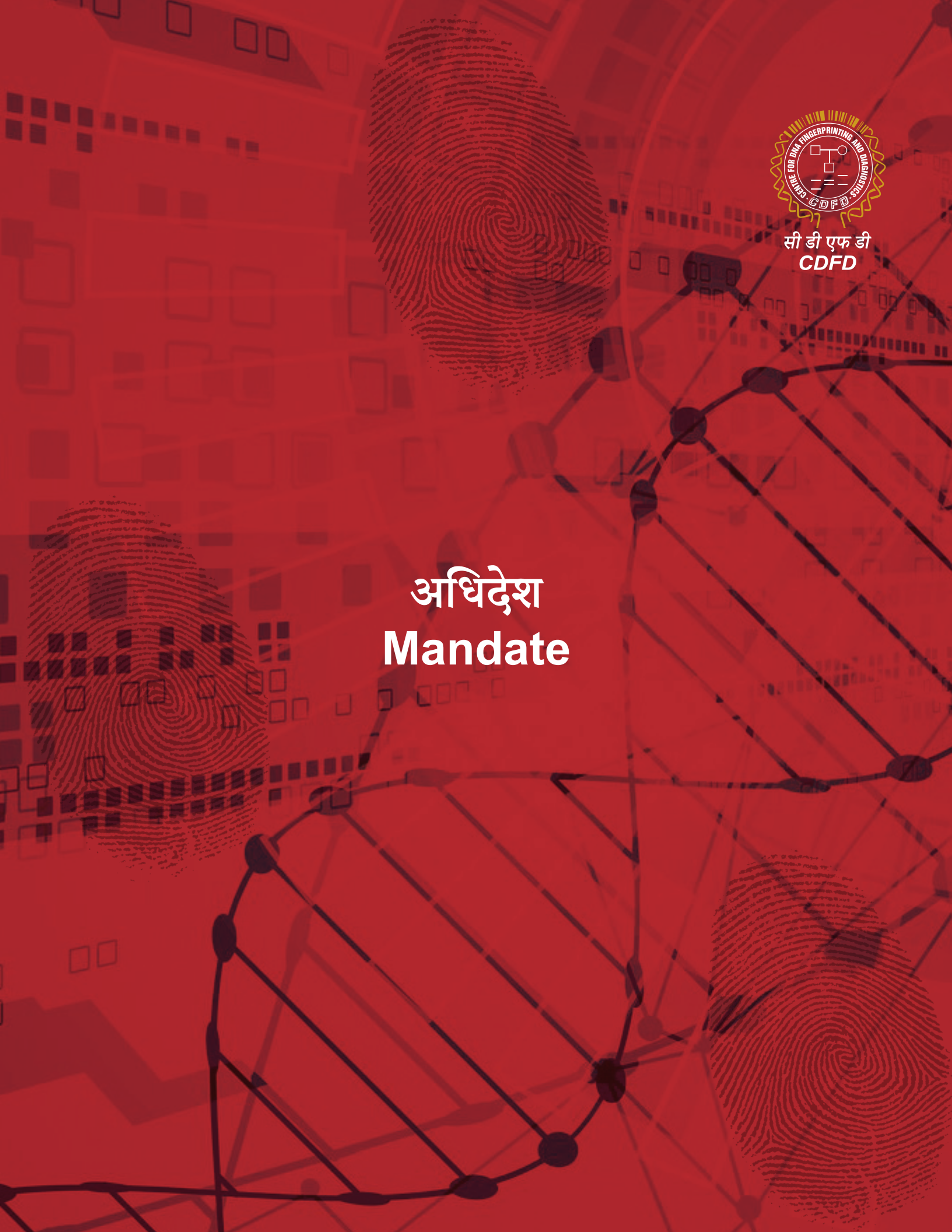

अधिदेश
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अधिदेश

सीडीएफडी सोसाइटी के समझौता ज्ञापन तथा नियम एवं विनियमों में बताए गए अनुसार डीएनए फिंगरप्रिंटिंग एवं निदान केंद्र (सीडीएफडी) की स्थापना जिन उद्देश्यों के लिए हुई वे निम्न प्रकार हैं:

I. पितृत्व विवाद, आप्रवास और अस्पतालों में नवजात शिशुओं की अदला-बदली जैसे मामलों में निजी पक्षों सहित विविध अभिकरणों के लिए पर्याप्त अदायगी पर डीएनए प्रोफाइलिंग और उससे संबंधित विश्लेषण का वैज्ञानिक अनुसंधान करना;

II. अपराध अन्वेषण अभिकरणों को डीएनए फिंगरप्रिंटिंग और उससे संबंधित विश्लेषण तथा सुविधाएं प्रदान करना;

III. अपराध अन्वेषण और परिवार मामलों में डीएनए प्रोफाइल विश्लेषण और उससे संबंधित तकनीकों के साक्ष्य संबंधी मूल्य को समझने में पुलिस कर्मियों, न्यायिक वैज्ञानिकों, वकीलों तथा न्यायपालिका की सहायता करना;

IV. आनुवंशिक अव्यवस्थाओं को संसूचित करने हेतु डीएनए नैदानिक विधियां सिद्ध करना और इस प्रकार के संसूचन के लिए संपरीक्षाएं विकसित करना।

V. पादप और जंतु कोशिका माल, कोशिका लाइनों के प्रमाणीकरण के लिए डीएनए फिंगरप्रिंटिंग तकनीकों का उपयोग करना और ऐसे प्रयोजनों के लिए आवश्यकतानुसार नई संपरीक्षाएं विकसित करना

VI. डीएनए फिंगरप्रिंटिंग तकनीकों पर प्रशिक्षण प्रदान करना;

VII. मूलभूत, अनुप्रयुक्त अनुसंधान एवं विकास कार्य करना;

VIII. देश में चिकित्सा संस्थाओं, जन-स्वास्थ्य अभिकरणों और उद्योग को परामर्शी सेवाएं प्रदान करना;

IX. केंद्र के उद्देश्यों से संगत क्षेत्रों में विदेशी अनुसंधान संस्थानों एवं प्रयोगशालाओं और अन्य अंतरराष्ट्रीय संगठनों के साथ सहयोग करना;

X. अनुसंधान छात्रों को स्नातकोत्तर उपाधियों के लिए पंजीकृत कर सकने के प्रयोजन हेतु उच्चतर अधिगम के मान्यता प्राप्त विश्वविद्यालयों एवं संस्थाओं के साथ संबंध स्थापित करना;

XI. भारत सरकार, राज्य सरकारों, देश में स्थित पूर्व संस्थाओं / न्यासों, व्यक्तियों और अन्य गतिविधियों के लिए अंतरराष्ट्रीय संगठनों सहित विदेशी स्रोतों से आर्थिक सहायता प्राप्त करना;

XII. केंद्र सरकार के पूर्व अनुमोदन से प्रशिक्षण कार्यक्रमों, वैज्ञानिक अनुसंधान और अन्य गतिविधियों के लिए अंतरराष्ट्रीय संगठनों सहित विदेशी स्रोतों से आर्थिक सहाता प्राप्त करना।

XII. केंद्र की गतिविधियों को चलाने के लिए जैसा आवश्यक या सुविधाजनक हो, कोई भी संपत्ति चल या अचल या भवनों एवं निर्माणों को निर्मित करने, सुधार करने, परिवर्तित करने, गिरा देने या मरम्मत करने हेतु उपहार, क्रय, विनियम, पट्टा, भाड़े पर लेने द्वारा या अन्था किसी भी तरह अर्जित करना।

XIII. केंद्र के प्रयोजन हेतु, भारत सरकार और अन्य प्रोनोटों, विनियम पत्रों या अन्य परक्राम्य लिखतों को आहरित करना और स्वीकार करना, तैयार करना और पृष्ठांकित करना, रियायत प्रदान करना और परक्रामण करना।

XIV. केंद्र को सौंपी गई निधि के धन का निवेश करने के लिए, ऐसी प्रतिभूतियों को खोलना या ऐसे तरीके अपनाना, जो कि समय-समय पर शासी परिषद द्वारा निर्धारित किए जाते हैं, इस प्रकार के निवेश को विक्रय या पक्षांतरण करना।

XV. उक्त सभी उद्देश्यों या उनमें से किसी उद्देश्य की प्राप्ति के लिए सभी ऐसे अन्य विधिसम्मत कार्य, जैसा आवश्क, प्रासंगिक या सहायक हो, करना।

XVI. केंद्र के उद्देश्यों को वास्तविक बनाने के लिए प्रोफेसरों, अन्य संकाय पदों, अभ्यागत अध्येतावृत्तियों सहित अध्येतावृत्तियों, अनुसंधान एवं संवर्ग पदों, छात्रवृत्तियों आदि को संस्थापित करना।

XVII. केंद्र के वैज्ञानिक एवं प्रौद्योगिकी कार्य के लिए प्रयोगशालाओं, कार्यशालाओं, भंडार, पुस्तकालय, कार्यालय और अन्य सुविधाओं को स्थापित करना।

XVIII. तकनीकी जानकारी को उद्यमकर्ताओं और उद्योगों से प्राप्त या उनको अंतरण करना, और

XIX. पेटेंटों, डिजाइनों एवं तकनीकी जानकारी जो कि केंद्र द्वारा विकसित की गई हो, को पंजीकृत करना और केंद्र के हित में ऐसे पेटेंटों / डिजाइनों / तकनीकी जानकारी के किसी भाग को अंतरण करना।

Mandate

The objectives for which the Centre for DNA Fingerprinting and Diagnostics (CDFD) was established, as enumerated in Memorandum of Association and Rules and Regulations of CDFD Society, are as follows:

I. To carry out scientific research pertaining to DNA profiling and related analysis in civil cases like paternity disputes, immigration, and exchange of newborns in hospitals, for various agencies including private parties, on appropriate payment;

II. To provide DNA fingerprinting and related analysis and facilities to crime investigation agencies;

III. To assist police personnel, forensic scientists, lawyers and the judiciary in understanding the evidential value of the DNA profile analysis and related techniques in crime investigation and family matters;

IV. To establish DNA diagnostic methods for detecting genetic disorders and to develop probes for such detection;

V. To use DNA fingerprinting techniques for the authentication of plant and animal cell material, cell lines and to develop new probes where necessary for such purposes;

VI. To provide training in DNA fingerprinting techniques;

VII. To undertake basic, applied and developmental R & D work;

VIII. To provide consultancy services to medical institutions, public health agencies and industry in the country;

IX. To collaborate with foreign research institutions and laboratories and other international organizations in fields relevant to the objectives of the Centre;

X. To establish affiliation with recognized universities and institutions of higher learning for the purpose of enabling research scholars to register for post-graduate degrees;

XI. To receive grants, donations and contributions in cash or in other forms from the Government of India, State Governments, Charitable Institutions/ Trusts, individuals and industry within the country;

XII. To receive, with the prior approval of the Central Government, monetary assistance from foreign sources including international organizations for training programmes, scientific research and other activities;

XIII. To acquire by gift, purchase, exchange, lease, hire or otherwise howsoever, any property movable or immovable or to construct, improve, alter, demolish or repair buildings and structures as may be necessary or convenient for carrying on the activities of the Centre;

XIV. For the purpose of the Centre, to draw and accept, make and endorse, discount and negotiate Government of India and other Promissory Notes, Bills of Exchange, Cheques or other Negotiable Instruments;

XV. For investing the funds of or money entrusted to the Centre, to open such securities or in such manner as may from time to time be determined by the Governing Council and to sell or transpose such investment;

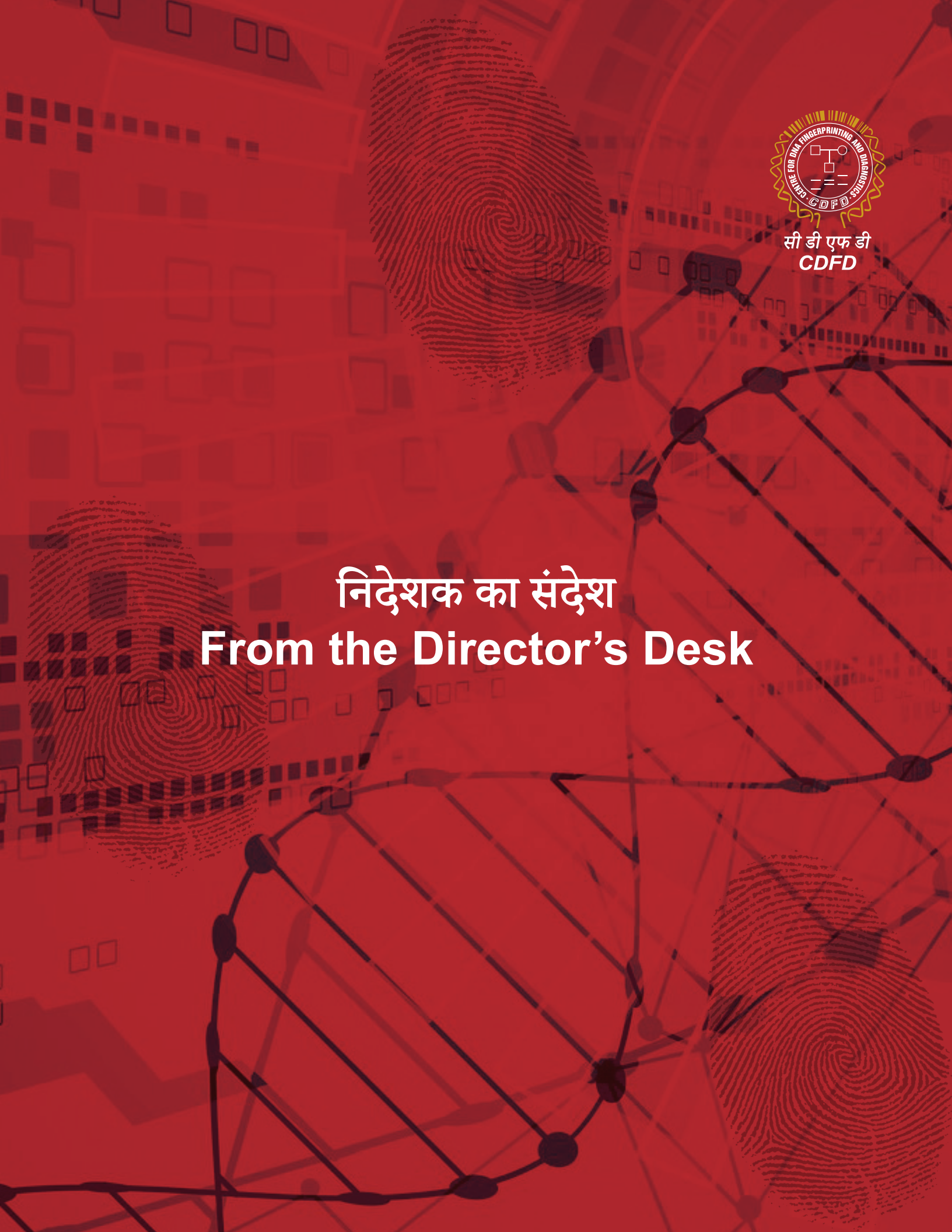
XVI. To do all such other lawful acts as may be necessary, incidental or conducive to the attainment of all or any of the above objectives;

XVII. To institute Professorships, other faculty positions, fellowships including visiting fellowships, research and cadre positions, scholarships, etc. for realizing the objectives of the Centre;

XVIII. To establish, maintain and manage laboratories, workshops, stores, library, office and other facilities for scientific and technological work of the Centre;

XIX. To acquire or transfer technical know-how from/to entrepreneurs and industries; and

XX. To register patents, designs & technical know-how that may be developed by the Centre and transfer any portion of such patents/designs/technical know-how in the interest of the Centre.



निदेशक का संदेश
From the Director's Desk

निदेशक का संदेश

सीडीएफडी परिवार की ओर से, मुझे वर्ष 2018-19 के लिए वार्षिक रिपोर्ट प्रस्तुत करने में प्रसन्नता हो रही है। केंद्र राष्ट्र को सेवा प्रदान करने हेतु अपनी सेवाओं और मौलिक अनुसंधान की मजबूती को विशिष्ट रूप से संयोजित करता है। सीडीएफडी कानून को लागू करने वाली एजेंसियों और बासमती चावल निर्यातकों के लिए डीएनए प्रोफाइलिंग के क्षेत्र में सेवाएं प्रदान करता है और विभिन्न अनुवांशिक विकारों का निदान भी करता है। सीडीएफडी आधुनिक जीव विज्ञान के विभिन्न विषयों में अत्याधुनिक मौलिक अनुसंधान भी करता है। मुझे विश्वास है कि यह सहजीविता का संबंध इस वार्षिक रिपोर्ट में स्पष्ट होगा।

सीडीएफडी इस वर्ष उप्पल में अपने नए स्थायी परिसर में स्थानांतरित किया गया। इस अवधि के दौरान सबसे महत्वपूर्ण कार्यक्रम 12 अगस्त 2018 को डॉ. हर्ष वर्धन, विज्ञान और प्रौद्योगिकी, पृथ्वी विज्ञान, पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय के माननीय मंत्री, डॉ. रेणु स्वरूप, सचिव, डीबीटी की उपस्थिति में भारत सरकार द्वारा नए परिसर का उद्घाटन करना है।

इस वर्ष में, सीडीएफडी ने एनआईए द्वारा संदर्भित मामलों सहित राष्ट्र भर में विभिन्न कानून लागू करने वाली एजेंसियों द्वारा अग्रेषित 105 मामलों के लिए डीएनए फिंगरप्रिंटिंग सेवाएं प्रदान कीं। महत्वपूर्ण रूप से, सीडीएफडी के निदेशक और डीएनए परीक्षकों को गृह मंत्रालय, भारत सरकार द्वारा सीआर पीसी, 1973 की धारा 293 के प्रयोजनों हेतु सरकारी विशेषज्ञ के रूप में अधिसूचित किया गया है। इस वर्ष एपीडा के सहयोग से पादप डीएनए फिंगरप्रिंटिंग की प्रयोगशाला में 8-एसएसआर मार्कर पैनल का उपयोग करते हुए मिलावट विश्लेषण के लिए 112 बासमती चावल के नमूनों का विश्लेषण किया गया है जिसमें 63% नमूने शुद्ध पाए गए थे।

नैदानिकी विभाग ने विभिन्न आनुवंशिक रोगों के लिए 2877 रोगियों को अनुवांशिक मूल्यांकन प्रदान किया। कुल 213 साइटोजेनेटिक, 2225 आण्विक आनुवंशिकी और 439 जैव रासायनिक आनुवंशिक परीक्षण किए गए थे। सीडीएफडी के सहयोग से निजाम चिकित्सा विज्ञान संस्थान, हैदराबाद में स्थापित चिकित्सा आनुवंशिकी विभाग आनुवांशिक सेवाएं प्रदान करने हेतु सफलतापूर्वक कार्य कर रहा है। कुछ वर्षों पहले शुरू की गई चिकित्सा आनुवंशिकी में डीएनबी प्रशिक्षण कार्यक्रम भी सफलतापूर्वक जारी रहा है। इस वर्ष, आनुवांशिक परामर्श में दो वर्ष का एमएससी शिक्षण कार्यक्रम, चिकित्सा आनुवंशिकी विभाग, एनआईएमएस, हैदराबाद में शुरू किया गया है।

आधुनिक जीव विज्ञान के बुनियादी पहलुओं की जांच करने में संलग्न विभिन्न वैज्ञानिक समूहों ने इस वर्ष भी अपने संबंधित क्षेत्रों में उत्कृष्ट प्रगति दिखाई है। बैक्टीरियल जेनेटिक्स की प्रयोगशाला में क्रमशः डीफोस्फो-पीटीएसएन को एक अवरोधक के रूप में दिखाया गया है और साथ ही क्रमशः के + एफ्लक्स प्रोटीन वायसीजीओ और के + अपटेक ट्रांसपोर्टर टीआरके के एक उत्प्रेरक के रूप में दिखाया है। इस प्रयोगशाला के एक दूसरे अध्ययन में कोशिका विभाजन और फैटी एसिड चयापचय में कड़े न्यूक्लियोटाइड्स, ppGpp और pppGpp की भूमिका की जांच की गई है। कवक रोगजनन की प्रयोगशाला में एज़ोल एंटीफंगल तनाव के उत्तरतीविता में एक्टिन साइटोस्केलेटल नेटवर्क पुनर्गठन के लिए एक आवश्यक भूमिका को प्रकट किया गया है। उन्होंने यह भी दिखाया है कि एक्टिन रीमॉडलिंग के निषेध से सी. ग्लेब्रेटा के ड्रग रेसिस्टेंट-क्लिनिकल आइसोलेट्स में एजोल-प्रतिरोध का आंशिक उलटा होता है। प्रतिलेखन की प्रयोगशाला में माइकोबैक्टीरियोफेज प्रोटीन की विशेषता की है जो माइकोबैक्टीरिया को मारने में सक्षम है और डीएनए मरम्मत में Rho-निर्भर समाप्ति की भूमिका स्थापित की है और Rho-निर्भर समाप्ति द्वारा एंटीबायोटिक संवेदनशीलता को नियंत्रित किया है। उन्होंने Rho के साथ अंत:क्रिया करने में सक्षम पेप्टाइड्स के डिजाइनिंग और लाक्षणीकरण को भी पूरा किया है। प्लांट-माइक्रोब अंत:क्रिया प्रयोगशाला ने पहली बार इंट्रासेल्युलर आयरन होमोस्टेसिस में ग्लूकान की महत्वपूर्ण भूमिका की सूचना दी है जो कई ग्राम-ऋणात्मक बैक्टीरिया में संरक्षित है। उन्होंने यह भी दिखाया है कि जेंथोमोनास फाइटो पैथोजन्स में विषाणु के लिए आवश्यक प्रकार III स्राव प्रणाली को शुरू करने के लिए आयरन एक प्रमुख पर्यावरणीय संकेत है।

कोशिका चक्र विनियमन प्रयोगशाला से पता चला है कि एमएलएल प्रोटीन के दो सब यूनिट डायनेमिक ऑर्गेनेल को स्वतंत्र रूप से स्थानीय दशा में रखते हैं। उन्होंने सूक्ष्मनलिका न्यूक्लिएशन और पुन:वृद्धि में एमएलएल की भूमिका भी खोजी है। कोशिका मृत्यु एवं

कोशिका उत्तरजीविता प्रयोगशाला में PPM1G, सेरीन / थ्रियोनिन फॉस्फेटस के पीपीएम परिवार के एक सदस्य द्वारा एक होलोएंजाइम की असेम्बली का पहला उदाहरण प्रदान किया गया है। कोशिका संकेतन प्रयोगशाला में दर्शाया गया कि ऑन्कोप्रोटीन MYC पर पाइरोफॉस्फोराइलेशन की हानि इसकी स्थिरता को बढ़ाती है, और गैर-रूपांतरित कोशिकाओं में तनाव-प्रेरित कोशिका मृत्यु को बढ़ावा देती है। इसके अलावा, उन्होंने दिखाया है कि IP6K1 के नुकसान से माउस वृषण में कोशिका जंक्शनों का विघटन होता है। इम्यूनोलॉजी की प्रयोगशाला में कई ऑर्गेनो-टिन, -कॉपर, और -कोबाल्ट यौगिकों को संभावित कीमोथेरैप्यूटिक एजेंटों के रूप में परीक्षण किया गया है और ट्यूमर कोशिका की मृत्यु में उनकी संभावित भूमिका की जांच की है।

क्रोमेटिन जीवविज्ञान और एपिजेनेटिक्स प्रयोगशाला में डीएनए द्विगुणन के नियमन में अपने आण्विक कार्य को स्थापित करने के लिए अपनी द्विगुणन में विभिन्न रेप्लीसोम घटकों के साथ Hst4 की पारस्परिक क्रिया को दिखाया गया है। कम्प्यूटेशनल और कार्यात्मक जीनोमिक्स के विस्तार से प्रोटीन मिसफॉल्डिंग से जुड़े मानव न्यूरोडीजनरेटिव विकारों में प्रोटीन असहमति के अतिरिक्त तंत्र की पहचान की है। इसके अलावा, उन्होंने एक नया तंत्र भी दिखाया है जिसके माध्यम से मेफ्लोक्वाइनिनिबास प्लाज़मोडियम फाल्सीपेरम Acyl co-A एंजाइम के लिपिड बंधनकारी गुणों को दर्शाया गया है।

ड्रोसोफिला तंत्रिका विकास प्रयोगशाला में डबल sex और Hox के बीच अंत:क्रिया की जांच की है और विकासशील सेंट्रल नर्वस सिस्टम में यौन द्विरूपता उत्पन्न करने के लिए इसके महत्व को दिखाया गया है। ड्रोसोफिला हिमेटोपोइजिस प्रयोगशाला में अध्ययन ड्रोसोफिला में रक्त प्रोजेनिटर रखरखाव में COP9 सिग्नलोसोम की भूमिका के बारे में सलाह दी गई है।

स्तनधारी आनुवंशिकी प्रयोगशाला में मायकोबैक्टीरिया और मेजबान स्तनधारी कोशिकाओं से एपिजेनेटिक परिवर्तन और एपिजेनेटिक संशोधक की पहचान की गई है जो एम. ट्यूबरकुलोसिस संक्रमण के दौरान एक भूमिका निभाते हैं। आण्विक कोशिका जीवविज्ञान की प्रयोगशाला में दो प्रबल अवरोधकों (SM09 और SM15) की पहचान की गई है जो ESAT-6 के महत्वपूर्ण Met93 अवशेषों को मास्क करते हैं। ये दोनों अवरोधक मैक्रोफेज में एम. ट्यूबरकुलोसिस (एमटीबी) के इंट्रासेल्युलर अस्तित्व को महत्वपूर्ण रूप से रोकते हैं। आण्विक ओंकोलॉजी की प्रयोगशाला में गैर-हॉटस्पॉट उत्परिवर्ती p53 के एक नवीन ओंकोजेनिक ट्रांसक्रिप्शनल लक्ष्य के रूप में एसएमएआरसीडी 1 की पहचान की गई और इसे वैध किया तथा कोलोरेक्टल कैंसर में एक नवीन ट्यूमर सप्रेसर के रूप में एआरआईडी2 की भूमिका को भी मान्य किया है। वर्तमान रिपोर्टिंग अवधि में, सीडीएफडी के शोधकर्ताओं ने अंतरराष्ट्रीय ख्याति के विभिन्न साथियों द्वारा समीक्षित पत्रिकाओं में 63 शोध प्रकाशनों का योगदान दिया है। हमारे वैज्ञानिकों और छात्रों को इस वर्ष कई प्रतिष्ठित पुरस्कार और सम्मान मिले हैं, जिनमें टाटा इनोवेशन अध्येतावृत्ति; नेशनल एकेडमी ऑफ साइंस (इंडिया) और इंडियन एकेडमी ऑफ साइंसेज की फैलोशिप, वेलकम ट्रस्ट-डीबीटी इंडिया एलायंस की फेलोशिप, कैरियर विकास के लिए डीबीटी-नेशनल बायोसाइंस अवार्ड और अन्य पुरस्कारों के बीच डीबीटी के विशिष्ट जैव प्रौद्योगिकी अनुसंधान प्रोफेसरशिप पुरस्कार शामिल हैं। अवधि के दौरान 14 छात्रों को पीएचडी की उपाधि से सम्मानित किया गया।

मैं यहां वर्णित सभी कार्यों के लिए, अपने सभी सहयोगियों के वैज्ञानिक, तकनीकी और प्रशासनिक संवर्गों के साथ-साथ सीडीएफडी में कार्य करने वाले छात्रों और कर्मचारियों के योगदान को स्वीकार करता हूँ। हमने डीबीटी के अधिकारियों, सीडीएफडी संस्था, शासी परिषद, अनुसंधान क्षेत्र पैनल्स-वैज्ञानिक सलाहकार समिति, वित्त और भवन समितियों तथा सीडीएफडी की अन्य विशेषज्ञ समितियों के प्रतिष्ठित सदस्यों की सलाह, समर्थन और प्रोत्साहन से वर्ष के दौरान काफी लाभ उठाया है। हम आने वाले वर्षों में समाज की सेवा करते रहेंगे।

31 मार्च 2019 **देबाशीस मित्रा**

From the Director's Desk

On behalf of CDFD family, I am happy to present the Annual Report for the year 2018-19. The Centre continues to uniquely combine the strength of its services and fundamental research to serve the nation. CDFD provides services in the twin areas of DNA Profiling for law enforcing agencies and Basmati rice exporters and also diagnostics for various genetic disorders. CDFD also performs cutting edge fundamental research in various disciplines of modern biology. I am sure this symbiotic relationship will be evident in this Annual Report.

CDFD moved to its new permanent campus at Uppal in this year. The most important event during this period is the inauguration of our new campus by Dr. Harsh Vardhan, Hon'ble Minister, Ministry of Science and Technology, Earth Sciences, Environment, Forest and Climate Change, Govt. of India in the presence of Dr. Renu Swarup, Secretary, DBT on 12th August 2018.

In this year, CDFD provided DNA Fingerprinting services for 105 cases forwarded by different law enforcing agencies across the nation including cases referred by NIA. Importantly, the Director and DNA examiners of CDFD have been notified by the Ministry of Home Affairs, Government of India as Government Expert for the purposes of section 293 of the Cr. PC, 1973. This year the Laboratory of Plant DNA Fingerprinting in association with APEDA has analysed 112 Basmati rice samples for adulteration analysis using 8-SSR marker panel of which 63% were pure samples.

The Diagnostics division provided genetic evaluation to 2877 patients for various genetic diseases. A total of 213 cytogenetic, 2225 molecular genetics and 439 biochemical genetic tests were conducted. The Medical Genetics Department established at Nizam's Institute of Medical Sciences, Hyderabad in association with CDFD is functioning successfully to provide genetic services. The DNB training program in Medical Genetics that was initiated a few years ago is also running successfully. This year, a two year MSc teaching programme in Genetic counselling has been initiated in the Department of Medical Genetics, NIMS, Hyderabad.

The various scientific groups engaged in examining basic aspects of modern biology have shown excellent progress in their respective fields of research this year as well. Laboratory of Bacterial Genetics has shown dephospho-PtsN as an inhibitor as well as an activator of the K^+ efflux protein YcgO and the K^+ uptake transporter Trk respectively. A second study from this laboratory has examined the role of the stringent nucleotides, ppGpp and pppGpp in cell division and fatty acid metabolism. Laboratory of Fungal Pathogenesis has uncovered an essential role for the actin cytoskeletal network reorganization in the survival of azole antifungal stress. They have also shown that the inhibition of actin remodelling leads to partial reversal of azole-resistance in drug resistant-clinical isolates of *C. glabrata*. Laboratory of Transcription has characterized mycobacteriophage proteins capable of killing mycobacteria and established the role of Rho-dependent termination in DNA repair and in controlling the antibiotic sensitivity by Rho-dependent termination. They have also completed the designing and characterization of peptides capable of interacting with Rho. Laboratory of Plant-Microbe Interactions has reported for the first time a critical role of glucan in intracellular iron homeostasis that is conserved in several Gram-negative bacteria. They have also shown that iron is one of the major environmental signal for turning on Type III secretion system required for virulence in *Xanthomonas* phytopathogens.

Laboratory of Cell Cycle Regulation has shown that the two subunits of MLL protein dynamically localize to mitotic organelles independently. They have also discovered a role of MLL in microtubule nucleation and regrowth. Laboratory of Cell Death & Cell Survival has provided the first example of an assembly of a holoenzyme by PPM1G, a member of PPM family of serine/threonine phosphatases.

Laboratory of Cell Signalling demonstrated that the loss of pyrophosphorylation on the oncoprotein MYC increases its stability, and promotes stress-induced cell death in non-transformed cells. In addition, they have shown that the loss of IP6K1 leads to disruption of cell junctions in the mouse testis. Laboratory of Immunology has tested several organo-tin, -copper, and –cobalt compounds as potential chemotherapeutic agents and examined their possible role in tumor cell death.

Laboratory of Chromatin Biology & Epigenetics has shown the interaction of Hst4 with various replisome components in their bid to establish its molecular function in regulation of DNA replication. Laboratory of Computational and Functional Genomics has identified additional mechanism of protein disaggregation in protein misfolding-associated human neurodegenerative disorders. In addition, they have also shown a novel mechanism through which Mefloquine inhibits the lipid binding properties of the *Plasmodium falciparum* Acyl co-A enzyme.

The Laboratory of Drosophila Neural Development has investigated the interaction between Doublesex and Hox and shown its importance for generating sexual dimorphism in the developing Central Nervous System. Studies in the Laboratory of Drosophila hematopoiesis suggests the role of COP9 signalosome in blood progenitor maintenance in *Drosophila*. Laboratory of Mammalian Genetics have identified epigenetic changes and epigenetic modifiers both from mycobacteria and the host mammalian cells that play a role during *M. tuberculosis* infection. Laboratory of Molecular Cell Biology has identified two potent inhibitors (SM09 and SM15) that masks the critical Met93 residue of ESAT-6. Both these inhibitors significantly inhibit intracellular survival of *M. tuberculosis* (Mtb) in macrophages. Laboratory of Molecular Oncology has identified and validated *SMARCD1* as a novel oncogenic transcriptional target of non-hotspot mutant p53 and have also validated to role of *ARID2* as a novel tumor suppressor in colorectal cancer.

In the current reporting period, researchers in CDFD have contributed 63 research publications in different peer reviewed journals of International repute. Our scientists and students have received many prestigious awards and honours this year, including TATA Innovation Fellowship; Fellowships of National Academy of Science (India) and Indian Academy of Sciences, fellowship of the Wellcome Trust-DBT India Alliance, DBT-National Bioscience Award for Career Development and Distinguished Biotechnology Research Professorship Award of DBT amongst others. 14 students were conferred with Ph.D degree during the period.

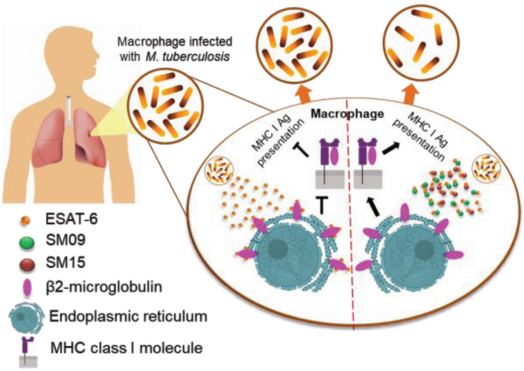
For all the work described here, I must acknowledge contribution and cooperation of my all colleagues in scientific, technical and administrative cadres as well as students and staff working in CDFD. We have also benefitted immensely during the year from the advice, support and encouragement from the officers of the DBT, distinguished members of the CDFD Society, Governing Council, Research Area Panels-Scientific Advisory Committee, Finance and Building Committees and other expert committee of CDFD. We shall continue to serve the society in the years ahead.

March 31, 2019 **Debashis Mitra**

2018-19 at a glance

Research

A novel therapeutic target against *Mycobacterium tuberculosis*



ESAT-6 protein secreted by *Mycobacterium tuberculosis* interacts with β2 microglobulin and inhibits MHC class I antigen (Ag) presentation in macrophage. SM09 and SM15 drug molecules rescue this effect, improve host immunity and inhibit survival of *M. tuberculosis* inside macrophage

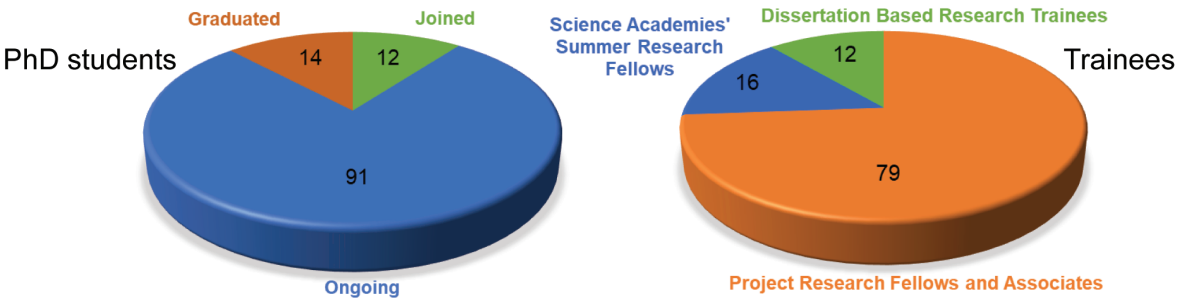
Our research publications cut across many disciplines

Publications from CDFD for FY 2018-19 according to Web of Science Subject Categories.
Data Source - Clarivate Analytics (Subject Categories are not mutually exclusive).

Awards and Honours to CDFD faculty and students

- Tata Innovation Fellowship (1)
- National Bioscience Award for Career Development (2)
- DBT - Distinguished Biotechnology Research Professorship (1)
- Elected as Fellows of National Science Academies (3)
- TNQ Inspiring Science Award 2019 Finalist (1)
- International conference bursaries to PhD students (3)
- Presentation and poster awards to PhD students (many)

Human Resource Development



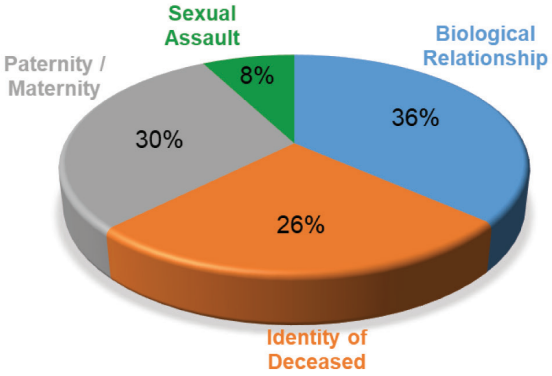
2018-19 at a glance

Services

DNA Fingerprinting

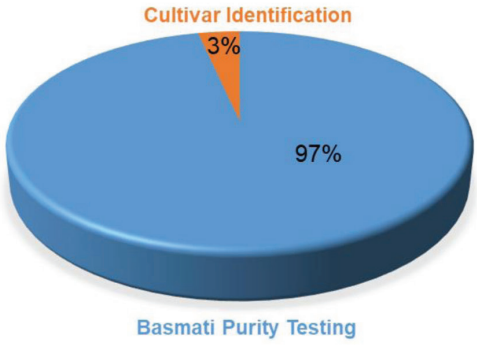
Human

105 cases



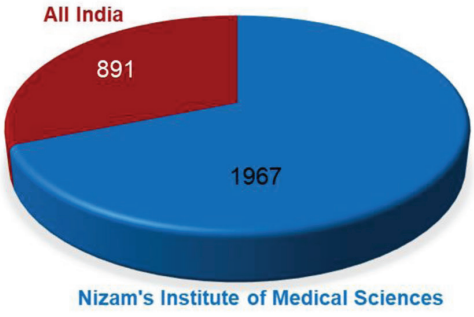
Plant

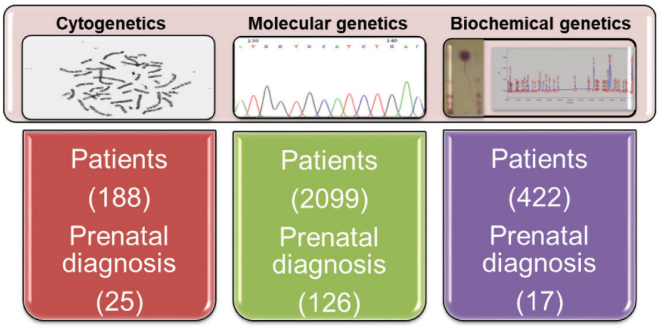
116 samples



Diagnostics

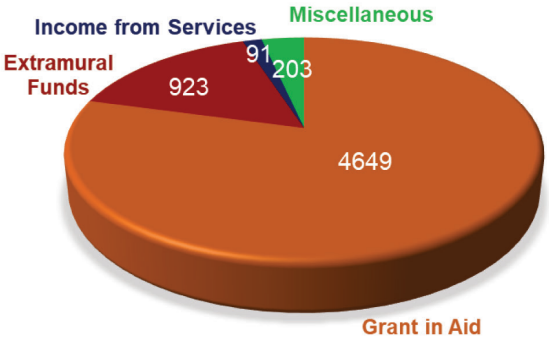
2877 samples



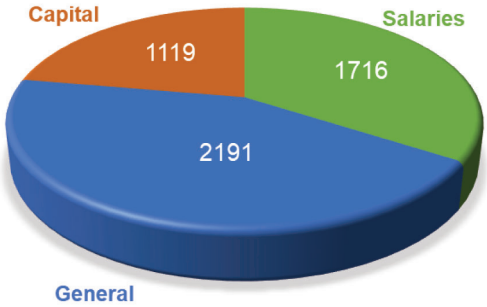


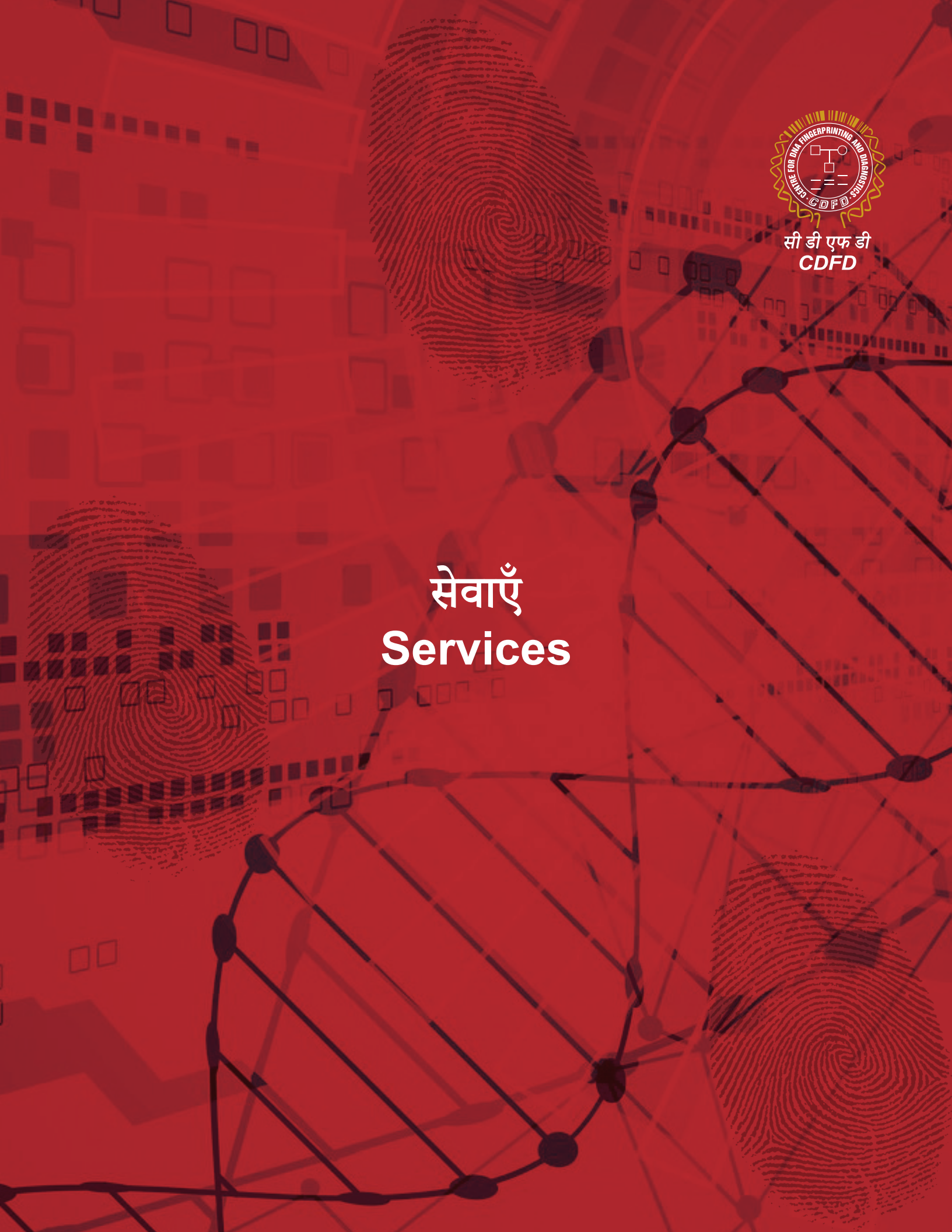
Finance and Accounts

Receipts in ₹ Lakh



Expenditure in ₹ Lakh





सेवाएँ
Services

Laboratory of DNA Fingerprinting Services

Scientist In-charge: **Madhusudan Reddy N**

Other Members: SPR Prasad
Devinder Singh Negi
Sanjukta Mukerjee
Pooja Tripathi
Vijay Amrutrao Girnar
Shruti Dasgupta

1. To provide DNA fingerprinting services in cases forwarded by law-enforcing agencies/ judiciary of State and Federal Governments, relating to murder, sexual assault, paternity, maternity, child swapping, deceased identification, organ transplantation, etc.;
2. To develop human resources skilled in DNA fingerprinting, to cater to the needs of State and Federal Government agencies;
3. To impart periodical training to manpower involved in DNA fingerprinting sponsored by State and Federal Government agencies;
4. To provide advisory services to State and Federal Government agencies in establishing DNA Fingerprinting facility;
5. To create DNA marker databases of different populations of India.

A total of 105 cases were received for DNA fingerprinting examination during the reporting period 2018 – 2019. Of these, 38 cases were biological relationship (organ transplantation), 31 cases related to paternity / maternity, 27 cases related to identification of deceased and 9 cases pertained to sexual assault (rape).

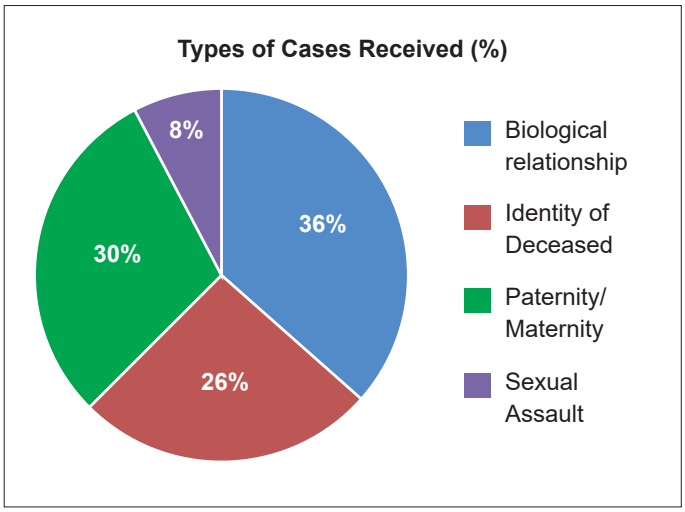


Figure: The cases involving biological relationship (36%), maternity/paternity (30%), deceased identity (26%) and sexual assault constituted the bulk of the cases received.

Prominent cases during April 1, 2018 to March 31, 2019

1. Four cases of national interest were forwarded by CBI.
2. Sexual assault case involving a British tourist: forwarded by Goa Police.
3. Children trafficking case: forwarded by Goa Police.
4. A case from National Investigation Agency (NIA) involving national security and public safety.

Deposition of evidence in Courts of Law

During this reporting year, the DNA experts defended their reports in 8 cases in various Honorable Courts of Law throughout the country.

Gazette Notification by Ministry of Home Affairs, Govt. of India

In pursuance to the publication by the Ministry of Home Affairs, Govt. of India in the Gazette of India notified *vide* F.No.25013/44/2018 WS-III dated 6th November, 2018, the Director and DNA examiners of CDFD have been specified as **Government Scientific Expert** for the purposes of section 293 of the Cr.PC 1973.

Revenues generated

During this reporting period, an amount of **₹ 31,23,939/-** (Rupees thirty-one lakhs twenty-three thousand nine hundred and thirty-nine only) has been received towards DNA fingerprinting analysis charges, which is inclusive of GST (18% at present) as levied by the Govt. of India.

Group of Laboratory of DNA Fingerprinting Services

Laboratory of Diagnostics Division

Scientist In-charge: **Ashwin Dalal**

Adjunct Faculty: Prajnya Ranganath
NIMS, Hyderabad

Shagun Aggarwal
NIMS, Hyderabad

Other Members: P. Rajitha

Angalena R

Usha Rani Dutta

M. Muthulakshmi

A. Sobhan Babu

Jamal Md Nurul Jain

Vasantha Rani

C. Krishna Prasad

R. Sudheer Kumar

1. To conduct genetic evaluation for patients/families with genetic disorders
2. To develop new methods and assays for genetic analysis and engage in research on chromosomal and single gene disorders
3. To act as national referral center for analysis and quality control of genetic tests for few genetic diseases
4. To impart training in genetic evaluation of patients with genetic disorders

Services provided and Training programs during the year 2018-2019

Clinical Genetics

The Diagnostics division provided genetic evaluation to 2877 patients for various genetic diseases. A total of 213 cytogenetic, 2225 molecular genetics and 439 biochemical genetic tests were conducted. These consisted of patients with chromosomal disorders, monogenic disorders, mental retardation, congenital malformations, inborn errors of metabolism, and other familial disorders. The Department of Medical Genetics established at Nizam's Institute of Medical Sciences, Hyderabad is functioning successfully. A total of 7120 patients, of which 3369 were new registrations, were examined and counseled in the unit during 2018-19. In addition antenatal ultrasonograms were done in 506 cases, antenatal invasive procedures (chorionic villus sampling and amniocentesis) in 305 cases and foetal autopsies were conducted in 147 fetuses. A 3 year training program for Diplomate of National Board (DNB) in Medical Genetics initiated with affiliation to National Board of Examinations, New Delhi is running successfully; four batches of students (total 7 students) have joined so far and the fifth batch is due to join in May 2019.

MSc training programme in Genetic counseling

A MSc Genetic Counseling program has been initiated this year from Medical Genetics department established a NIMS, Hyderabad. It is a two year masters program and the course objective is to provide academic and vocational training to become professional genetic counselors. The students trained under this program will be able to cater to comprehensive clinical genetics clinics in tertiary level hospitals. We are also in process of getting this program accredited through the Skill Development Council of India.

Group of Laboratory of Diagnostics Division

Laboratory of Plant DNA Fingerprinting Services

Chairperson: **Subhadeep Chatterjee**

Scientist In-charge: K. Anupama
Lakshmi Vaishna

Collaborator: Raman Meenakshi
Sundaram, IIRR, Hyderabad.

Objectives

1. Testing the purity of Basmati samples received from Export Inspection Council (EIC), Ministry of Commerce, Government of India, Basmati rice exporters from India, and other countries;
2. DNA fingerprinting of varieties and hybrids of rice and other crops.

Research

1. To Generate new panels of markers for varietal identification and accurate detection of adulteration in Basmati rice
2. To assess the genetic purity of rice hybrids and cytoplasmic male sterile lines used in rice hybrid seed production.

Services

1. Testing the purity of Basmati samples received from Export Inspection Council (EIC), Ministry of Commerce, Govt. of India, Basmati rice exporters from India and other countries

Basmati samples received from EIC and private companies are analysed using eight SSR marker based multiplex assay system and reports on the purity and adulteration if any is submitted. For the complex samples, single-grain analysis is performed for identification of varieties. During the current reporting year, a total of 112 samples were analyzed and the number of samples indicating the percentage of adulteration with non-Basmati rice is shown in the figure.

2. DNA fingerprinting of varieties and hybrids of rice and other crops

Four rice varieties along with their respective controls were received from Annapurna Seeds and Farms, Warangal and fingerprinting of these varieties was carried out with 5 SSR markers. These SSR markers have differentiated all the four varieties and also gave profiles which are different from their respective controls.

Research

1. Generate new panels of markers for accurate detection of adulteration and varietal identification

Few of the recently released notified Basmati varieties have the marker profiles that are very similar to that of adulterants. Additionally, few Basmati varieties have the same profiles. Therefore, attempts are being made to develop new marker panels based on SSR markers and SNPs. Basmati varieties and adulterant Sharbati are so far screened with 119 SSR markers. Most of the markers are monomorphic across all the varieties tested and few are monomorphic in Traditional Basmati varieties but polymorphic in Evolved Basmati varieties. So far no marker is identified as suitable to be included in the marker panel.

SNP/Indels in the genes governing quality traits of Basmati varieties can also be made as a panel to distinguish Basmati from non-Basmati varieties. Markers were generated for SNPs in *waxy* and *alk* genes that regulate amylose content and gelatinization temperatures (GT) and were used to genotype all the Basmati and non-Basmati varieties. Marker reported to probe the 8-bp deletion in

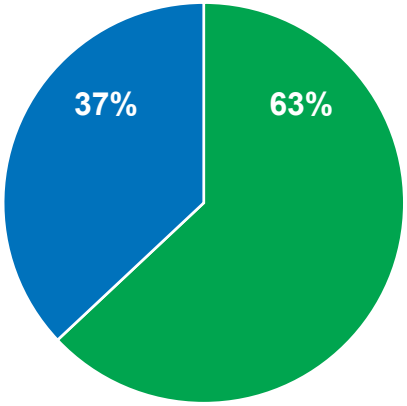
Badh2 gene conferring aroma to Basmati rice was also genotyped on all the varieties. Using these SNPs most of the Basmati varieties could be grouped in to one class that is different from non-Basmati but still some Basmati varieties have same profiles as non-Basmati varieties. Recently some more polymorphisms in other genes are reported to govern amylose and GT. Similarly SNPs in *BadH1* gene are also reported to influence fragrance. Some of these SNPS will be tested whether they could include the remaining Basmati varieties in to Basmati class.

Future work in this objective includes screening all the varieties with more number of polymorphic SSR markers to develop SSR-based panel for detection and quantification of adulteration in Basmati rice. Similarly, all the new SNPs will be tested for their suitability in generating a SNP panel.

2. To assess the genetic purity of rice hybrids and cytoplasmic male sterile lines used in rice hybrid seed production

Homogenous hybrid seed needs to be distributed to farmers to obtain higher yield. According to Indian Seed Act hybrid rice has to be 98% pure for which parents used have to be maintained at 99% purity level. Cytoplasmic male sterility system is used in rice for production of hybrid seed, where A-line or male sterile line is maintained by crossing with iso-nuclear B-line and is crossed with R-line carrying gene (*Rf*) for fertility restoration during hybrid seed production. The objective of this work is to employ the reported molecular markers to detect adulteration in A-line and Hybrid with B-line and B/R-line respectively on bulked seed lot.

Standard samples of A-line admixture with progressive amounts of B-line and that of Hybrid with progressive amounts of B-line are prepared that are used to isolate DNA and set up PCR with fluorescent labelled molecular markers. The PCR products were analysed in the ABI3770 analyser using genemapper software and the peak areas for both the alleles coming up with the markers were used to determine the peak-area ratios and are used to plot on Y-axis against percent adulteration on X-axis. When the data was fit to the linear regression equation, high R^2 values were obtained and the slope of the curve indicated that these markers and assay system can be used to detect the purity of both A-line and hybrid for the presence of B or R lines.



Total number of samples - 112

Pure Adulteration below 15%

Basmati samples analyzed in the current reporting year

Group of Plant DNA Fingerprinting Services


CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS
CDFD
सी डी एफ डी
CDFD

शोध
Research

Mechanisms for avoidance of pathological R-loops and of aberrant chromosomal replication in bacteria

Laboratory of Bacterial Genetics

Principal Investigator: **J Gowrishankar**

Ph D Students: Rajvardhan M Kapshikar
Nalini Raghunathan
Nida Ali
J Mallikarjun
Sayantan Goswami

Other Members: J Krishna Leela
Apuratha Pandiyan

The Laboratory of Bacterial Genetics operates as part of a Centre of Excellence for Microbial Biology of the Department of Biotechnology, with three Principal Investigator groups (including our own) researching different aspects of the lifestyle and physiology of the model bacterium *Escherichia coli*. In the current year, our group's work has mainly been towards understanding the mechanisms for avoidance of pathological RNA-DNA hybrids (R-loops), and of aberrant chromosomal DNA replication, in *E. coli*.

Avoidance of pathological R-loops in *E. coli*

An R-loop is a three-stranded nucleic acid structure in which RNA is hybridized to one strand of a DNA duplex resulting in displacement of the second DNA strand. In bacteria and in eukaryotes, R-loop occurrence is usually pathological and arises from perturbations during transcription, so that the nascent RNA invades the duplex DNA to anneal with the template strand and generate the R-loop. Mechanisms to minimize R-loop formation and to combat R-loop pathologies have accordingly been selected in evolution in all organisms.

Our group has earlier shown that transcription-termination coupling is an important R-loop avoidance mechanism in *E. coli*, and that in its absence the process of Rho-dependent transcription termination (RDTT) serves to terminate RNA synthesis so that R-loops are not generated. RDTT is mediated by the actions of two proteins Rho and NusG, and *E. coli* mutants deficient for Rho or NusG display excessive genome-wide R-loops.

In the current year, we have shown that a major source of R-loop generation in RDTT-deficient *E. coli* cells is antisense transcription. Antisense transcripts are, by definition, not translated and hence are known targets for RDTT. Our studies indicate that RDTT deficiency is associated with vastly increased antisense transcription in *E. coli*, and that a subset of these transcripts form R-loops to block further RNA synthesis from there loci. This subset of RNAs can therefore only be detected when a protein UvsW (which is a helicase that unwinds R-loops) is also ectopically expressed in the RDTT-deficient cells.

Avoidance of aberrant chromosomal DNA replication in *E. coli*

Replication of the single circular *E. coli* chromosome is initiated at a specific site *oriC*, from which a pair of replisomes proceed bidirectionally to meet (and complete replication) at the opposite end of the circle, which is known as the terminus region and is defined by the sites *TerA* and *TerC/B*. Occasionally a replisome collapses or disintegrates, and distinct "replication restart" mechanisms operate in such instances to reconstitute the replisome so that it progresses once again correctly towards the terminus.

Studies from other labs earlier have indicated that pathological R-loops can initiate aberrant chromosomal replication from sites other than *oriC*. In its progression around the chromosome, such aberrant replication is

expected to face two problems: one, of conflicts with transcription and the other, of traversing the terminus region. The two problems can be overcome by the presence of additional mutations (*rpoB*35* and *tus*, respectively), and in this situation *oriC*-initiated replication becomes dispensable for viability.

In the current year, we have identified deficiency of Dam DNA methylase as an entirely novel means of provoking aberrant chromosomal replication in *E. coli*, that is able to confer viability even in absence of *oriC*-initiated replication (in cells harbouring the *rpoB*35* and *tus* mutations). By methylating A residues in the palindromic GATC sequences in DNA, the Dam protein participates in mismatch repair. Our findings indicate that in a Dam-deficient strain, chromosomal double strand ends generated by inappropriate mismatch repair contribute to aberrant replication initiation; furthermore, Dam deficiency also appears to contribute in a second way to aberrant replication by provoking "reverse replication restart", that is, where the replisome is oriented to proceed towards *oriC* instead of towards the terminus.

The strength of a replication origin may be gauged from the corresponding peak height in whole-genome copy number analysis (by next-generation sequencing), and our findings indicate that the *oriC* peak in a wild-type strain is almost completely flattened in an *oriC*-proficient strain which is Dam-deficient and carries the *rpoB*35* and *tus* mutations (Figure). In the same analysis, Dam deficiency was associated also with a peak in the mid-terminus region, between *TerA* and *TerC/B* (Figure). These results are interpreted to indicate (i) that in the Dam-deficient mutant aberrant replication initiation events are distributed genome-wide; and (ii) that in aggregate, the frequency of these events in an individual cell is equal to or exceeds the frequency of initiation from *oriC* itself.

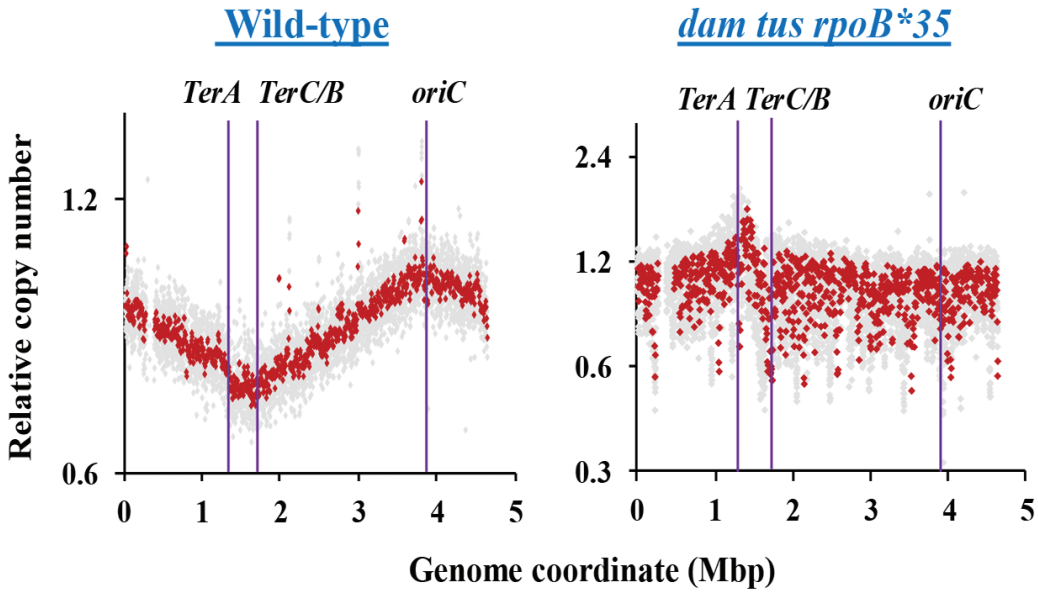


Figure: Whole-genome copy number analysis by next-generation sequencing in wild-type strain and *dam* mutant (latter also carries *tus* and *rpoB*35* mutations). From the sequencing reads for the two cultures that were grown to exponential phase in nutrient-rich medium, relative copy number distributions have been plotted for 1-kb (gray) and overlapping 10-kb (red) intervals across the genome. Positions of *oriC, TerA* and *TerC/B* are marked. The gap at around 0.3 Mbp in each of the distribution plots corresponds to a 95-kb deletion present in the strains.

Publications

Raghunathan N, Kapshikar RM, Krishna Leela J, Mallikarjun J, Bouloc P and Gowrishankar J (2018). Genome-wide relationship between R-loop formation and antisense transcription in *Escherichia coli*. ***Nucleic Acids Research*** 46: 3400-3411.

Kapshikar RM, and Gowrishankar J (2019). Direct inhibition of transcription *in vitro* by the N-terminal domain of the *Escherichia coli* nucleoid-associated protein H-NS and by its paralogue Hha. ***Microbiology*** (in press).

Raghunathan N, Goswami S, Leela JK, Pandiyan A and Gowrishankar J (2019). A new role for *Escherichia coli* Dam DNA methylase in prevention of aberrant chromosomal replication. ***Nucleic Acids Research*** (in press)

Laboratory of Bacterial Genetics: Group of Dr. J. Gowrishankar

Studies on integral membrane proteins of Escherichia coli involved in adaptive solute transport

RESEARCH

Laboratory of Bacterial Genetics

Principal Investigator: **Abhijit A. Sardesai**

Ph D Students: Suchitra Upreti

Ravish Sharma

Swati Dubey

Neeraj Kumar

Yogesh Patidar

Collaborator: B. Gopal
IISc, Bangalore

Research in the laboratory is broadly concerned with the study of integral membrane proteins of *E. coli* involved in adaptive solute transport with emphasis on proteins involved in potassium (K^+) uptake and efflux and amino acid exporters. Regulatory mechanisms concerned with the above are also being studied. The following projects are being pursued;

1. The PtsP-PtsO-PtsN phosphorelay and its interplay with potassium (K^+) ion metabolism.
2. Studies on basic amino acid export.

The work undertaken in earlier years on each of the objectives has been summarized in the first paragraphs under objectives 1 and 2 of the corresponding description below.

The PtsP-PtsO-PtsN phosphorelay and its interplay with potassium (K^+) ion metabolism

Research in this project pertains to the study of the physiological linkage between the PtsP-PtsO-PtsN phosphorelay and K^+ metabolism in *E. coli*. Earlier studies in this regard have led us to propose a model (Figure) which postulates a role for dephospho-PtsN in co-ordination of transmembrane K^+ fluxes in *E. coli*. The co-ordination is attained owing to stimulatory effect of dephospho-PtsN on K^+ uptake via the Kdp (shown by another group) and the Trk transporters on the one hand and its inhibitory effect on K^+ efflux via YcgO on the other. It is believed that the co-ordination exists to allow for attaining a stress responsive K^+ limitation in that certain stress(es) may modulate the phosphotransfer capacity of the PtsP-PtsO-PtsN phosphorelay and lead to diminished levels of dephospho-PtsN. The ensuing K^+ limitation occurring due to activation of YcgO mediated K^+ efflux and attenuation of Trk and Kdp mediated K^+ uptake may lead to growth cessation, serving as a survival strategy for stress tolerance.

In this year to address the issue of requirement of dephospho-PtsN in mediating co-ordination of transmembrane K^+ fluxes, has been tested further. Genetic studies have been conducted using phosphomimimetic and phosphoablative derivatives of PtsN and the results obtained are supportive of the notion that co-ordination is effected by dephospho-PtsN. Using two hybrid analyses we have obtained evidence that PtsN may interact with TrkA the regulatory subunit of the Trk system. In addition, studies were performed to gauge the phosphorylation states of PtsN in vivo and regardless of the external K^+ content phospho-PtsN was the major species of PtsN in vivo. This indicated that ordinarily dephospho-PtsN may be limiting in *E. coli*. Dephospho-PtsN was found to be the major species in the *ptsP* mutant. In a strain lacking PtsO, however both the forms of PtsN were detected in roughly equal amounts an observation that was intriguing since PtsO acts in the same pathway of phosphotransfer

to PtsN as PtsP. It appears that a PtsP dependent, PtsO independent pathway of phosphotransfer to PtsN may exist in *E. coli*, which currently is under investigation.

Studies on basic amino acid export

In this component of research, we have earlier performed physiological and genetic studies on the L-arginine (Arg) and L-lysine (Lys) exporters ArgO and LysO of *E. coli*. Our studies have indicated that in *E. coli* the integral membrane proteins ArgO and LysO perform the task of separately exporting Arg and Lys, respectively, which is distinct from that seen for *Corynebacterium glutamicum*, where the ortholog of ArgO, LysE, mediates export of both Arg and Lys. We have shown that ArgO also possesses a latent Lys export capacity that is rendered cryptic owing to Lys mediated repression of its expression that is dependent of the transcription factor ArgP. Towards structure function relationships in ArgO, we have proposed a model for the disposition of its transmembrane helices in the cytoplasmic membrane of *E. coli*, derived from extensive topological analyses. Lastly, we had initiated studies to delineate the membrane topology of LysO using the technique of compartment specific reporter fusions and our studies had indicated that LysO may bear a trans-membrane domain comprising eight transmembrane segments.

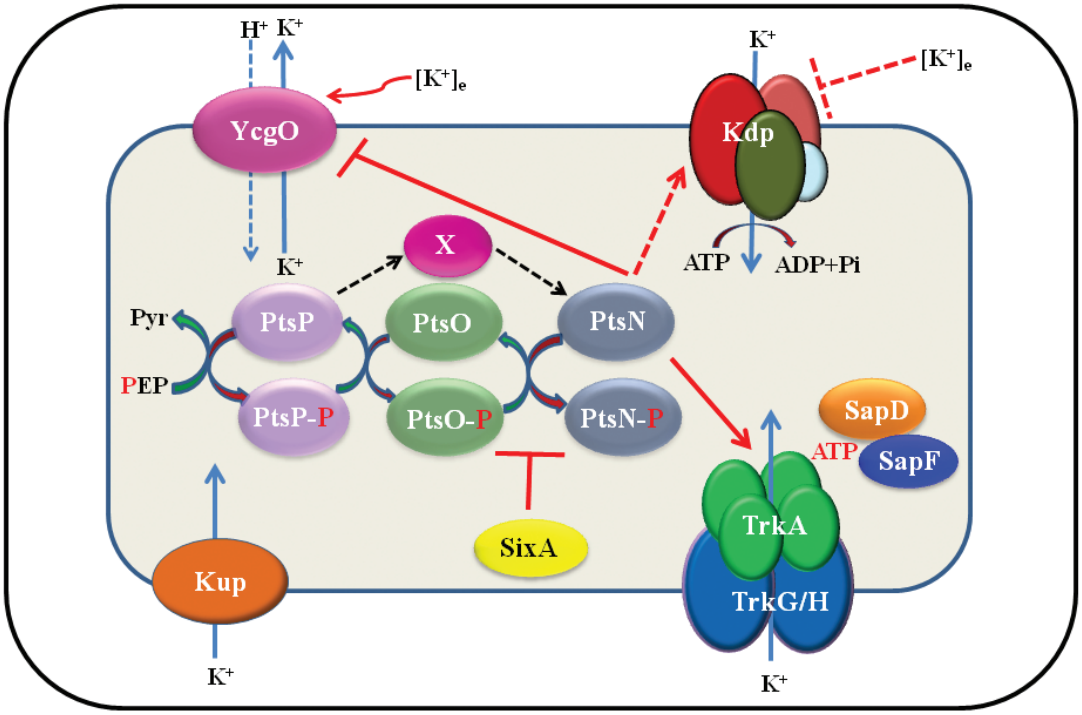


Figure: A model for co-ordination of transmembrane K^+ fluxes by dephospho-PtsN. Effects depicting activation and inhibition are indicated by red arrows and red "T' signs respectively. Blue arrows depict K^+ uptake occurring through the Kdp, Trk and Kup K^+ transporters and K^+ efflux occurring via YcgO. The Trk system comprises TrkA, TrkG/H, SapD and SapF. YcgO being a member of the CPA1 family of cation proton anitiporters, is presumed to function as a K^+/H^+ antiporter and proton influx is depicted as an interrupted blue arrow. Repression of *kdp* expression and/or Kdp activity that occurs upon increase in external K^+ concentration, $[K^+]_e$ is depicted by an interrupted "T" sign. The fettering of YcgO by dephospho-PtsN and its activation by external K^+ (wavy red arrow), proposed by our group (Sharma et al (2016) *J. Bacteriol*, 198:1868-82) and the stimulatory effect of dephospho-PtsN on the Trk K^+ transporter is depicted. The model also incorporates the findings of Schulte and Goulian (2018, *mBio*, 9:e01666-18) on the role of the phosphohistidine phosphatase SixA on the PtsP-PtsO-PtsN phosphorelay as well those of Lüttmann et al (2009, *Mol Microbiol*, 72:978-94) on the requirement of dephospho-PtsN for optimal *kdp* expression, indicated as an interrupted red arrow. Interrupted black arrows indicate the PtsO independent route of phosphotransfer to PtsN involving an as yet unknown protein X. Pyr and PEP stand for pyruvate and phosphoenolpyruvate respectively.

In this year we have increased the resolution of LysO topology analyses by constructing numerous single cysteine (Cys) substituted versions of LysO that are all functional. We are currently engaged in performing Cys accessibility studies. Lastly, we have conceptualized a microbial fermentation process for production of the high commercial value amino acids Arg and Lys. The process pertains to development of a technology for sodium chloride dependent inducible microbial production of Arg and Lys and in this we are currently engaged in obtaining proof of principle.

Laboratory of Bacterial Genetics: Group of Dr. Abhijit A. Sardesai

Studies on the physiological functions modulated by the global regulatory factor (p)ppGpp and the pentose phosphate pathway in Escherichia coli

Laboratory of Bacterial Genetics

Principal Investigator: **R. Harinarayanan**

PhD students: Rajeshree Sanyal

Vani Singh

Vishweshwar Kumar

Other members: Shaffiqu

Vimala Allada

1. Elucidate the role of (p)ppGpp in transcription-translation coupling.
2. Studies to understand the role of (p)ppGpp in cell division.
3. Investigate the regulation of fatty acid synthesis by (p) ppGpp.
4. To understand the physiological roles of the pentose phosphate pathway by studying the basis for the essentiality of transketolase activity.

Investigate the regulation of fatty acid synthesis by (p)ppGpp

Fatty acids are integral part of the lipid membrane and essential in all life forms. The process of fatty acid biosynthesis can be broadly divided into Type-I and Type-II systems. Type I systems utilise a single large multifunctional polypeptide while type II system is characterized by the use of discrete, mono-functional enzymes for fatty acid synthesis. However, the biochemical reactions in the two types of fatty acid biosynthesis are largely conserved and they can be divided into those in the initiation phase or the elongation phase. The type II system is found in a large number of pathogenic bacteria and therefore inhibitors of this pathway can be developed as potential antibiotics.

A pair of modified nucleotides pppGpp and ppGpp collectively referred as (p)ppGpp are synthesized in bacteria. The genes for the synthesis and degradation of these molecules, called RSH (Rel-Spo Homologs) are conserved across bacteria and are found in plants as well. Using the bacterium *Escherichia coli* as the model system we have investigated the role of (p)ppGpp in fatty acid biosynthesis. The genes involved in fatty acid biosynthesis in *E. coli* have been well characterized. However, a question that has not been addressed adequately, concerns the role of the enzyme(s) called the Beta-Ketoacyl ACP synthases in the initiation of fatty acid biosynthesis. There are three such enzymes in *E. coli*, namely, FabB, FabF and FabH. Biochemical studies performed *in vitro* had indicated that FabH is primarily required for the initiation of fatty acid biosynthesis while FabB and FabF are required for the elongation phase of fatty acid biosynthesis. The essentiality of FabH function has been controversial. An early study reported *fabH* mutant to be inviable, while later studies have found the *fabH* mutant to be viable. Biochemical studies had shown that FabB and FabF functions can inefficiently support the synthesis of acetoacetyl-ACP, the product of the FabH. This suggested a possible explanation for the non-essentiality of the FabH function.

We have identified a novel gene function that could compensate for the growth and fatty acid biosynthesis defect observed in the absence of *fabH* function. Further, this gene function was required for the viability of the *fabH* mutant. The gene was identified from a screen for suppressors of ppGpp^0 *fabH* synthetic lethality and named as *fabY*. We found evidence for the positive transcriptional regulation of the gene by (p)ppGpp and DksA in the absence of FabH. Since the presence of either the FabY

or FabH function was required for the growth of *E. coli,* this indicated that it was FabY and not the Beta-Ketoacyl ACP synthases FabB and/or FabF that was required to sustain initiation of fatty acid biosynthesis in the absence of FabH.

The stringent response is best exemplified by the accumulation of the modified nucleotides pppGpp and ppGpp following amino acid starvation with the concentration of ppGpp being higher than pppGpp. The accumulation of pppGpp and ppGpp is also seen following other kinds of starvation, such as, for example, carbon starvation or the inhibition of fatty acid synthesis using antibiotics. It has not been tested if the relative concentration of the two nucleotides are the same in each instance. When the relative concentration of pppGpp to ppGpp was studied during carbon starvation or fatty acid starvation or the combination of the two, it was found that there was accumulation of ppGpp but not pppGpp. This could suggest pppGpp was not synthesized under these conditions or that the pppGpp synthesized was rapidly turnover into ppGpp. The latter possibility was tested using a *gppA* mutant. In the *gppA* mutant, pppGpp accumulation was observed, but unlike during amino acid starvation where the concentration of the two nucleotides are similar, its concentration was still less than that of ppGpp. Thus the basis for the differential accumulation of the two nucleotides is not clear but our results rule out the role for GppA.

The biochemical mechanism by which FabY function is able to substitute for FabH is under investigation. Further studies to test if the synthesis of pppGpp is less than that of ppGpp during fatty acid starvation or that the former molecule is rapidly turned over by an uncharacterized hydrolase in addition to GppA are being carried out.

Studies to understand the role of (p)ppGpp in cell division

Despite billions of years of evolution in bacteria, the Z ring formed by the tubulin homologue FtsZ is nearly universal among bacteria that have a cell wall and divide by binary fission. In the literature there is evidence for the regulation of the process of cell division by the conserved molecules (p)ppGpp through the modulation of FtsZ function. Genetic evidence for rescue of the cell division defect by an increase in the cellular (p)ppGpp pool or growth conditions that increase the concentration of the molecules have been obtained. However, mechanistic details about the regulation are not clear. In order to identify molecular players involved in the regulation of cell division, we adopted the strategy of isolating suppressors that rescued the growth defect of strains with reduced (p)ppGpp and an attenuated cell division machinery by employing the *relA ftsZ84* mutant. We have mapped the position of the suppressor mutations and identified the genes responsible for suppression. Amongst them, genes involved in transcriptional regulation, acetate metabolism and catabolite repression were found to suppress the division defect. The genetic evidence obtained points to a role for metabolic intermediates in the regulation of cell division. Work is in progress to understand the mechanism of suppression.

Laboratory of Bacterial Genetics: Group of Dr. R. Harinarayanan

Elucidating the role of Mixed Lineage Leukemia (MLL) protein in cell cycle regulation

Laboratory of Cell Cycle Regulation

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1. Study of non-canonical roles of MLL in cell cycle.
2. Role of MLL in regulation of repetitive non-coding regions.

Study of non-canonical roles of MLL in cell cycle

Leukemia or blood cancer can be caused due to many reasons. One such reason is when a gene called Mixed Lineage Leukemia (MLL) located on chromosome 11 breaks from between and both halves of this gene fuse with random regions of other chromosomes. This process is called translocation and it gives rise to 'unnatural' fusion proteins. These fusion proteins are believed to cause leukemia. Sadly, this type of leukemia is mostly found in infants and children. Often these children have poor prognosis and do not respond well to standard therapies of leukemia.

It has been puzzling the researchers how these random translocations with more than 100 different regions (in MLL-based leukemia) produce the same disease? The function assigned to MLL in 'normal' cell is transcription. It is believed that MLL-fusion protein also participates in transcription and deregulate it. But, out of these 100 random partners, only 6-8 are involved in transcription whereas rest are involved in a variety of other functions like cell division, cell signaling etc. It is our hypothesis that MLL has more functions in the normal cell than just transcription and these functions have not been discovered yet. The cure for this kind of leukemia will only be effective once we understand fully about the MLL protein and then apply that knowledge to understanding which processes the MLL-fusions proteins are disturbing.

As cell division is intimately linked to cancer, we decided to look if MLL has any role in this process. MLL is present in most cells of the body. Hence to study its function, we artificially created cells where MLL is destroyed by siRNA technology. After siRNA treatment, the levels of MLL are very low (20-30%) and observing these cells can help us understand which processes are disturbed. By correlation MLL is required in those processes.

We observed severe defects in chromosome alignment and spindle formation during mitosis (Figure A-C). While uncovering the underlying cause of these problems, we discovered the presence of MLL on the spindle microtubules during mitosis (Figure C). Notably, MLL has been studied for more than 40 years but its presence on spindles has not been reported previously. Our finding encouraged us to investigate MLL's localization thoroughly and we used live cells undergoing mitosis for our experiments. We imaged cells stably expressing MLL-GFP (MLL joined with Green fluorescent protein (GFP) so that we can detect MLL's

localization by GFP fluorescence). We observed MLL on many new locations − on centrosome and spindle during metaphase, on central spindle during anaphase, and on midbody during cytokinesis. MLL was also observed on the centrosome and nucleolus during interphase (data not shown).

Encouraged by our new discoveries, we wanted to know if MLL-fusion proteins go to same sub-cellular structures as MLL. More than 80 direct (MLL-X) and 120 reciprocal (X-MLL) fusions have been reported. We choose most common fusion proteins − MLL-AF4 and MLL-AF9. We

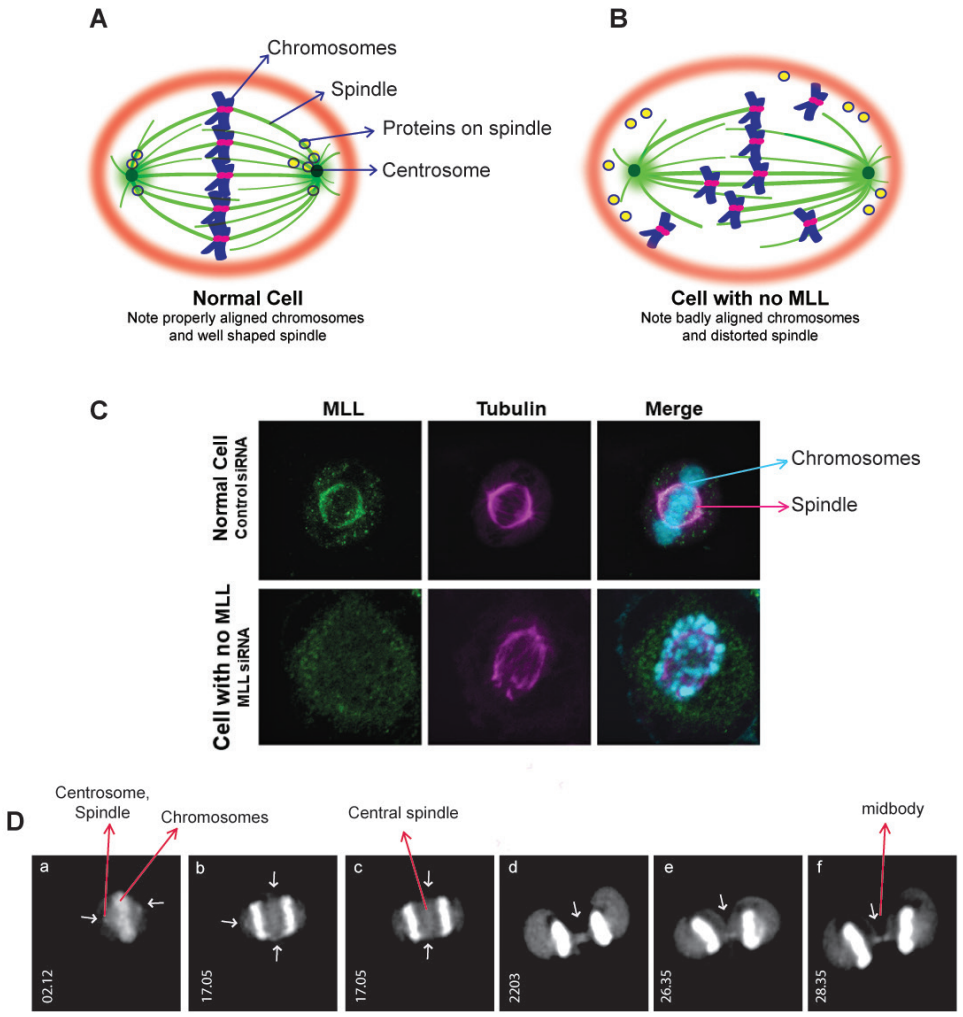

Figure: MLL regulates spindle assembly and chromosome alignment during mitosis

(A, B) Schematic of a normal cell (**A**) and a cell with no MLL (**B**) is shown. In the normal cell, microtubules shown in green form a proper spindle. The various proteins present on the spindle (shown in yellow) are able to bunch the microtubules from the two ends (centrosome) to give the spindle its fusiform shape. As a result, all the chromosome align in the center and normal chromosome segregation can take place. When the cell loses MLL, some spindle proteins are unable to reach the centrosomes. As a result, spindle cannot form properly and chromosomes are mis-aligned. This can lead to error prone cell division.

(C) In normal cell or control siRNA treated cells, MLL is present on the spindle, and chromosomes are aligned properly (metaphase cells are shown). In cells with no MLL (achieved by MLL siRNA treatment), the spindle is distorted and as a result chromosomes are unable to align, resulting in errors in segregation. Here, MLL (green), Tubulin, the protein which makes up spindle (pink) and DNA (blue) are shown.

(D) Fluorescent time-lapse images of MLL-GFP are shown. Arrow shows the localization of MLL on centrosome (frame a, b) spindle (frame b), central spindle (frame c) and midbody (frame d, e and f) in a dividing cell. Time in MM: SS format is shown in lower left corner.

joined these proteins with GFP and found both these MLL-fusion proteins at spindle, centrosome and midbody in mitosis and in the nucleolus and the centrosome in interphase (data not shown).

To sum up, our results show that MLL has a new role in cell division. We also show that MLL-fusion proteins localize to sub-cellular organelles like endogenous MLL and may act by either displacing endogenous MLL or perturbing the homeostasis of the organelle/cell. In future we will study what is the role of MLL at these organelles and how exactly MLL-fusion proteins affect these processes.

Publications

Karole AM, Chodisetty S, Ali A, Kumari N, and Tyagi S. (2018) Novel sub-cellular localizations and intra-molecular interactions may define new functions of Mixed Lineage Leukemia protein. **Cell Cycle** 17 (24), 2684-2696.

Laboratory of Cell Cycle Regulation

Functional protein networks controlling cellular pathways and their role in human diseases

Laboratory of Cell Death & Cell Survival

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1. To identify new cellular functions for phosphatases and assess their role in human diseases.
2. To map the functions of ubiquitin system in cells and evaluate its aberrations in human diseases.

Functional phosphatase network in cells

Proteins in general are synthesized as inactive molecules in the cells. Once synthesized, they need to be modified to mediate their functions. Phosphorylation (attachment of a chemical group of phosphate) is one such protein modification required for them to function in the cell. Kinases are the enzymes, which add phosphate group to the proteins, while phosphatases are enzymes that oppose this process. Phosphatases play a crucial role in biological functions and controls nearly every cellular process, including metabolism, gene transcription, translation, cell-cycle progression, protein stability, signal transduction, and apoptosis. Phosphatases are so far studied in isolation to assess their function in the cell, but in reality, they work in a network of protein complexes. As an old saying “Show me your friends, and I will know who you are”, finding interaction partners for these proteins can reveal their function better. In this theme, we aim to map the functional phosphatase network with the identification of interacting partners of every phosphatase in human cell. By using a biochemical and proteomic approach we identified the associated protein complexes of 143 phosphatases so far. We assigned several novel cellular functions to different phosphatases based on their interacting partners. During this year, we identified a novel holoenzyme phosphatase complex (PPM1G- B56δ) that has a critical role in controlling cellular migration (Figure). Since phosphatases are involved in various human diseases such as cancer, and neurodegenerative disorders, finding their partners will help us in designing better future therapies for these diseases.

Network of ubiquitin system

Ubiquitin is a small protein that attaches to other proteins via a covalent addition. Similar to phosphorylation, ubiquitin attachment to substrate proteins acts as a regulatory protein modification. Ubiquitin attaches to target proteins through the activity of three different sets of enzymes: ubiquitin activating enzyme (E1), ubiquitin-conjugating enzyme (E2) and a ubiquitin ligase (E3). Ubiquitin E3 ligases are the most critical enzymes in this pathway where they facilitate the activation and transfer of ubiquitin either directly to the target protein or to other ubiquitin proteins that already have been attached to the target protein. Ubiquitin linked to the substrates serves as

a molecular tag that marks proteins for either degradation by proteasome (a multi-subunit complex that degrades proteins in cells) dependent pathway or to function in wide variety of processes in a proteasome independent manner. When a chain of more than one ubiquitin molecule attaches to the same target protein, that protein is said to be poly-ubiquitinated. Poly-ubiquitin chains appear to serve multiple purposes, of which the best understood is marking target proteins for degradation through the proteasome. However, seven different kinds of ubiquitin-ubiquitin attachments are possible in the cell that can provide wide variety of topologies, each of which signal a different outcome. In this theme, we are interested in identifiying new functions for ubiquitin system by mapping the interaction network of different E3 ligases as well as various ubiquitin chain types in cells. We have reported several new complexes in this pathway during previous years. In the current reporting year, we identified a critical function of an E3 ligase WWP2 in regulating Wnt pathway, an important cellular transduction pathway that functions in crucial aspects of cell fate determination, cell migration, cell polarity, embryonic development and human cancers.

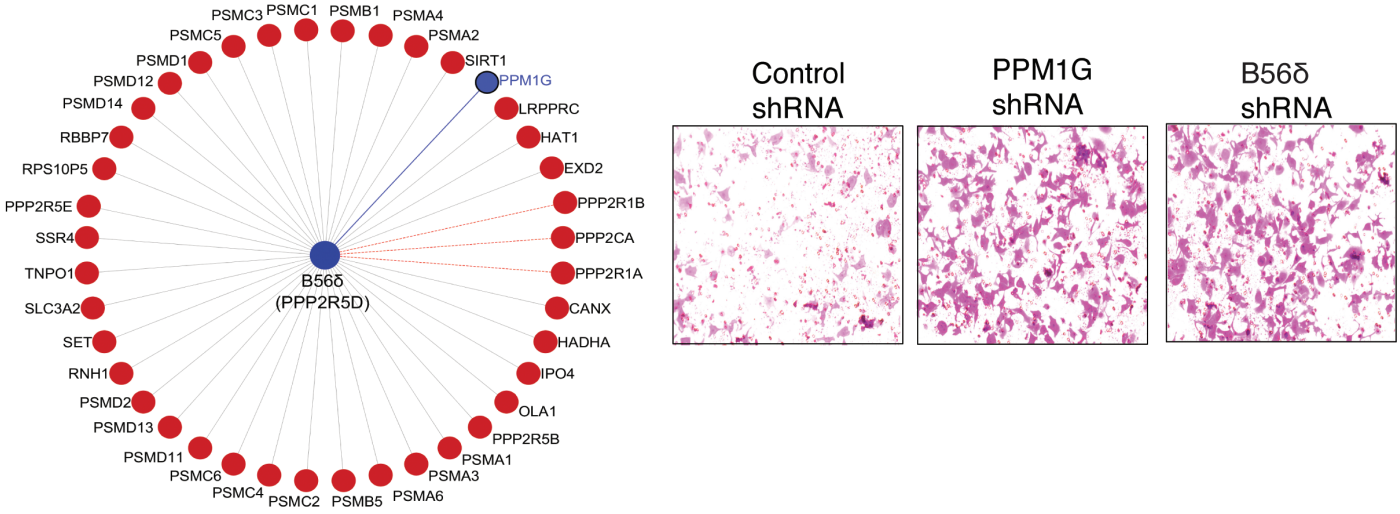

Figure: PPM1G-B56δ is a new phosphatase holoenzyme complex. (Left): Interaction network of B56δ with its associated proteins identified in this study. Blue line indicates B56δ interaction with PPM1G. Red dashed line represent interaction with PP2A complex proteins. (Right): Migration of breast cancer cells (MCF-7) expressing control shRNA, PPM1G shRNA or B56δ shRNA is shown.

Publications

Shah VJ, Maddika S (2018). CRL7^{SMU1} E3 ligase complex-driven H2B ubiquitylation functions in sister chromatid cohesion by regulating SMC1 expression. ***J Cell Sci.*** 131(8). pii: jcs213868.

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Laboratory of Cell Death & Cell Survival

Investigating the functions of phosphate-rich biomolecules in eukaryotic cells

Laboratory of Cell Signalling

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Our laboratory studies the biochemical, cellular and physiological functions of two phosphate-rich biomolecules: (i) the inositol pyrophosphate, 5-IP_7 (5PP-IP_5), and (ii) inorganic polyphosphate (polyP). Our broad objectives are (a) to understand the cellular processes by which the levels of these small molecules are regulated, and (b) investigate the cellular and physiological processes that these phosphate-rich molecules influence.

Cellular functions of inositol pyrophosphates

5-IP_7 is synthesised from IP_6 and ATP by a family of enzymes known as inositol hexakisphosphate (IP6) kinases, of which there are three isoforms in mammals – IP6K1, 2, and 3. We utilise mammalian cell lines and knockout mouse strains as model systems to investigate the signalling and metabolic pathways that are altered when 5-IP_7 levels are perturbed. Protein pyrophosphorylation is a unique attribute of inositol pyrophosphates such as 5-IP_7, wherein the β-phosphate moiety can be transferred from 5-IP_7 to a pre-phosphorylated serine residue in a protein to generate pyrophosphoserine. We have determined that the oncoprotein MYC undergoes serine pyrophosphorylation within its central PEST domain. Loss of pyrophosphorylation in this region results in reduced polyubiquitination and increased stability of MYC. Cells expressing non-pyrophosphorylated mutant forms of MYC showed elevated cell death when grown in serum depleted medium, whereas the level of cell death remained unchanged in cells expressing native MYC. We conclude that under conditions of cellular stress, the stabilization of non-pyrophosphorylated MYC poses a disadvantage to its oncogenic potential. We are currently attempting to identify how PEST motif pyrophosphorylation controls MYC stability.

Cellular and physiological functions of IP6K1

We have earlier reported that male mice lacking IP6K1 are infertile and display azoospermia - the absence of mature spermatozoa in the epididymides. IP6K1 expression was observed predominantly in pachytene spermatocytes and round spermatids. We noted that IP6K1 is essential for the timely development of round spermatids to elongated spermatids (Malla and Bhandari, *Journal of Cell Science*, 2017). To determine whether IP6K1 is involved in additional functions in the testis, we compared gene expression in testes isolated from juvenile wild type and IP6K1 knockout mice. We noted that several genes involved in cell-cell adhesion show reduced expression in the testis of IP6K1 knockout mice. Our data show that the junctions between developing germ cells and Sertoli cells are disrupted in IP6K1 knockout testis. The blood-testis-barrier (BTB), which is a junctional complex between two adjacent Sertoli cells, acts as an impermeable barrier to create a unique microenvironment suitable for germ cell development. To determine the integrity of the BTB, we injected a biotinylated tracer into the testes of anaesthetized wild type and IP6K1 knockout mice. As expected, the biotinylated tracer was unable to pass through the BTB in wild type testis, whereas the tracer permeated into the adluminal compartment in IP6K1 knockout testis, indicating that the BTB is disrupted in the absence of IP6K1 (Figure). We are currently conducting studies to understand the molecular underpinnings of the requirement of IP6K1 in the formation of testis-specific cell junctions.

Function and metabolism of polyphosphate in mammals

Polyphosphate (polyP) is a biopolymer that consists of phosphate units of varying number linked by phosphoanhydride bonds. PolyP of chain length 60-100 phosphate units is present in dense granules of mammalian platelets, and regulates the blood clotting cascade at multiple stages. Other critical functions have been assigned to polyP in mammals, including cell signalling, membrane transport, and energy metabolism. PolyP research has lagged behind the exploration of other biopolymers, largely because uniform chain length

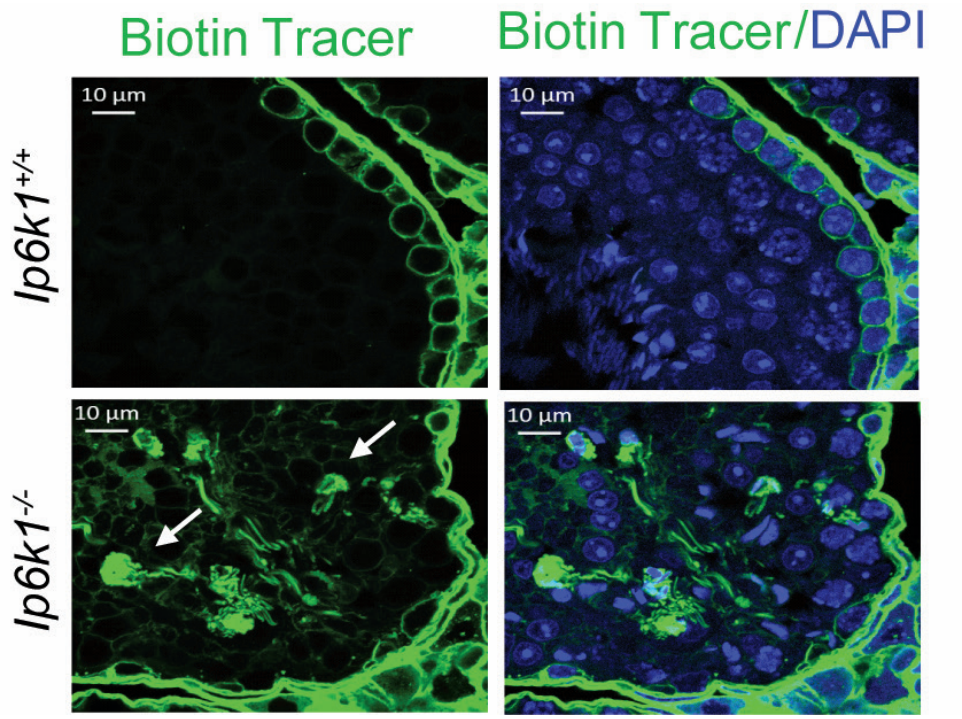

Figure: IP6K1 is essential to maintain integrity of the blood-testis barrier. Adult mice were anaesthetized and injected with a biotinylated tracer into the testis; 30 min post-injection, the testis were dissected, and the formalin-fixed paraffin-embedded sections were stained with fluorescently labeled Streptavidin protein (green), and imaged with a confocal microscope to detect the biotinylated tracer. Nuclei are counterstained with DAPI (blue). The biotin tracer is unable to pass through the BTB in wild type mouse (*Ip6k1*$^{+/+}$) testis but permeates the barrier in IP6K1 knockout mouse (*Ip6k1*$^{-/-}$) testis (white arrows).

polyP or nonhydrolysable analogues of polyP are not available. While yeast and bacterial polyP synthases have been identified, they have no mammalian homologues based on sequence similarity. As part of an international collaborative project sponsored by the Human Frontier Science Program, we worked with Dr. Henning Jessen from the University of Freiburg, Germany, to interrogate the chemistry and biology of this biopolymer. Dr. Jessen developed a procedure to chemically synthesize monodisperse (i.e. fixed chain length) polyP and tag the ends of the chain with an alkyne group, which can then be used to conjugate the polyP to any chemical group. We demonstrated that an alkyne group present at both ends of synthetic 8-mer polyP (P8) is able to protect against degradation by the exopolyphosphatase enzyme (Singh et al., *Angewandte Chemie*, 2019). We are currently using this synthetic P8 to identify the proteins that interact with polyP in mammalian cells.

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Laboratory of Cell Signalling

Understanding the functions and regulation of sirtuins in maintenance of genomic integrity

Laboratory of Chromatin Biology and Epigenetics

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Research in the laboratory is broadly aimed at understanding the molecular functions and mechanisms of regulation of Sirtuins during normal growth, proliferation of cells as well as under stress such as DNA damage. We use fission yeast, *Schizoschharomyces pombe* and human cell lines as model systems. Reversible acetylation/deacetylation of proteins regulates numerous important cellular processes. The Sirtuin family NAD+ dependent protein/histone deacetylases (HDAC) are conserved from yeast to human cells carry out a broad range of crucial cellular functions ranging from transcriptional silencing to DNA damage response, cell cycle regulation, metabolism and aging etc. During DNA metabolic processes such as DNA replication and DNA repair, the expression level of specific Sirtuins are known to alter, indicating conditional regulation of these proteins. However, the molecular functions and mechanisms of regulation of sirtuins under many of these conditions remain elusive. There is a need to study these regulatory mechanisms as sirtuins are often deregulated in various diseases including cancer. We are currently focused on the following objectives:

1. Discovery of novel molecular mechanisms by which sirtuins family protein deacetylases regulate DNA metabolic processes such as DNA replication and DNA repair. We are also studying regulations of sirtuins during DNA replication stress response.
2. Study functional link and cross-talk between chromatin modifications and cell metabolism and their implication in cancer progression
3. Discovery of new epigenetic anti-cancer therapeutics targeted to sirtuin family histone deacetylases.

To understand the molecular functions and mechanisms of regulation of fission yeast sirtuin Hst4 upon replication stress.

The DNA replication machinery, or the replisome, encounter a variety of obstacles during the normal process of DNA replication including damaged template DNA and various difficult to replicate chromosome regions due to the presence of DNA secondary structures. These conditions cause stalling of the replication fork, generating replication stress. Stalled forks are prone to collapse, which leads to DNA damage, genomic instability, a hallmark of cancer. Many studies have indicated that there are several mechanisms to detect, prevent and counter the deleterious effects of replication stress. We use Fission yeast as model system in this study. In fission yeast, upon replication stress, in absence of fork protection complex, replisome components are targeted for degradation to maintain genome stability. Recent studies have indicated that chromatin regulators may play active part in replication stress response. In fission yeast, *Schizosaccharomyces pombe,* a sirtuin family histone deacetylase (HDAC), Hst4, functions in the maintenance of genome stability by promoting cell survival upon replication stress. We have

earlier reported that fission yeast sirtuin *hst4* deficient cells are sensitive to replication stress generated on methyl methanesulfonate (MMS) treatment and Hst4 is downregulated during replication stress. However, the molecular mechanism and significance of this regulation is not known. The aim of the current study is to decipher the molecular mechanism of regulation of Hst4 in response to replication stress. We have discovered how cells send signal to target Hst4 for degradation. We have also identified that phosphorylation of Hst4 make it a target for degradation by SCF complex. This work indicates that replication stress induces degradation of Hst4 to maintain the integrity of the replicating DNA. Currently, we are working towards understanding why does cell degrade this protein using a non-degradable mutant protein.

Study functional link and cross-talk between chromatin modifications and cell metabolism and their implication in cancer progression

The epigenome is crucial for sensing and responding to fluctuations in the cellular environment. However, little is known about mechanisms by which the chromatin machinery signal, interact and respond to the alterations in the cellular micro-environment. Histone acetylation is affected by the levels of acetate in yeast and that of glucose and lactate in mammals. In response to changes in the extracellular and intracellular environment, chromatin modification patterns are altered to regulate gene expression. Previously, it has been reported that histone acetylation is controlled by universally conserved environmentally regulated TORC1 signaling pathway in yeast. However, the connection between mTOR signaling and histone acetylation has not been studied much in the mammalian system. To investigate the role of mTOR pathway in the regulation of histone acetylation in the mammalian system, we depleted mTOR in HeLa cells by siRNA and examined the acetylation status of histone H3 and H4 modifications such as H3K56Ac, H3K9Ac, and H4K16Ac by immunoblotting with residue specific antibodies. Our results showed a reduction of H3K56Ac in mTOR depleted cells. Metabolic reprogramming is a hallmark of cancer cells, but the mechanisms are not well understood. The mammalian target of rapamycin complex 2 (mTORC2) controls cell growth and proliferation and plays a critical role in metabolic reprogramming in glioma (brain tumour). mTORC2 regulates cellular processes such as cell survival, metabolism, and proliferation by phosphorylation of AGC kinases. Components of mTORC2 are shown to localize to the nucleus, but whether mTORC2 modulates epigenetic modifications to regulate gene expression

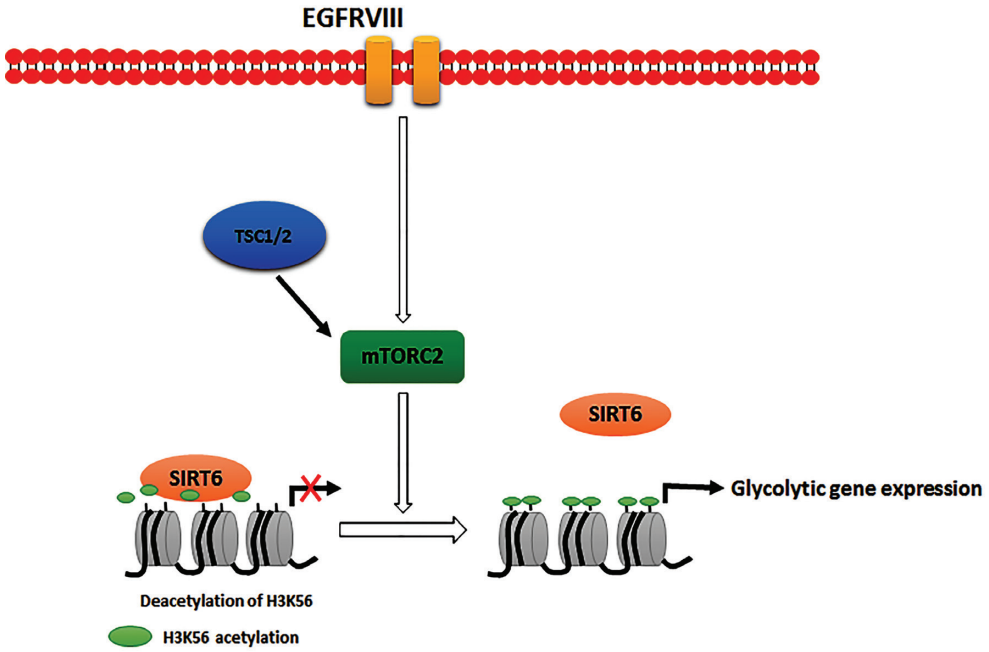


Figure: Model depicting the novel function of mTORC2 signaling in promoting H3K56Ac by regulating localization of SIRT6 on the promoters of glycolytic genes resulting in their elevated expression in glioma.

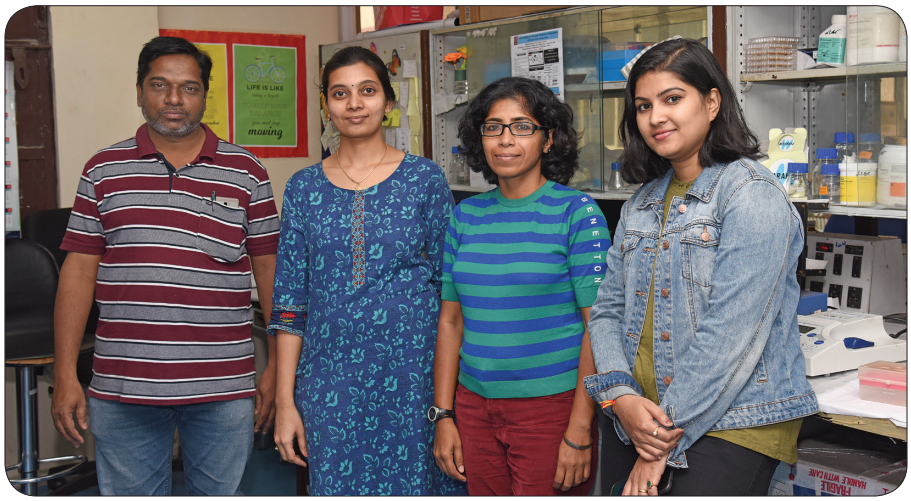
is not known. We have observed that histone H3 lysine 56 acetylation (H3K56Ac) is regulated by mTORC2 and shown that global H3K56Ac levels were downregulated on mTORC2 depletion (by si RNA) but not on mTORC1 knockdown. We show that knockdown of sirtuin6 (SIRT6) prevented H3K56 deacetylation in mTORC2 depleted cells. Using glioma model consisting of U87EGFRvIII cells, we established that mTORC2 promotes H3K56Ac in glioma. Finally, we show that mTORC2 regulates the expression of glycolytic genes by regulating H3K56Ac levels at the promoters of these genes in glioma cells and depletion of mTOR leads to increased recruitment of SIRT6 to these promoters (Figure). Collectively, these results identify mTORC2 signaling pathway positively promotes H3K56Ac through which it may mediate metabolic reprogramming in glioma. Downregulation of H3K56 acetylation can be used as a biomarker for mTORC2 inhibition in future studies and therapies targeting mTORC2 in glioma (brain tumour).

Discovery of new epigenetic anti-cancer therapeutics targeted to sirtuin family histone deacetylases

Cancer is a major health problem world over. Currently existing drugs are not satisfying as they cause traumatic side effects. Therefore, the need for development of more specific and relatively non toxic drugs is quite urgent. Epigenetic therapeutics of cancer such as inhibitors of DNA methyltransferases and histone deacetylases (class I and classII) are already being used in combination with the standard cytotoxics with encouraging results. The Sirtuins (class III NAD-dependent deacetylases) are being considered as important targets for cancer therapeutics as they are up-regulated in many cancers. Inhibition of sirtuins allows re-expression of silenced tumor suppressor genes, leading to reduced growth of cancer cells. However, very few sirtuin inhibitors have entered into the clinic yet as an anticancer agent. In this project, we are working towards identifying novel small molecule inhibitors of Sirtuins and characterize their potential as anti-cancer agents using budding yeast as model system for compound screening. We have discovered 4bb, a new class of human SIRT1 inhibitor, our results suggest that inhibition of SIRT1 by 4bb induces apoptosis of colon cancer cells at least in part via activating p53 by preventing p53 deacetylation, increasing Bax expression and inducing caspases. Therefore, this molecule provides an opportunity for lead optimization and may help in development of novel, non-toxic epigenetic therapeutics for colon cancer. We have also identified very potent hit peptide inhibitors for sirtuins. We are currently testing the effect these peptides on different types of cancer cells and working towards understanding their mechanism of action.

Publications

Lahari K Reddy, Shalini Aricthota, Raghavendra Vadla and **Devyani Haldar** (2018) Fission yeast sirtuin Hst4 functions in preserving genomic integrity by regulating replisome component Mcl1. **Scientific Reports** 2018 8(1):8496.



Laboratory of Chromatin Biology and Epigenetics

Computational and Functional Genomics of Molecular Interactions Associated with the Biology of Human Diseases

Laboratory of Computational and Functional Genomics

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The primary objective of our group is to understand the structural and functional roles of protein-protein and protein-ligand interactions in the biology of human diseases and as well as their causative agents. Specially, we study the molecular networks/mechanisms associated with human neurodegenerative disorders, malaria, and tuberculosis.

The structural and functional roles of HYPK-VCP-LCII protein-protein interaction network in the biology of human neurodegenerative disorder

Protein misfolding associated human neurodegenerative disorders, caused by Huntingtin-exon1 (Htt97Qexon1), α-Synuclein-A53T and SOD1-G93A, are major health challenge of the 21st century. Earlier, we identified Huntingtin interacting protein K (HYPK) as a global sensor and regulator of aggregation-prone proteins, like poly-glutamine expanded Huntingtin-exon1 (Htt97Qexon1), α-Synuclein-A53T and SOD1-G93A. Our Proteomics studies have suggested that it forms an interaction network with LC3 and VCP/P97. This year we show that the ATPase valosin-containing protein VCP/p97 acts as a functional disaggregase that disassembles Huntingtin-exon1 aggregates *in vitro* and *ex vivo* (in HeLa cells). The N-terminal part of VCP interacts with the N-terminal 17-amino acid region of Huntingtin-exon1. Further, we show that VCP has properties of a disaggregase, since it is capable of reducing preformed protein aggregates and displays increased ATPase activity in their presence. Our studies show the novel function of VCP/p97 as a disaggregase which detangles protein aggregates. It would be of interest to study how this disaggregase pathway works with the autophagy pathway.

The structural and functional roles of transcription regulators and their networks in physiology of mycobacteria

Transcription regulators play a major role in coordinating multiple gene expression that is required for a given physiological state of an organism. We study functional cooperation/ coordination between mycobacterial (including Tuberculosis pathogen) genes and their products by taking a transcription regulator centric approach. Using this approach, we have reported earlier about the functional role of a number of transcriptional regulators from tuberculosis pathogen. We have shown that some transcription regulators when overexpressed cause growth arrest in the pathogen. At present, we are working with IclR and FadR like proteins to study their effect on other mycobacterial genes.

The structural and functional roles of protein-ligand interactions in the biology of malaria parasite

Malaria parasites like *P. falciparum* require activated fatty acid such as acyl CoA for its rapid growth inside its host as it requires rapid cell membrane biogenesis. Earlier we have reported the role of *P. falciparum* acyl CoA binding proteins (PfACBPs) and its interaction with activated fatty acid -acyl CoA. This year, we show that the anti-malarial drug Mefloquine restricts pathogen growth by preventing PfACBPs from binding to activated fatty acid -acyl CoA and further channel PfACBPs for proteasomal clearance (Figure).

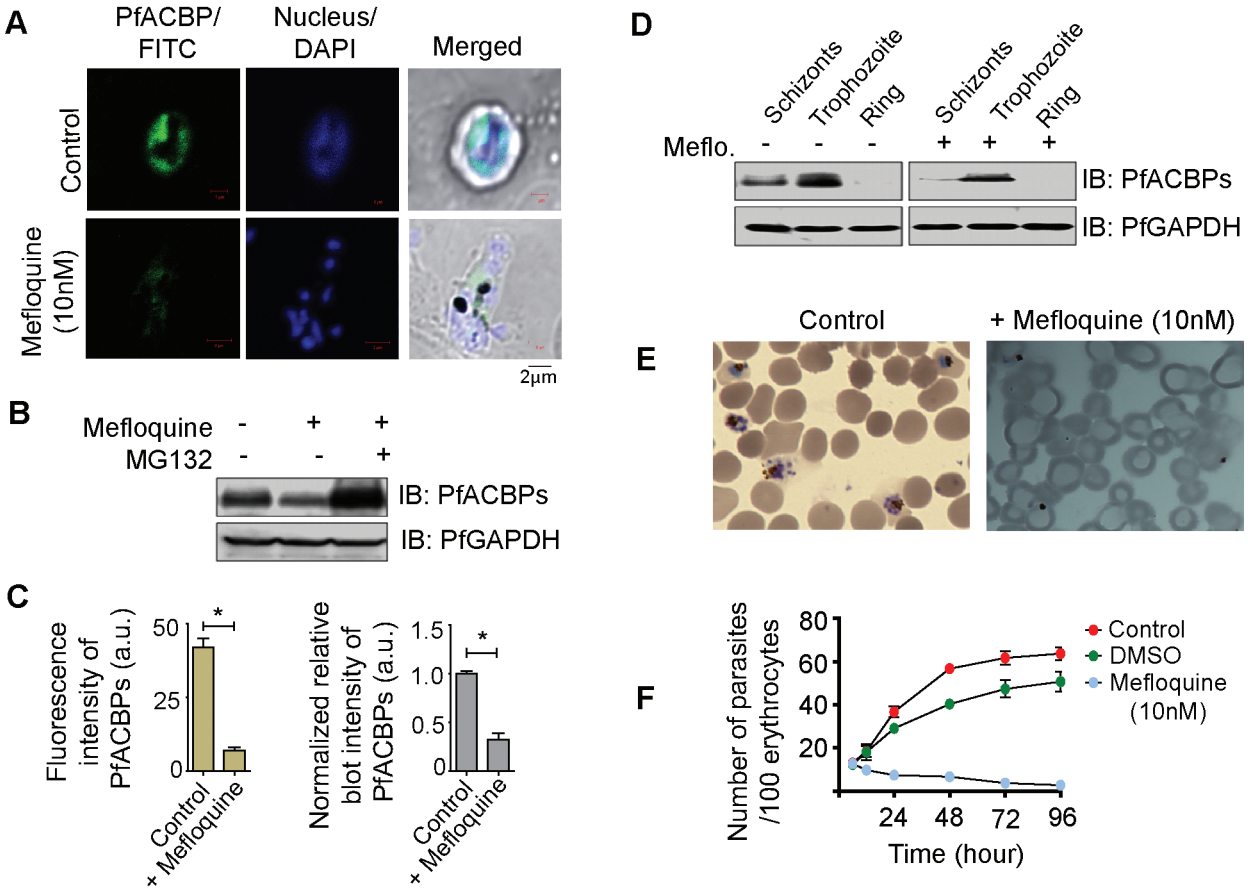

Figure: Mefloquine treatment causes clearance of PfACBPs (from Plasmodium cells) and death of the cells. (A) Confocal microscopy studies show that Mefloquine treatment causes clearance of PfACBPs from *P. falciparum* cells. (B) Immunoblot showing the reduction of PfACBPs in of Mefloquine treated *P. falciparum* cells. (C) Quantitation of PfACBP levels in untreated vs. 10nM Mefloquine treated cells. Left panel is a paired t-test of confocal images: $p>0.005$, $n = 30$, $df = 28$. The right panel represents blot intensities: $p>0.001$, $n = 6$, $df = 4$. (D) Immunoblots showing that Mefloquine reduces the cellular level of PfACBPs in the trophozoite and schizont states of *P. falciparum*. (E) Parasitemia of *P. falciparum* reduces in the Mefloquine treated Plasmodium culture (*in vitro*). (F) Temporal parasite count in normal and Mefloquine-treated erythrocytes.

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Laboratory of Computational and Functional Genomics

Central Nervous System development in Drosophila melanogaster

Laboratory of Drosophila Neural Development

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Two major identifying features of bilaterians organisms (like insects, vertebrates and mammals-humans) are head to tail axis and complex central nervous system (CNS). A highly conserved family of transcription factors (TFs) called Hox genes; express segmentally along the head to tail axis, and play a critical role in determining both of these features. The key objective of our lab is to understand how Hox genes regulate neural stem cells (NSCs) to generate a variety of different cell types and cell numbers along the head to tail axis of the developing CNS. These NSCs self-renew by asymmetric cell division to give rise to another NSC and a smaller intermediate progenitor cell. Latter, then symmetrically divide to give rise to a pair of differentiated neurons or glia. Precise coordination of the proliferation, differentiation and apoptosis of these cell types (along the head to tail axis) is critical for normal neurogenesis and functional brain development. Misregulation of any of these processes results in cognitive and developmental disorders as well as malignancies like gliomas in humans.

Molecular collaboration of Hox gene Abdominal-A and Notch signalling in developmental apoptosis of neural stem cells

Region specific regulation of the number of neurons by controlling proliferation and differentiation of NSCs is critical for development of a functional brain. An alternative but less common mode used to regulate neuronal number is the apoptosis of NSCs itself. In abdominal segments of *Drosophila* larval CNS, NSCs undergo cell death in response to a pulse of resident Hox gene Abdominal-A (AbdA). We had earlier shown that Notch signaling and helix-loop-helix TF Grainyhead (Grh) gives these cells their competence to undergo apoptosis. We use this paradigm to understand how Notch signaling pathway coordinates with TFs to regulate developmental apoptosis of NSCs in CNS. Our previous results show that different Hox genes (AbdA and Deformed, which are expressed in different segments) employ Notch signaling, and a combination of common TFs (Extradenticle and Grainyhead) to cause NSC apoptosis. Our recent results show that Hox, Grh and interact through their highly conserved DNA binding domains. We also find that precise deletion of the abdominal apoptotic enhancer (by Crisper-cas9) blocks stem cell death, thereby underlining the importance of the phenomenon in brain development. Understanding the details of the physical interaction between Hox and Grh their coordination with Notch signaling in developmental apoptosis is ongoing.

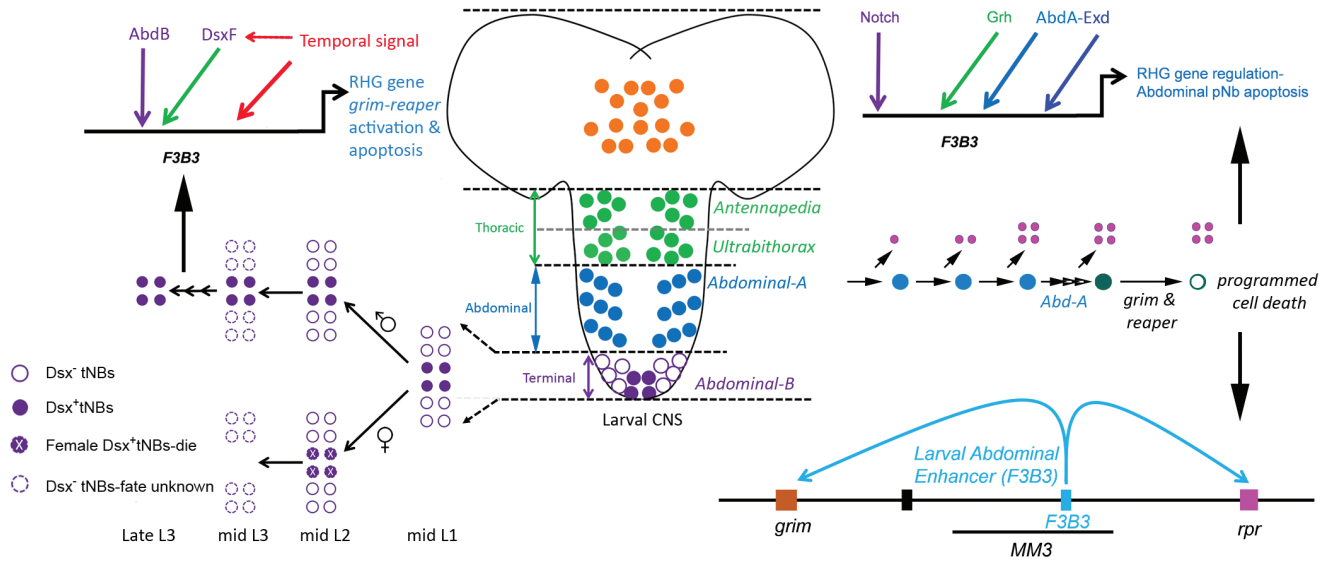

Figure: Neural stem cells (NBs) abdominal larval CNS undergo cell death through activation of a common apoptotic enhancer (*F3B3*) using a combination of Hox-Exd-Grh-Notch signaling. In terminal region Exd-Grh and Notch signaling are replaced by female specific isoform of Dsx for NB apoptosis which happens at a much earlier time.

Integration of spatial, temporal and sex-specific inputs to regulate developmental proliferation and apoptosis of neural stem cells

Generation of sexually dimorphic CNS is important for animal reproduction and propagation. While establishment of sex-specific neuronal circuity has been studied and explored; molecular basis of sex-specific proliferation and apoptosis of neural stem cells in developing CNS has been poorly understood. Highly conserved DM domain containing transcription factors (Doublesex/MAB-3/DMRT1) are responsible for generating sexually dimorphic features. In terminal region of *Drosophila* larval CNS, a set of Doublesex (Dsx) expressing NSCs undergo apoptosis in females while their male counterparts proliferate and give rise to serotonergic neurons crucial for adult mating behavior. The molecular mechanism of the female specific cell death and fate of other Dsx negative stem cells is yet to be understood. We are studying these two cell types to understand how these cells coordinate spatial temporal and sex-specific input during development.

Our work show for the first time that DM domain containing non-classical Zn finger TF Dsx can function as a cooperative cofactor for HD containing Hox gene AbdB, thereby helping it to select its target genes and causing female specific cell death of neural stem cells. The capacity of AbdB to utilize sex specific isoform of Dsx as a cofactor underlines the possibility that two classes of proteins are capable of cooperating in selection and regulation of target genes in tissue and sex specific manner. We propose that this interaction could be a common theme in generating sexual dimorphism in different tissues across different species.

Analysis of the fate of Dsx negative NSCs is ongoing to understand divergent molecular strategies employed by Hox genes to pattern CNS.

Regulation of proliferation and apoptosis in neural stem cells

Grainyhead, a helix-loop-helix pioneer transcription factor is expressed in larval neural stem cells but not in their neuronal progeny. Grh plays a crucial role in regulation of proliferation and apoptosis of neural stem cells in different regions of developing CNS. Therefore, it is of interest to understand its transcriptional regulation and mechanisms that keeps *grh* “on” in the stem cells and “off” in its neuronal progeny. One of the ways to probe this is to identify CNS specific enhancers, establish their importance for in vivo gene expression and study their transcriptional and epigenetic regulations.

We find that deletion of known *grh* enhancer using Crisper-Cas9 did not affect its expression in CNS, suggesting that *grh* is regulated by multiple enhancer. Subsequently we have identified 2 novel NSC specific *grh* enhancers.

Experiments are ongoing to delete individual and multiple NSC specific enhancers of *grh* to establish their criticality in regulating its expression in different regions as well as their different subtypes. We are also working to identify signals activating Grh expression in CNS and downstream target genes of Grh.

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Laboratory of Drosophila Neural Development

Understanding the pathobiology of the human opportunistic fungal pathogen Candida glabrata

Laboratory of Fungal Pathogenesis

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Candida species are the most prevalent cause of bloodstream fungal infections, with *Candida glabrata* being the second most frequently isolated *Candida* species after *C. albicans*. Evolutionarily, *C. glabrata* is more closely related to the non-pathogenic yeast *Saccharomyces cerevisiae* than to *C. albicans*. Research in our laboratory is aimed at a better understanding of pathogenesis and antifungal drug resistance mechanisms in *C. glabrata*.

1. Characterization of glycosylphosphatidylinositol-linked aspartyl proteases in *Candida glabrata*: role in pathogenicity
2. Identification and molecular characterization of the CgHog1 kinase interactome: impact on iron homeostasis and *Candida* pathogenesis.
3. Delineation of iron transport and antifungal drug resistance mechanisms in *Candida glabrata*

Characterization of glycosylphosphatidyl inositol-linked aspartyl proteases in *Candida glabrata*: role in pathogenicity

A family of eleven glycosylphosphatidylinositol-linked, cell surface-associated aspartyl proteases is essential for pathogenesis of *C. glabrata*. These proteases, also referred as yapsins, are encoded by *CgYPS1-11* genes. We are currently trying to delineate cellular processes regulated by the proteolytic activity of CgYapsins and examine their centrality to Candida virulence. Towards this end, we have shown that CgYapsins are pivotal to suppression of the host innate immune response. Human THP-1 macrophages displayed an increased activation of the spleen tyrosine kinase (Syk) signalling pathway, and enhanced secretion of the pro-inflammatory cytokine interleukin-1β (IL-1β), upon infection with the *C. glabrata* mutant lacking eleven CgYapsins (*Cgyps1-11*Δ). Inhibition of the Syk signalling pathway rescued the survival intracellular defect of the *Cgyps1-11*Δ mutant, thereby, underscoring the role of CgYapsins in facilitating the survival of *C. glabrata* in human macrophages. Currently, we are trying to examine if proteolytic activity of CgYapsins is required for intracellular survival of *C. glabrata*.

Identification and molecular characterization of the CgHog1 kinase interactome: impact on iron homeostasis and *Candida* pathogenesis

CgHog1 MAPK (mitogen-activated protein kinase), a terminal MAPK of the HOG (high osmolarity glycerol) response pathway, has recently been implicated in iron homeostasis in *C. glabrata.* The mutant lacking CgHog1 kinase (*Cghog1Δ*) showed high intracellular iron and elevated susceptibility to surplus iron. With the rationale that the environmental iron content may modulate the protein interactions of CgHog1, we identified the CgHog1 interactome through the affinity purification-mass spectrometry approach. We found 21, 18 and 14 proteins to interact with the CgHog1 kinase under regular-, high- and low-iron conditions, respectively. A set of 7 proteins was common among all three conditions. Functional classification of CgHog1-specific interactors, performed using the FungiFun, tool revealed five most enriched gene ontology categories for Biological Process to be ATP metabolic process, GDP-mannose biosynthetic process, stress granule assembly, ATP hydrolysis coupled proton transport and vacuolar acidification. Validation and molecular characterization of identified CgHog1 interactors is currently ongoing.

Delineation of iron transport and antifungal drug resistance mechanisms in *Candida glabrata*

Azole antifungals, which inhibit lanosterol 14α-demethylase enzyme of the ergosterol biosynthesis pathway, are widely used drugs to treat *Candida* infections. *C. glabrata* is intrinsically less susceptible to azole antifungals. Known azole antifungal resistance mechanisms include mitochondrial dysfunction and overexpression of the sterol biosynthetic target enzyme and multidrug efflux pumps. During the reporting period, we demonstrated for the first time that the antifungal fluconazole promotes actin cytoskeleton reorganization in *C. glabrata* (Figure), and genetic or chemical perturbation of actin structures results in intracellular sterol accumulation and azole susceptibility. Further, we showed that the vacuolar membrane-resident phosphatidylinositol 3-phosphate 5-kinase (CgFab1) is pivotal to this process, as *CgFAB1* loss resulted in altered distribution of actin structures, with reduction in the number of actin cables, and increase in the number of depolarized actin patches (Figure). We also showed that the actin depolymerization factor CgCof1 binds to phosphatidylinositol 3,5-bisphosphate, and CgCof1 distribution, along with the actin filament-capping protein CgCap2, is altered upon both *CgFAB1* disruption and fluconazole exposure. Consistent with these data, the F-actin-stabilizing compound jasplakinolide rescued azole toxicity in cytoskeleton defective-mutants including the *Cgfab1*Δ mutant. Importantly, we were also able to show that actin polymerization inhibition rendered fluconazole fully and partially fungicidal in azole-susceptible and azole-resistant clinical isolates of *C. glabrata*, respectively (Figure). Altogether, our data demonstrate that reorganization of the actin cytoskeleton in the laboratory and clinical strains of *C. glabrata* is essential for tolerance to antifungal azole drugs. Currently, we are trying to examine if actin remodeling is also pivotal to survival of another class of antifungals viz., fungal cell wall-targeting echinocandin drugs.

Publications

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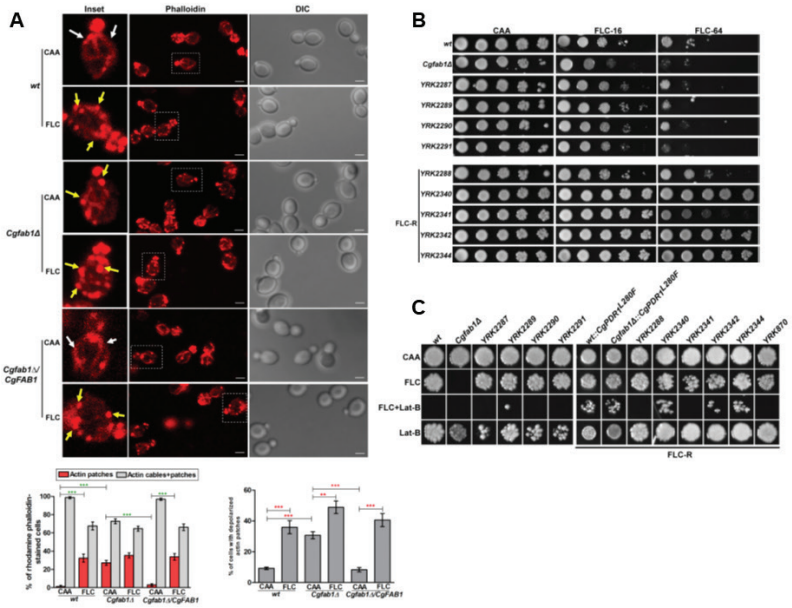

Figure: Fluconazole exposure leads to reorganization of the actin cytoskeleton. A. Representative maximum-intensity projection of Z-stacks fluorescence confocal images showing diminished actin cables and depolarized actin patches in azole-treated cells. Log-phase cells of indicated *C. glabrata* strains were grown for 3 h either in CAA medium or CAA medium containing fluconazole (16 µg/m; FLC). Cells were washed twice with phosphate buffer (0.1 M, pH 7.0) and incubated with formaldehyde (3.7%) for 60 min at room temperature. Cells were washed and incubated in the phosphate buffer containing Triton-X (0.1%) and rhodamine-conjugated phalloidin (165 nM; binds to actin cables and patches). After 60 min incubation in dark at 4˚C with rocking, cells were collected, washed and placed on the slide in the mounting medium. White and yellow arrows mark cables and patches, respectively. Inset shows zoomed image of the boxed area. For each strain/condition, a minimum of 150 small-budded cells displaying stained actin were counted. Data (mean ± SEM) are presented, as the percentage of cells containing either actin patches exclusively or both actin cables and patches, and the percentage of cells containing depolarized actin patches, underneath the image panels. **, p<0.01; ***, p<0.001; Unpaired, two-tailed, Student's t-test. Bar = 2 µm. **B.** Varied azole susceptibility of the clinical isolates of *C. glabrata*. Serial dilution cell spotting analysis showing fluconazole susceptibility of *C. glabrata* clinical isolates. 4 isolates showed *wt*-like sensitivity to fluconazole (16 µg/ml; FLC-16), while 6 isolates displayed resistance to fluconazole [(64 µg/ml; FLC-64 (FLC-R)]. **C.** Liquid growth assay-based analysis of the combinatorial action of fluconazole (256 µg/ml) and Latrunculin-B (40 µM; inhibits actin polymerization) in clinical isolates. FLC-R indicates fluconazole-resistant isolates. Strains carrying the gain-of-function allele of *CgPDR1* transcriptional regulator (*CgPDR1*^{L280F}) are known to display high azole resistance.

Laboratory of Fungal Pathogenesis

Human population genetic diversity studies and dissecting plant-fungal interactions

RESEARCH

Laboratory of Genomics and Profiling Applications

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PhD Students: Soumya Rao
Mugdha Singh
Saphy

Other Members: Anujit Sarkar

1. Human genetic diversity studies among various population groups in India
2. Dissection of plant-fungal interactions in the chilli-*Colletotrichum* pathosystem

Human genetic diversity studies among various population groups in India. Studies on two interesting populations from Jammu and Kashmir State employing autosomal SNPs

India is known for its rich cultural, linguistic, geographic as well as genetic diversity. DNA-based markers, like short tandem repeats (STRs) and single nucleotide polymorphisms (SNPs) located on autosomes, Y-chromosome and mitochondria are used to investigate the genetic richness in India. In one such study, genetic variation in two population residing in the state of Jammu and Kashmir State (J&K) was accessed. J&K is the northern frontier political boundary (administrative province) of India and is endowed with a diverse landscape including plains, valleys and high mountainous regions. This region offers a unique platform for looking into the past anthropological and demographic events which might have shaped the extant human population diversity due to its strategic location, which was at the cross-roads of various cultural practices and languages during historical times. The samples were from Gujjar (GJ), who are known to practice high levels of endogamy and Ladakh region (LL), which is now one of the most inaccessible regions for inhabitation but was once known to be the earliest trading routes.

In order to study the genetic relatedness of GJ and LL with other populations, a total of 275 SNPs were shortlisted based on high heterozygosity (≥0.4) and low Wright's F-statistic, F_{ST} ≤0.02 from public database. These SNPs were genotyped in various Indian populations (N = 462) (previously published report from the lab), including samples of GJ (N = 45) and LL (N = 56) from J&K as well. 21 SNPs which failed Hardy-Weinberg equilibrium (HWE) test were discarded and further analyses were based on 254 SNPs. The SNP genotyping data from these two populations were further compared with other samples from across the country, viz., Jammu (JK, N = 38), Uttarakhand (UK, N = 30), few reference populations from the 1000 Genomes Project (Phase I) viz., Africa (YRI, N = 88), Europe (GBR, N = 88), East Asia (CHB, N = 97) as well as Pakistan (Kalash) (PK, N = 24) from Human Genome Diversity Project (CEPH Stanford data).

Although the average of pairwise genetic distances for the eight populations was observed to be relatively small (avg F_{ST} = 0.017), range of F_{ST} was observed to be quite variable from as less as 0.003 (between JK and UK population) to 0.032 (between GJ and YRI population). The GJ and LL samples displayed higher (avg F_{ST} = 0.021) and lower (avg F_{ST} = 0.016) values as compared to the overall average value of F_{ST}. The initial observations regarding the genetic distance employing 275 autosomal SNPs reflected the possible genetic isolation of the GJ from the rest of the Indian populations as well as other populations of the world.

The above observations were further validated by clustering analysis employing STRUCTURE software. It was evident from the clustering pattern that sub-structuring was observed only for GJ. Although, GJ samples were observed to be genetically isolated, rest of the Indian populations viz., JK, UK and LL showed close genetic affinities among themselves. The observed genetic proximity of other Indian populations was in concordance with our earlier reports. This interesting observation would be further explored by employing uniparental markers located on Y-chromosome and mitochondria.

Dissection of plant-fungal interactions in the Chilli - *Colleotrichum* pathosystem

The genome expansion and plasticity in eukaryotic organisms is driven by repetitive elements such as transposons; deletions, translocation and duplication of genomic content. Transposable elements (TEs) once considered as "junk DNA" have major consequences on genome organization, function, and evolution of eukaryotes. The genome of *C. truncatum* was sequenced employing Illumina HiSeq 2000 platform which generated high quality genome assembly with 4.75% of gaps. The presence of gaps in assembled genome prevents the accurate prediction of repetitive elements that play a key role in genome plasticity and evolution of fungi. Thus, the genome of *C. truncatum* was re-sequenced using single-molecule real time (SMRT) sequencing technology of Pacific Biosciences (PacBio) to obtain a refined assembly with smaller and lesser gaps and ambiguities. The refined genome assembled into 73 scaffolds with total length of ~58 Mb showing an improvement of ~2.3 Mb of sequence content over the previous assembly. The gaps within and between the scaffolds of draft assembly were filled through hybrid scaffolding using PBJelly version 14.9.9 with default parameters. Completeness of the assembly was evaluated through BUSCO by using conserved Sordariomycete gene sets.

The total repeat content in *C. truncatum* refined assembly was estimated to be 6.08%, majority of which was contributed by TEs (4.89%) based on the homology with Repbase and *de novo* repeats. Both Class I (LTR and non-LTR) and Class II (DNA elements) TEs were represented in the genome. Most of the predicted TEs were consisting of consensus sequences with no similarity to any of the Repbase entries (Figure 1). Among the classified TEs, Gypsy and Copia were the most dominant elements representing 3.02% of the genome, followed by DNA elements and LINEs.

The identification and comparative analyses of repeat elements like TEs, was performed with the nearly finished genomes of *C. higginsianum* and *C. scovillei,* and four other relatively less-fragmented genomes of *Colletotrichum* species using the same tools as described above. The total TE content among seven species varied widely, ranging from 4.3% to 44.8% of the genome in *C. scovillei* to *C. orbiculare*, corresponding to their genomic size of ~52 to 91Mb, respectively. *C. orbiculare* represented ~5 times higher TE content compared to a previous report that shows enrichment of DNA elements followed by LTRs, mainly Copia elements. The high TE content (of 44.9%) in the genome of *C. orbiculare* may be contributing to its high genome size (~ 91 Mb). The diverse TE landscape of all the species had only one common LTR element superfamily of Gypsy elements that formed a major TE fraction in all the fungi.

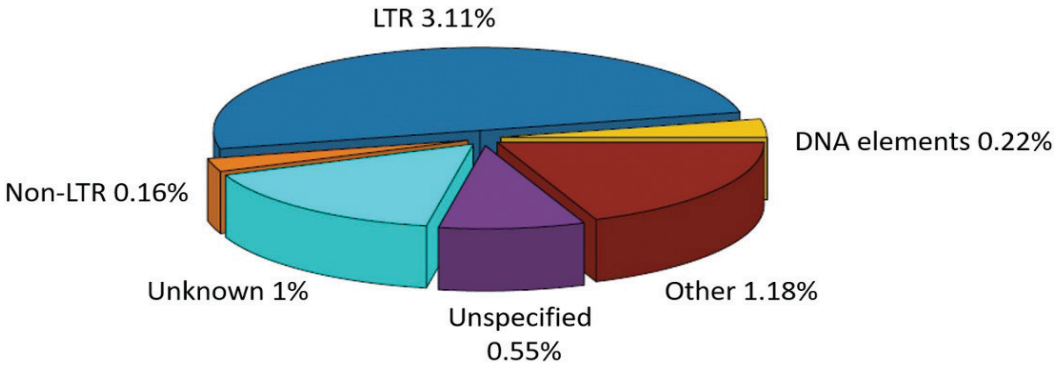

Figure 1: The percentage of repetitive elements and TE families in the total repeat content of *C. truncatum* genome identified with RepeatMasker software.

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Laboratory of Genomics and Profiling Applications

Genomic studies in chromosomal and single gene disorders

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1. To conduct genetic evaluation for patients/families with genetic disorders
2. To develop new methods and assays for genetic analysis and engage in research on chromosomal and single gene disorders
3. To act as national referral center for analysis and quality control of genetic tests for few genetic diseases
4. To impart training in genetic evaluation of patients with genetic disorders

Genetic studies infetal malformations

Non-chromosomal syndromes and Mendelian disorders are emerging as an important cause of birth defects and fetal malformations. This study aims to identify copy number defects and single gene abnormalities in fetuses which undergo a post mortem examination following pregnancy termination on ultrasound detection of anomaly/ malformation or suffer intrauterine death/stillbirth and have morphological abnormalities. Cases with unexplained phenotypes and possible novel genetic disorders are selected with the objective of discovering new genotype-phenotype associations. After detailed post-mortem evaluation including radiographs and histopathology, the cases satisfying inclusion criteria undergo DNA extraction from available biological samples. These include fetal blood samples, amniotic fluid samples, cord mesenchymal tissue or skin samples as per availability. After quantification and qualitative assessment of DNA, chromosomal microarray or whole exome sequencing experiments are performed based on the inheritance pattern and/or clinical presentation.

A total of 31 cases have been completed during the reporting year. Of these, 10 cases underwent chromosomal microarray, with results being normal in all. Whole exome sequencing was undertaken in samples from 31 fetuses. Of these, a final genetic diagnosis could be achieved in 21 cases wherein a pathogenic/likely pathogenic variant causative of the phenotype was identified. Additionally, four more cases revealed variants of uncertain significance. Novel perinatal lethal phenotypes were identified in four cases showing variants in LOX, SERPINA11, CDK8 and RYR3 genes (Figure). We plan to continue this work on exome sequencing and microarray CGH on fetuses with malformations so that novel fetal phenotypes and novel genes for fetal phenotypes can be identified which will help in effective genetic counseling.

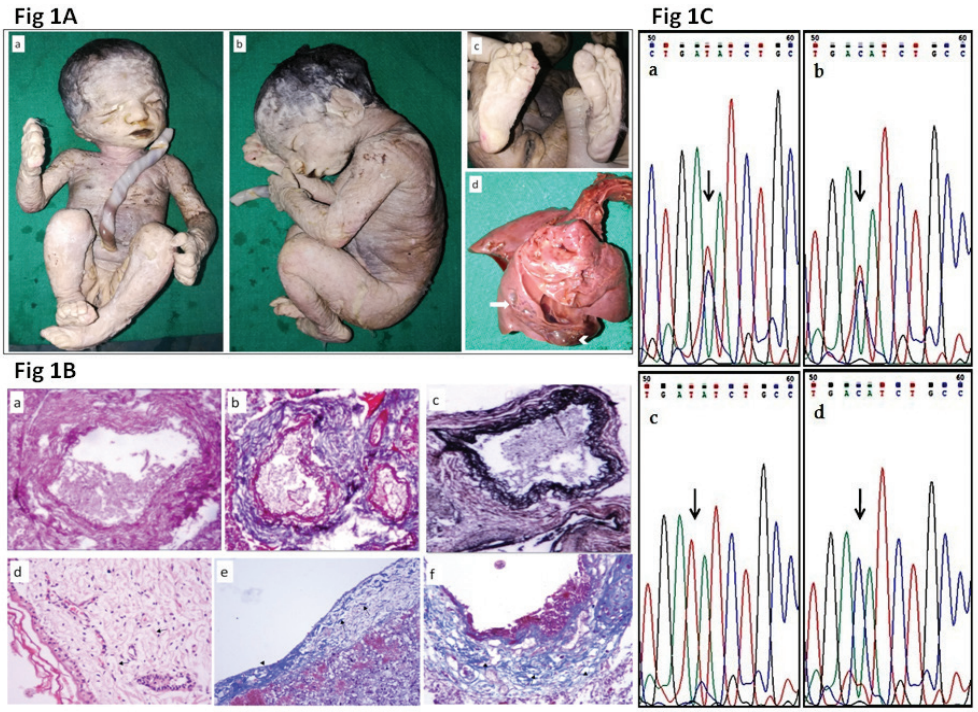

Figure: A, B, C: Postmortem photographs of the fetus

Figure B: H&E staining of fetal aorta and skin depicting irregular elastic lamellae and degenerative disruptions of collagen, elastin and smooth.

Figure C: Representative Sanger sequencing chromatogram of c.70C>T missense variant in a) Father (C/T) b) Mother (C/T) c) Fetus (T/T) d) Control (C/C).

Whole Genome Sequencing for characterization of novel genes and de novo balanced chromosomal rearrangements in human genetic disorders

Single gene disorders and balanced chromosomal rearrangements (BCRs) associated with diseases are important cause of human genetic diseases leading to morbidity and mortality. Over the past twenty years, we, along with other clinical geneticist colleagues have identified many interesting and novel genetic disorders and syndromes with a single gene pattern of Mendelian inheritance. *De novo* balanced chromosomal rearrangements in patients with disease phenotype is a unique opportunity to identify gene responsible for the condition by characterizing the breakpoint. However, existing genetic tools like targeted gene sequencing, array comparative genomic hybridization, and exome sequencing cannot detect all types of genetic variations in a single test. Whole genome sequencing can characterize all types of genetic variants in all parts of the genome. Such completeness can lead to the identification of pathogenic variants and hence influence diagnosis, genetic counseling and treatment. We have identified 7 balanced reciprocal translocations and performed whole genome sequencing. Whole genome sequencing is now becoming a powerful tool for characterizing and mapping translocations to base pair resolution level. However, the bioinformatics analysis and interpretation are still challenging in balanced translocations. We have done whole genome sequencing using paired end sequencing usingillumine in a 9 year old girl with myopathy and limb anomalies with a karyotype of 46,XX,t(2;22)(q33;q11.2). Whole genome sequencing analysis revealed that this translocation showed no direct disruption of any genes, but the 2q31.1 breakpoint region truncated one conserved non-coding element topologically associated domains (cne TADs), an important regulatory domain of the *HOXD* cluster genes which was involved in the development of the limbs. This case analysis illustrates the power of whole genome sequencing in identifying the exact breakpoint regions in a limited time which could pave way for confirmed prenatal diagnostics and genetic counselling.

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*Work done elsewhere.

Laboratory of Human and Medical Genetics

Understanding the role of Profilin in tumorigenesis and its regulation

Laboratory of Immunology

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1. Understanding and regulation of inflammatory and tumorigenic responses.
2. Understanding the role of Profilin in regulation of tumorigenesis.
3. Understanding and regulation of advanced glycation end products (AGE)-mediated deleterious effects.

Chemoprevention is considered as a promising strategy in the field of cancer therapy. Understanding the action mechanism of therapeutics is important for better efficacy and management especially in case of drug resistance regime. We have tested several organo-tin, -copper, and –cobalt compounds and its possible mechanism of action in the tumor cells' death as potential chemotherapeutic agents. Profilin shows the double-edged sword effect in potentiating cell death by suppressing NF-κB activation via inhibition of IKK complex and activating p53 pathway by decreasing its degradation. Thus, Utilizing the role of Profilin and the possible use of other agents, like Vinblastine which act on other tumorigenic pathway or the existing therapeutic drugs in lower doses to target tumor cells for effective therapy by reducing side effects.

Profilin potentiates chemotherapeutic agents mediated cell death

The molecular mechanism of Profilin for its tumor suppressor activity is still unknown. NF-κB is known to activate many target genes involved in cell proliferation. We proved the involvement of Profilin in regulation of NF-κB, which might repress the tumorigenic response. Several chemotherapeutic agents used till date either have unfavorable side effects or developing resistance. We have investigated the mechanism by which Profilin negatively regulates cell survival. As, NF-kB and p53 are the key players in apoptosis, we have detected the role of Profilin in regulation of apoptosis. Profilin potentiated chemotherapeutic agents mediated cells death was determined by several apoptotic assays. All-trans retinoic acid (ATRA), Poly (I-C) and advanced glycation end products (AGE) have shown to increase the amounts of Profilin in breast tumor cells (Figure A). Considering the therapeutic ability of ATRA, we have used ATRA-mediated increase in the Profilin level cells for our study. Vinblastine-mediated cell death is potentiated upon ATRA-pretreatment as shown by MTT assay (Figure B), which is further supported in Profilin-stable transfected cells. Vinblastine increases the PARP (poly ADP-ribose polymerase) cleavage in ATRA-primed cells (Figure C). In ATRA-primed cells, Vinblastine further enhances cell cycle arrest in a dose-dependent manner (Figure D). These data suggest that Vinblastine potentiates cell death

in ATRA-primed cells which is mediated by increased amount of Profilin. Several transcription factors regulate the expression of Profilin. ATRA interacts with its receptors RAR and RXR, which induces Profilin expression upon transcriptional activation by RARE. Expressed Profilin synergizes with chemotherapeutic drugs to induce tumor cell death by attenuating NF-κB and upregulating p53. Thus, modulation of Profilin may be useful for effective combinatorial therapy.

So far, we have detected Profilin as a tumor suppressor. Some of the agents those increase the expression of it in the tumor cells can potentiate the existing chemotherapeutic agents mediated cell death. All these experiments are carried out in ex vivo. We are now extending this study in athymic mouse model and targeting these agents as potential tumor therapeutics involving Profilin.

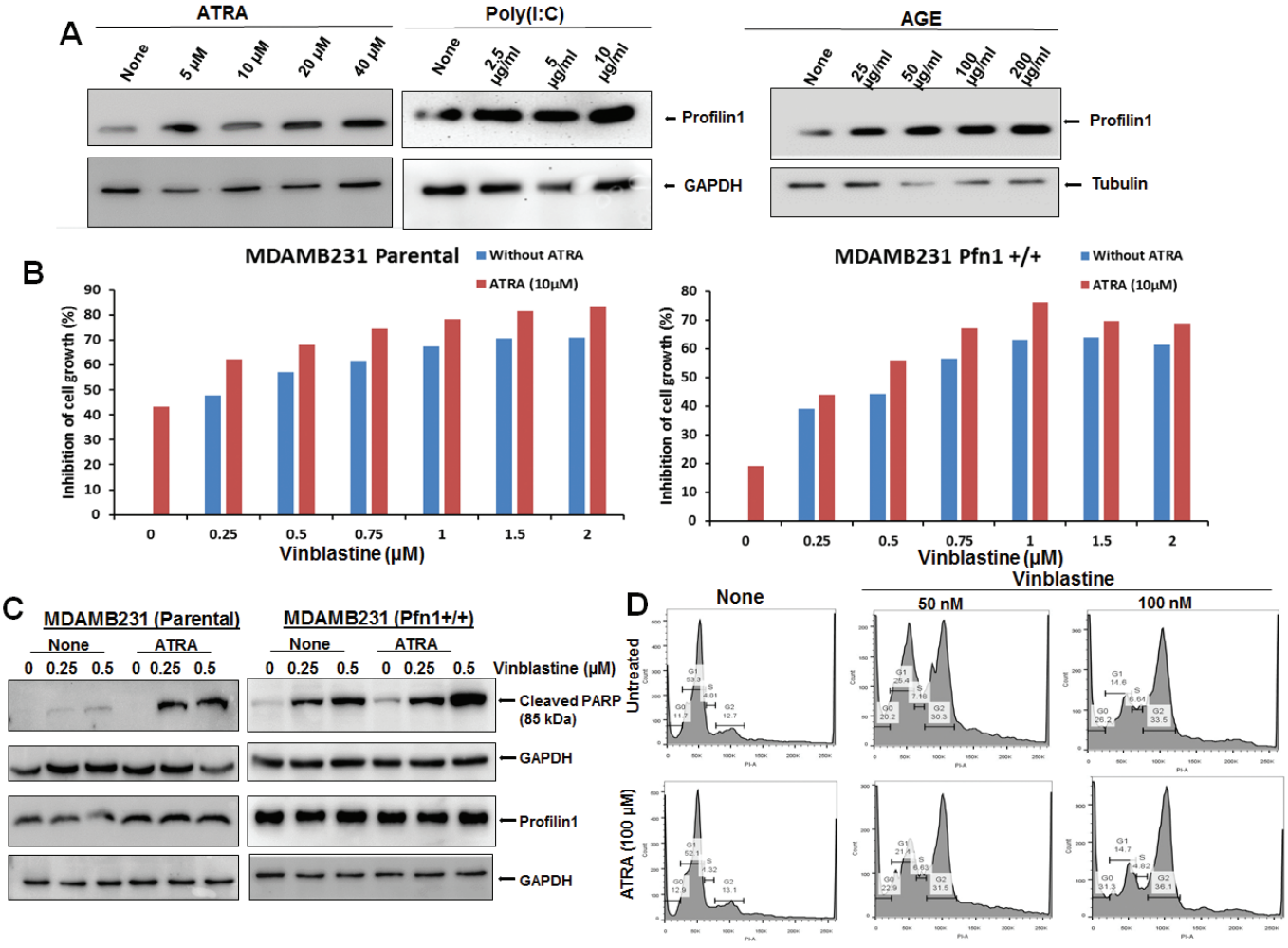

Figure: Profilin potentiates chemotherapeutic agent mediated cell death

MDA-MB-231 cells (1 x10^6/60 mm petridish) were treated with different concentrations of ATRA, Poly (I:C) and AGE for 48 h. Whole cell lysates were made and 10 µg of protein was used to probe Profilin1 by Western blot (A). MDA-MB-231 Parental and MDA-MB-231 Pfn1$^{+/+}$ (Profilin 1 stable) cells (5000/well of 96-well plate in triplicate) were treated with 10 µM of ATRA for overnight followed by different concentrations Vinblastine for 72 h. MTT assay was done and indicated in percentage of cell death, considering the untreated cells' value as 0% cell death (B). MDA-MB-231 parental and MDA-MB-231 Pfn1$^{+/+}$ cells were treated with 10 µM of ATRA for overnight followed by different concentrations Vinblastine for 48 h. Whole cell lysates were made using NETN buffer. 50 µg of protein was used to probe 85 kDa cleaved PARP (C). MDA-MB-231 Parental and Pfn1$^{+/+}$ cells (1 x10^6/60 mm petridish) were treated with 10 µM of ATRA for overnight followed by 50 and 100 nM of Vinblastine for 48 h. Cells were collected and FACS was performed using PI-exclusion method with BD FACS Aria instrument (D).

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Laboratory of Immunology

Epigenetic mechanisms underlying developmental pathways

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The unique epigenome of a cell determines its function through its role in gene regulation. As the function of a cell during development and differentiation is determined by its microenvironment, any factor that can alter this microenvironment could alter the epigenome of the cell. Our laboratory has been working towards understanding the epigenetic circuitry underlying the regulation of gene expression by environmental cues, both during development and disease.

Host epigenetic response to infection

The interaction of a pathogen with its host exemplifies a tussle wherein the pathogen, like *M. tuberculosis*, tries to hijack the host cellular machinery and dampen the immune response for its survival whereas the host tries to eliminate or neutralise the pathogen. This interaction is not just limited to eliciting an immune response, it is also manifested through changes in specific cell-signalling cascades and change in expression of multiple genes amongst others, which in turn is possible only through alteration in the epigenetic landscape (epigenome) of a cell. In the last few years, we have identified mycobacteria encoded methyltransferases, Rv2966c and Rv1988, which have the ability to methylate cytosines and histone H3 respectively in the host genome in a non-canonical manner. We have also found that the host SUV39H1 protein is upregulated and relocalised during mycobacterial infection and is involved in methylation of the mycobacterial HupB protein. The mycobacterial protein, HupB, has similarity with histone proteins and it plays an important role in regulation of transcription and cell-cell adhesion. We find that in presence of SUV39H1, the biofilm formation ability of *M. tuberculosis,* which is dependent upon cell-cell adhesion, was significantly defective and dependent upon trimethylation of HupB by SUV39H1. This confirmed that SUV39H1 prevents mycobacterial biofilm formation. Thus, our study has uncovered novel facets of host defense mechanism, which utilizes an epigenetic modifier in a non-canonical surrogate function.

Role of *DNMT3L* in epigenetic inheritance

Over the past decade evidence has accumulated for an association of epigenetic circuitry with the inheritance of acquired characters. Transgenerational epigenetic inheritance (TEI) is the transmission of alternative functional states through multiple generations in the presence of the same genomic DNA sequence and these alternative functional states are brought about by various epigenetic modifications. We have shown that the ectopic expression of DNMT3L, a member of de novo DNA methyltransferase

family, in Drosophila leads to gradual and progressive nuclear reprogramming with the appearance of melanotic tumor after the fifth generation. This gradual nuclear programming was associated with a gradual decrease in the levels of active histone modification marks across several generations. We have now created transgenic Drosophila with GFP reporter gene that is expressed under promoter(s) whose action is influenced by DNMT3L. Using these transgenic flies, we are examining whether the epigenetic inheritance observed upon ectopic DNMT3L expression is similar to what is observed in the phenomenon of genomic imprinting in mammals.

Generation and characterization of NNΔI^2 mice

Neuronatin is a small imprinted gene present on chromosome 2 in mice within the intron of another gene called *Blcap*. It is part of a micro-imprinted domain with the transcript variants of the *Neuronatin* gene showing expression from the paternal allele in all tissues whereas Blcap transcript variant (V1a) being expressed predominantly from the maternal allele in some tissues. The transcript variant *BlcapV2a*, which shares its promoter with *Neuronatin*, is expressed, like *Neuronatin*, only from the paternal allele. DNA methylation has been observed in this locus for the promoter and gene-body of the *Neuronatin* gene, only on the maternal allele. We had previously performed functional analysis of a knock-out strain of mice which had the second intron of the imprinted *Neuronatin* gene replaced by a Neo^R-cassette at its endogenous locus. To negate the possibility that the allelic misregulation of *Neuronatin* was due to the presence of Neo^R, we deleted this cassette from the NNΔI^2/Neo^{R+} mice. Homozygous or heterozygous NNΔI^2 mice were generated to examine the effect of *Neuronatin* second intron deletion on *Neuronatin* expression. No expression of *Neuronatin* was detected when the deletion was inherited from the father while the expression of *Neuronatin* remained unaltered when the deletion was inherited from the mother indicating that the deletion of the second intron from the normally expressed paternal allele leads to loss of *Neuronatin* expression. The second intron of *Neuronatin* possesses the requisite characteristics of an Imprint Control Regions (ICR), as it has differential methylation and histone modifications on the two alleles. Importantly, the epigenetic status of the *Neuronatin* and *Blcap* promoters was dependent on the organization of the *Neuronatin* ICR. Our data suggests that histone modifications particularly H3K9ac, H3K4me2 and H3K27me3 at *Neuronatin* promoter were involved in the regulation of its expression.

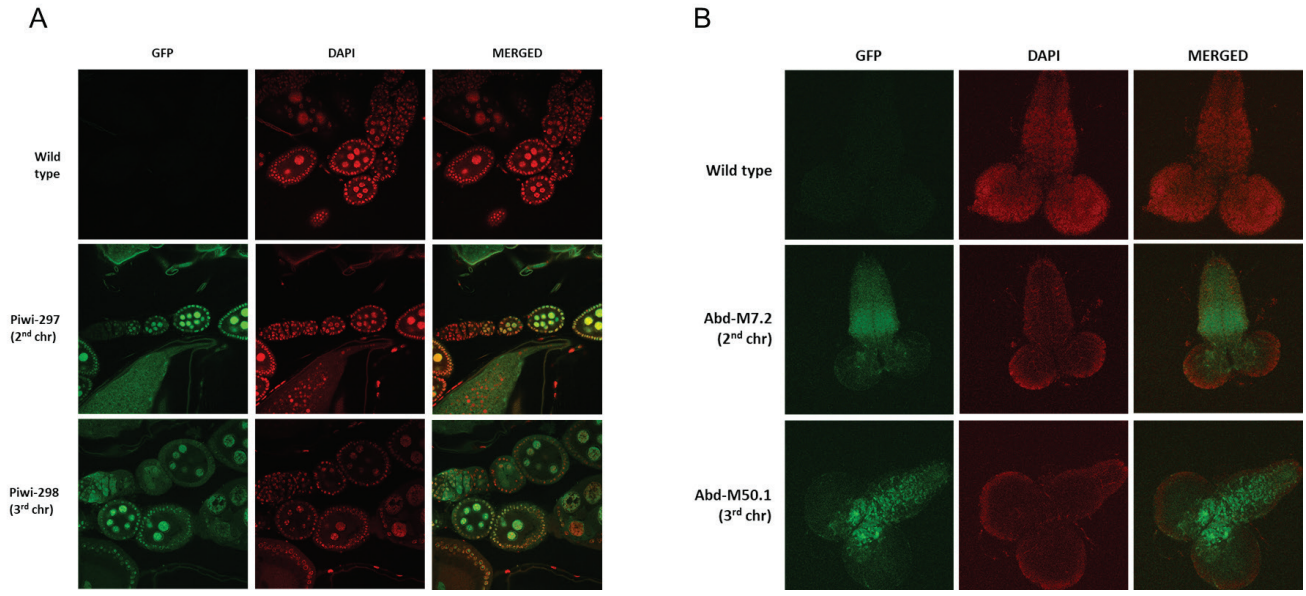

Figure: Generation of transgenic Drosophila expressing GFP-reporter gene under the influence of DNMT3L regulated promoter

A. Confocal microscopy images of Drosophila ovaries expressing GFP- reporter gene under the influence of Piwi promoter. As compared to wild type control, notice the GFP signal in the ovarian cells. B. Confocal microscopy images of Drosophila brain tissue expressing GFP- reporter gene under the influence of abd promoter.

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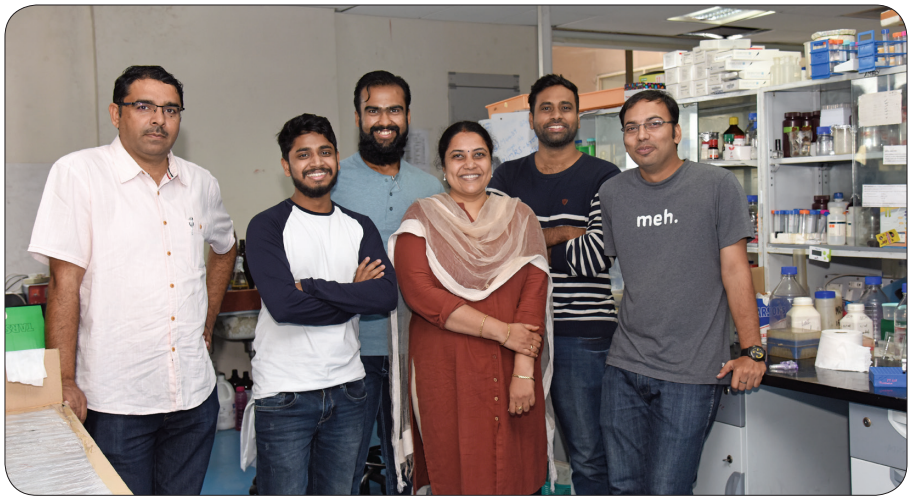

Laboratory of Mammalian Genetics

Signal transduction pathways in macrophages and host-pathogen interaction in tuberculosis

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Our research objectives are broadly focused on understanding host-pathogen interactions and identifying the therapeutic targets against TB.

Uncovering structural and molecular dynamics of ESAT-6:β2M interaction and identifying novel anti-TB drugs targeting the ESAT-6:β2M

In our previous study, we demonstrated that ESAT-6 protein alone or in complex with CFP-10 interacts with the host protein Beta-2-microglobulin (β2M). Deletion of the last 6 amino acids (VTGMFA) at the C-terminal end of ESAT-6 (ESAT-6ΔC) could prevent interaction of ESAT-6 with β2M indicating that the C-terminal (90-95) residues of ESAT-6 protein are important for its interaction with β2M. We observed that ESAT-6 protein could downregulate the MHC class I antigen presentation function of macrophages and $CD8^+$ T-cell responses. To gain some insights into the molecular mechanism of ESAT-6:β2M complexation and the biophysical parameters governing this interaction, in the current study, we have characterized the thermodynamic parameters and structural properties associated with ESAT-6 and β2M complex. Furthermore, the dynamics of the interaction at the interface of ESAT-6:β2M were studied, identifying the crucial residues of β2M that are engaged with ESAT-6 protein for complexation. Two small molecules were also identified that interact with ESAT-6 and rescue ESAT-6-mediated inhibition of MHC class I antigen presentation. These molecules may further be exploited as novel drugs against tuberculosis.

ESAT-6:β2M interaction and binding energetics

ESAT-6:β2M complexation and the biophysical parameters governing this interaction were studied by performing calorimetric titrations on ITC to calculate the energetics of ESAT-6 interaction with β2M at 25°C. ESAT-6 binding to β2M was an endothermic reaction as depicted by the

thermogram corresponding to a plot of integrated heats as a function of the molar ratio of ESAT-6:β2M (Figure A). ESAT-6 binding to β2M was entropy-driven with the over-all dissociation constant (K_d) of 6.9 μM. The binding isotherms indicated absorption of heat upon binding of ESAT-6 to β2M and the thermodynamic parameters best fit with one set of a site with a stoichiometry of interaction equals to one. These studies indicate that ESAT-6 binding is positively stabilized by an entropic factor.

Asp53 residue of β2M is important to form a complex with ESAT-6

Through MD simulation analyses, we observed that among the seven aspartic acid residues of β2M (Asp34, Asp38, Asp53, Asp59, Asp76, Asp96, and Asp98), the Asp53 residue exhibited significant contribution in interaction with ESAT-6 (Figure B). MD simulations revealed that Asp53B:N (Nitrogen atom of aspartic acid of chain B) exhibited main chain-side chain strong hydrogen bond interaction with Met93A:O (Oxygen atom of methionine chain A) of ESAT-6 in model system 3 (Figure B), whereas, in ESAT-6ΔC and β2M the hydrogen bond interactions were lost (Figure B). To validate the significance of Asp53 residue and strength of interaction, yeast two-hybrid assay was performed. We observed that ESAT-6 could strongly interact with β2M (Figure C). However, the strength of this interaction was weaker when ESAT-6 was allowed to interact with the mutant β2M (Asp53Ala). The strength of the interaction was further confirmed by β-gal immunoassay, which indicated a significant decrease (68%) in β-gal concentration for the ESAT-6:β2M (Asp53Ala) when compared with the β-gal concentration for ESAT-6:β2M (Figure C).

Prioritization of the small molecules against ESAT-6

The effect of the ESAT-6 molecule on downregulation of MHC class I antigen presentation (by binding to β2M) could be rescued by compounds that have strong binding affinity to the C-terminus sequence (VTGMFA) of ESAT-6 (crucial for its interaction with β2M). Hence, using HTVS, MD simulation and microscale thermophoresis (MST), 17 compounds were checked for their binding affinity to ESAT-6. Results indicated that among the shortlisted 17 compounds, SM09 and SM15 displayed good signal/noise (S/N) ratio and amplitude against the control (Figure D). Further, competitive MST experiments of SM09 and SM15 against ESAT-6:β2M complex showed an inhibition with an IC_{50} values of 1.7 μM and 4.18 μM for SM09 and SM15, respectively (Figure E). SM09 and SM15 mask the critical Met93 residue of ESAT-6 which is required for ESAT-6:β2M interaction. The data suggest the existence of a strong interaction between ESAT-6 and compounds (SM09 and SM15) and highlights the affinity for the ESAT-6 C-terminus sequence.

SM09 and SM15 rescue ESAT-6-mediated downregulation of MHC class I antigen presentation

Earlier studies demonstrated that ESAT-6 interacts with β2M and sequesters it inside the ER resulting in downregulation of class-I antigen presentation. Thus, it was speculated that SM09 and SM15 (which interact with ESAT-6 with higher affinity (K_d) compared to β2M) are likely to rescue ESAT-6-mediated downregulation of MHC class I antigen presentation. To test this hypothesis, peritoneal macrophages from C57BL/6 mice pre-treated with recombinant ESAT-6 protein in the absence or presence of SM09 or SM15 were cytosolically loaded with soluble native ovalbumin (OVA) antigen. The control group received medium alone. We observed that ESAT-6 downregulated MHC class I antigen presentation as expected, however, the inhibitory effect of ESAT-6 was rescued in the presence of SM09 or SM15 (Figure F). Cells treated with SM09 and SM15 alone did not affect class I antigen presentation which was consistent with untreated cells. As expected, macrophages treated with ESAT-6 in the presence of SM09 and SM15 had higher surface expression of both MHC-I and β2M as compared to macrophages treated with ESAT-6 alone. Our data precisely indicate that these compounds can be potential therapeutic agents against *Mycobacterium tuberculosis*.

Effects of small molecules on intracellular survival of *M. tb* inside the macrophage

To investigate the activity of the small molecules (SM09 and SM15) on intracellular survival of *M. tb*, we used gold standard colony forming units (CFUs) survival assay to examine the viabilities of *M. tb* in presence of the small molecules (SM09 and SM15). Results indicated that the intracellular survival of *M. tb* is decreased significantly at both 12 hrs and 24 hrs post-infection. While no significant

difference were observed between untreated or cells treated with the vehicle control (DMSO). This precisely indicates strong anti-mycobacterial effects of these molecules, hence can be considered as the potential anti-mycobacterial drug candidates. Our future studies are aimed at understanding the efficacy of the SM09 and SM15 in animal infection model.

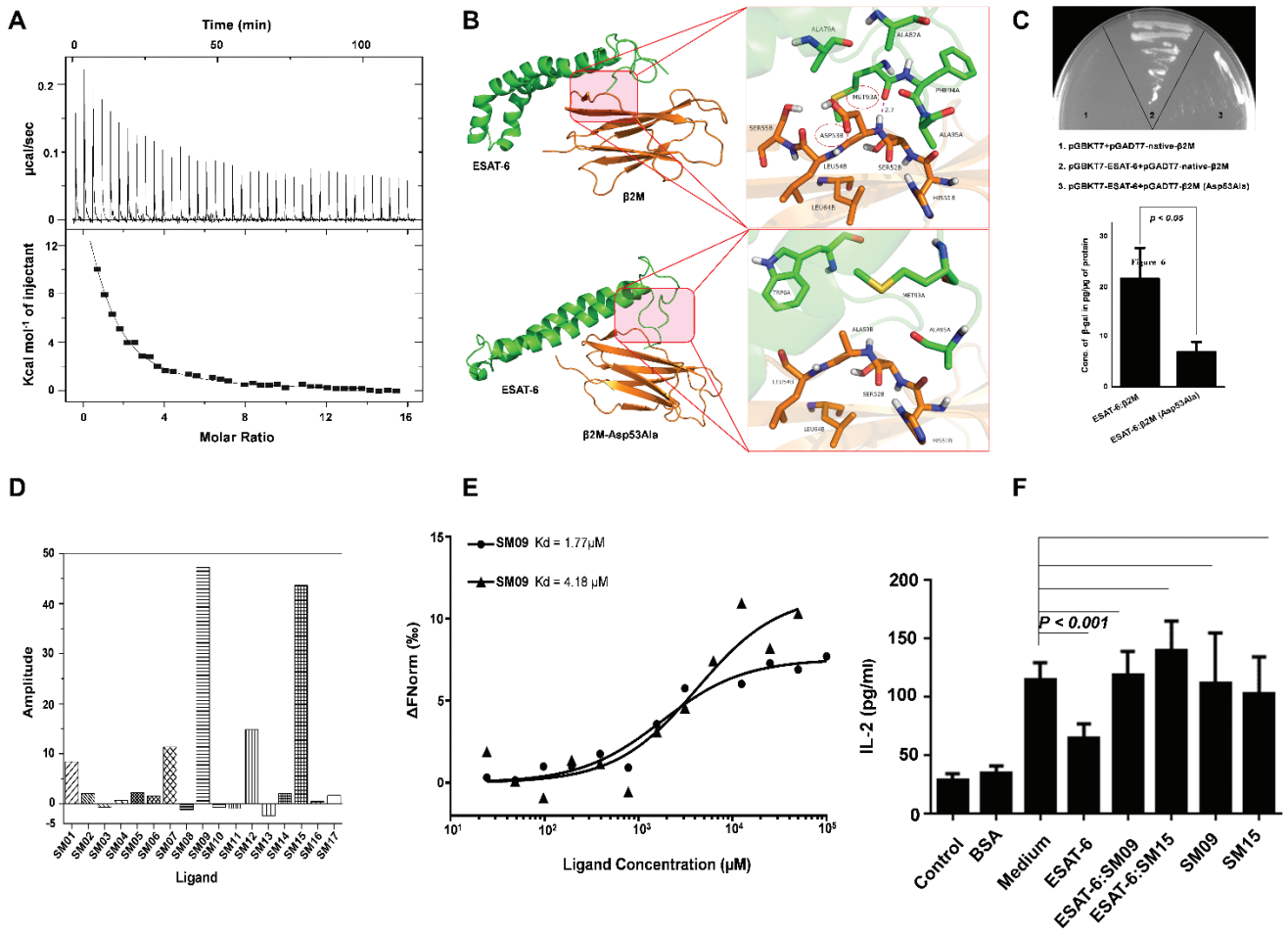

Figure: ESAT-6:β2M interaction and identification of small molecules that could inhibit this complexation

(A) ESAT-6:β2M interaction by Isothermal Titration Calorimetry (ITC). (B) Key active site residues of the ESAT-6 protein and β2M protein interface. The complex structures were obtained from protein-protein docking followed by 10 ns MD simulations. The interface of ESAT-6 (Met93 of A-chain) and β2M (Asp53 of B-chain), highlighting of the hydrogen bond interactions is shown in pink dotted lines and important residues are shown in stick model i.e. ESAT-6 (green color) and β2M (orange color). The protein structure is represented by chain β2M (orange) and ESAT-6 (green) color. The crucial residues involved in the interaction are circled. (C) Asp53 residue of β2M is crucial for interaction with ESAT-6. A yeast two-hybrid assay was performed to examine the interaction between ESAT-6 and native β2M or mutant β2M (Asp53Ala), (D, E) Single point screening of the docked compounds for identification of the strong binders with ESAT-6. Competitive MST with the SM09 and SM15 against ESAT-6:β2M complex. The change in normalized fluorescence was plotted against the concentration of the serially diluted ligand. (F) Mice peritoneal macrophages were pre-treated with ESAT-6 in the absence or presence of SM09 or SM15 for 2 h. Cells were then cytosolically loaded with hypertonic OVA for MHC class I antigen presentation. Next, fixed macrophages were incubated with B3Z T cells. The levels of IL-2 secreted in the culture supernatants were measured by ELISA. Data shown are Mean ± SEM of three independent experiments.

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Patent filed

Mukhopadhyay S, Pal R and Battu MB. A novel therapeutic to treat inflammation and tissue injury (Provisional patent filed in January 8, 2019 with application number 201941000876)

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Genomics and molecular genetics of cancer

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Identification and characterization of important deregulated genes/pathways in cancers prevalent in India.

Identification and characterization of novel oncogenic transcriptional targets of non-hotspot mutant p53

TP53 mutations are the most common genetic event in several cancers and lead to inactivation of tumor suppressor activity of the p53 protein. A few common 'hotspot' mutations are shown to exhibit a gain of function activity through activation of oncogenes. We have initiated work to characterize possible oncogenic role of non-hotspot p53 mutations identified from squamous carcinoma of oral tongue and esophagus samples from Indian patients. Our work has revealed novel and specific targets for up to four non-hotspot p53 mutant proteins.

In future, we would work towards understanding a) the mechanism of activation of novel targets by non-hotspot mutant p53 proteins and b) the mode of oncogenic action of the novel targets of non-hotspot mutant p53.

Studies on Early Onset Sporadic Rectal Cancer (EOSRC)

EOSRC is the predominant but poorly studied CRC subtype in India. We performed a comprehensive characterization of tumorigenesis pathways driving this unique CRC subtype. Our results indicate role of proteins involved in a specific cellular signalling pathway termed 'Ca^{2+}/NFAT signalling'. More importantly, state of the art genomic studies performed directly on patient samples identified novel rectal cancer genes including ARID2.

In future, we would work to characterization of tumorigenic role of novel rectal cancer genes.

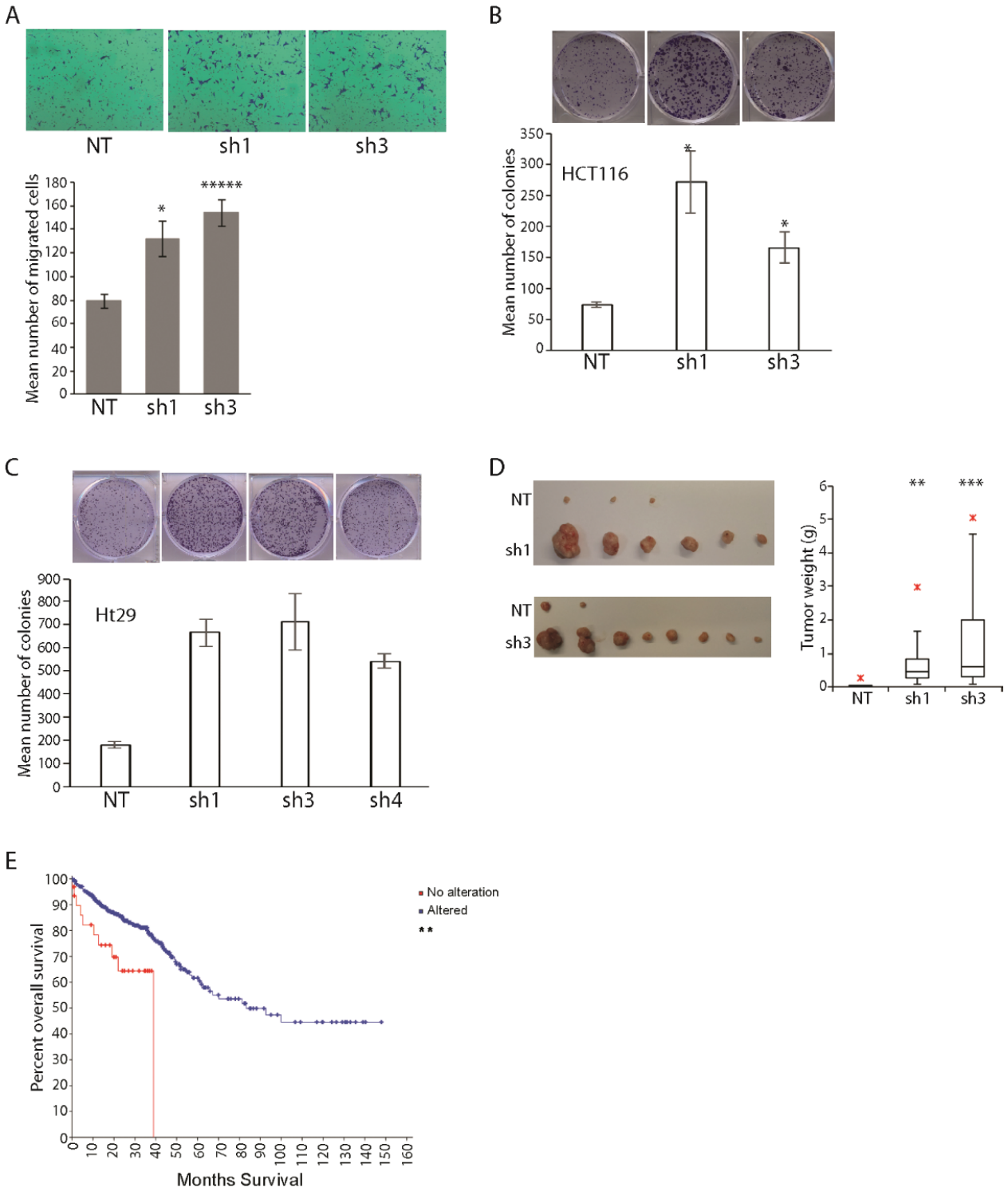

Figure: *ARID2* is a CRC tumor suppressor

shRNA mediated *ARID2* knockdown increases tumorigenic properties in CRC cells as measured by their migration (A) and colony formation (B-C) potentials. CRC cells exhibiting *ARID2* knockdown were significantly compromised to generate tumors in mice (D). Statistical significance of differences was calculated by unpaired student's t test (p value: *, $p<0.05$; **, $p<0.01$; ***, $p<0.001$; ****, $p<0.0001$; *****, $p<0.00001$. CRC patients harbouring *ARID2* perturbations exhibit poor survival (E). Statistical significance of differences was calculated by Logrank Test P-value: **, $p<0.01$.

Publications

Research papers published in 2018

Kumar R, Kotapalli V, Naz A, Gowrishankar S, Rao S, Pollack JR, and Bashyam MD (2018). XPNPEP3 is a novel transcriptional target of canonical Wnt/β-catenin signalling. ***Genes Chromosomes & Cancer*** 57:304-310.

Clarke L, Adduri RS, Smyth P, Quinn F, Jeffers M, Dunne B, O'Leary J, McKiernan S, Vandenberghe E, Pyne S, Bashyam MD, Sheils O, Flavin R (2018). Potentially important miRNAs in enteropathy-associated T-cell lymphoma pathogenesis: A pilot study. ***Leuk Res Rep*** 10:52-54.

Research papers published in 2019 (in press upto March 31, 2019)

Bashyam MD, Animireddy S and Bala P. Taming the Master: SWI/SNF chromatin remodeler as a therapeutic target in cancer. **Curr Sci**, 2019; in press.

Laboratory of Molecular Oncology

Efficient meiotic silencing of unpaired DNA (MSUD) is not the norm in Neurospora

Laboratory of Neurospora Genetics

Principal Investigator: **Durgadas P. Kasbekar**

PhD student: Dev Ashish Giri

Meiotic silencing by unpaired DNA (MSUD) is an RNAi-mediated gene silencing process that silences any gene that is not properly paired with its homologue during the meiosis of a sexual cross. The unpaired gene is transcribed into 'aberrant RNA' that is then processed into single-stranded MSUD-associated small interfering RNA (masiRNA) that directs a silencing complex to degrade complementary mRNA. MSUD does not occur in homozygous *tester A* x *tester a* crosses. Our previous studies showed that MSUD is efficient in OR but inefficient in most other backgrounds. Possibly, additional cues serve to regulate MSUD in the non-OR backgrounds.

The near-isogenic strains B/S *A* and B/S *a* were generated from the wild strains Bichpuri-1 *a* (B) and Spurger *A* (S), and new MSUD testers were made in the B/S background (*tester*$^{B/S}$) to enable us to compare MSUD in *tester*$^{B/S}$ x B/S and *tester*^{OR} x OR crosses, that were otherwise completely analogous. In both the *tester*$^{B/S}$ and *tester*^{OR} strains a 2532 bp fragment of the OR-derived chromosome I *r*$^{+}$ gene (that differs by 16 SNPs from the corresponding B/S version) was inserted into precisely the same location in chromosome VII. In *tester*-heterozygous crosses, MSUD induces silencing of the *r*$^{+}$ gene to produce round ascospores instead of wild-type spindle-shaped ones, and the *tester*^{OR} x OR and *tester*$^{B/S}$ x B/S crosses produced, respectively, >90% and <50% round ascospores. Additionally, the *tester*^{OR} x *tester*$^{B/S}$ crosses produced < 5% round ascospores, which confirmed that the ectopically-inserted *r* gene fragments in the two testers were detected as allelic by the MSUD machinery, and hence prevented MSUD from being triggered. The *tester*^{OR} x B/S and *tester*$^{B/S}$ x OR crosses are "heterozygous" for the backgrounds, and showed inefficient MSUD (25-60% round ascospores), indicating that the inefficient MSUD phenotype of B/S was dominant to the efficient MSUD phenotype of OR. We also introgressed the *tester*^{OR} transgene into strain 85 of the related species *N. tetrasperma*, and showed that MSUD was inefficient in *tester*^{Nt} x *N. tetrasperma* crosses.

That efficient MSUD is not the norm in Neurospora is a significant finding because most Neurospora genetics studies have used the OR background, and in it duplication-heterozygous crosses (*Dp* x *N*) exhibit a severe MSUD-dependent barren phenotype. This led to the tacit assumption that all *Dp* x *N* crosses are barren. *Dp*s can dominantly suppress the mutational process called repeat-induced point mutation (RIP), but the significance of such suppression was unclear if the cross is barren. Now, we showed that in *N. tetrasperma*, which exhibits inefficient MSUD, *Dp*-heterozygous crosses were non-barren. Thus, *Dp*-mediated RIP-suppression might be more significant than was appreciated based on earlier genetic studies done solely in OR.

Genetic dissection of the OR vs. B/S MSUD difference, and discovery of a novel Bateson-Dobzhansky-Muller Incompatibility (BDMI) between the OR and B/S strains.

To identify the genes underlying the MSUD difference between the *N. crassa* OR and B/S1 backgrounds we obtained 106 f1 progeny from a B/S1 *A* x OR *a* cross and crossed them with *tester*^{OR} of the opposite mating type. MSUD efficiency in the crosses was scored by determining the fraction of progeny round ascospores produced. Crosses of 11 f1 progeny produced > 90% round ascospores, whereas the remaining 95 gave a

spectrum in the 25-90% range. These results suggested that the OR-type efficient MSUD phenotype might require the inheritance of three unlinked genes from the OR parent (11/106 is approx 1/8). In collaboration with Dr. K. T. Nishant (IISER-Tvm) we determined the Illumina genome sequence of the 11 OR-type f1s and found that they all shared conserved chromosomes 1, 2, and 5 segments from OR. These segments might contain the loci that determine the OR-type phenotype. The loci might encode factors that provide additional regulatory cues to calibrate the MSUD response, and these factors are missing from OR.

Unexpectedly, these studies also uncovered a novel transmission ratio distortion (TRD) that apparently represents a Bateson-Dobzhansky-Muller Incompatibility (BDMI) between the OR and B/S backgrounds. We found that 70 f1 were *mat a* and 137 were *mat A*; giving a 1 OR : 2 B/S1 segregation, instead of the expected 1 : 1. Possibly, an allele on the OR-derived chr I (which includes the *mat* locus) is incompatible with the B/S1 allele of an unlinked locus. The f1 progeny containing the B/S1 chr I would be unaffected, but of the f1 progeny with OR chr I, only the subset with the compatible allele of the unlinked gene would survive, while the other 50% die.

(iii) Future directions: We will attempt to identify the genes underlying the OR vs. B/S MSUD difference, and we will test which chromosome (or mitochondrial genome) carries the gene required for survival of f1 progeny bearing OR chr I.

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Kasbekar D P (2019). Series A cross-eyed geneticist's view IV. Neurospora genes and inversions collude to cheat Mendel. ***J. Biosci.***

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Laboratory of Neurospora Genetics

Understanding virulence mechanisms of Xanthomonas plant pathogens and interaction with host plants

Laboratory of Plant Microbe Interaction

Principal Investigator: **Subhadeep Chatterjee**

PhD Students: Akanksha Kakkar
Raj Kumar Verma
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Yasobanta Padhi

Postdoctoral fellow: Anindya Biswas
Durga Bhavani

Other Members: Binod Bihari Pradhan
Krishnamurty

1. Identification and characterization of virulence factors of *Xanthomonas*
2. Role of cell-cell communication in *Xanthomonas* colonization and virulence
3. Function of protein secretion system in *Xanthomonas* and its role in virulence
4. Role of PAMP in pathogen recognition and plant defense response

Bacteria coordinate their social behavior in a density dependent manner by production of diffusible signal molecules by a process known as quorum sensing (QS). Sensing and adaptation to changing environmental conditions were traditionally attributed to two-component sensors and response regulators. Increasing volume of work now suggest that coordination of responses to fluctuating environment is very complex, as many of the microbial species live in community under natural condition. We are using *Xanthomonas* and *Pseudomonas* group of plant pathogens which makes diverse quorum sensing signaling molecule to address the mechanism of integration and adaptation to changing environmental condition**.** Our work has shown that fine tuning of QS regulatory circuits in closely related members of the *Xanthomonas* group of phytopathogens contribute to their lifestyle change inside the host. We are also trying to understand how the QS-mediated social structure and individuality in the bacteria coexists to improve their fitness in fluctuating environments. We are using genetics and molecular tools to understand the mechanism of switching of lifestyle of bacteria from a planktonic to sessile biofilm. In this we are trying to understand the role of adhesions, virulence factors, nutrient and environmental sensing which plays a role in coordinating the lifestyle switch. Iron is required for virulence of several animal and plant pathogenic bacteria. The availability of iron within the host plays a critical role in the growth and survival of the pathogens. Ability of the pathogens to sequester host iron and respond to host iron status has been proposed to be critical for virulence and survival of plant pathogens. Although iron has been implicated in the virulence of pathogenic bacteria, very little is known about how pathogens acquire complex iron source and maintain iron homeostasis inside host. It has been proposed that pathogens modulate their metabolism and virulence associated functions depending on iron availability, wherein, iron availability act as a signal for coordinated regulation of different cellular functions. We are trying to understand the mechanism of how iron plays a major role in regulating diverse cellular process and production of virulence associated functions. We are trying to understand the mechanism of iron dependent regulation of virulence associated function and would like to address how iron and virulence associated functions are co-ordinately regulated in host-pathogen interactions. We are also trying to understand the mechanism by which novel pathogen molecules belonging to Pathogen

associated molecular patters are able to induce innate immune response in host using plant and *Xanthomonas* interaction as a model system.

Role of iron in the virulence of *Xanthomonas* group of phytopathogen: A novel role of glucan in cellular iron homeostasis

Cellular iron homeostasis is critical for survival and growth. Bacteria employ a variety of strategies to sequester iron from the environment and to store intracellular iron surplus that can be utilized in iron-restricted conditions while also limiting the potential for production of iron-induced reactive oxygen species (ROS). Here we report that membrane-derived oligosaccharide (mdo) glucan, an intrinsic component of Gram-negative bacteria, sequesters the ferrous form of iron. Iron binding, uptake, and localization experiments indicated that both secreted and periplasmic β-(1,2) glucan binds iron specifically and promotes growth under iron-restricted conditions. *Xanthomonas campestris* and *Escherichia coli* mutants blocked in the production of β-(1,2) glucan accumulate low amounts of intracellular iron under iron-restricted conditions, whereas they exhibit elevated ROS production and sensitivity under iron-replete conditions. Our results reveal a critical role of glucan in intracellular iron homeostasis that appears to be conserved in Gram-negative bacteria (Figure). In future, we are interested in understanding the complex regulatory and effector proteins which plays a role in iron metabolism and enables pathogens to counter fluctuating iron concentration in the environment and fine tuning iron metabolism.

Low-iron conditions induces the hypersensitive reaction and pathogenicity *hrp* genes expression in *Xanthomonas* and is involved in modulation of hypersensitive response and virulence

Expression of *hrp* (hypersensitive reaction and pathogenicity) genes inside the host is crucial for virulence of phytopathogenic bacteria. The *hrp* genes

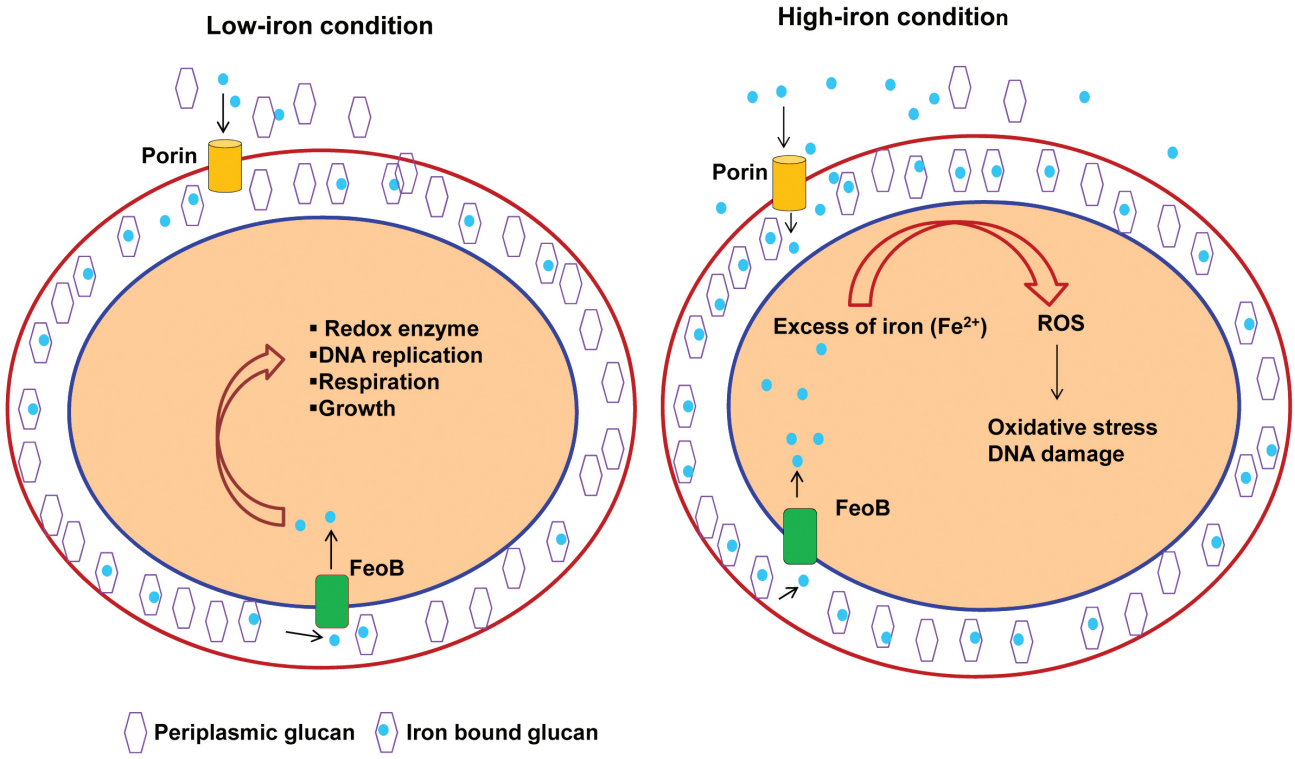

Figure: A proposed model for the role of bacterial glucan in iron homeostasis

Under iron-restricted condition bacteria secrete siderophores to sequester extracellular ferric iron and are internalized via specific outer membrane receptors and ABC transporters. Ferrous form of iron is presumed to into the periplasm via porins. Periplasmic glucan sequester ferrous form of iron, and Glucan-iron Complexes are equilibrium with free iron in the periplasm. Under the condition of low-iron, Iron from the periplasm is transported by the ferrous iron transport (feo) system. Under condition of excess iron, periplasmic glucan sequester ferrous iron while limiting the potential of iron-induced ROS production under condition of excess iron.

encode components of Type III secretion system (T3SS), HR elicitors and several regulators, which are involved in the co-ordinated expression of *hrp* genes in the host environment and in *hrp* inducing chemically defined medium. However, little is known about specific host or environmental factors which may play a role in the induction of *hrp* gene expression. In this study, we show that iron-limiting condition elicits induced expression of *hrp* genes, including type3 secretion system (T3SS) and effectors (T3E). Expression analysis using qRT-PCR and promoter probe strains suggest significant induction in the expression of Hrp and T3S-associated genes of *Xanthomonas campestris* pv. *campestris* (Xcc) under low-iron condition, and is suppressed by exogenous supplementation of iron. Furthermore, we show that with exogenous iron supplementation, wild type Xcc exhibited reduced disease symptoms in host-plant, and exhibited significant reduction in HR and callose deposition in the non-host plants. *Xanthomonas oryzae and oryzicola* pathovars also exhibited the iron affect, albeit to a lesser extent compared to the Xcc. We have proposed a model for low-iron induced expression of the *hrp* genes. Low-iron condition inside the host environment is sensed by unknown sensor/s. Low-iron induced signal is transducer to Zur directly or mediated by unknown transcription factor similar to Fur family of transcription factor. Zur induces the expression of *hrp* genes including the master regulators *hrpG* and *hrpX*. However, direct signal transduction of low-iron signal from the putative unknown sensor to *hrpG* is also possible. Expression analysis indicates the involvement of Zur in low-iron mediated induced production in *Xanthomonas*. Overall, our results suggest that low-iron condition inside the host may play a crucial role in pathogenicity. In future we will try to understand the mechanism of sensing of iron and the detail signal transduction pathway for iron sensing and coordination of expression of Type III secretion system in bacteria.

Publications

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Laboratory of Plant Microbe Interaction

Bacterial transcription terminator Rho and mycobactericidal proteins from mycobacteriophages

Laboratory of Transcription

Principal Investigator: **Ranjan Sen**

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Freie Universität Berlin, Germany

Prof. Udayditya Sen
SINP, Kolkata, India

Dr. Jayanta Mukhopadhyay
Bose Institute, Kolkata

We are interested to understand the mechanism of action, physiology and inhibition of the conserved bacterial transcription terminator, Rho. In my laboratory, following studies are underway in this area. 1) Mechanism of action of transcription termination factor, Rho both in *vivo* and *in vitro*. 2) Molecular basis of Rho-NusG interaction. 3) Designing peptide inhibitors of Rho from the bacteriophage protein, Psu. 4) Involvements of Rho in different physiological processes. We have also started a project on synthetic biology, where we strive to characterize novel Mycobactericidal proteins from the genomes of mycobacteriophages.

Rho-dependent transcription termination in bacteria recycles RNA polymerases stalled at DNA lesions

In bacteria, transcription-coupled repair of DNA lesions initiates after the Mfd protein removes RNA polymerases (RNAPs) stalled at the lesions. The bacterial RNA helicase, Rho, is a transcription termination protein that dislodges the elongation complexes. Here, we show that Rho dislodges the stalled RNAPs at DNA lesions. Strains defective in both Rho and Mfd are susceptible to DNA-damaging agents and are inefficient in repairing or propagating UV damaged DNA. In vitro transcription assays show that Rho dissociates the stalled elongation complexes at the DNA lesions. We conclude that Rho-dependent termination recycles stalled RNAPs, which might facilitate DNA repair and other DNA-dependent processes essential for bacterial cell survival. We surmise that Rho might compete with, or augment, the Mfd function.

A mycobacteriophage genomics approach to identify novel mycobacteriophage proteins having Mycobactericidal properties

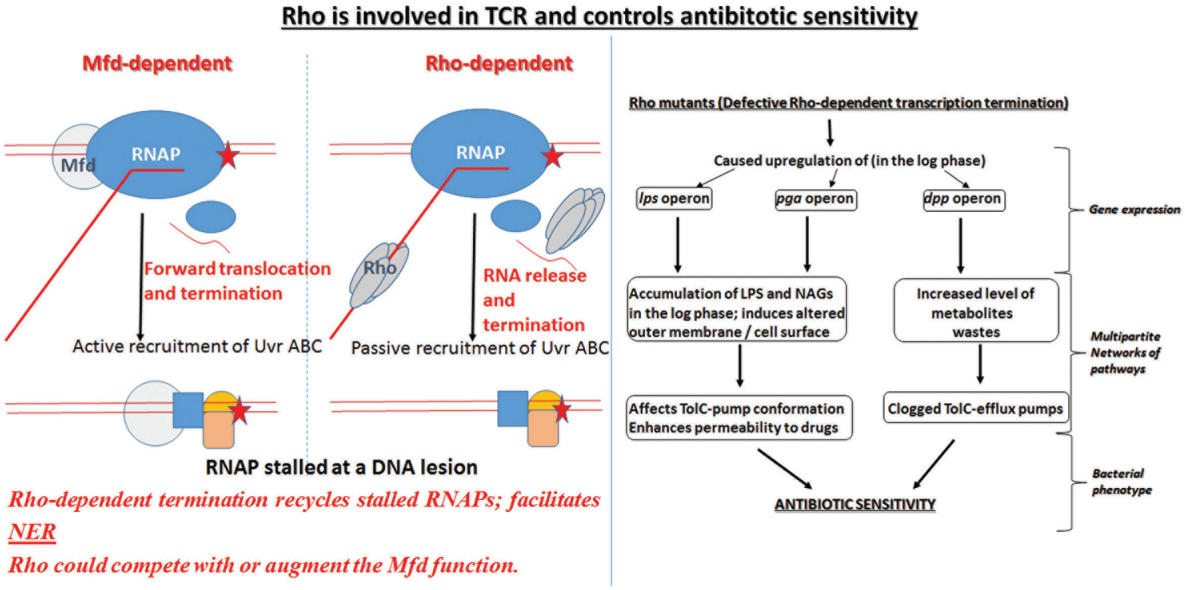
The Mycobacteriophages specific to mycobacteria are the sources of varieties of effector proteins capable of eliciting bactericidal responses. We describe a genomics approach combining with bioinformatics to identify mycobacteriophage proteins that are toxic to mycobacteria upon expression. A genomic library made from the collections of phage genomes is screened for the clones capable of killing the M. smegmatis strain mc2155. We identified four unique clones; clones 45 and 12N (from the mycobacteriophage D29), clones 66 and 85 (from the mycobacteriophage Che12). The gene products from the clones 66 and 45 were identified as Gp49 of Che12 phage and Gp34 of D29 phage, respectively. The gene products

of the other two clones, 85 and 12N, utilized novel ORFs coding for synthetic proteins. These four clones (clone 45, 66, 85 and 12N) upon expression caused growth defects in M. smegmatis and M. bovis. Clones having Gp49 and Gp34 also induced growth defects in *E. coli* indicating that they target conserved host-machineries. Their expressions induced various morphological changes indicating that they affected DNA replication and cell division steps. We predicted Gp34 to be a Xis protein required in phage DNA excision from the bacterial chromosome. Gp49 is predicted to have a HTH motif having DNA-bending/ twisting properties. We suggest that this methodology is useful to identify new phage proteins having desired properties without laboriously characterizing the individual phages. It is universal and could be applied to other bacteria-phage systems. We speculate that the existence of virtually "unlimited" number of phages and their unique gene products could offer cheaper and less hazardous alternative to explore new antimicrobial molecules.

Rho-dependent transcription termination controls the broad-spectrum antibiotic sensitivity in Escherichia coli via multipartite networks of pathways

One of the major ways of acquiring multidrug resistance in bacteria is via the drug–influx and -efflux pathways. Here, we show that E.coli carrying mutations in the transcription termination protein, Rho, have a broad-spectrum antibiotic sensitivity, which arises from the inefficient TolC-efflux process as well as enhanced permeability of their outer membrane. These strains have elongated cell-morphology, sticky surface, distorted lipid bilayers and altered cell surface textures decorated with glycocalyx capsules, which could have enhanced the antibiotics-permeability and altered the configurations of the TolC-efflux pumps leading to their higher net-influx rates. These alterations occurred because of the upregulations of the poly-glucosomine and lipopolysacharide synthesis operons due to the compromised Rho functions. The metabolomics of the Rho mutants revealed that they contain unusual metabolites in high concentrations, which could be the consequence of the upregulations of their di-peptide permease operon due to defects in transcription termination. The excess metabolite "wastes" clog the TolC-efflux pumps rendering them less efficient in effluxing the antibiotics. We concluded that the Rho protein controls the broad-spectrum antibiotic sensitivity through a complex network. We surmise that the treatment of MDR bacterial strains should be facilitated via the administration of the specific Rho-inhibitors together with other antibiotics.

The following projects, being pursued in my lab, are in different stages of completion. 1) Involvement of Rho in controlling the toxin-anti-toxin systems of the prophages and the RNA degradesome pathways, ii) design of peptide-inhibitors from Psu, iii) characterization of different myco-bacteriocidal factors from mycobacteriophages and iv) characterization of the Rho-RNAP interaction during the transcription and identification of the NusG terminators as well as mode of interactions with the Rho.



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Patents

'NOVEL SYNTHETIC PEPTIDES'; Indian Patent Application No.201841048582 filed on December 21, 2018.

Laboratory of Transcription

Understanding the blood progenitor maintenance and differentiation in Drosophila

Laboratory of Drosophila Hematopoiesis

Principal Investigator: **Bama Charan Mondal**

Ph.D. Student: Jiban Barman

Other Members: Pratiti Rout

N. Sudheer

The long term goal of our lab is to understand how blood cells normally develop and become cancerous. We used powerful genetics of fruit fly (*Drosophila melanogaster*), and cell biology approaches to investigate the clinically important problems which are harder to address in a complex vertebrate system. The larval hematopoietic organ in *Drosophila* called lymph gland, which offers an excellent model system for these studies because of a high degree of conservation in hematopoiesis between *Drosophila* and humans. Similar to vertebrate hematopoietic tissue, the lymph gland has a supportive niche, stem-like progenitor cells, intermediate progenitors, and only three myeloid type mature blood cells (schematic diagrams Figure A). Thus we used this simple model system to understand the underlying molecular mechanisms behind the control of proliferation and differentiation of the blood stem/ progenitor cells, which ultimately lead to understanding the human hematopoiesis and cause of myeloid leukemia. The current specific objectives of our lab as follows:

1. Understanding the role of COP9 signalosome in blood cells development.
2. Investigating the role of DNA damage response pathways in hematopoiesis.

Understanding the role of COP9 signalosome in blood cells development

The COP9 signalosome (CSN) is a conserved multifunctional metalloprotease complex protein composed of eight subunits (CSN1 to CSN8) present in all eukaryotes. The primary function of the CSN complex is to remove Nedd8 (deneddylate) from the Cullin-RING-Ubiquitin ligase (CRL) complex, causing it to become inactive. The CSN also involves in proper regulation of DNA damage repair response. We observed depletion of each CSN subunit using RNA interference (RNAi) method in the progenitors causes a loss of proper progenitor identity (Figure B, C) likely due to the progenitor release from cell cycle arrest, and then they held in the intermediate progenitor stage. Thus these data suggest CSN has an active role in progenitor maintenance, perhaps by controlling the cell cycle. We also screened RNAi lines to explore detail roles of CSN interacting proteins in regards to blood progenitor maintenance and their differentiation. We observed that knockdown of CSN interacting components (e.g., Cul1, Nedd8) causes similar phenotype (Figure D-F). We plan to assess the effects of CSN disruption on the expression of progenitor/differentiation markers and cell cycle status using Fluorescent Ubiquitination-based Cell Cycle Indicator and flow cytometry. We will evaluate the role of CRL and related pathway components on progenitor maintenance and differentiation. We will assess the different signaling pathways that interact with CSN in the blood progenitors for their maintenance. For each of the above cell intrinsic elements, appropriate *Drosophila* genetics methods will be performed to assess their specific roles in progenitor maintenance.

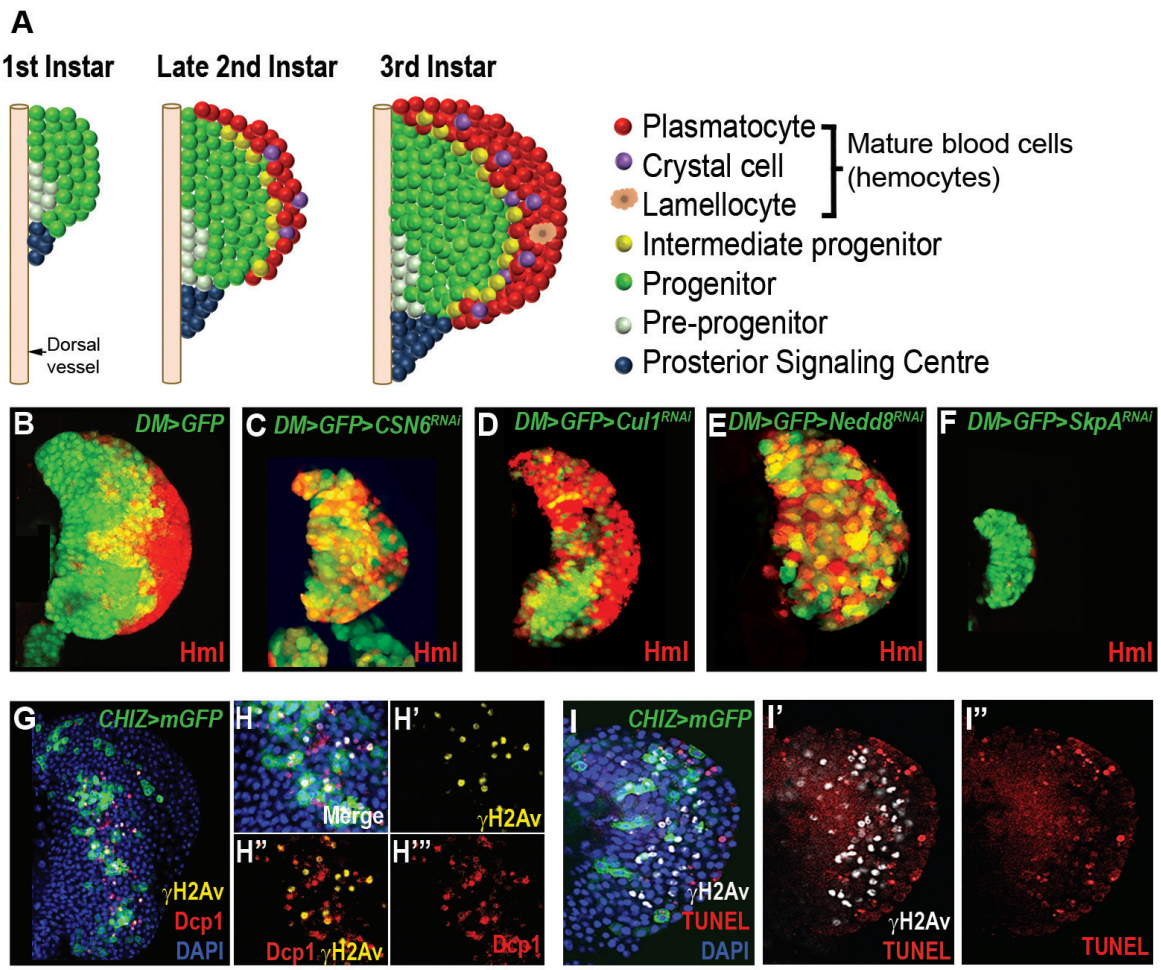


Figure: Role of COP9 signalosome (CSN), its interacting component and DNA damage response in *Drosophila* lymph gland blood cells development.

(A) Schematic diagrams of *Drosophila* lymph gland (LG) primary lobes development with different cell types. (B) Control LG is showing the expression pattern of domeMESO-Gal4 UAS-2xEGFP (green) and differentiating hemocytes by Hml-dsRed (red). (C) CSN6^{RNAi} expression in progenitors (Hml-dsRed *domeMESO-Gal4 UAS-2xEGFP UAS-CSN6^{RNAi}*) causes loss of proper progenitor maintenance because progenitor also expresses differentiating cells marker (yellow cells); loss of other CSN subunit in progenitor also causes the similar phenotype. (D) Cul1^{RNAi} in progenitors causes loss of progenitor phenotype. (E) Nedd8 knowdown in progenitor also causes the similar phenotype. (F) Expression of Skp-A^{RNAi} in progenitor causes small LG with a small number of differentiating cells. (G) Intermediate progenitor (IP) of LG mark by CHIZ>mGFP (green), DNA damage marker γH2Av (yellow) and apoptosis marker Dcp1 (red), nuclei maker DAPI (blue). (H-H) Higher magnification of (G) which shows a subset of cells both Dcp1 and γH2Av. Though some cells are only Dcp1 positive (arrowhead). (I-I) γH2Av and TUNEL staining in LG do not co-localized. (B-I) All are representative confocal fluorescence pictures of LGs shown are from third instar larvae.

Investigating the role of DNA damage response pathways in hematopoiesis

Hematopoietic Stem and progenitor cells (HSPCs) accumulate DNA damage during aging. As a result, the aged hematopoietic system prone to myeloid leukemia by abnormal proliferation of progenitors and also decreased immunity. Recent studies have found that DNA damage response (DDR) pathways are critical in preserving the quiescent HSPCs. Alteration of DDR and repair pathways in HSPCs cause cells entry into cell cycle that leading to HSPCs exhaustion. The specific details of how DDR and repair pathways impinge upon regulation in HSPCs maintenance have not been addressed. Similar to human older HSPCs, in *Drosophila* lymph gland, some cells are DNA damage marker γH2Av (homolog of γH2AX) positive except this is during normal development. We observed that lymph gland intermediate progenitors are DNA damage markers γH2Av and p-Chk1 positive, but those cells are not in the S phase of the cell cycle. Therefore, we used this lymph gland as an *in vivo* model to find novel mechanism related to DDR pathways that potentially involved in human hematopoiesis for proper maintenance of HSPCs.

We observed that some of the intermediate progenitor cells are effector caspase protein of the apoptosis pathway Dcp1 positive. Additionally, γH2Av positive cells in lymph gland are also Dcp1 positive except for some Dcp1 positive cells (Figure G, H-H"'). We also found another apoptosis/DNA damage marker TUNEL staining in lymph gland cells. Though higher intensity TUNEL positive cells not co-localized with γH2Av positive cells (Figure I-I"). Thus, these data indicate heterogeneity within the intermediate progenitors. Next, we will test whether those cells are going to die or use similar cell death pathways, but they differentiate to mature blood cells instead of dying. Furthermore, we will test which signaling pathways activate this apoptosis cum DDR pathways for blood cell differentiation.

We also screened RNAi lines to gene knockdowns, which are involved in DDR pathways to test whether these pathways require for the blood cells development. Our preliminary data suggest FANCL, FANCD2, Rad51, and Ku70 have a role in blood progenitor maintenance. We will screen in details of each component involved in various DDR pathways to understand: (a) Which pathways blood progenitor use to repair their DNA damage? (b) How they repair? (c) Why they prefer to use a particular method than others, or it handles all types of repair mechanism available to them? We will test whether DNA damage requires for all the blood cells differentiation. We will evaluate whether CSN has a role in regulating DDR pathways in blood cell differentiation.

Laboratory of Drosophila Hematopoiesis

अन्य वैज्ञानिक सेवाएँ / सुविधाएँ
Other Scientific Services / Facilities

Experimental Animal Facility

Faculty Coordinators: **Murali D Bashyam**
Rashna Bhandari

In-charge: S. Harinarayana Rao

Members: Pranjali Pore
A. Sheeba
Sridhar Kavela
Navitha Bedarakota

Objectives

The main objective of the Experimental Animal Facility (EAF) is to breed, maintain and supply laboratory animals to institutional scientists. Breeding and experimentation of all strains of mice is undertaken in individually ventilated caging systems. We support research programmes that promote the health and wellbeing of people and animals by facilitating high quality and scientifically sound research with animals. We comply with regulatory government body (CPCSEA) requirements for animal experimentation and breeding. The EAF maintains a stable and contained environment for animals and personnel working in the facility, to ensure consistent animal quality and reduce operational costs.

Work undertaken during 2018-19

In November 2018, the CDFD Laboratory Animal Facility shifted from within the premises of M/s Vimta Labs Limited to CDFD's own Experimental Animal Facility at the CDFD campus at Uppal, Hyderabad. Leading up to this, after completion of construction, we prepared the facility for compliance and registration with CPCSEA. We conducted testing and validation of the HVAC system, pass boxes, air showers, autoclaves, IVC caging system, and cage washing equipment, and procured requisite consumables. The Facility was inspected by CPCSEA on 22nd Sep, 2018, and received registration with CPCSEA (Registration No: 2035/GO/RBi/S/18/CPCSEA) on 28th Sep 2018. The CDFD Institutional Animal Ethics Committee (IAEC) was constituted, and approved the transfer of mice strains from the CDFD Laboratory Animal Facility at M/s Vimta Labs Limited, to CDFD's own EAF at Uppal campus. Subsequently, the IAEC reviewed and approved 22 projects for ongoing and new studies conducted by CDFD scientists.

Standard Operating Procedures (SOPs) were prepared for the new CDFD EAF as per CPCSEA guidelines and all EAF staff were trained accordingly. The EAF was fumigated and mouse colonies were transferred from the CDFD

Experimental Animal Facility Group

Laboratory Animal Facility at M/s Vimta Labs Limited. All mice were subjected to the mandatory quarantine period before introducing them into the animal rooms. No health-related issues and no mortalities were noticed during the transfer and the quarantine period. After adapting to changes in husbandry and feed at the new facility, all mice are breeding well.

The CDFD EAF currently houses five inbred mouse strains including BALB/c, C57BL/6, *Ip6k1*, *NnatΔNEO/Δl*^{2} and *Foxn1*^{nu}. Mice were bred to expand the colonies and 1133 mice were supplied to users for IAEC approved experimentation. Several research studies were conducted at the EAF including use of BALB/c mice to study the effect of *Mycobacterium tuberculosis* protein PPE18 coated nanoparticles on microbial sepsis, and studying the *in vivo* anti-inflammatory roles of recombinantly purified *Mtb* PPE2 and PPE18 proteins.

Now that the CDFD EAF is operational, we plan to expand our breeding colonies, and house rabbits and additional transgenic mouse strains to add to the repertoire of experimental animal research being conducted at CDFD. We also aim to develop cryopreservation, archiving and retrieval of transgenic mouse strains for future use.

Bioinformatics

In-charge: **M Kavita Rao**

Members: R Chandra Mohan
Prashanthi Katta
S Vijay Kumar
Dinesh Thakur
B Laxminarayana

Objectives

The critical service of the institute is to maintain various servers, workstations, PCs, printers and other peripheral devices; to maintain and regularly update the CDFD website; to provide web based services and e-mail services, institute-wide LAN/WAN as well as internet connectivity; to secure CDFD network from network security threats; to integrate institute's network into National and International grid computing networks; and to coordinate the procurement and installation process of servers, workstations, PCs, laptops, printers, other peripheral devices with requisite software/licenses.

Work undertaken during 2018-19

The installation and configuration of high-end LAN and wi-fi network equipment for campus-wide permanent buildings at Uppal with intranet connectivity between non-contiguous lab and hostel buildings was successfully undertaken. All the activities related to installation, administration and maintenance of high-end servers which provide various services, research databases and computational jobs as well as installation of newly procured PCs with anti-virus software were undertaken. The internet, web, email and other intranet services are being maintained in-house and have been provided to users with upgraded functionalities. The email server was migrated to a new server and upgraded with latest version of Zimbra with doubled mailbox quota, improved spam control and chat feature made available for instant messaging. An intranet online ticketing system for raising Admin, Engg, Estate related issues as well as a conference related webpage was designed and developed in-house. The technical and budgetary inputs with justification for procurement proposal of computing infrastructure; lab renovation to set up a Data Centre as part of the National Genomics Core project, were timely furnished for onward submission to DBT. The license of network security firewall of the institute to maintain proper network health and secure from network threats, was renewed for three years i.e up to 2021.

Bioinformatics Group

Instrumentation

Head: **Raghavendrachar J**

Members: R N Mishra
S D Varalaxmi
M Laxman
RMK Satyanarayana
T Ramakrishna Reddy

Objectives

To maintain repair and service all the equipment in laboratory. To provide pre-installation requirements for new instruments and to coordinate with the manufacturers / their agents in installation and warranty service of the new instruments. Also to provide reports on the newly arrived instruments and to follow up with suppliers for short shipped items.

Work undertaken during 2018-19

During the year 2018-19, we have installed 131 new equipment, including Leica SP8 Super Resolution Confocal Microscope, French Press, Thermo Atomic Absorption Spectrophotometer, Sorvall Lynx High Speed Centrifuges, RT-PCR Machines, Axio Imager Fluorescence Microscope, Chemidocs, Water Bath Shakers, Refrigerated Table Top Centrifuges, Jasco Spectrophotometers, Non refrigerated centrifuges, PCR Machines, Refrigerated Incubators, Refrigerated Incubator Shakers, Power supplies, etc. and we have also completed 338 work orders for repair & maintenance of various laboratory equipment.

We were involved in re-installation of all the equipment brought from CDFD's erstwhile interim lab building at Nampally. We have set up the Sophisticated Equipment Facility in the new laboratory building and got all the high-end equipment re-installed. We organized installation of new equipment and transfer of equipment from the CDFD Animal Facility at Vimta Labs to set up the Experimental Animal Facility at the CDFD Uppal campus. We also coordinated in handing over the premises at Vimta labs. We have set up the Seminar Hall equipment and Director's committee room with projectors, and installed telecommunication network for the new building. In addition, we were involved in organizing the audio & visual requirements for presentations in various seminars, lectures and workshops, CDFD Foundation day lectures, CDFD inauguration function, CDFD open days and cultural functions.

We have maintained most of the equipment with maximum uptime in the laboratory. Most of the instruments are maintained by our Instrumentation staff, thereby saving on expensive AMCs and with very little downtime of the equipment.

Instrumentation Group

Sophisticated Equipment Facility

Head: **Vinod Kumar Mishra**

Members:
Ch V Goud
K Sreethi Reddy
Bala C
Mohd. Mudassir
Abijeet Thakur
Vishwa Kalyan

Objectives

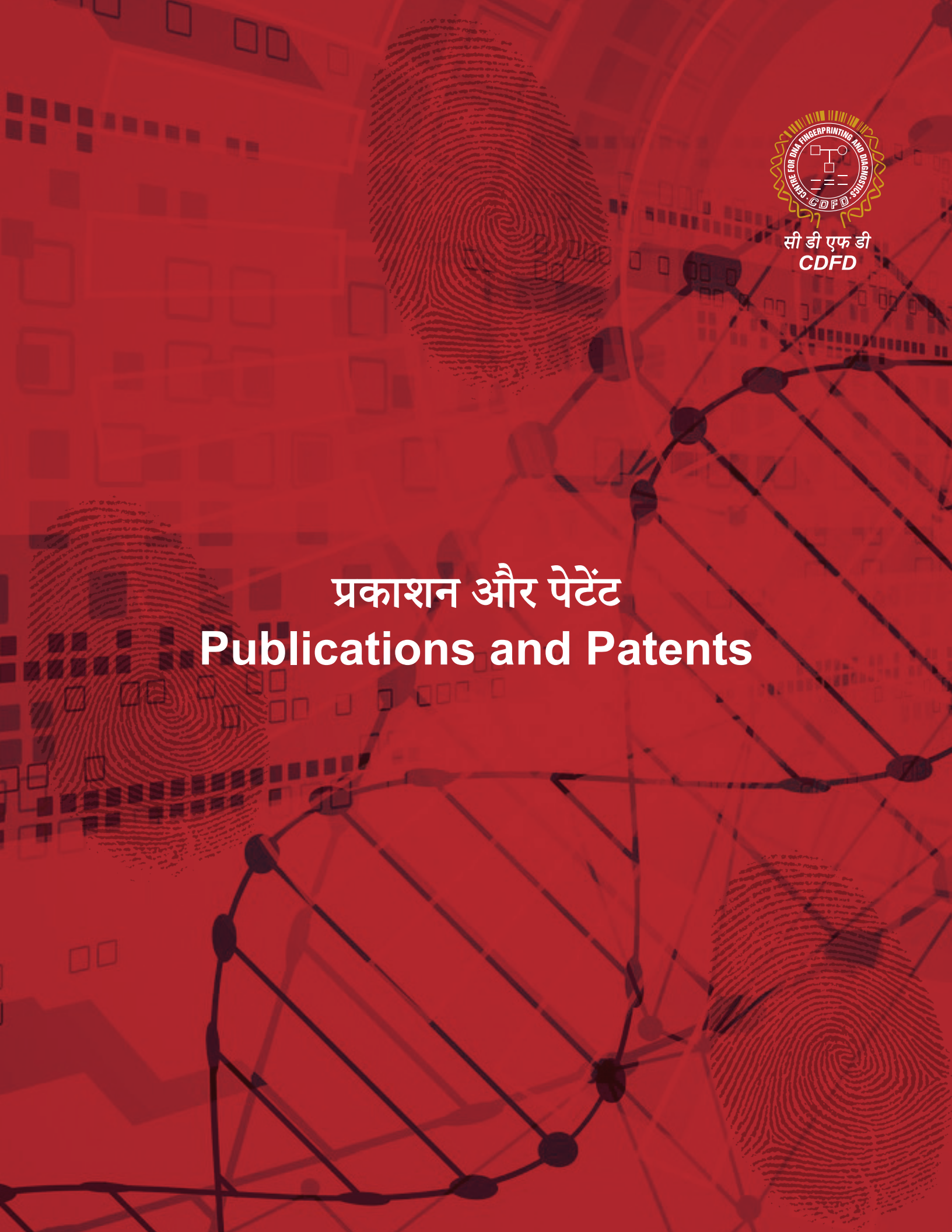
In order to maximize the utilization and management of all high end equipment at CDFD, these have been brought under a single umbrella called the Sophisticated Equipment Facility (SEF). The main objective of SEF is to extend testing and analysis facilities to researchers at CDFD, and at other academic institutions, R & D laboratories and industry. SEF also organizes short term courses/workshops on the use and application of various instruments and analytical techniques. Training of technicians is undertaken for maintenance and operation of sophisticated instruments. The SEF minimizes duplication of expensive equipment and leads to better utilization of instruments for multiple users.

Work undertaken during 2018-19

The major services available at SEF include (i) **Genomics -**DNA sequencers and real-time PCR; (ii) **Proteomics -** HPLC, GC-MS, Circular Dichroism spectropolarimeter, 2D electrophoresis; (iii) **Cellomics -** confocal microscopy, live cell imaging, fluorescence activated cell sorting and flow cytometry; (iv) **Tissue processing** for histology

A new Confocal Microscope (Leica SP-8) was successfully installed in the facility and is being used by internal and external researchers. We analysed samples received from several users within and outside CDFD, including ~20000 for DNA sequencing and genotyping. SEF coordinated with scientific groups heads to conduct training for users on different equipment. Routine activities related to installation, administration and maintenance of various sophisticated equipment in the facility were carried out. We worked with users and Instrumentation section for annual and comprehensive maintenance contracts to ensure smooth functioning of high-end equipment at the facility. Outreach programmes were conducted to educate school and college students regarding the services offered by us and about efficient use of high end equipment. The SEF worked to promote the idea of using a centralized facility for various R & D activities within CDFD as well as other academic institutes and private research organizations. Various companies had the opportunity to display their high end equipment in CDFD.

Sophisticated Equipment Facility Group



प्रकाशन और पेटेंट
Publications and Patents

CDFD Publications 2018-19

(1 April 2018 to 31 Mar 2019)

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3. Aggarwal S, Das Bhowmik A, Tandon A and Dalal A (2018). Exome sequencing reveals blended phenotype of double heterozygous FBN1 and FBN2 variants in a fetus. ***European Journal of Medical Genetics***, 61 (7): 399-402
4. Ahmed A, Dolasia K and Mukhopadhyay S (2018). Mycobacterium tuberculosisPPE18 Protein Reduces Inflammation and Increases Survival in Animal Model of Sepsis. ***Journal of Immunology,*** 200 (10): 3587-3598
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13. Cavaco C, Pereira JAM, Taunk K, Taware R, Rapole S, Nagarajaram HA and Câmara JS (2018). Screening of salivary volatiles for putative breast cancer discrimination: an exploratory study involving geographically distant populations. ***Analytical and Bioanalytical Chemistry***, 410 (18): 4459-4468
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16. Das Bhowmik A, Dalal A, Tandon A and Aggarwal S (2018). Exome sequencing identifies novel

ACE splice-site variant in a fetus with renal tubular dysgenesis. ***Journal of Obstetrics and Gynaecology Research,*** 44(12): 2181-2185

17. Das Bhowmik A, Patil SJ, Deshpande DV, Bhat V and Dalal A (2018). Novel splice-site variant of UCHL1 in an Indian family with autosomal recessive spastic paraplegia-79. ***Journal of Human Genetics***, 63(8): 927-933

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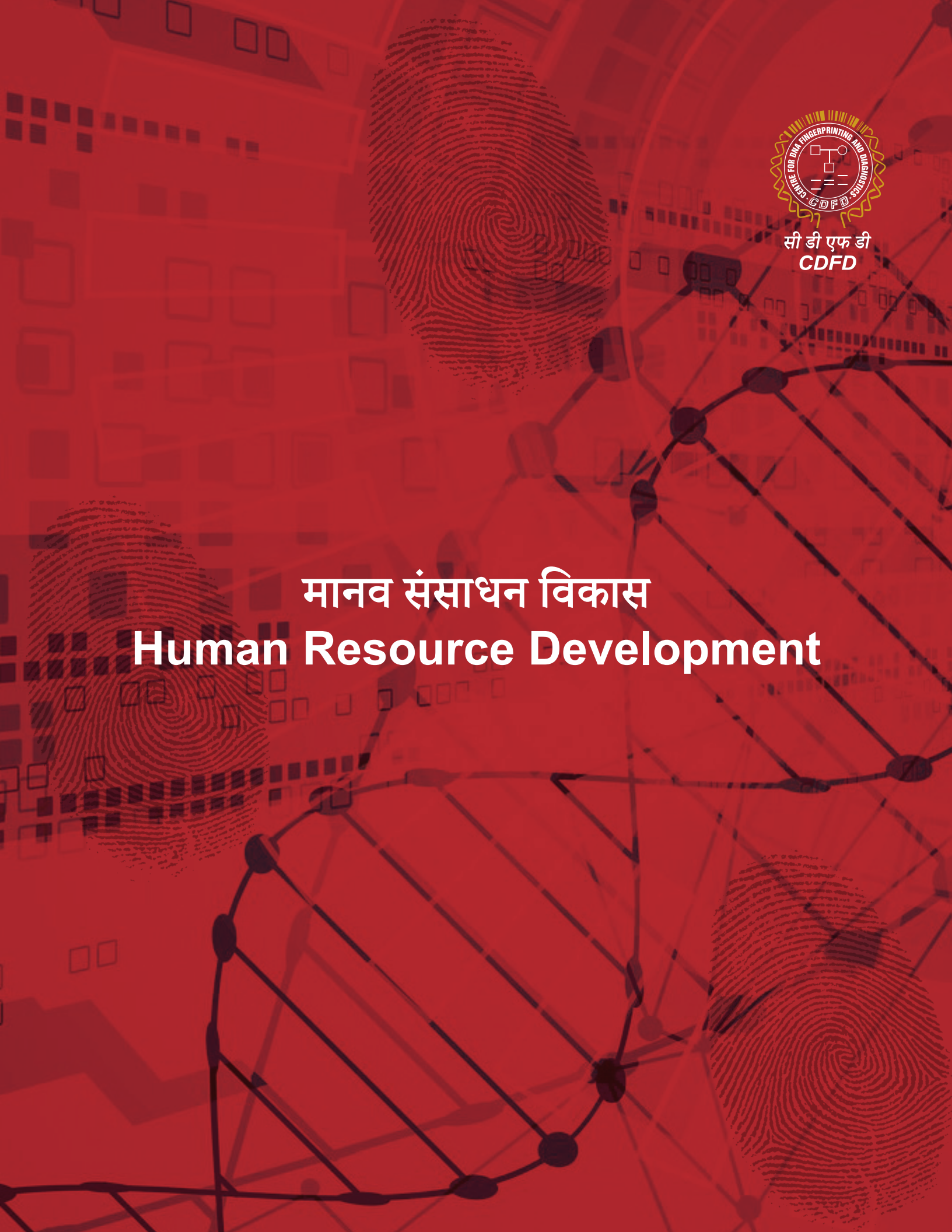
Patents filed:

Ranjan Sen and Gairika Ghosh. 'Novel Synthetic Peptides': Indian Patent Application No. 201841048582 filed on December 21, 2018.

Mukhopadhyay S, Pal R and Battu MB. A novel therapeutic to treat inflammation and tissue injury (Provisional patent filed in January 8, 2019 with application number 201941000876).



मानव संसाधन विकास
Human Resource Development

PhD Program

The students admitted as Junior Research Fellows (JRFs) are encouraged to take admission in the PhD program of Manipal Academy of Higher Education, University or University of Hyderabad, Regional Centre of Biotechnology or AcSIR. Keeping in view the interdisciplinary nature of scientific research, the Centre especially encourages persons from different scientific disciplines to take up challenges in various areas of modern biology.

The eligibility for the program is Masters degree in any branch of Science, Technology or Agriculture from a recognized University or Institute or MBBS. Candidates must have cleared National Eligibility Test (NET) with a valid fellowship. Eligible candidates are invited for a written examination followed by interviews of shortlisted candidates.

As of March 31, 2019 the Centre has 99 Research Scholars working for their doctorates in different areas of research. In the reporting year 14 of the Research Scholars have completed PhD and are pursuing careers in science elsewhere in India or abroad.

Postdoctoral Program

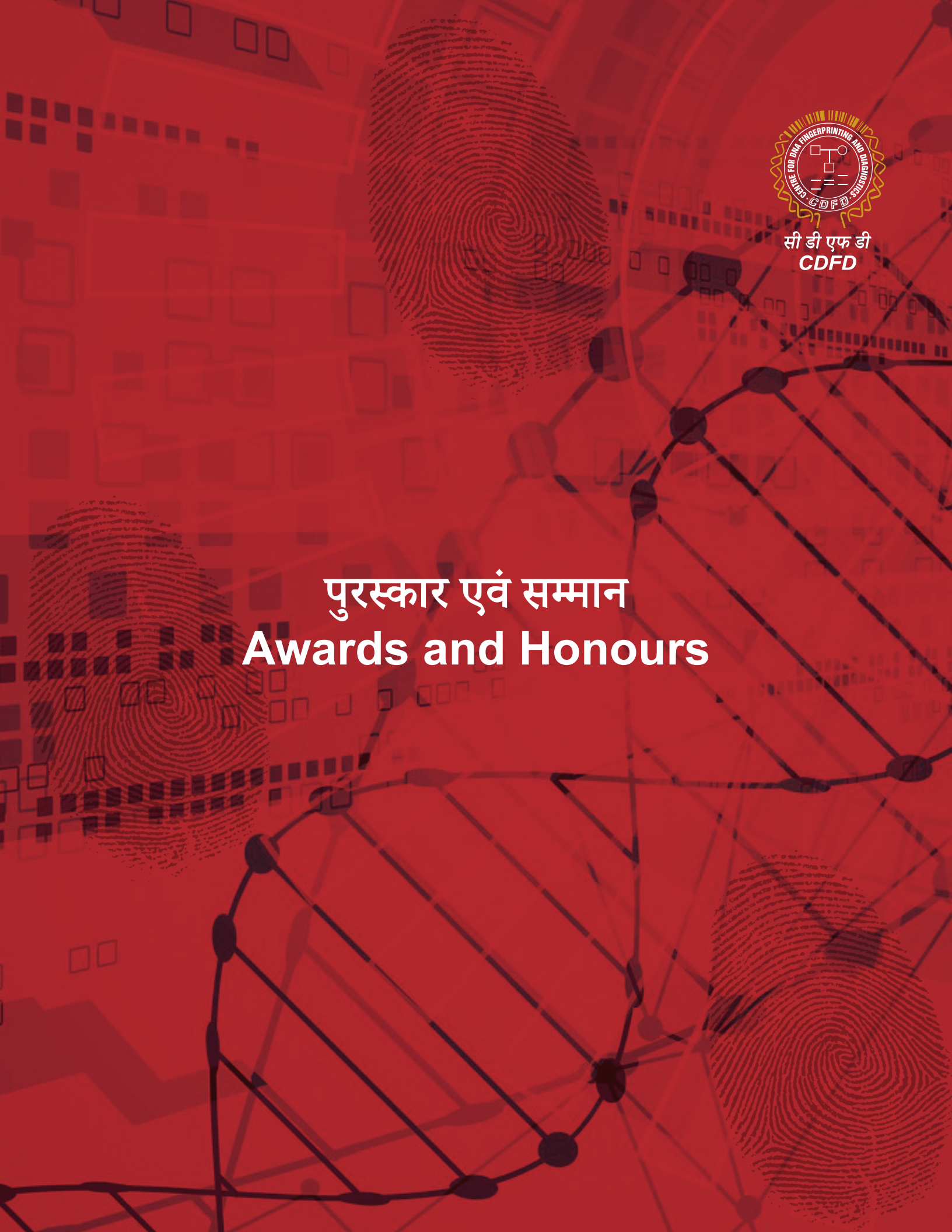
In addition to the JRF program, the Centre also carries out training at the post-doctoral level. The post-doctoral fellows are funded through the extramural grants that CDFD receives. Some post-doctoral fellows are also selected competitively by the DST fast track young scientist scheme or the DST N-PDF program or the DBT post-doctoral fellowship program.

Summer Training Program

CDFD provides admissions to summer training program to those students who are supported either by the Indian Academy of Science, Bangalore or Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore or the Kishore Vigyanik Protsahan Yojna, New Delhi. In the reporting year 16 students received summer training at the Centre.

Dissertation based Research Training for students

Under this programme, the students spend 4 - 6 months at CDFD and work on active projects being carried out. The project work helps the students in gaining hands-on experience in modern biology. In the reporting year, 12 students were given the opportunity to avail training under this programme.



पुरस्कार एवं सम्मान
Awards and Honours

AWARDS & HONOURS

FACULTY & STAFF		
1.	Dr. Sangita Mukhopadhyay	TATA Innovation Fellowship from DBT.
2.	Dr. M. Subba Reddy	1. NASI Scopus Young Scientist Awards 2018 (Biomedical Research and Healthcare Category). 2. DBT-National Bioscience award for Career Development-2017 & 18.
3.	Dr. Subhadeep Chatterjee	DBT-National Bioscience award for Career Development-2017 & 18
4.	Dr. Rupinder Kaur	1. Elected as fellow of the National Academy of Sciences, India (2018). 2. Elected as fellow of the Indian Academy of Sciences, Bangalore (2019).
5.	Dr. Sanjeev Khosla	Elected as fellow of the National Academy of Sciences, India (2018).
6.	Dr. Murali D Bashyam	1. Elected as fellow of A.P. Akademi of Sciences (2018). 2. Elected as fellow of the Telangana Academy of Sciences (2018).
8.	Dr. V. Punnaiah	Elected as Fellow of Institution of Electronics and Telecommunication Engineers, New Delhi.
9.	Dr. J. Gowrishankar	Distinguished Biotechnology Research Professorship award of DBT for the year 2018-19.
PhD STUDENTS & PROJECT PERSONNEL		
1.	Dr. R. Nagender Rao	HUPO travel stipend and GP Talwar Travel Bursary award to attend the HUPO 2018 in Orlando, Florida from 25-29 September 2018.
2.	Dr. Rajendra CVE	First prize for the poster presentation at the 7th Innovators Conclave of BIRAC held during the Innovators Meeting in September, 2018.
3.	Dr. Usha Dutta	Best poster award in the 44th Annual conference of the Indian Society of Human Genetics (ISHG) 2019: Genomics for Health and Precision Medicine which was jointly organized by National Institute of Biomedical Genomics (NIBMG) and the University of Kalyani, Kolkata from 30.01.2019 to 01.02.2019.
4.	Mr. Animireddy Srinivas	1. Travel grant from CSIR for attending the international conference organized by Cold Spring Harbor laboratories from 11-15 September 2018. 2. Travel grant from DBT for attending the international conference organized by Cold Spring Harbor laboratories from 11-15 September, 2018.
5.	Ms. Ashmala Naz	1. Travel support to attend IISF meeting in Lucknow from 4-8 October 2018. 2. Travel grant from DBT to attend the annual AACR meeting in the USA.
6.	Mr. Biswajit Samal	1. Travel grant from CSIR to attend ASM Microbiology meeting 2018 in Georgia, USA. 2. American Society of Microbiology Student Travel Award for oral presentation at the ASM meeting Atlanta, Georgia, USA from 7-11 June, 2018.
7.	Mr. Debashis Kumar Ghosh	Grant from SERB to attend an international conference in Italy from 5-10 November 2018.

8.	Mr. Dev Ashish Giri	Perkins Travel award to attend the Neurospora Information Conference at Asilomar Conference Centre, Pacific Grove, California, USA from 18-21 October 2018.
9.	Ms. Dipti Deshpande	1. Selection to participate in the CiRA special training course on "Generation and maintenance of human iPS cells" (from 6-12 November 2018) at Center for iPS Cell Research and Research and Application Kyoto University, Japan Supported by DBT and CiRA. 2. Travel grant from ICMR for attending ASHG2018, San Diego, CA, USA from 16-20 October 2018.
10.	Ms. K M Rohini	Cash award of PhD Poster presentation competition held at Manipal University on 4th April, 2018.
11.	Ms. Komal Dolasia	1. International travel grant from ICMR to attend Conference at Keystone Symposia on B Cell-T Cell Interactions, USA from 10-14 February 2019. 2. Travel grant from DST-SERB To attend Keystone Symposia on B Cell Interaction, USA from 10-14 February 2019.
12.	Mr. Mubashshir Rasheed	1. Travel grant from SERB under International Travel Support Scheme for attending 'Immunology of Fungal Infections Gordon Research Conference at Galveston, Texas, USA from 13-18 January 2019. 2. Travel award to participate in the 'Immunology of Fungal Infections Gordon Research Conference' at Galveston, Texas, USA from 13-18 January 2019.
13.	Ms. Pratyusha Bala	1. NGBT YUVA Scholarship award from SciGenome Research Foundation. 2. Outstanding poster presentation award from EMBO journal at the NGBT meeting held at Jaipur from 29.09.2018 to 02.10.2018.
14.	Ms. Rashmi Sipani	Travel grant from both DBT-CTEP and CSIR for attending the 17th European Drosophila Neurobiology Conference-Neurofly 2018 at Krakow, Poland from 3-7 September, 2018.
15.	Mr. Sayantan Goswami	PLOS Genetics – Poster Presentation award at the Chromosome Stability Meeting – 2018 held at JNCASR, Bengaluru from 14-18 December 2018
16.	Ms. Shalini Aricthota	Travel grant from CSIR, to attend Keystone Symposia Conference, USA from 13-17 January 2019.
17.	Ms. Shubhra Ganguli	Certificate of Appreciation of PhD Poster presentation competition held at Manipal University on 4th April, 2018.
18.	Mr. Swapnil Shinde	Finalist for 2019 Inspiring Science Award for PTEN-SNX27 paper, the work he carried out at CDFD.
19.	Mr. Varun J Shah	1. Travel grant from SERB to attend "Ubiquitin and Cellular Regulation" conference in USA from 17-22 June 2018. 2. Best poster award at NGBT conference-2018 held at Jaipur from 30.09.2018 to 02.10.2018.

विभिन्न कार्यक्रम
Various Events

Inauguration of new campus by Hon'ble Minister Dr. Harsh Vardhan

The Survey of India (SoI) had earmarked approximately 20 acres of land in two non-contiguous segments of 16 and 4 acres at its Uppal campus in Hyderabad for CDFD to establish its permanent campus. Upon completing the construction of its research labs, CDFD is now fully functional from its own campus at Uppal.

Dr. Harsh Vardhan, the Hon'ble Minister for Science & Technology, Earth Sciences, Environment, Forest and Climate Change, Govt. of India, inaugurated the new campus of CDFD on Sunday, August 12th. He was accompanied by Dr. Renu Swarup, Secretary, Dept. of Biotechnology (DBT), Govt. of India, and Dr. A K Rawat, Director, DBT, and scientific coordinator for CDFD.

The inaugural ceremony commenced with lighting of the lamp and the national song. Dr. Debashis Mitra, Director CDFD, delivered the welcome address. Dr. Renu Swarup congratulated CDFD on moving to its new campus, and Dr. A K Rawat also addressed the gathering. Dr. Harsh Vardhan enlightened everyone with his encouraging and motivating words. He applauded the beautiful new CDFD campus, and commended the contribution of its scientists to research and services for the past twenty years.

Inauguration of CDFD New Campus by Dr. Harsh Vardhan, Hon'ble Union Minister for Science & Technology, Earth Sciences and Health & Family Welfare

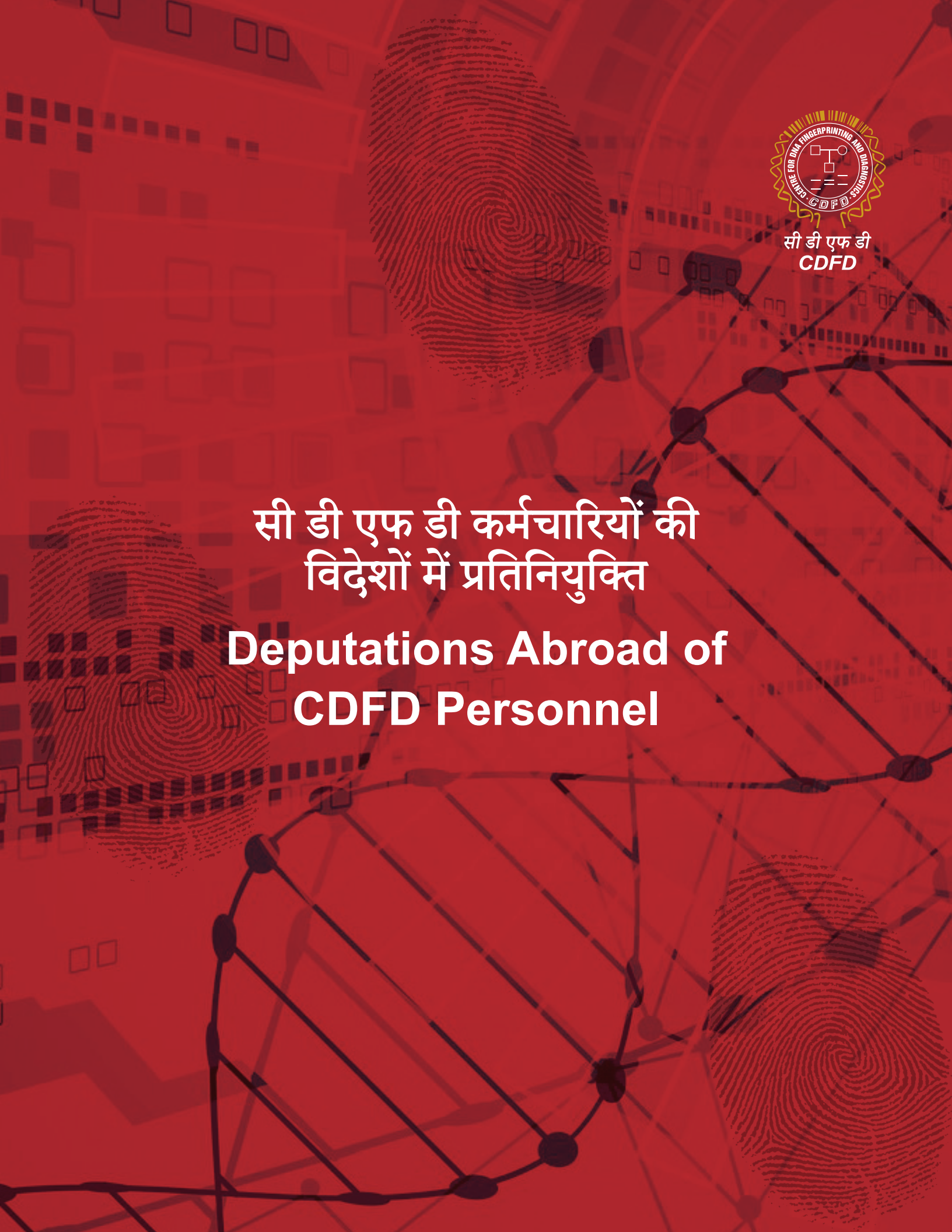
IMPORTANT EVENTS

Sl.No.	Event	Date
1.	44th CDFD Governing Council Committee meeting held in DBT, Delhi	18.04.2018
2.	Swachhta Pakhwada	1-15 May 2018
3.	Observance of Anti-Terrorism Day	21.05.2018
4.	International Yoga Day Celebrations	21.06.2018
5.	20th Transcription Assembly Meeting 2018	25-27 July 2018
6.	Inauguration of new campus by Dr Harsh Vardhan, Hon'ble Minister, Ministry of Science and Technology, Earth Sciences, Environment, Forest and Climate change, Govt. of India in presence of Dr. Renu Swarup, Secretary, DBT	12.08.2018
7.	Independence Day Celebrations	15.08.2018
8.	Sadbhavana Diwas	20.08.2018
9.	20th RAP-SAC meeting	31st August & 1st September 2018
10.	Hindi Day celebrations	14-28 September 2018
11.	Open Day in connection with IISF Celebrations -2018	25.09.2018
12.	Observance of Swachhta Hi Seva -2018 (SHS) as a part of 150th Birth year of Mahatma Gandhi (15.09.2018 to 02.10.2018)	Special drive on 01.10.2018
13.	Vigilance awareness week 2018	29.10.2018 to 03.11.2018
14.	Observance of Rashtriya Ekta Diwas (National Unity Day)	31.10.2018
15.	38th Finance Committee	01.11.2018
16.	45th CDFD Governing Council Committee meeting held in DBT, Delhi	02.11.2018
17.	MoU between CDFD and Prasad Research Foundation (PRF), West Marredpally, Secunderabad	19.12.2018
18.	28th Building Committee meeting held in CDFD	20.12.2018
19.	MoU between CDFD and FSL, Government of Goa	31.12.2018
20.	Renewal of MoU between CDFD and Nizam's Institute of Medical Sciences (NIMS), Hyderabad	25.01.2019
21.	Republic Day Celebration	26.01.2019
22.	Open Day	28.01.2019
23.	Observance of Martyrs' Day	30.01.2019
24.	MoU between CDFD and AcSIR for Ph.D. Program.	01.02.2019
25.	Molecular Immunology Forum (MIF) at Leonia Holistic Destination, Hyderabad	7-9 February 2019
26.	Productivity Week Celebrations	12-18 February 2019
27.	National Science Day Celebrations	28.02.2019
28.	Visit of police officers from National Police Academy to CDFD.	7-8 March 2019
29.	International Women's Day Celebrations	08.03.2019

LECTURES

Visitor	Title of Lecture	Date
Dr. Shekhar C Mande National Centre for Cell Science (NCCS, Pune)	Structural basis of redox sensing in M. tuberculosis	09.04.2018
Dr. Anindito Sen Life Sciences M/s Thermo Fisher Scientific	Worldwide Update: Cryo EM-From structural to Cellular Biology	13.04.2018
Dr. Siddappa Byrareddy Associate Professor Department of Pharmacology and Experimental Neuroscience Nebraska Center for Substance Abuse Research Durham Research Center Nebraska Medical Center, Omaha	Integrin Based Strategies to Cure HIV/AIDS	24.04.2018
Dr. Vidya Vedham Program Officer Center for Global Health, Office of the Director National Cancer Institute, NIH, USA</strong	Enhancing NCI's Mission to Reduce the Global Burden of Cancer: An Overview of Research and Training Programs at the Center for Global Health	02.07.2018
Dr. Mahendra Sonawane TIFR, Mumbai	Actin based epithelial projections in zebrafish: regulation of their formation, patterns and function	03.07.2018
Prof. Animesh Ray KECK Graduate Institute California, USA	Diseases and the robust genome	09.07.2018
Dr. Quasar Salim Padiath Associate Professor Dept. of Human Genetics University of Pittsburgh, USA	The nuclear lamina and the regulation of cellular function, development and disease	09.08.2018
Dr. Sreenivas Chavali MRC Laboratory of Molecular Biology Cambridge, UK	When Nature Stammers: Function, regulation and evolution of repeat containing proteins	14.08.2018
Dr. Smita Jain Associate Director India Bioscience Bangalore	Life Sciences and Careers	17.08.2018
Dr. Arjumand Ghazi Associate Professor Univ. of Pittsburg, USA	Fat, Fertility and Immunity in an Aging Worm	20.08.2018
Prof. D. Balasubramanian Director Emeritus of Research L.V. Prasad Eye Institute Hyderabad	The Birth and Growth of Biotechnology in India	03.10.2018
Dr. Sorab Dalal Senior Scientist ACTREC, Mumbai	LCN2 could be a potential therapeutic target in multiple tumor types	05.10.2018

Visitor	Title of Lecture	Date
Dr. Ranjan Sen Chief, Laboratory of Molecular Biology and Immunology Biomedical Research Center National Institutes of Health/ National Institute on Aging Baltimore	Kinetic patterning of NF-kB-dependent gene expression	06.12.2018
Dr. Madhu Dixit THSTI National Chair	Molecular mechanisms involved in ROS generation and microbial killing by neutrophils	14.12.2018
Dr. Nitya G. Chakraborty Associate professor of Medicine, University of Connecticut School of Medicine, Connecticut, USA	Opportunities and obstacles for immunotherapy of cancer	11.01.2019
Prof. Seyed E. Hasnain Vice Chancellor Jamia Hamdard (Deemed to be University), New Delhi	Why Biological Sciences will dominate the Science Canvas for the next 100 years	28.01.2019
Prof. Rakesh Kumar Distinguished Professor National Chair in Cancer Research Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram.	A peek into the next generation of Oncobiology Pathways Germane to the p21-activated Kinases	11.02.2019
Prof. Niels Tommerup Director Wilhelm Johannsen Centre for Functional Genome Research Department of Cellular and Molecular Medicine (ICMM), University of Copenhagen, Denmark	Balanced Chromosomal Rearrangements as windows into the Developmental Regulome	15.02.2019
Dr. Thomas J Pucadyil Associate Professor IISER Pune and HHMI International Research Scholar	Membrane fission for the masses: Novel screens for discovering membrane fission catalysts	18.02.2019
Prof. Balaji K. N J.C. Bose National Fellow Department of Microbiology and Cell Biology Indian Institute of Science Bangalore	Mycobacteria-driven epigenetic modulation of host immune responses	19.02.2019
Dr. Urmi Chatterji Cancer Research lab. Dept. of Zoology University of Calcutta, Kolkata	Obliterating the Resident Evil	22.03.2019



सी डी एफ डी कर्मचारियों की विदेशों में प्रतिनियुक्ति

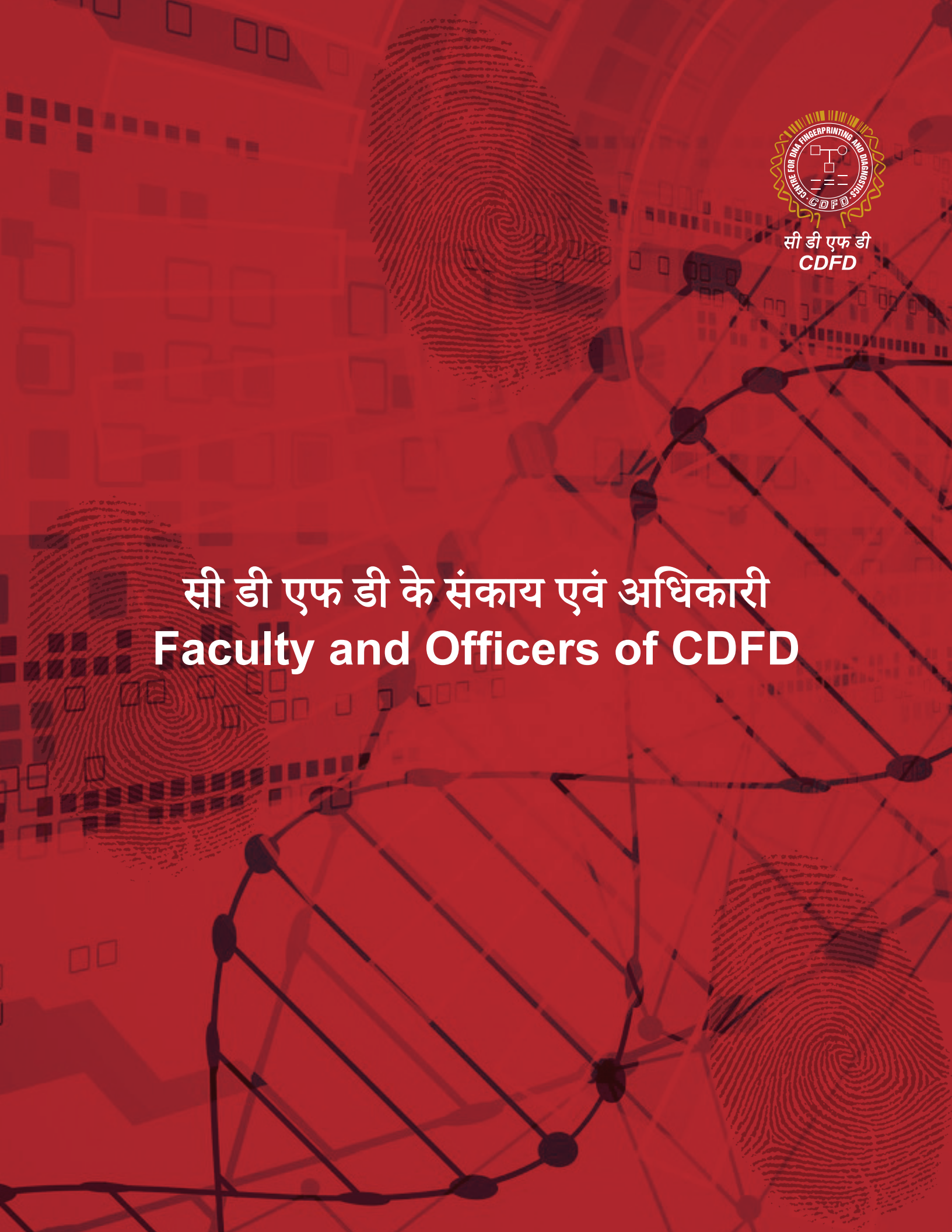
Deputations Abroad of CDFD Personnel

Annexure – I

List of Staff Members who had been abroad on deputation during the period from 01.04.2018 to 31.03.2019

Sl. No.	Name of the Employee & Designation	Duration of visit		Place & purpose of visit
1.	Dr. Murali Dharan Bashyam, SS-VI	12.04.2018	24.04.2018	**USA:** (i) To visit his collaborator at the Northwestern University, Chicago on 13.04.2018. (ii) To attend and present his work at "American Association for Cancer Research (AACR) Annual Meeting 2018" held during 14-18 April, 2018 at Chicago. (iii) To visit University of Pennsylvania during 19-23 April, 2018.
2.	Dr. Sanjeev Khosla, SS-VI	02.08.2018	06.08.2018	**Russia:** To attend the first Collaboration Workshop on the project entitled "Epigenetics of macrophages during Mycobacterium tuberculosis infection", 2017-2019, BRICS STI FRAMEWORK PROGRAMME held during 02-06 August, 2018 at Research Center of Biotechnology, Russian Academy of Sciences (RAS), Moscow, Russia.
3.	Dr. Rupinder Kaur, SS-VI	13.04.2018	21.04.2018	**USA:** To attend 14th American Society for Microbiology (ASM) Conference on Candida and Candidiasis held during 15-19 April, 2018 at Providence, Rhode Island, USA.
		14.11.2018	18.11.2018	**UK:** To attend the Wellcome Researcher Meeting on Immunology and Infection Biology held during 15-16 November, 2018 at the Wellcome Conference Centre in Hinxton, Cambridge, UK, subject to approval of Ministry of Home Affairs, Government of India for acceptance of foreign hospitality.

Sl. No.	Name of the Employee & Designation	Duration of visit		Place & purpose of visit
4.	Dr. Ashwin B Dalal, SS-VI	14.06.2018	23.06.2018	**Italy:** (i) To attend satellite meeting of European Society of Human Genetics (ESHG) held on 15.06.2018 at Milan, Italy. (ii) To attend "European Society of Human Genetics (ESHG) Annual Meeting" held during 16.06.2018 to 19.06.2018 at Milan, Italy. (iii) Permitted to travel back on 23.06.2018 after availing Casual Leave for 03 days from 20.06.2018 to 22.06.2018 en-route.
5.	Dr. N Madhusudan Reddy, SS-V	22.05.2018	23.05.2018	**Sri Lanka:** To attend "3rd International Committee of the Red Cross (ICRC) Asia Conference on Management of the Dead" held at Colombo, Sri Lanka.
		20.09.2018	26.09.2018	**Germany:** (i) To attend the "3rd Max Planck Symposium for Alumni and Early Career Researchers" held during 20-23 September, 2018 at Harnack-Haus, Berlin, Germany. (ii) To visit Max Planck Institute for Evolutionary Anthropology (MPI-EVA) at Leipzig, Germany during 23-26 September, 2018 to meet Prof. Mark Stoneking to discuss about mutual areas of interest, including the manuscript preparation and submission and to plan for the future scientific cooperation / interactions.
6.	Dr. Subhadeep Chatterjee, SS-V	18.07.2018	21.07.2018	**Germany:** To attend and present a poster at the 6th Xanthomonas Genomic Conference (XGC 2018) and 2nd Annual EuroXanth Conference (COST action CA16107) 2018 held at Halle (Saale), Germany.



सी डी एफ डी के संकाय एवं अधिकारी
Faculty and Officers of CDFD

SCIENTIFIC GROUP LEADERS (FACULTY)

Dr. Debashis Mitra

Dr. Ranjan Sen

Dr. Sangita Mukhopadhyay

Dr. Murali Dharan Bashyam

Dr. Sanjeev Khosla

Dr. Sunil Kumar Manna

Dr. Akash Ranjan

Dr. Rupinder Kaur

Dr. Ashwin B Dalal

Dr. Rashna Bhandari

Dr. Devyani Halder

Dr. N. Madhusudan Reddy

Dr. Shweta Tyagi

Dr. M.V. Subba Reddy

Dr. Subhadeep Chatterjee

Dr. Rohit Joshi

Dr. Sardesai Abhijit Ajit

Dr. R. Harinarayanan

– Dr. J. Gowrishankar (INSA Senior Scientist)

– Dr. D.P. Kasbekar (INSA Senior Scientist)

– Dr. Bamacharan Mondal (Ramalingaswami Fellow)

ADJUNCT FACULTY

Dr. E.A. Siddiq

Prof. T. Ramasarma

Prof. Anuradha Lohia

Dr. Renu Wadhwa

Dr. Prajnya Ranganath

Dr. Shagun Aggarwal

OTHER GROUP LEADERS

Mr. Raghavendrachar J

Ms. Varsha

Dr. K. Anupama

Mr. Vinod Kumar Mishra

Ms. M. Kavita Rao

SENIOR ADMINISTRATIVE STAFF

Mr. J. Sanjeev Rao

Mr. E.V. Rao

Mr. G. Ravindar

Mr. Tanniru Abhishake

Director's Office

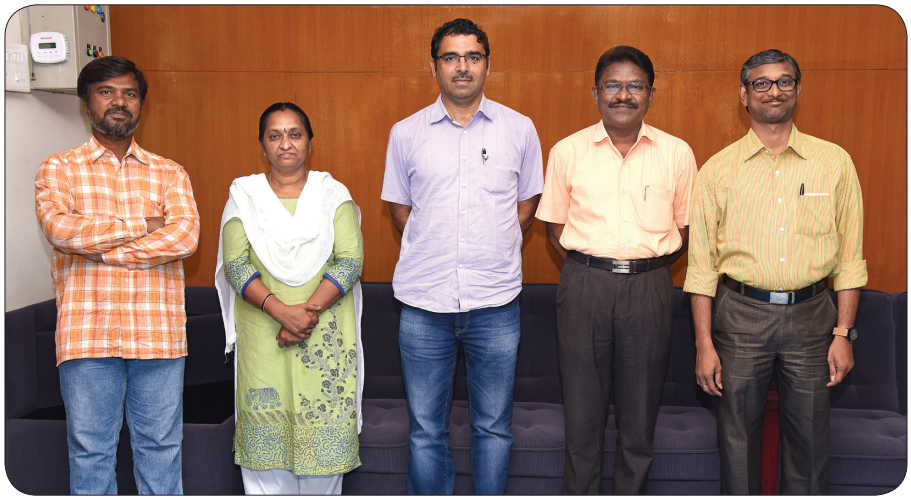
Science Communication Section

Administration Section

Finance and Accounts Section

Sophisticated Equipment Facility Section

DDO Section



EMPC Section

Engineering Section

Library Section

Stores and Purchase Section

Estate Section

Security Section

Transport Section

केन्द्र की समितियाँ
Committees of the Centre

(a) Members of the Institutional Bio-safety Committee (IBSC):

1.	Dr. Sangita Mukhopadhyay, Staff Scientist - VI, CDFD	-	Chairperson
2.	Dr. Arvind Kumar, Principal Scientist, CCMB	-	DBT Nominee
3.	Dr. Rashna Bhandari, Staff Scientist – VI, CDFD	-	Member Secretary
4.	Dr. Krishnaveni Mishra, Asso. Professor, Department of Biochemistry, SLS, University of Hyderabad, Hyderabad	-	Outside Expert
5.	Dr. Ashwin B Dalal, Staff Scientist – VI, CDFD	-	Biosafety Officer
6.	Dr. M D Bashyam, Staff Scientist – VI, CDFD	-	Internal Expert
7.	Dr. Sanjeev Khosla, Staff Scientist – VI, CDFD	-	Internal Expert
8.	Dr. Rupinder Kaur, Staff Scientist – VI, CDFD	-	Internal Expert

(b) Members of CDFD Management Committee:

(i)	Director	-	Chairman
(ii)	Dr. Ranjan Sen, SS – VII	-	Member
(iii)	Dr. Sangita Mukhopadhyay, SS – VI	-	Member (for a 2 year period)
(iv)	Dr. Abhijit A Sardesai, SS – IV	-	Member (for a 2 year period)
(v)	I/c – Finance & Accounts	-	Member
(vi)	Head – Administration	-	Member – Convenor

(c) Members of Sexual Harassment Complaints Committee:

(i)	Dr. Sangita Mukhopadhyay, SS – VI	-	Chairperson
(ii)	Dr. Rupinder Kaur, Staff Scientist – VI	-	Member
(iii)	Head – Administration	-	Member
(iv)	Ms. V Naga Sailaja, TO – II	-	Member
(v)	Ms. M V Sukanya, TO – II	-	Member
(vi)	Mr. M S A Zaman Khan, Section Officer	-	Member
(vii)	Ms. P Jamuna, Gramya Resource Centre for Women (Representing as NGO)	-	Member

(d) Members of Institutional Bio-ethics Committee:

(i)	Prof. G B Reddy University College of Law, OU, Hyderabad	-	Chairperson
(ii)	Prof. Sheela Prasad Associate Professor, Centre for Regional Studies, School of Social Sciences, University of Hyderabad	-	Member

(iii)	Dr. Mahtab S Bamji, Emeritus Scientist Dangoria Charitable Trust, Hyderabad	-	Member
(iv)	Dr. Amita Kasbekar VP, Deloitte Consulting India Pvt. Ltd., RMZ, Hitech City, Hyderabad	-	Member
(v)	Dr. M D Bashyam, Staff Scientist – VI, CDFD	-	Member
(vi)	Dr. Sanjeev Khosla, Staff Scientist – VI, CDFD	-	Member
(vii)	Dr. Ashwin B Dalal, Staff Scientist – VI, CDFD	-	Member Secretary

(e) Members of CDFD Governing Council:

1.	Dr. Renu Swarup, Secretary, DBT, New Delhi	-	Chairperson
2.	Director General, CSIR, New Delhi	-	Member (Ex-officio)
3.	Director General Bureau of Police Research and Development (BPR&D) Ministry of Home Affairs, New Delhi	-	Member (Ex-officio)
4.	Prof. Partha P Majumder Director, NIBMG, West Bengal Chairman of Scientific Advisory Committee, CDFD	-	Member (Ex-officio)
5.	Mr. B Anand IAS, Addl. Secretary & FA, DBT, New Delhi	-	Member (Ex-officio)
6.	Shri CP Goyal Joint Secretary (Administration), DBT, New Delhi	-	Member (Ex-officio)
7.	Joint Secretary (PM) Ministry of Home Affairs, New Delhi	-	Member (Ex-officio)
8.	Joint Secretary & Legal Advisor, Ministry of Law & Justice, New Delhi	-	Member (Ex-officio)
9.	Dr. A K Rawat, Advisor, DBT, New Delhi	-	Member (Ex-officio)
10.	Prof V S Chauhan, ICGEB, New Delhi	-	Member
11.	Prof. Dipankar Chatterji Indian Institute of Science (IISc), Bangalore	-	Member
12.	Dr. Rakesh K Mishra, Director, CCMB, Hyderabad	-	Member
13.	Dr. Debashis Mitra, Director, CDFD, Hyderabad	-	Member-Secretary

(f) Members of CDFD Society:

1.	Hon'ble Dr. Harsh Vardhan, Hon'ble Minster for Science & Technology and Earth Sciences	-	President
2.	Dr. Renu Swarup, Secretary, DBT, New Delhi	-	Member (Ex-officio)
3.	Director General, CSIR, New Delhi,	-	Member (Ex-officio)

4.	Director General, Bureau of Police Research and Development (BPR&D) Ministry of Home Affairs, New Delhi	-	Member (Ex-officio)
5.	Joint Secretary & FA, DBT, New Delhi	-	Member (Ex-officio)
6.	Joint Secretary (Admin), DBT, New Delhi	-	Member (Ex-officio)
7.	Joint Secretary (PM), Ministry of Home Affairs, New Delhi	-	Member (Ex-officio)
8.	Joint Secretary & Legal Advisor, Ministry of Law & Justice, New Delhi	-	Member (Ex-officio)
9.	Prof. Partha P Majumder, Director, NIBMG, West Bengal Chairman of Scientific Advisory Committee, CDFD	-	Member (Ex-officio)
10.	Dr. A K Rawat, Advisor, DBT, New Delhi	-	Member (Ex-officio)
11.	Prof. V S Chauhan, ICGEB, New Delhi	-	Member
12.	Prof. Dipankar Chatterji Indian Institute of Science (IISc), Bangalore	-	Member
13.	Dr. Rakesh K Mishra, Director, CCMB, Hyderabad	-	Member
14.	Dr. Debashis Mitra, Director, CDFD, Hyderabad	-	Member-Secretary

Members of CDFD Research Area Panels – Scientific Advisory Committee:

1.	Prof. Partha P Majumder NIBG, West Bengal	-	Chairman
2.	Dr. Arun Kumar Rawat DBT, New Delhi (DBT Representative)	-	Member
3.	Dr. Rajiv Giroti CFSL, Hyderabad (MHA Representative)	-	Member
4.	Dr. Manisha Madkaikar Natl. Inst. of Immunohaematology, Mumbai (ICMR Representative)	-	Member
5.	Dr. Sunil Archak Natl. Bureau of Plant Genetic Resources New Delhi (ICAR Representative)	-	Member
6.	Dr. Rakesh Mishra CCMB, Hyderabad (CCMB Representative)	-	Member
7.	Dr. Anurag Agrawal CSIR-IGIB, New Delhi	-	Member
8.	Dr. Rajan Sankaranarayanan CCMB, Hyderabad	-	Member
9.	Prof. B.K. Thelma University of Delhi (South Campus), New Delhi	-	Member

10.	Prof. Jaya Sivaswami Tyagi AIIMS, New Delhi	-	Member
11.	Prof. Usha Vijayraghavan IISc., Bangalore	-	Member
12.	Prof. V Nagaraja JNCASR, Bangalore	-	Member
13.	Dr. Shekhar C Mande NCCS, Pune	-	Member
14.	Prof. Samit Chattopadhyay CSIR – IICB, Kolkata	-	Member
15.	Prof. Tapas K Kundu CSIR-CDRI, Lucknow	-	Member
16.	Prof. Suman Kumar Dhar JNU, New Delhi	-	Member
17.	Prof. Amitabha Mukhopadhyay NII, New Delhi	-	Member
18.	Dr. Debashis Mitra Director, CDFD	-	Member Secretary

सी डी एफ डी
CDFD

सूचना अधिकार अधिनियम, 2005 का परिपालन
Implementation of RTI Act, 2005

Implementation of RTI Act, 2005

In our home page, we have RTI page on the below link:

http://www.cdfd.org.in/inside%20htmls/rti_act.html

We maintain transparency in the system and in order to achieve this we have provided following information in our website:

1) CDFD Society: Memorandum of association and rules and regulations
2) Particulars of organisation, functions and duties
3) Powers and duties of officers and employees
4) Norms for discharge of functions
5) Categories of documents held or under control
6) Formulation of policy or implementation thereof
7) Statement of the boards, councils, committees and other bodies
8) Directory of scientists, officers and employees
9) Monthly remuneration of scientists, officers and employees and system of compensation
10) Budget allocations (all plans, proposed expenditures and reports on disbursements made)
11) Execution of subsidy programmes (including amounts allocated, details and beneficiaries)
12) Names, designations and other particulars of the Public Information Officers
13) CDFD Recruitment Rules 2018-19
14) Recipients of concessions, permits or authorisations granted
15) Particulars of facilities available to citizens for obtaining information (library/reading room)
16) Procedure followed in decision making process
17) Monthly RTI Returns
18) Immovable property returns statement
19) Details of CDFD purchase orders valuing more than Rs. 10 lakh
20) CDFD Policy on research misconduct
21) Procedure for handling of complaints under Public Interest Disclosure and Protection of Informers (PIDPI) Resolution to be followed by Chief Vigilance Officer (CVO)
22) Vigilance Manual

Below table gives a detailed description of the receipt of RTI cases at CDFD and their disposal.

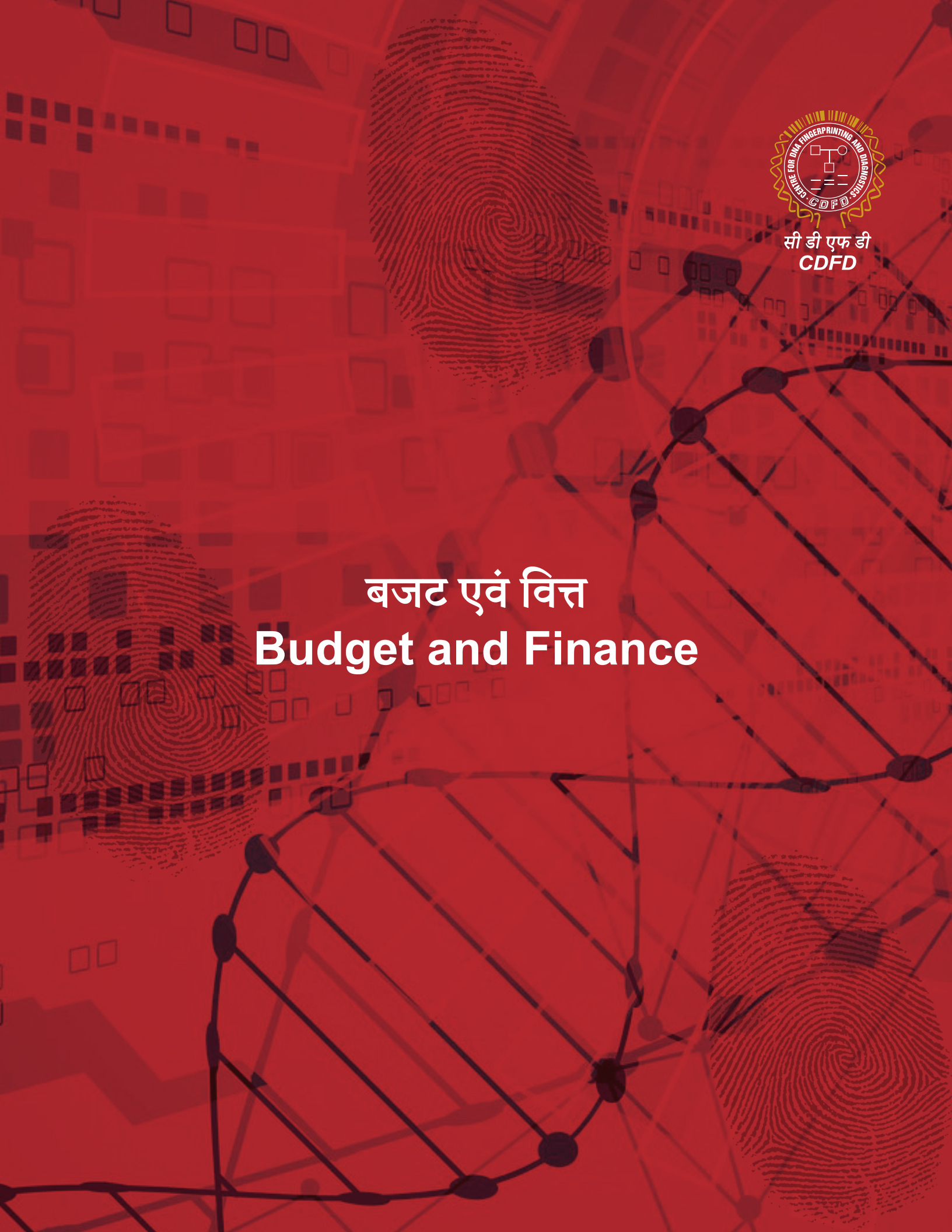
IMPLEMENTATION OF RIGHT TO INFORMATION (RTI) ACT, 2005

Dr. M.D. Bashyam
Appellate Authority

Ms. Varsha
Central Public Information Officer

Details about the RTI applications and appeals received in CDFD

As received under the RTI Act 2005	Opening Balance as on 01-04-2018	Received during the year 2018-19			Disposed off during the year 2018-19				Closing Balance as on 31-03-2019
		Received directly	Received as transfer from other Public Authorities [U/s 6(3) of Act]	Total	Decisions where applications accepted/ appeals upheld	Decisions where applications accepted/ appeals rejected	Transferred to other Public Authorities [U/s 6(3) of Act]	Total	
Applications	2	16	14	30	30	NIL	NIL	30	2
Appeals	NIL	01	NIL	01	01	NIL	NIL	01	NIL



बजट एवं वित्त
Budget and Finance

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS

HYDERABAD

Budget & Finance 2018-19

Sources of Funds

The Financial resources of the Centre are the Core Plan Grant-in Aid provided by the Department of Biotechnology, Government of India as against Annual Budgetary projections made by the Institute. Other resources are in the form of Research Grants provided by various National and International agencies and also from Services rendered by CDFD. The components of the core grants are Plan (Recurring) essentially for meeting expenditures on salaries, Operating expenses etc., and Plan (Non-Recurring) for meeting expenses on account of Equipments, Infrastructure and Furnishing etc.,

Receipts during the year 2018-19

Particulars	Amount in Lakhs	Percentage - %
Plan Grant in Aid	4649.17	79.24
Sponsored Projects	923.14	15.74
CDFD Services	91.10	1.55
Misc Receipts	203.22	3.47
Total	**5866.63**	**100.00**

I. Application of Funds during 2018-19 (Plan Grant in Aid)

S No	Particulars	Amount in Lakhs	Percentage- %
1	**Recurring**		
	GIA- Salaries	1536.84	34.48
	GIA-General	1869.00	41.93
	Total	**3405.84**	**76.41**
2	**Non-Recurring**		
	GIA- Capital	1051.77	23.59
	Total	**1051.77**	**23.79**
	Grand Total	**4457.61**	**100.00**

II. Application of Funds during 2018-19 (Extra Mural Projects)

S No	Particulars	Amount in Lakhs	Percentage- %
1	**Recurring**		
	Salaries	178.67	31.44
	General	322.44	56.74
	Total	**501.11**	**88.18**
2	**Non-Recurring**		
	Capital	67.15	11.82
	Total	**67.15**	**11.82**
	Grand Total	**568.26**	**100.00**

लेखा परिक्षक की रिपोर्ट
Auditor's Report

AUDITOR'S REPORT

24/8/2019

The Director,
Centre for DNA Fingerprinting and Diagnostics,
Uppal,
Hyderabad – 500 039

We have audited the attached Balance Sheet of **CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS**, Hyderabad, as at 31st March 2019 and also the Income & Expenditure Account for the year ended on that date annexed there to. These Financial Statements are the responsibility of the organization management. Our responsibility is to express an opinion on these Financial Statements based on our audit.

We report that:

1. We have obtained all the information and explanations, which to the best of our knowledge and belief were necessary for the purpose of our audit.

2. In our opinion, the organization has kept proper books of account as required by law so far, as appears from our examination of these books.

3. The Balance Sheet and Income & Expenditure account dealt with by this report is in agreement with the books of account.

4. (a) The centre has maintained accounts on accrual basis.

(b) The Centre receives extra mural grants from various National & International agencies for specific research activities. The Centre has a policy of allocating the overheads and transfer of expenditure of CDFD to different projects at the end of the financial year after taking into account the amount of maximum permissible limit of overheads and also based on the approved budget estimates and expenditure of the respective projects during the financial year.

5. In our opinion and to the best of our information and according to the explanations given to us, the said Balance Sheet and the Income & Expenditure account read together with the notes thereon gives the required information in the manner so required and gives a true and fair view.

a) In so far it relates to the Balance Sheet as at 31st March 2019 and

b) In so far as it relates to the Income & Expenditure account excess of income over expenditure for the year ended on 31st March 2019.

for **B Purushottam & Co.,**
Chartered Accountants

[CH SATYANARAYANA]

Place: Hyderabad

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

BALANCE SHEET AS ON 31st MARCH 2019

(Amount - Rs.)

	Schedule	Current Year	Previous Year
	Schedule	Current Year	Previous Year
CORPUS/CAPITAL FUND AND LIABILITIES			
Corpus / Capital Fund	1	2,08,34,34,385	2,03,86,08,225
Reserves and Surplus	2	4,11,20,388	3,20,09,388
Earmarked / Endowment funds	3	4,74,34,451	1,88,40,489
Secured Loans & Borrowings	4	-	-
Unsecured Loans & Borrowings	5	-	-
Deffered Credit Liabilities	6	-	-
Current Liabilities and Provisions	**7**	**9,06,12,629**	**8,75,34,703**
TOTAL		**2,26,26,01,853**	**2,17,69,92,805**
ASSETS			
Fixed Assets	8	1,62,34,33,835	1,58,65,13,115
Investments- From Earmarked / Endowment Funds	9	-	-
Investments - Others	10	3,43,31,840	2,33,87,695
Current Assets, Loans, Advances etc.	11	60,48,36,178	56,70,91,995
Miscellaneous Expenditure		-	-
TOTAL		2,26,26,01,853	2,17,69,92,805
Significant Accounting Policies	24		
Contingent Liabilities and Notes on Accounts	25		

DIRECTOR
CDFD

for B Purushottam & Co.
Chartered Accountants

Accounts Officer
CDFD

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

INCOME & EXPENDITURE FOR THE YEAR ENDED 31st MARCH 2019

(Amount - Rs.)

INCOME	Schedule		Current Year		Previous Year
Income from Sales/Services	12		10,634,765		6,019,186
Grants/Subsides	13		350,000,000		379,000,000
Fees/Subscriptions	14		-		-
Income from Investments	15		17,328,507		24,311,928
Income from Royality, Publications etc.	16		-		-
Interest Earned	17		1,193,175		1,265,453
Other Income	18		880,188		891,583
Increase/(decrease) in stock of Finished goods and works-in-progress	19		-		-
TOTAL (A)			**380,036,635**		**411,488,150**
EXPENDITURE					
Establishment Expenses	20		159,682,505		145,105,060
Administrative Expenses	21		185,957,833		162,653,452
Expenditure on Grants, Subsides etc.	22		-		-
Interest	23		-		-
Depreciation (Net Total at the year-end -corresponding to Schedule 8)		52,948,224		60,247,615	
Less:Transferred to Grants-in-Aid		52,948,224	-	60,247,615	
Provision For Salaries			**10,505,816**		**7,668,375**
TOTAL (B)			**356,146,154**		**315,426,887**
Balance being excess of Income over Expenditure (A-B)			23,890,481		96,061,263
Transfer to Special Reserve (Specify each)					
Transfer to/from General Reserve			**9,111,000**		**6,019,186**
BALANCE BEING SURPLUS/(DEFLICT) CARRIED TO CORPUS/CAPITAL FUND			14,779,481		90,042,077
SIGNIFICANT ACOUNTING POLICIES	24				
CONTINGENT LIABILITIES AND NOTES ON ACCOUNTS	25				

DIRECTOR
CDFD

I/c FINANCE & ACCOUNTS
CDFD

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS

RECEIPTS AND PAYMENTS ACCOUNT FOR THE YEAR ENDED 31st MARCH 2019

(Amount - Rs.)

RECEIPTS	Current Year	Previous Year	PAYMENTS	Current Year	Previous Year
1. Opening Balances			**1. Expenses**		
a) Cash in hand	-	-	a) Establishment Expenses (corresponding to Schedule 20)	159,682,505	153,369,437
b) Bank Balances			b) Administrative Expenses (corresponding to Schedule 21)	184,181,275	176,041,112
i) In current accounts	56,770,667	17,665,452	c) Schedule 22	-	-
ii) In deposit accounts	311,098,273	291,098,273			
iii) Savings accounts	15,058,466	9,699,923			
2. Grants Received			**2. Payments made against funds for various projects**		
a) From Government of India	430,000,000	439,000,000	(Name of the fund or project should be shown along with the particulars of payments made for each project)		
b) From State government		-			
c) From other sources (details)			Projects (Annexure F)	36,930,777	73,398,198
(Grants for capital & revenue			CSIR(Stipend)	-	5,641,420
exp. To be shown seperately)			DBT(Stipend)	13,179,360	5,836,035
Research Associates - DBT(Stipend)	1,080,000	1,233,187	DST(Stipend)	660,000	1,176,895
Research Associates - DST(Stipend)	186,895	186,895	ICMR(Stipend)		1,761,842
Research Associates - ICMR(Stipend)	-	1,678,583	IISC(Stipend)		708,543
Research Associates - IISC(Stipend)	-	1,440,426	IISC(Stipend)		2,033,572
Research Associates - UGC(Stipend)	-	1,742,857			
			3. Investments and deposits made		
Projects (Annexure - C)		86,416,491	a) Out of Earmarked/Endowement funds	-	-
			b) Out of Own Funds (Investments-Others)	-	-
3. Income on Investments from					
a) Earmarked/Endow. Funds	-	24,300,554	**4. Expenditure on Fixed Assets & Capital Work-in-Progress**		
b) Own Funds (Oth. Investment)			a) Purchases of Fixed Assets:		
Investments EnCashed		-	Books & Journals	1,711,184	593,774
			Equipment -Lab/Office/Furniture	13,985,414	7,349,958

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS

RECEIPTS AND PAYMENTS ACCOUNT FOR THE YEAR ENDED 31st MARCH 2019

(Amount - Rs.)

RECEIPTS	Current Year	Previous Year	PAYMENTS	Current Year	Previous Year
4. Interest Received			b) Expenditure on Capital Work-in-Progress:	65,487,291	47,078,503
a) On Bank deposits	1,193,175	1,265,453			
b) Loans, Advances etc	-	15,206,912	**5. Refund of surplus money/Loans**		
c) Interest on Computer Advance, Conveyance advance and HBA	-	22,298	a) To the Government of India	-	-
d) Interest on LC		-	b) To the State Government	-	-
			c) To other providers of funds	-	-
5. Other Income(Specify)					
a) Analysis Charges	9,110,000	6,493,607	**6. Finance Charges (Interest)**	-	-
6. Any Other Receipts(Give Details)			**7. Other Payments (Specify)**		
I-Remittances (Annexure-A)	26,296,279	29,203,551	Advances (Annexure-D)		160,194,104
CPF-SUB,Arrears and adv.Refund	-	31,963,450	I-Remittances (Annexure-E)	29,208,669	29,731,090
Sundry Receipts	578,663	691,184	CPF A/c	21,625,909	14,247,818
Application Fee	131,000	750	New Pension Scheme	7,722,110	4,358,150
Sale OF Tender Forms	170,525	63,500	NIMS	3,858,700	8,063,993
Leave Salary-Pension Contribution	-	52,836	**8. Closing Balances**		
License Fee	-	51,680	a) Cash in hand	-	-
NPS	3,861,055	4,425,475	b) Bank Balances		
Advance/Refunds/Recovery/Adj(Annexure-B)	4,962,816	108,026,153	i) In current accounts	20,565,262	56,770,667
NIMS	4,327,860	2,582,360	ii) In deposit accounts	68,396,000	311,098,273
			iii) Savings accounts	237,631,218	15,058,466
TOTAL	**864,825,674**	**1,074,511,850**	**TOTAL**	**864,825,674**	**1,074,511,850**

DIRECTOR
CDFD

I/c FINANCE & ACCOUNTS
CDFD

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS
BALANCE SHEET AS ON 31st MARCH 2019

(Amount - Rs.)

	Current Year		Previous Year	
SCHEDULE 1 - CORPUS/CAPITAL FUND :				
Balance as at the begining of the year		2,038,608,225		1,942,028,103
Add : Contribution towards Corpus/Capital Fund				
CDFD Core - Plan (Non-Recurring)	80,000,000		60,000,000	
Capitalised portion of Capital Expenditure of projects	2,994,903	82,994,903	6,785,660	66,785,660
Less : Depreciation For the Year 2018-2019	52,948,224	52,948,224	60,247,615	60,247,615
Add : Excess of Income over Expenditure	14,779,481	14,779,481	90,042,077	90,042,077
BALANCE AS AT THE YEAR - END		**2,083,434,385**		**2,038,608,225**

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

(Amount - Rs.)

	Current Year		Previous Year	
SCHEDULE 2 -RESERVES AND SURPLUS :				
1. Capital Reserve :				
As per last Account	0.00		0.00	
Addition during the year	0.00		0.00	
Less : Deductions during the year	0.00	0.00	0.00	0.00
2. Revolution Reserve :				
As per last Account	0.00		0.00	
Addition during the year	0.00		0.00	
Less : Deductions during the year	0.00	0.00	0.00	0.00
3. Special Reserves :				
As per last Account	0.00		0.00	
Addition during the year	0.00		0.00	
Less : Deductions during the year	0.00	0.00	0.00	0.00
4. General Reserve - Lab Reserve :				
As per last Account	32,009,388.00		25,990,202.00	
Addition during the year	9,111,000.00		6,019,186.00	0.00
Less : Deductions during the year	0.00	41,120,388.00	0.00	32,009,388.00
Total		**41,120,388.00**		**32,009,388.00**

DNA Fingerprinting Receipts	2692000
Diagnostics Receipts	5456000
APEDA	801000
Sophisticated Equipment Facility Receipts	162000
Total Receipts	**9111000**

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

(Amount - Rs.)

	Current Year		Previous Year	
SCHEDULE 3 - EARMARKED/ENDOWMENT FUNDS : (Refer Annexures)				
(a) Opening balance of the Funds		**18,840,488.69**		**5,912,597.03**
(b) Additions to the Funds :				
i. Donations /grants	92,314,343.00		86,326,089.66	
ii. Income from investments made on account of funds	0.00		0.00	
iii. Other additions	0.00	92,314,343.00	0.00	86,326,089.66
TOTAL (a+b)		**111,154,831.69**		**92,238,686.69**
(c) Utilisation/Expenditure towards objective of funds				
(i) Capital Expenditure (Refer Annexures I & II)				
- Fixed Assets	2,994,903.00		6,628,487.00	
- Others	0.00	2,994,903.00	157,173.00	6,785,660.00
- Total				
(ii) Revenue Expenditure (Refer Annexures I & II)				
- Salaries, Wages and allowances etc.	27,111,906.00		27,061,925.00	
- Rent	0.00		0.00	
- Other Expenses	33,613,572.00	60,725,478.00	39,550,613.00	66,612,538.00
Total				
TOTAL (c)		**63,720,381.00**		**73,398,198.00**
NET BALANCE AS AT THE YEAR-END [(a + b)-c]		**47,434,450.69**		**18,840,488.69**

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS

SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

(Amount - Rs.)

	Current Year		Previous Year	
SCHEDULE 4 - SCHEDULE LOANS AND BORROWINGS :				
1. Central Government		0		0
2. State Government (Specify)		0		0
3. Financial Institutions				
a) Term Loans	0		0	
b) Interest accured and due	0	0	0	0
4. Banks :				
a) Terms Loans	0	0	0	0
- Interest accured and due	0		0	
b) Other Loans	0		0	
- Interest accured and due	0	0	0	0
5. Other Institutions and Agencies		0		0
6. Debentures and Bonds		0		0
7. Others (Specify)				
TOTAL		**0**		**0**

Note: Amount due within one year

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS

SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

(Amount - Rs.)

	Current Year		Previous Year	
SCHEDULE 5 - UNSECURED LOANS AND BORROWINGS :				
1. Central Government		0		0
2. State Government (Specify)		0		0
3. Financial Institutions		0		0
4. Banks :				
a) Terms Loans	0		0	
b) Other Loans	0	0	0	0
5. Other Institutions and Agencies		0		0
6. Debentures and Bonds		0		0
Fixed Deposits		0		0
8. Others (Specify)		0		0
TOTAL		**0**		**0**
Note: Amount due within one year				

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS

SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

(Amount - Rs.)

	Current Year		Previous Year	
SCHEDULE 6 - DEFFERED CREDIT LIABILITIES :				
a) Acceptances secured by hypothecation of capital equipment and other assets		0		0
b) Others		0		0
TOTAL		**0**		**0**
Note: Amount due within one year				

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

(Amount - Rs.)

	Current Year		Previous Year	
SCHEDULE 7 - CURRENT LIABILITIES AND PROVISIONS :				
A. CURRENT LIABILITIES				
1. Acceptances	0.00		0.00	
2. Sundry Creditors	0.00		0.00	
3. Advances Received	0.00		0.00	
4. Interest accured but not due on:	0.00		0.00	
5. Statutory Liabilities:	0.00		0.00	
Income Tax	926,161.00		926,161.00	
Service Tax	24,325.00		24,325.00	
TDS	1,520,314.00		1,520,314.00	
Works Tax	1,680,631.00		1,680,631.00	
6. Other current Liabilities				
CDFD.CP Fund A/C(Annexure-G)	52,768,067.00		52,520,328.00	
Contract Staff security deposit	215,520.00		125,594.00	
Diagnostics Collabration With NIMS	0.00		0.00	
ECCS	0.00		0.00	
EMD	2,042,882.00		2,077,382.00	
Festival Advance	450.00		450.00	
GSLI	31,526.00		31,526.00	
House Building Advance	129,831.00		129,831.00	
Lab Security Deposit & Hostel Security Deposit	1,466,616.00		1,346,016.00	
LIC	2,550.00		2,550.00	
Others (I-Remittances)	0.00		0.00	
Out Standing Liabilities	11,845,456.00		11,845,456.00	
Professional Tax	94,342.00		94,342.00	
Public Provident Fund	391,158.00		391,158.00	
Royalty & Consultancy	1,531,642.00		1,531,642.00	
Security Deposit	5,305,520.00		5,496,040.00	

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

(Amount - Rs.)

	Current Year		Previous Year	
SCHEDULE 7 - CURRENT LIABILITIES AND PROVISIONS :				
STAFF BENEVOLENT FUND	49,913.00		42,673.00	
TA Abroad [Advance]	0.00		0.00	
TA-DA-Hon within India [Advance]	79,909.00	80,106,813.00	79,909.00	79,866,328.00
TOTAL (A)		**80,106,813.00**		**79,866,328.00**
B. PROVISIONS				
1. For Taxation		0.00		0.00
2. Gratuity		0.00		0.00
3. Superannuation/Pension		0.00		0.00
4. Accumulated Leave Encashment		0.00		0.00
5. Trade Warranties/Claims		0.00		0.00
6. Others (Specify)		10,505,816.00		7,668,375.00
TOTAL (B)		**10,505,816.00**		**7,668,375.00**
TOTAL (A+B)		**90,612,629.00**		**87,534,703.00**

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

(Amount - Rs.)

SCHEDULE 8 - FIXED ASSTES :

			GROSS BLOCK					DEPRECIATION					NET BLOCK	
			Cost/valuation As at begining of the year	Additions during the year		Addition during the year	Deduc-tions during the year	Cost/valuation at the year end	As at the begining of the year	On additions during the year	On Deduc-tions during the year	Total up to the year end	As at the Current year end	As at the Pre-vious year end
A.		**FIXED ASSETS:**												
	1.	LAND:												
		a) Freehold	3,900,000.00	0.00	0.00	0.00	0.00	3,900,000.00	0.00	0.00	0.00	0.00	3,900,000.00	3,900,000.00
		b) Leasehold	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2.	BUILDINGS												
		a) On Freehold Land	220,052,369.00	0.00	0.00	0.00	0.00	220,052,369.00	112,842,896.00	10,720,947.30	0.00	123,563,843.30	96,488,525.70	107,209,473.00
		b) On Leasehold Land	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		c) Ownership Flats/ Premises	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		d) Superstructures on Land not belongs to the entity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3.	PLANT MACHIN-ERY & EQUIP-MENT	742,038,130.05	6,429,017.00	14,255,106.00	20,684,123.00	0.00	762,722,253.05	489,107,579.00	39,973,068.16	0.00	529,080,647.16	233,641,605.89	252,930,551.05
	4.	VEHICLES	4,153,026.00	0.00	0.00	0.00	0.00	4,153,026.00	3,806,269.00	52,013.55	0.00	3,858,282.55	294,743.45	346,757.00
	5.	FURNITURE, FIXTURES	16,049,132.00	0.00	1,544,407.00	1,544,407.00	0.00	17,593,539.00	12,216,581.00	460,475.45	0.00	12,677,056.45	4,916,482.55	3,832,551.00
	6.	OFFICE EQUIP-MENT	12,154,882.00	0.00	0.00	0.00	0.00	12,154,882.00	10,368,969.00	267,886.95	0.00	10,636,855.95	1,518,026.05	1,785,913.00
	7.	COMPUTER/PE-RIPHERALS	266,023.00	0.00	441,938.00	441,938.00	0.00	707,961.00	52,809.00	173,673.20	0.00	226,482.20	481,478.80	213,214.00
	8.	ELECTRIC INSTAL-LATIONS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	9.	LIBRARY BOOKS	20,336,911.00	275,499.00	1,435,685.00	1,711,184.00	0.00	22,048,095.00	20,095,707.00	1,234,545.50	0.00	21,330,252.50	717,842.50	241,204.00
	10.	TUBEWELLS & WATER SUPPLY	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00
	11.	OTHER FIXED ASSETS	8,887,898.00	0.00	0.00	0.00	0.00	8,887,898.00	8,231,760.00	65,613.80	0.00	8,297,373.80	590,524.20	656,138.00
		TOTAL	**1,027,838,371.05**	**6,704,516.00**	**17,677,136.00**	**24,381,652.00**	**0.00**	**1,052,220,023.05**	**656,722,570.00**	**52,948,223.91**	**0.00**	**709,670,793.91**	**342,549,229.14**	**371,115,801.05**
B.		CAPITAL WORK-IN-PROGRESS	1,215,397,314.70	2,205,813.00	63,281,478.00	65,487,291.00	0.00	1,280,884,605.70	0.00	0.00	0.00	0.00	1,280,884,605.70	1,215,397,313.70
		TOTAL	**2,243,235,685.75**	**8,910,329.00**	**80,958,614.00**	**89,868,943.00**	**0.00**	**2,333,104,628.75**	**656,722,570.00**	**52,948,223.91**	**0.00**	**709,670,793.91**	**1,623,433,834.84**	**1,586,513,114.75**
						22,670,468.00								

Equipment - Core			17,689,220.00
Equipment - Project			2,994,903.00
Total			20,684,123.00

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

(Amount - Rs.)

	Current Year	Previous Year
SCHEDULE 9 - INVESTMENTS FROM EARMARKED/ENDOWMENT FUNDS :		
1 In Government Securities	0.00	0.00
2. Other approved securities	0.00	0.00
3. Shares	0.00	0.00
4. Debentures and Bonds	0.00	0.00
5. Subsidiaries and Joint Ventures	0.00	0.00
6. Others (to be specified)	0.00	0.00
TOTAL	**0.00**	**0.00**

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

(Amount - Rs.)

	Current Year	Previous Year
SCHEDULE 10 - INVESTMENTS - OTHERS : (Annexure-J)		
1. In Government Securities	0.00	0.00
2. Other approved securities	0.00	0.00
3. Shares	0.00	0.00
4. Debentures and Bonds : UTI Bonds	0.00	0.00
5. Subsidiaries and Joint Ventures	0.00	0.00
6. Others (to be specified) - STDRs,(CPF),CDFD CP FUND A/C	34,331,840.00	23,387,695.00
TOTAL	**34,331,840.00**	**23,387,695.00**

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS

SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

(Amount - Rs.)

SCHEDULE 11 - INVESTMENTS - OTHERS :			Investment from Earmarked Fund		Investments-Others	
			Current Year	Previous Year	Current Year	Previous Year
A.	CURRENT ASSETS					
	1.	Inventors				
		a) Stores and Spares	0.00		0.00	
		b) Loose Tools	0.00		0.00	
		c) Stock-in-trade				
		Finished Goods	0.00		0.00	
		Work-in-progress	0.00		0.00	
		Raw Materials	0.00	0.00	0.00	0.00
	2.	Sundry Debtors:				
		a) Debts Outstanding for a period exceeding six months	0.00		0.00	
		b) Others-Life Membership Fees	169,236.00	169,236.00	169,236.00	169,236.00
	3.	Cash balances in hand (including cheques/drafts and imprest)				
	4.	Bank Balances:				
		a) With Scheduled Banks:				
		- On Current Accounts	20,565,261.71		56,770,666.75	
		- On Deposit Accounts (includes margin money)	68,396,000.00		311,098,273.00	
		- On Savings Accounts	9,896,554.06	98,857,815.77	15,058,466.30	382,927,406.05
		b) With non-Schedules Banks:				
		- On Current Accounts	0.00		0.00	
		- On Deposit Accounts	0.00		0.00	
		- On Savings Accounts	0.00	0.00	0.00	0.00
	5.	Post Office-Savings Accounts				
		TOTAL (A)		**99,027,051.77**		**383,096,642.05**

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS

SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

(Amount - Rs.)

SCHEDULE 11 - INVESTMENTS - OTHERS :			Investment from Earmarked Fund		Investments-Others	
			Current Year	Previous Year	Current Year	Previous Year
B.	LOANS, ADVANCES AND OTHER ASSETS					
	1.	Loans:				
		a) Staff (Annexure-L)	488,000.00		632,508.00	
		b) Other Entities engaged in activities/objectives similar to that of the Entity	0.00	488,000.00	0.00	632,508.00
	2.	Advances and other amounts recoverable in cash or in kind or for value to be received				
		a) On Capital Account (Annexure-H)	138,214,014.00		72,726,723.00	
		b) Prepayments - Deposits (Annexure-I)	300,096,477.56		14,528,354.00	
		c) TDS Receivable	765,233.00		486,429.00	
		d) Others (Annexure-K)	44,372,584.00		81,513,863.00	
		e) GST on Purchases (Schedule 21B)	28,103,023.00	511,551,331.56	14,107,476.00	183,362,845.00
	3.	Income Accured:				
		a) On Investments from Earmarked/Endowments Funds	0.00		0.00	
		b) On Investments - Others	0.00		0.00	
		c) On Loans and Advances	0.00		0.00	
		d) Others	0.00	0.00	0.00	0.00
	4.	Claims Receivable		0.00		0.00
		TOTAL (B)		512,039,331.56		183,995,353.00
		TOTAL (A+B)		**611,066,383.33**		**567,091,995.05**

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

(Amount - Rs.)

	Current Year	Previous Year
SCHEDULE 12 - INCOME FROM SALES/SERVICES :		
1) Income from sales		
a) Sale of Finished Goods	0.00	0.00
b) Sale of Raw Material	0.00	0.00
c) Sale of Scraps	2,113,798.00	0.00
2) Income from Services		
a) Labour and Processing Charges	0.00	0.00
b) Professional/Consultancy Services (Analysis Charges)	8,520,967.00	6,019,186.00
c) Agency Commission and Brokerage	0.00	0.00
d) Maintenance Services (Equpiment/Property)	0.00	0.00
e) Others (Specify) - NIMS	0.00	0.00
TOTAL	**10,634,765.00**	**6,019,186.00**

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

(Amount - Rs.)

	Current Year	Previous Year
SCHEDULE 13 - GRANTS/SUBSIDES :		
(Irrevocable Grants & Subsides Received)		
1) Central Government (DBT Plan Grant-in-Aid)	350,000,000.00	379,000,000.00
2) State Government(s)	0.00	0.00
3) Government Agencies	0.00	0.00
4) Institutions/Welfare Bodies	0.00	0.00
5) International Organisations	0.00	0.00
6) Others (Specify)	0.00	0.00
TOTAL	**350,000,000.00**	**379,000,000.00**

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

(Amount - Rs.)

	Current Year	Previous Year
SCHEDULE 14 - FEES/SUBSCRIPTIONS :		
1) Entrance Fees	0	0
2) Annual Fees/Subscriptions	0	0
3) Seminar/Program Fees	0	0
4) Consultancy Fees	0	0
5) Others (Specify)	0	0
TOTAL	**0**	**0**

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

(Amount - Rs.)

	Current Year		Previous Year	
SCHEDULE 15 - INCOME FROM INVESTMENTS :				
(Income on Invest from Earmarked/Endowment Funds transferred to Funds)				
1) Interest:				
a) On Govt. Securities	0.00		0.00	
b) Other Bonds/Debentures	0.00	0.00	0.00	0.00
2) Dividends:				
a) On Shares	0.00	0.00	0.00	0.00
b) On Mutual Fund Securities	0.00	0.00	0.00	0.00
3) Rents	0.00	0.00	0.00	0.00
4) Others (Specify) STDRs	17328507.00		24311928.00	0.00
TOTAL	**17328507.00**		**24311928.00**	**0.00**
TRANSFERRED TO EARMARKED/ENDOWMENT FUNDS				

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

(Amount - Rs.)

	Current Year	Previous Year
SCHEDULE 16 - INCOME FROM ROYALITY, PUBLICATION ETC. :		
1) Income from Royality	0	0
2) Income from Publications	0	0
3) Others (Specify)	0	0
TOTAL	**0**	**0**

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

(Amount - Rs.)

	Current Year	Previous Year
SCHEDULE 17 - INTEREST EARNED :		
1) On Term Deposits		
a) With Schedule Banks	0.00	0.00
b) With Non-Scheduled Banks	0.00	0.00
c) With Institutions	0.00	0.00
d) Others	0.00	0.00
2) On Saving Accounts		
a) With Schedule Banks	1193175.00	1265453.00
b) With Non-Scheduled Banks	0.00	0.00
c) Post Office Savings Accounts	0.00	0.00
d) Others	0.00	0.00
3) On Loans		
a) Employees/Staff	0.00	0.00
b) Others	0.00	0.00
4) Interest on Debtors and Other Receivables	**0.00**	**0.00**
TOTAL	**1193175.00**	**1265453.00**
Note :- Tax deducted at source to be indicated		

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

(Amount - Rs.)

	Current Year	Previous Year
SCHEDULE 18 - OTHER INCOME :		
1) Profit on Sale/disposal of Assets:	0.00	0.00
a) Owned assets	0.00	0.00
b) Assets acquired out of grants, or received free of cost	0.00	0.00
2) Export Incentives realized	0.00	0.00
3) Fees for Miscellaneous Services	0.00	0.00
4) Miscellaneous Receipts	0.00	0.00
5) Other Receipts		
Sundry Receipts	578663.00	700519.00
Application Fee	131000.00	750.00
Sales Of Tender Forms	170525.00	63500.00
Licence Fee	0.00	51680.00
Interest On Computer Advance,Conveyance Advance And HBA	0.00	22298.00
Leave Salary-Pension Contribution	0.00	52836.00
TOTAL	**880188.00**	**891583.00**

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

(Amount - Rs.)

	Current Year	Previous Year
SCHEDULE 19 - INCREASE/(DECREASE) IN STOCK OF FINISHED GOODS & WORK IN PROGRESS :		
a) Closing stock		
- Finished Goods	0	0
- Work-in-progress	0	0
Total (a)	0	0
b) Less: Opening stock		
- Finished Goods	0	0
- Work-in-progress	0	0
Total (b)	**0**	**0**
NET INCREASE/(DECREASE) [a-b]	**0**	**0**

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

(Amount - Rs.)

		Current Year	Previous Year
SCHEDULE 20 - ESTABLISHMENT EXPENSES :			
a)	Salaries and Wages	129,128,950	99,673,311
b)	Allowances and Bonus	12,382,429	36,170,434
c)	Contribution to Provident Fund	5,105,756	8,860,627
d)	Contribution to Other Fund (NPS)	3,871,602	4,151,325
e)	Staff Welfare Expenses - Medical charges	3,641,370	3,090,035
f)	Expenses on Employees Retirement and Terminal Benefits	5,224,970	1,318,666
g)	Others (specify) - Staff leased House	-	-
h)	EPF Employer Contribution	327,428	105,039
	TOTAL	**159,682,505**	**153,369,437**

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

(Amount - Rs.)

	Current Year	Previous Year
SCHEDULE 21 - OTHER ADMINISTRATIVE EXPENSES :		
1) Purchases	26978460.00	25100098.00
2) Electricity and power	31558954.00	22233159.00
3) Water charges	8564561.00	1101091.00
4) Insurance	88544.00	125076.00
5) Repairs and maintenance	21046653.00	15144297.00
6) Rent, Rates and Taxes	1776558.00	15662184.00
7) Vehicles Running and Maintenance	4490701.00	2339712.00
8) Postage, Telephone and Communication Charges	3075508.00	2751048.00
9) Printing and Stationary	1580822.00	1933758.00
10) Travelling and Conveyance Expenses	6064946.00	6339244.00
11) Expenses on Seminar/Workshops	254223.00	385663.00
12) Subscription Expenses	94396.00	397837.00
13) Expenses on Fees	115443.00	17771.00
14) Auditors Remuneration	79400.00	67260.00
15) Hospitality Expenses	860500.00	456293.00
16) Professional Charges	132200.00	1232188.00
17) Advertisement and Publicity	1551752.00	881572.00
18) Bank Charges	312.00	13318.61
19) Security & Cleaning Contract Charges	16677031.00	26481982.00
20) Training Course /Symposia	41300.00	9000.00
21) Other Contingencies	15132799.00	4456541.00
22) Liveries & Blankets	0.00	7000.00
23) Other Research Expenses	6769427.00	15734404.00
24) Office Books	392.00	1708.00
25) Over Heads	0.00	0.00
26) Contract Staff	8737397.00	9314458.00
27) Manpower Outsourcing(Staff)	30285554.00	10466789.00
TOTAL	**185957833.00**	**162653451.61**

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

(Amount - Rs.)

	Current Year	Previous Year
SCHEDULE 22 - EXPENDITURE ON GRANTS, SUBSIDES ETC. :		
a) Grants given to Institutions/Organisations	0	0
b) Subsidies given to Institutions/Organisations	0	0
TOTAL	**0**	**0**

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

(Amount - Rs.)

	Current Year	Previous Year
SCHEDULE 23 - INTEREST :		
a) On Fixed Loans	0	0
b) On Other Loans (including Bank Charges)	0	0
c) Others	0	0
TOTAL	**0**	**0**

Schedule 24: Significant Accounting Policies & Schedule

25: Contingent Liabilities & Notes on Account for the period ended 31/03/2019

1. **Method of Accounting:**

   (a) The accounting system adopted by the organization is on “accrual basis”.

   (b) The organization has been getting plan Grant-In-Aid under the “Non-recurring” & “Recurring” heads.

2. **Revenue recognition:**

   Income comprises of Grant-in-Aid, Internal Resources through services and interest from short term deposits. Income accounted on the basis of the Cash/DD/Cheques/Cr notes/ on line transfers received.

3. **Fixed Assets:**

   (a) Fixed assets are stated at cost. Cost includes freight, duties, and taxes etc.,

   (b) Depreciation: Depreciation Account on Fixed Assets has since been prepared at the rate prevailing to the concerned Fixed Assets as specified in the Income Tax Act, 1961 on Written Down Value Method of Depreciation.

   (c) Capital work in progress has been entered to the extent of the last running account bills paid.

   (d) Realization on sale of obsolete/surplus fixed assets which is not required for the purpose of research activities are adjusted against capital cost.

4. **Inventories:**

   All purchases of chemicals, glassware and other consumables have been charged to consumption at the time of purchase.

5. **Foreign Currency transactions:**

   Foreign Currency transactions are recognized in the books at the exchange rates prevailing on the date of transaction.

6. **Investments:**

   Investments in STDR’s are stated at book values.

7. **Advances:**

   It is observed from the objection book register that advances to suppliers for consumables & Equipments are to be reconciled and adjustment entries are to be passed in the books of accounts.

8. The previous year balances have been regrouped/rearranged, wherever necessary.

Director CDFD	Accounts Officer CDFD	for B Purushottam & Co Chartered Accountants Reg No 002808S
Place : Hyderabad		**[CH SATYANARAYANA]**
Date :		

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

CLARIFICATION ON NOTES ON ACCOUNTS: 2018-19

- **Notes on Accounts 1 to 2 & 4 to 6: Method of Accounting/ Revenue recognition/Fixed Asset/Inventories/ Foreign Currency transactions/Investments:**

  These are all only informatory items.

- **Notes on Accounts 3:** Fixed Assets**:**

  Depreciation has been calculated on Written down Value method and at the rates prevailing to the concerned Fixed Asset as specified on the Income Tax Act, 1961 and set off against the Grant-in-Aid (non-recurring). The details of the Depreciation on Fixed Assets are at Schedule -8 is an integral part of the financial statements.

- **Notes on Accounts 7: Advances:**

  The observation of the audit has been noted. The action has already been initiated to reconcile the objection book register.

T Abhishek
Accounts Officer
CDFD

Annexure-I

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS

Details of Closing balances of various Earmarked / Endowement Funds (Refer Sch-3)

For the Year Ended 31st MARCH 2019

(Amount in Rs.)

Previous year	Proj No	Particulars	Current Year
-10150735	COE1	COE1	-10150735
-19673739	COE2	COE2	2487335
2028298	others	Fellowship / others	2450797
-630047	P-03	“Transgenesis and Genetic basis of Pathogen Resistance in the Silkworm, Bombyx Mori	-630047
244305	P-09	“NMITLI Project on – Latent M.Tuberculosis: New targets, Drug delivery systems, Bio enhancers & Therapeutics”	244305
-28332	P-10	“Role of upstream sequence elements in Hyper activation of transcription from Baculovirus polyhedrin gene promoter”	-28332
-576590	P-100	Effect of raective oxygen species on T-Cell immune response: An approach to understand the molecular mechanism of immunosuppression during tuberculosis - National Bioscience Award	-576590
-27922	P-102	Understanding the role of Mycobacterium tuberculosis heat shockprotein 60 as Th1/Th2 immuno modular	-27922
-300000	P-103	National Bioscience Award - Regulation of mast cell signaling, apoptosis and surface receptors	-300000
-1289897	P-104	Virtual Centre of Excellence on Epigenetics	-1289897
-862685	P-105	Cloning, Characterization and analysis of chromosomal rearrangements in human genetic disorders	-862685
327575	P-107	IYBA Project - Mechanism and role of bacterial cell-cell signaling molecules in plant defense response	327575
-454643	P-108	Establishment of EBV transformed cell lines from families with rare genetic disorders	-454643
-1228422	P-109	Molecular dissection of PI3-Kinase/Akt pathway by suing proteomics based approach: A study to identify novel potential oncogenes and tumor suppressors	-1228422
-19391	P-110	India-Japan research project title”Identification and analysis of sex determining genes in silkmoths”	-19391
-450859	P-114	Evaluating the Calcineurin-NFAT Pathway and its regulators superoxide dismutase (SOD) AND RCAN1 (regular of Calcineurin) Down Syndrome	-450859
-1251366	P-116	DBT-India and AIST - Japan : Understanding molecular mechanisms controlling dual role of Ras, Sirtuins and CARF in relation to cellular proliferation and senescence: Novel Strategy for developing cancer therapeutics	-1251366
-2892	P-119	Analysis of DNA copy number alterations in esophaeal cancer	-2892
-769484	P-120	Effect of reactive oxygen species on macrophage signalosome: impact on antigen presentation functions and T Cell priming responses	-769484
-1130866	P-121	Identification and characterization of PTEN regulators	-1130866
0	P-122	Understanding the role of Hox genes in anterior-posterior axis determination of the central nervous system	0
1112558	P-123	Establish a Max Planck Partner Group for Genetic Diversity Studies at CDFD	1112558
-748411	P-124	Preparation and characterization of peroxometal compounds and studies and their biological significance in cellular signalling	-748411
160270	P-126	Rho-dependent transcription termination machinery: mechanism of action	160270
-158488	P-128	Mechanism of iron acquisition and iron homeostasis in an opportunistic human pathogen Candida glabrata	-158488
3947	P-13	“Programme to delineate gene functions in the post – genomics era by a systematic two gene knockout method”	3947
-142258	P-130	Comparative genetic analysis of sex chromosomes and sex determining genes in silkmoths	-142258
398632	P-131	Structural and functional studies of Acyl CoA Binding proteins from plasmodium falciparum	398632
-12199	P-132	Characterization of tumor suppressor function of ARIDIB, a component of the human SWI/SNF chromatin remodelling complex	-12199
-1324223	P-133	Investigating the role of Hox gene deformed in central nervous system patterning in Drosophila melanogaster	-1324223
-77061	P-134	Exploration of wild silk moth biodiversity in Manipur and their genetic characterization using molecular markers	-77061
0	P-135	Sys TB: A Network Program for Resolving the Intracellular Dynamics of Host Phthogen Interaction in TB Infection	0
-196001	P-136	Raf Kinase - a key target for modem-day theraphy against tumors	-196001
-1451500	P-138	Co-evaluation of Dnmt3l and Genomic imprinting	-1451500
20000	P-139	Evaluating the role of Sirtuins and epigenetic changes during cellular senescense in context of p53 status	20000
-608652	P-140	Development of baculovirus resistant silkworms strains through synthetic miRNA based knockdown of essential viral genes	-608652
-125000	P-141	Evaluating the functional role of PTEN interacting proteins in cell survival signaling and tumor suppression	-125000
-81861	P-142	Identification of H3K4 TRI Demethylase involved in erasing H3K4 trimethylation marks at E2F Responsive promoters	-81861
-719139	P-143	Microarray based characterisation of squamous cell carcinoma of the tongue occuring in non smokers	-719139
122130	P-144	Tri-National Training Program for Psychiatric Genetics	122130
3222	P-145	H3K4 HMT family regulatescell cycle progression	3222
59533	P-146	Role of MLL in ribosomal RNA transcription	59533

Annexure-I

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS

Details of Closing balances of various Earmarked / Endowement Funds (Refer Sch-3)

For the Year Ended 31st MARCH 2019

(Amount in Rs.)

-272874	P-147	The Effect of Parental Education, Ethics of Research Participation and Array Comparative Genomic Hybridization in Subjects with Mental Retardation (MR) and /or Autism	-272874
-73001	P-149	Role of SUMOylation in the pathobiology of Candida Glabrata	-73001
199137	P-151	Human Exome Sequencing to Identify Novel Genes for Medelian Disorders	199137
1138373	P-153	An attractive and promising stragegy for early cancer diagnosis through the assembly of the human cancer volatome"	0
-476750	P-154	Rational design, synthetic strategies for developing organometallic anticancer compounds based on organotin and organoiron	0
335194	P-155	Studies on thecellular roles of calcium signalling proteins in Neurospora crassa	335194
-843369	P-156	Targeting microbial quorum sensing to demonstrate potential application of cell-cell signaling molecules from Xanthomonas group of plant pathogen in diesease control	0
0	P-158	Modulation of host immune responses by a PPE Protein of Mycobacterium tuberculosis: Understanding its role in host - pathogen cross-talk	0
-309972	P-160	Understanding the role of novel adhesins of Xanthomonas oryzae PV orzae in Virulence and colonization in Rice	0
-29200	P-164	A Yeast based screen for discovery of novel sirtuin inhibitors as anticancer agents	-29200
-687887	P-17	"Studies on inosital-phosphate synthesis – a novel enzyme from Mycobacterium tuberculosis H37RV" – Transfer from IMTECH, Chandigarh	-687887
1018438	P-173	Development and application of a next generation sequencing approach for molecular genetic analysis of lysosomal storage disorders	423398
139289	P-176	International Atomic Energy Agency	68728
-119970	P-177	Morphological and molecular taxonomy of the Phlebotomus argendtipes species complex in relation to transmission of Kala-azar in India"	-119970
268252	P-178	Understanding differential signaling via toll like receptor-2: A proteomics approach	127026
0	P-179	Quality Assurance Programme for Molecular and Prenatal Diagnosis of Hemoglobin Opathies	0
-274286	P-18	"Mapping of receptor binding site on the Eythrocyte binding of malaria parasyte"	-274286
885366	P-185	Investigating potential of mycobacterium tuberculosis protein PPE18 encapsulated nanoparticle as therapy for microbial sepsis	85931
604691	P-186	In vivo corss-talks between Rho-dependent transcription termination and other biological processes	526747
1488067	P-187	Understanding the mechanism of induction of innate immunity in plants by the Xanthomonas Diffusible signal factor (DSF)	1242771
806614	P-188	Identification of Novel Genes for Intellectual Disability	871728
14714544	P-189	Characterization of glycosylphosphatidylinositol-linked aspartyl proteases in Candida glabrata: role in pathosgenicity	9189345
234953	P-190	Exploring mycobacteriophages to source novel factors / regulators of bacterial transcription machinery	426704
0	P-191	"Human Frontier Science Program Reseearch Grant - A comprehensive approach towards the chemistry & biology of polyphosphate: the forgotten biopolymer	0
1648409	P-192	Design of peptide inhibitor(s) for the bacterial trancription terminator Rho, a potent drug target	1854154
77682	P-193	Screening for male infertility markers in the human Yq12 heterochromatic block	260818
0	P-194	Mechanisms and regulation of iron transportin the pathogenic yeast Candida glabrata	12200
1475532	P-195	Molecular and biophysical characterization of the ESAT-6: 2M complex and its effect on intracellular iron concentration and macrophage anti-mycobacterial effector responses"	493697
0	p-196	Exploring the volatome of noncommunicable diseases as a promising, innovative and integrating approach for its rapid diagnostics"	0
268350	P-197	National Post Doctoral Fellowship	237104
-54445	P-198	Whole Genome Sequencing for characterization of novel genes and de novo balanced chromosomal rearrangements in human genectic disorders"	659217
1747473	P-199	Investigating cellular processes and pathways controlled by phosphatases	1164818
-1888111	P-20	"Genomic Micro array R&D Programmes on infectious diseases and Neurological Disorders"	-1888111
288591	P-200	Characterization of divergent functions of ARID1A and ARID1B: the two alternative DNA binding constituents of the human SWI/SNF chromatic remodelling complex	345608
1435959	P-201	Defining the functions of MLL in mitosis	2125041
1736697	P-202	To decipher the role of MLL Complex in the process of cytokinesis	401812
1764289	P-203	Investigation of a potential novel function of fission yeast sirtuin family histone deacetylase Hst4 in regulation of DNA replication	1327569

Annexure-I

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS

Details of Closing balances of various Earmarked / Endowement Funds (Refer Sch-3)

For the Year Ended 31st MARCH 2019

(Amount in Rs.)

144331	P-204	To deliniate the role of MLL complex in Mircrotubule organizing capability of Cetrosome	355669
630948	P-205	Genetic studies of foetuses with malformations for identification of Non-chromosomal syndromes and Mendelian disorders	876444
300000	P-206	Characterization of the genetic etiological spectrum and identification of novel genetic etiologies for non-immune fetal hydrops"	135760
2114590	P-207	Genome and transcriptome analysis of chilli anthracnose fungus colletotrichum truncatum	2588026
173333	P-208	National Post Doctoral Fellowship	273438
1985915	P-209	Dissecting the contribution and interplay of MSI and CIMP in colrectal cancer in India	662635
7112780	P-211	" A comprehensive approach towards the chemistry & biology of polyphosphate: the forgotten biopolymer	9948655.66
2179000	P-212	Approaching Mycobacterium tuberculosis PPE protein Rv1168c (PPE17) as a potential marker for diagnosis of Tuberculosis (TB) patients in India	728738
2724000	P-213	Exploring an oncogenic function of p53 mutations identified in Indian squamous cell carcinoma patients	207686
824440	P-214	Studies on Non-Canonical functions of splicing proteins in maintaining genomic stability	1678773
970000	P-215	Understanding Homothorax independent role of Hox cofactor Extradenticle in Drosphila neuroblast apoptosis	1059846
1768000	P-216	Investigating the role of mycobacterial protein Rv2966c in modulating the host epigenetic circuitry during infection	266356
1141600	P-217	BRICS Research Project - EpiMacroTB, "Epigenetics of macrophages during Mycobacterium tuberculosis infection"	591800
1500000	P-219	Identification and molecular characterization of the CgHogl kinase interactome: impact on iron homeostasis and Candida pathogenesis	696130
0	P-220	Profiling placental immune cell signatures to compare the physiological role of T cell immune response in term and pre-term births	128333
0	P-221	The role of COP9 signalosome and DNA damage response pathways in hematopoiesis	75300
0	P-222	Development of CRISPR/Cas9 system for generating efficient targeted gene knock outs in chilli pathogen Colletotrichum truncatum	221418
0	P-223	Inhibition of TLR2-PPE18 interaction as novel therapeutic to improve the Th1-based anti-TB protective immune response of the host	6807
0	P-224	J C Bose National fellowship	38710
0	P-225	Molecular mechanism of designated feerocene scaffold appended with organostannyl benzoates for anticancer acitivity	575669
0	P-226	Molecular mechanism of designated feerocene scaffold appended with organostannyl benzoates for anticancer acitivity	200300
0	P-227	Investigation of the role of Notch signalling in abdominal neural stem cell apoptosis in Drosophila	3190405
272974	P-228	Deciphering cellular roles of non-canonical ubiquitination	0
0	P-229	Genetic Markers of Electrical Storm in patients with underlying myocardial Infarction	918333
0	P-230	Understanding the role of iron in the virulence and host adaptation of Xanthomonas phytopathogens	1888200
0	P-232	Proposal for creation of a National Genomics Core Phase	20000000
-34495	P-23	"Development of PCR base assays for detection of GMO S"	-34495
-529111	P-25	"Functional studies of Human Immuno - deficiency Virus Type– 2 (HIV-2) Viral protien X (VPX)"	-529111
-79533	P-26	Occurrence of Mutations in Non dividing cells of Escherichia Coli"	-79533
-37624	P-28	Baculovirus resistance in transgenic silkworms	-37624
-310302	P-29	"Development of Hospital Surveillance system by advanced diagnostics method & Molecular DNA fingerprinting techniques"	-310302
-234000	P-33	"Molecular and Epidemiological characterisation of cryptosporidium – An enteric protozoon parasite"	-234000
26334	P-34	"Molecular analysis of lepidopteran – specific immune protiens from silkmoths"	26334
-283883	P-35	"Identification, Characterization and Physical mapping of Z-Chromosome linked genes of the silk worm, Bombyxmori"	-283883
2073896	P-36	"Development of Artificial retina using Bacterio rhodospin and genetically engineered analogues "	2073896
-4058	P-40	"Antioxidants as a potential immuno adjuvant in anti tuberculosis immunotherapy"	-4058
1873605	P-41	"Construction, characterization and analysis of expressed sequences from silkworm "	1873605
-457538	P-44	"Understanding of role of Ras and NO / iNOS signalling in promotion of hepatocellular carcinomas with persistent HBV infection"	-457538
-1586965	P-47	Research cum Training for DRDO Programme	-1586965
151826	P-48	'Molecular characterization of human liver stem cells for use in the treatment of hepatic diseases'.	151826
1041952	P-49A	International Atomic Energy Agency (IAEA)	1041952
-284065	P-51	"Understanding the mechanism of doxorubicin resistance in breast cancer celline MCF-7"	-284065

Annexure-I

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS

Details of Closing balances of various Earmarked / Endowement Funds (Refer Sch-3)

For the Year Ended 31st MARCH 2019

(Amount in Rs.)

-1231118	P-52	"Nucleo Cytoplasmic transport of HIV – 1 Vpr"	-1231118
-37877	P-54	"Study of viability of Mycobacterium leprae in clinical samples and possibility of its presence in the environment using nucleic acid amplification techniques."	-37877
224	P-55	"Identification of DNA Markers for baculovirus resistance in silkworm, Bombyx mori"	224
-1231164	P-56	"Genetics of transcription-replication interplay and of stress adaptation in bacteria"	-1231164
-2215024	P-59	"An integrated Approach towards understanding the biology of Mycobacterium tuberculosis: Genetic, biochemical, immunological and structural analyses."	-2215024
482124	P-60	"National Database of Prevalent Genetic Disorders in India: Development, Curation and Services"	482124
-280000	P-61	"Dissection of a novel phenotype of lethal accumulation of potassium in Escherichia coli mutants defective in thioredoxin/ thioredoxin reductase and nucleoied protein H-NS"	-280000
-278928	P-62	"HIV – 1 Pathogenesis: Role of Integrase in Reverse Transciption and Nuclear Transport of Viral Genome"	-278928
-773874	P-63	"Upgradation of the existing computing infrastructure at the Bioinformatics facility at CDFD"	-773874
-158	P-64	Biotechnology for Leather: Towards cleaner processing phase-II	-158
-582647	P-65	"Molecular, genetic and functional analysis of the chromosomal plasticity region of the gastric pathogen Helicobater pylori"	-582647
-681246	P-66	Human Epigenome Variation: Analysis of CpG island methylation in chromosomes 18 and Y, and in some Hox, insulin signaling and chromatin reprogramming genes	-681246
-113545	P-67	Identification of novel Esophageal Squamous cell carcinoma (ESCC) genes by using a combination of array-based CGH and gene expression micro arrays	-113545
-59874	P-68	Identification of High risk individual with pre-cancerous states of esophageal cancer.	-59874
-21336	P-70	Identification of disease causing mutations in familial hypertrophic cardiomyopathy (FHC) patients from Andhra Pradesh	-21336
-1421653	P-72	Nuances of non coding DNA near insulin-responsive genes.	-1421653
-857136	P-73	Identification and characterization of pancreatic cancer genes located within novel localized cpy number alterations	-857136
-10840	P-75	Preparing blueprint for the macromolecular crystallography beamline at Indus-II synchrotron source	-10840
-50234	P-76	A study of molecular markers in childhood autism with special references to nuclear factors - α APPA B	-50234
124277	P-77	Functional characterization of Mycobacterium tuberculosis PE/PPE proteins having SH3 binding domain : Understanding their role in modulating macrophage functions	124277
1304	P-78	Task force- IMD Newborn screening for Congenital Hypothyroidism & Congenital Adrenal Hyperplasia: A multicentric study	1304
-105086	P-79	Understanding the role of AGE proteins in inducing inflammatory responses and its regulation	-105086
-608222	P-80	Referral centre for detection of genetically modified foods employing DNA-based markets	-608222
143470	P-81	Reconstructing Cellular Networks: Two-component regulatory systems	143470
-60000	P-81A	Financial assistance for award of J C Bose Fellowship to Dr J Gowrishankar	0
-369021	P-82	Functional genomic analysis of Candida Glabrata-macrophage	-369021
-1155594	P-83	Prokaryotic Transcription termination factor, Rho: Mechanism of Action and Biology	-1155594
-1150	P-84	Preparing for vaccine efficacy trials: Baseline epidemiology, improved diagnosis, markers of protection and phase I/II trials	-1150
-106479	P-84A	Human epigenetic to the rescue of human identification process: Enriching human DNA from DNA mixture employing antibodies directed against 5-methylcytosine followed by whole genome amplification	-106479
-1118755	P-85	IdeR associated gene regulatory network in mycobacteria	-1118755
-65698	P-87	Comparative genomics of wild silkmoths	-65698
-636286	P-90	Role of Yapsins in the Pathobiology of Candida Glabrata	-636286
-1098900	P-91	DMMT3L: epigenetic correlation with cancer	-1098900
268823	P-92	Swarnajayanti fellowship proj on "Designing transcription anti-terminators: a novel approach for making new inhibitors of gene expression"	268823
-611833	P-93/A1	Virtual Centre of Excellence on multidisciplinary approaches aimed at interventions against tuberculosis	-611833
-3228626	P-93/A2	Virtual Centre of Excellence on multidisciplinary approaches aimed at interventions against Mycobacterium tuberculosis	-3228626
837745	P-93B2 (II)	Evaluation of peptides / small molecules targeting ESAT-6:B2M interaction and PPE18-TLR2 interaction as potent anti tuberculosis therapautics	952280
-276552	P-97	Proteome-wide Analysis of Serine pyrophosphorylation by inositol pyrophosphates	-276552
-236042	P-98	Role of cell - cell signaling mediated by Diffusible signaling factor (DSF) in Xanthomonas virulence	-236042
-567516	P-99	Role of inositol Pyrophosphates in eukaryotic cell growth, proliferation and ribosomae biogenesis	-567516
-5832655			**32184356.66**

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS

For the Year Ended 31st MARCH 2019

Annexure: A Forming part of Receipts and Payment a/c

Previous Year Amount Rs.	Particulars	Current Year Amount Rs.
	I-Remittances	
5042467.00	TDS	4518935.00
14145332.00	Income Tax	14457961.00
1337534.00	Works Tax	0.00
1755463.00	LIC	1763600.00
173120.00	GSLI	379786.00
0.00	Public Provident Fund	0.00
442350.00	Professional Tax	412157.00
2664167.00	Service Tax	0.00
289925.00	Others (I-Remittances)	399317.00
129638.00	Health Insurance	84252.00
3013664.00	ECCS	3333120.00
15000.00	Contract Staff security deposit	215520.00
30104.00	STAFF BENEVOLENT FUND	47603.00
105999.00	EPF	684028.00
58788.00	GST	0.00
29203551.00		**26296279.00**

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS

For the Year Ended 31st MARCH 2019

Annexure: B Forming part of Receipts and Payment a/c

Previous Year Amount Rs.	Particulars	Current Year Amount Rs.
	Advance refunds/recovery/Adjst.	
426,739.00	Advance for Expenses- purchases by Staff	506,000.00
0.00	Chemicals [Advance]	0.00
0.00	Computer Advance [Research Fellows]	0.00
114,541.00	Computer Advance [Staff]	0.00
0.00	Consumables, glassware and Spares [Advance]	2,895,544.00
0.00	Conveyance [Advance]	0.00
79,256.00	Conveyance Advance	0.00
0.00	DA [Advance]	0.00
208,000.00	EMD	742,166.00
2,214,182.00	Equipment [Advance]	20,684,123.00
42,300.00	Festival Advance	0.00
16,000.00	GDA [Others]	0.00
1,929,593.00	General Deposits And Advances	0.00
0.00	Human Resource Develpment - Training of Staff - Conferences [Advance]	0.00

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS

For the Year Ended 31st MARCH 2019

Annexure: B Forming part of Receipts and Payment a/c

Previous Year Amount Rs.	Particulars	Current Year Amount Rs.
98,484,058.00	Inter Bank Transfer	55,437,928.00
178,000.00	Lab Security Deposit & Hostel Security Deposit	79,000.00
417,780.00	LTC [Advance]	0.00
95,678.00	Miscellaneous Salary [Advance]	0.00
0.00	Others [Advances]	217,586.00
40,821.00	Pay of Establishment [Advance]	0.00
284,057.00	Revolving Advance	249,000.00
3,367,370.00	Security Deposit	215,520.00
73,778.00	TA Abroad [Advance]	50,000.00
44,000.00	TA-DA-Hon within India [Advance]	0.00
10,000.00	Trainee Security Deposit	8,000.00
0.00	Water [Advance]	0.00
0.00	Workshop & Conference	0.00
108,026,153.00		**81,084,867.00**

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS

For the Year Ended 31st MARCH 2019

Annexure: C Forming part of Receipts and Payment a/c

Previous Year Amount Rs.	Particulars	Current Year Amount Rs.
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CENTRE FOR DNA FINGEPRINTING AND DIAGNOSTICS

For the Year Ended 31st MARCH 2019

Annexure: E Forming part of Receipts and Payment a/c

Previous Year Amount Rs.	Particulars	Current Year Amount Rs.
	I-Remittances	
511,578.00	Contract Staff security deposit	215,520.00
3,447,809.00	ECCS	3,333,120.00
105,999.00	EPF	327,428.00
166,210.00	GSLI	378,586.00
67,988.00	GST on Reverse Charge	0.00
0.00	Health Insurance	0.00
14,129,968.00	Income Tax	14,457,961.00
1,755,463.00	LIC	1,763,600.00
860,080.00	Others (I-Remittances)	3,753,759.00
444,600.00	Professional Tax	412,157.00
0.00	Public Provident Fund	0.00
3,142,319.00	Service Tax	0.00
0.00	STAFF BENEVOLENT FUND	47,603.00
5,081,943.00	TDS	4,518,935.00
17,133.00	Works Tax	0.00
29,731,090.00		**29,208,669.00**

CENTRE FOR DNA FINGEPRINTING AND DIAGNOSTICS

For the Year Ended 31st MARCH 2019

Annexure: F Forming part of Receipts and Payment a/c

Previous Year Amount Rs.	Particulars	Current Year Amount Rs.
	Projects - Expenditure	
500408.00	COE1/CORE	0.00
0.00	COE1/P-I	0.00
0.00	COE1/P-II	0.00
0.00	COE1/P-III	0.00
868101.00	COE2-II/P-1	1098665.00
49400.00	COE2-II/P-A	0.00
592800.00	COE2-II/P-B	701034.00
0.00	COE2-II/P-C	0.00
0.00	COE2-II/P-D	0.00
388826.00	COE2-II/P-E	208048.00
2970523.00	COE2-II-Core	0.00
0.00	COE-I/P-IV	0.00
714186.00	others	0.00

CENTRE FOR DNA FINGEPRINTING AND DIAGNOSTICS

For the Year Ended 31st MARCH 2019

Annexure: F Forming part of Receipts and Payment a/c

Previous Year Amount Rs.	Particulars	Current Year Amount Rs.
0.00	P-107	0.00
866029.00	P-109	0.00
3484085.00	P-122	0.00
328129.00	P-123	0.00
0.00	P-126	0.00
0.00	P-127	0.00
0.00	P-130	0.00
0.00	P-133	0.00
0.00	P-134	0.00
1477583.00	P-135	0.00
0.00	P-138	0.00
0.00	P-149	0.00
0.00	P-151	0.00
35975.00	P-152	0.00
23400.00	P-153	0.00
42357.00	P-154	0.00
238246.00	P-156	0.00
124009.00	P-157	0.00
129496.00	P-158	0.00
198696.00	P-159	19967.00
162792.00	P-160	499546.00
339491.00	P-162	0.00
1283163.00	P-163	0.00
140029.00	P-165	0.00
1128752.00	P-166	0.00
780652.00	P-167	0.00
278236.00	P-168	0.00
3869248.00	P-169	0.00
275000.00	P-170	0.00
699877.00	P-171	0.00
710772.00	P-172	0.00
1009682.00	P-173	951030.00
250087.00	P-174	0.00
1140728.00	P-175	0.00
68728.00	P-176	0.00
0.00	P-177	0.00
815947.00	P-178	86226.00
100000.00	P-179	0.00
54763.00	P-180	0.00

CENTRE FOR DNA FINGEPRINTING AND DIAGNOSTICS

For the Year Ended 31st MARCH 2019

Annexure: F Forming part of Receipts and Payment a/c

Previous Year Amount Rs.	Particulars	Current Year Amount Rs.
695304.00	P-181	800000.00
533274.00	P-182	0.00
0.00	P-183	0.00
272167.00	P-184	0.00
931044.00	P-185	130000.00
1444138.00	P-186	600289.00
394610.00	P-187	1017596.00
1276280.00	P-188	1000096.00
6314623.00	P-189	3813457.00
960073.00	P-190	199297.00
5718535.00	P-191	0.00
630308.00	P-192	477238.00
923665.00	P-193	0.00
210034.00	P-194	278594.00
681672.00	P-195	486835.00
1164021.00	p-196	0.00
874626.00	P-197	82000.00
2948045.00	P-198	983737.00
10300490.00	P-199	4846546.00
1517608.00	P-200	1596083.00
2125041.00	P-201	1051166.00
666303.00	P-202	2228996.00
960417.00	P-203	1224520.00
414002.00	P-204	83536.00
853652.00	P-205	252018.00
342010.00	P-207	774064.00
786667.00	P-208	149895.00
1068085.00	P-209	357479.00
489619.00	P-211	3026645.00
29893.00	P-214	0.00
119178.00	P-65A	0.00
0.00	P-81	0.00
910453.00	P-81A	0.00
0.00	P-93/A2	0.00
702165.00	P-93B2 (II)	0.00
0.00	P-215	0.00
0.00	P-216	0.00
0.00	P-217	0.00
0.00	P-218	0.00

CENTRE FOR DNA FINGEPRINTING AND DIAGNOSTICS

For the Year Ended 31st MARCH 2019

Annexure: F Forming part of Receipts and Payment a/c

Previous Year Amount Rs.	Particulars	Current Year Amount Rs.
0.00	P-219	0.00
0.00	P-220	0.00
0.00	P-221	0.00
0.00	P-221	0.00
0.00	P-222	0.00
0.00	P-223	0.00
0.00	P-224	0.00
0.00	P-225	0.00
0.00	P-226	0.00
0.00	P-227	0.00
0.00	P-228	0.00
0.00	P-230	0.00
0.00	P-231	0.00
73398198.00		**29024603.00**

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS

For the Year Ended 31st MARCH 2019

Annexure: G Forming part of Balance sheet

Previous Year Amount Rs.	Particulars	Current Year Amount Rs.
	CDFD C.P.F ACCOUNT	
43,287,242.00	Opening Balance	52,520,328.00
	Add:	
11,590,032.00	Employee subscription/ refunds	0.00
0.00	Transfer from other departments	0.00
0.00	Institute contribution (inc. Projects staff)	0.00
325,840.00	Interest received	247,739.00
2,682,786.00	Less Advances/withdrawals/Transfer/Adjst	0.00
52,520,328.00		**52,768,067.00**

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS
For the Year Ended 31st MARCH 2019

Annexure: H Forming part of Balance sheet

Previous Year Amount Rs.	Particulars	Current Year Amount Rs.
	LOANS AND ADVANCES	
0.00	Advance for Expenses- purchases by Staff	0.00
0.00	Advances [Previous Years]	0.00
0.00	Chemicals [Advance]	0.00
0.00	Computer Advance [Research Fellows]	0.00
0.00	Computer Advance [Staff]	0.00
0.00	Consumables, glassware and Spares [Advance]	0.00
0.00	Conveyance Advance	0.00
72,704,023.00	Equipment [Advance]	138,191,314.00
0.00	Festival Advance	0.00
0.00	Health Insurance	0.00
0.00	Liveries & Blankets [Advance]	0.00
0.00	LTC [Advance]	0.00
0.00	Magzines [Advance]	0.00
0.00	Miscellaneous Salary	0.00
0.00	NPS Subscription	0.00
22,700.00	Office Equipment [Advance]	22,700.00
0.00	Others [Advances]	0.00
0.00	Pay of Establishment	0.00
0.00	Rent [Advance]	0.00
0.00	Research Fellows-Associates	0.00
0.00	Revolving Advance	0.00
0.00	Scientific Workshops - Symposiums - Seminars [Advance]	0.00
0.00	Telephone [Advance]	0.00
0.00	Trainee Security Deposit	0.00
0.00	Transport maintenance [Advance]	0.00
0.00	Workshop & Conference	0.00
72,726,723.00		**138,214,014.00**

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS
For the Year Ended 31st MARCH 2019

Annexure: I Forming part of Balance sheet

Previous Year Amount Rs.	Particulars	Current Year Amount Rs.
	DEPOSITS	
13,703,927.00	General Deposits And Advances	299847477.56
824,427.00	GDA[Others]	249000.00
14,528,354.00		**300096477.56**

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS
For the Year Ended 31st MARCH 2019
Annexure: J Forming part of Balance sheet

Previous Year Amount Rs.	Particulars	Current Year Amount Rs.
	CDFD C.P.F INVESTMENT A/C	
31,870,241.00	Deposit with Banks	23,387,695.00
11,565,032.00	Employee subscription	19,431,691.00
20,047,578.00	Less Transfer To Bank A/C	8,487,546.00
23,387,695.00		**34,331,840.00**

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS
For the Year Ended 31st MARCH 2019
Annexure: K Forming part of Balance sheet

Previous Year Amount Rs.	Particulars	Current Year Amount Rs.
	LOANS AND ADVANCES	
4310.00	Advances [Previous Years]	0.00
6451753.00	Chemicals [Advance]	0.00
14200773.00	Consumables, glassware and Spares [Advance]	40354084.00
220965.00	Diagnostics Collabration With NIMS	0.00
270860.00	ECCS	0.00
9200.00	GST on Reverse Charge	0.00
663909.00	Health Insurance	0.00
158200.00	Liveries & Blankets [Advance]	0.00
2547653.00	LTC [Advance]	533170.00
854.00	Magzines [Advance]	964.00
82513.00	Others (I-Remittances)	897770.00
6007215.00	Others [Advances]	75190.00
17453.00	Others [Contingencies Advance]	352309.00
188800.00	Printing & Stationery [Advance]	8500.00
304569.00	Rent [Advance]	0.00
49313242.00	Research Fellows-Associates	664573.00
108585.00	Revolving Advance	0.00
8000.00	Scientific Workshops - Symposiums - Seminars [Advance]	35000.00
375400.00	Software [Advance]	441938.00
34913.00	TA Abroad [Advance]	650000.00
50000.00	Telephone [Advance]	0.00
25000.00	Trainee Security Deposit	0.00
11510.00	Transport maintenance [Advance]	9086.00
458186.00	Workshop & Conference	350000.00
81,513,863.00		**44,372,584.00**

CENTRE FOR DNA FINGERPRINTING AND DIAGNOSTICS
For the Year Ended 31st MARCH 2019

Annexure: L Forming part of Balance sheet

Previous Year Amount Rs.	Particulars	Current Year Amount Rs.
	LOANS AND ADVANCES	
308997.00	Advance for Expenses- purchases by Staff	488000.00
135445.00	Computer Advance [Research Fellows]	0.00
102245.00	Computer Advance [Staff]	0.00
85821.00	Conveyance Advance	0.00
632508.00		**488000.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-09 : "NMITLI Project on – Latent M.Tuberculosis: New targets, Drug delivery systems, Bio enhancers & Therapeutics"
PI : Dr Seyed E Hasnain
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
244305.00	Opening Balance	244305.00		Opening Balance	0.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
244305.00		**244305.00**	**0.00**		**0.00**
0.00	Excess of Expenditure Over Income	0.00	244305.00	Closing Balance	244305.00
244305.00		**244305.00**	**244305.00**		**244305.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-10 : "Role of upstream sequence elements in Hyper activation of transcription from Baculovirus polyhedrin gene promoter"
PI : Dr M D Bashyam
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	28332.00	Opening Balance	28332.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		0.00	28332.00		28332.00
28332.00	Excess of Expenditure Over Income	28332.00	0.00	Closing Balance	0.00
28332.00		**28332.00**	**28332.00**		**28332.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-13 : "Programme to delineate gene functions in the post – genomics era by a systematic two gene knockout method"

PI : Dr J Gowrishankar

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
3947.00	Opening Balance	3947.00		Opening Balance	0.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
3947.00		3947.00	0.00		0.00
0.00	Excess of Expenditure Over Income	0.00	3947.00	Closing Balance	3947.00
3947.00		**3947.00**	**3947.00**		**3947.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-17 : "Studies on inosital-phosphate synthesis – a novel enzyme from Mycobacterium tuberculosis H37RV" – Transfer from IMTECH, Chandigarh

PI : Dr Sekhar C Mande

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	**Opening Balance**	0.00	687887.00	Opening Balance	687887.00
0.00	**Grant in Aid**	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**687887.00**		**687887.00**
687887.00	**Excess of Expenditure Over Income**	687887.00	0.00	Closing Balance	0.00
687887.00		**687887.00**	**687887.00**		**687887.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-18 : "Mapping of receptor binding site on the Eythrocyte binding of malaria parasyte"
PI : Dr Akash Ranjan
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	274286.00	Opening Balance	274286.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**274286.00**		**274286.00**
274286.00	Excess of Expenditure Over Income	274286.00	0.00	Closing Balance	0.00
274286.00		**274286.00**	**274286.00**		**274286.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-20 : "Genomic Micro array R&D Programmes on infectious diseases and Neurological Disorders"
PI : Dr Hasnain & Dr Bashyam
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	1888111.00	Opening Balance	1888111.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**1888111.00**		**1888111.00**
1888111.00	Excess of Expenditure Over Income	1888111.00	0.00	Closing Balance	0.00
1888111.00		**1888111.00**	**1888111.00**		**1888111.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-78 : Task force- IMD Newborn screening for Congenital Hypothyroidism & Congenital Adrenal Hyperplasia: A multicentric study

PI : Dr A Radha Rama Devi

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
1304.00	Opening Balance	1304.00		Opening Balance	0.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
1304.00		**1304.00**	**0.00**		**0.00**
0.00	Excess of Expenditure Over Income	0.00	1304.00	Closing Balance	1304.00
1304.00		**1304.00**	**1304.00**		**1304.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-79 : Understanding the role of AGE proteins in inducing inflammatory responses and its regulation

PI : Dr S K Manna

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	105086.00	Opening Balance	105086.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**105086.00**		**105086.00**
105086.00	Excess of Expenditure Over Income	105086.00	0.00	Closing Balance	0.00
105086.00		**105086.00**	**105086.00**		**105086.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-80 : Referral centre for detection of genetically modified foods employing DNA-based markets
PI : Dr Madhusudan Reddy
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	608222.00	Opening Balance	608222.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**608222.00**		**608222.00**
608222.00	Excess of Expenditure Over Income	608222.00	0.00	Closing Balance	0.00
608222.00		**608222.00**	**608222.00**		**608222.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-81 : Reconstructing Cellular Networks: Two-component regulatory systems
PI : Dr Shekhar Mande
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
143470.00	Opening Balance	143470.00		Opening Balance	0.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
143470.00		**143470.00**	**0.00**		**0.00**
0.00	Excess of Expenditure Over Income	0.00	143470.00	Closing Balance	143470.00
143470.00		**143470.00**	**143470.00**		**143470.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-81A : Financial assistance for award of J C Bose Fellowship to Dr J Gowrishankar
PI : Dr J Gowrishankar
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2017 TO 31.03.2018

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
2620.00	Opening Balance	850453.00		Opening Balance	0.00
1360000.00	Grant In Aid	0.00	275000.00	Salaries - Manpower	50000.00
0.00		0.00	0.00	Consumables	800453.00
0.00		0.00	37435.00	Contingencies	0.00
0.00		0.00	199732.00	Travel	0.00
0.00		0.00	0.00	Overheads	60000.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
1362620.00		**850453.00**	**512167.00**		**910453.00**
0.00	Excess of Expenditure Over Income	60000.00	850453.00	Closing Balance	0.00
1362620.00		**910453.00**	**1362620.00**		**910453.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-82 : Functional genomic analysis of Candida Glabrata-macrophage
PI : Dr Rupinder Kaur
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	369021.00	Opening Balance	369021.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**369021.00**		**369021.00**
369021.00	Excess of Expenditure Over Income	369021.00	0.00	Closing Balance	0.00
369021.00		**369021.00**	**369021.00**		**369021.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-83 : Prokaryotic Transcription termination factor, Rho: Mechanism of Action and Biology
PI : Dr Ranjan Sen
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	1155594.00	Opening Balance	1155594.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**1155594.00**		**1155594.00**
1155594.00	Excess of Expenditure Over Income	1155594.00	0.00	Closing Balance	0.00
1155594.00		**1155594.00**	**1155594.00**		**1155594.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-84 : Preparing for vaccine efficacy trials: Baseline epidemiology, improved diagnosis, markers of protection and phase I/II trials
PI : Dr Niyaz Ahmed
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	1150.00	Opening Balance	1150.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**1150.00**		**1150.00**
1150.00	Excess of Expenditure Over Income	1150.00	0.00	Closing Balance	0.00
1150.00		**1150.00**	**1150.00**		**1150.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-84A : Human epigenetic to the rescue of human identification process: Enriching human DNA from DNA mixture employing antibodies directed against 5-methylcytosine followed by whole genome amplification

PI : Dr Madhusudan Reddy

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	106479.00	Opening Balance	106479.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**106479.00**		**106479.00**
106479.00	Excess of Expenditure Over Income	106479.00	0.00	Closing Balance	0.00
106479.00		**106479.00**	**106479.00**		**106479.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-85 : IdeR associated gene regulatory network in mycobacteria

PI : Dr Akash Ranjan

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	1118755.00	Opening Balance	1118755.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**1118755.00**		**1118755.00**
1118755.00	Excess of Expenditure Over Income	1118755.00	0.00	Closing Balance	0.00
1118755.00		**1118755.00**	**1118755.00**		**1118755.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-87 : Comparative genomics of wild silkmoths
PI : Dr J Nagaraju
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	65698.00	Opening Balance	65698.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**65698.00**		**65698.00**
65698.00	Excess of Expenditure Over Income	65698.00	0.00	Closing Balance	0.00
65698.00		**65698.00**	**65698.00**		**65698.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-90 : Role of Yapsins in the Pathobiology of Candida Glabrata
PI : Dr Rupinder Kaur
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	636286.00	Opening Balance	636286.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**636286.00**		**636286.00**
636286.00	Excess of Expenditure Over Income	636286.00	0.00	Closing Balance	0.00
636286.00		**636286.00**	**636286.00**		**636286.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-91 : DMMT3L: epigenetic correlation with cancer
PI : Dr Sanjeev Khosla
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	1098900.00	Opening Balance	1098900.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**1098900.00**		**1098900.00**
1098900.00	Excess of Expenditure Over Income	1098900.00	0.00	Closing Balance	0.00
1098900.00		**1098900.00**	**1098900.00**		**1098900.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-92 : Swarnajayanti fellowship proj on "Designing transcription anti-terminators: a novel approach for making new inhibitors of gene expression"
PI : Dr Ranjan Sen
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year	Previous Year	Payments	Current Year
268823.00	Opening Balance	268823.00		Opening Balance	0.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
268823.00		**268823.00**	**0.00**		**0.00**
0.00	Excess of Expenditure Over Income	0.00	268823.00	Closing Balance	268823.00
268823.00		**268823.00**	**268823.00**		**268823.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-93/A1 : Virtual Centre of Excellence on multidisciplinary approaches aimed at interventions against tuberculosis
PI : Dr Shekar
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	611833.00	Opening Balance	611833.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**611833.00**		**611833.00**
611833.00	Excess of Expenditure Over Income	611833.00	0.00	Closing Balance	0.00
611833.00		**611833.00**	**611833.00**		**611833.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-93/A2 : Virtual Centre of Excellence on multidisciplinary approaches aimed at interventions against Mycobacterium tuberculosis
PI : Dr. Sangita Mukhopadhyay
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	3038491.00	Opening Balance	3228626.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	190135.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**3228626.00**		**3228626.00**
3228626.00	Excess of Expenditure Over Income	3228626.00	0.00	Closing Balance	0.00
3228626.00		**3228626.00**	**3228626.00**		**3228626.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-93B2 (II) : Evaluation of peptides / small molecules targeting ESAT-6:B2M interaction and PPE18-TLR2 interaction as potent anti tuberculosis therapautics

PI : Dr Sangita Mukhopadhyay

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
837745.00	Opening Balance	837745.00		Opening Balance	0.00
816700.00	Grant In Aid	957000.00	482236.00	Salaries - Manpower	616800.00
0.00		0.00	199127.00	Consumables	320281.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	20802.00	Travel	20000.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
1654445.00		**1794745.00**	**702165.00**		**957081.00**
0.00	Excess of Expenditure Over Income	0.00	952280.00	Closing Balance	952280.00
1654445.00		**1794745.00**	**1654445.00**		**1794745.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-97 : Proteome-wide Analysis of Serine pyrophosphorylation by inositol pyrophosphates

PI : Dr Rashna Bhandari

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	276552.00	Opening Balance	276552.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**276552.00**		**276552.00**
276552.00	Excess of Expenditure Over Income	276552.00	0.00	Closing Balance	0.00
276552.00		**276552.00**	**276552.00**		**276552.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-98 : Role of cell - cell signaling mediated by Diffusible signaling factor (DSF) in Xanthomonas virulence
PI : Dr Subhadeep Chatterjee
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	236042.00	Opening Balance	236042.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**236042.00**		**236042.00**
236042.00	Excess of Expenditure Over Income	236042.00	0.00	Closing Balance	0.00
236042.00		**236042.00**	**236042.00**		**236042.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-99 : Role of inositol Pyrophosphates in eukaryotic cell growth, proliferation and ribosomae biogenesis
PI : Dr Rashna Bhandari
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	567516.00	Opening Balance	567516.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**567516.00**		**567516.00**
567516.00	Excess of Expenditure Over Income	567516.00	0.00	Closing Balance	0.00
567516.00		**567516.00**	**567516.00**		**567516.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-100 : Effect of raective oxygen species on T-Cell immune response: An approach to understand the molecular mechanism of immunosuppression during tuberculosis - National Bioscience Award

PI : Dr Sangita Mukhopadhyay

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	576590.00	Opening Balance	576590.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**576590.00**		**576590.00**
576590.00	Excess of Expenditure Over Income	576590.00	0.00	Closing Balance	0.00
576590.00		**576590.00**	**576590.00**		**576590.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-102 : Understanding the role of Mycobacterium tuberculosis heat shockprotein 60 as Th1/Th2 immuno modular

PI : Dr Sangita Mukhopadhyay

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	27922.00	Opening Balance	27922.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**27922.00**		**27922.00**
27922.00	Excess of Expenditure Over Income	27922.00	0.00	Closing Balance	0.00
27922.00		**27922.00**	**27922.00**		**27922.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-103 : National Bioscience Award - Regulation of mast cell signaling, apoptosis and surface receptors
PI : Dr Sunil Kumar Manna
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	300000.00	Opening Balance	300000.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**300000.00**		**300000.00**
300000.00	Excess of Expenditure Over Income	300000.00	0.00	Closing Balance	0.00
300000.00		**300000.00**	**300000.00**		**300000.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-104 : Virtual Centre of Excellence on Epigenetics
PI : Dr Sanjeev Khosla
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	1289897.00	Opening Balance	1289897.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**1289897.00**		**1289897.00**
1289897.00	Excess of Expenditure Over Income	1289897.00	0.00	Closing Balance	0.00
1289897.00		**1289897.00**	**1289897.00**		**1289897.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-105 : Cloning, Characterization and analysis of chromosomal rearrangements in human genetic disorders

PI : Dr Ashwin B Dalal

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	862685.00	Opening Balance	862685.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**862685.00**		**862685.00**
862685.00	Excess of Expenditure Over Income	862685.00	0.00	Closing Balance	0.00
862685.00		**862685.00**	**862685.00**		**862685.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-107 : IYBA Project - Mechanism and role of bacterial cell-cell signaling molecules in plant defense response

PI : Dr Subhadeep Chatterjee

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
366575.00	Opening Balance	327575.00		Opening Balance	0.00
0.00	Grant In Aid	0.00	39000.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
366575.00		**327575.00**	**39000.00**		**0.00**
0.00	Excess of Expenditure Over Income	0.00	327575.00	Closing Balance	327575.00
366575.00		**327575.00**	**366575.00**		**327575.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-108 : Establishment of EBV transformed cell lines from families with rare genetic disorders
PI : Dr Ashwin B Dalal
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	454643.00	Opening Balance	454643.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**454643.00**		**454643.00**
454643.00	Excess of Expenditure Over Income	454643.00	0.00	Closing Balance	0.00
454643.00		**454643.00**	**454643.00**		**454643.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-109 : Molecular dissection of PI3-Kinase/Akt pathway by suing proteomics based approach: A study to identify novel potential oncogenes and tumor suppressors
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2017 TO 31.03.2018

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
767943.00	Opening Balance	0.00		Opening Balance	362393.00
0.00	Grant In Aid	0.00	689891.00	Salaries - Manpower	235174.00
0.00		0.00	224855.00	Consumables	630855.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	15179.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	200411.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
767943.00		**0.00**	**1130336.00**		**1228422.00**
362393.00	Excess of Expenditure Over Income	1228422.00	0.00	Closing Balance	0.00
1130336.00		**1228422.00**	**1130336.00**		**1228422.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-110 : India-Japan research project title"Identification and analysis of sex determining genes in silkmoths"
PI : Dr J Nagaraju
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	191391.00	Opening Balance	19391.00
172000.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
172000.00		**0.00**	**191391.00**		**19391.00**
19391.00	Excess of Expenditure Over Income	19391.00	0.00	Closing Balance	0.00
191391.00		**19391.00**	**191391.00**		**19391.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-114 : Evaluating the Calcineurin-NFAT Pathway and its regulators superoxide dismutase (SOD) AND RCAN1 (regular of Calcineurin) Down Syndrome
PI : Dr Gayatri Ramakrishna, Dr Ashwin Dalal
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	450859.00	Opening Balance	450859.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**450859.00**		**450859.00**
450859.00	Excess of Expenditure Over Income	450859.00	0.00	Closing Balance	0.00
450859.00		**450859.00**	**450859.00**		**450859.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-116 : DBT-India and AIST - Japan : Understanding molecular mechanisms controlling dual role of Ras, Sirtuins and CARF in relation to cellular proliferation and senescence: Novel Strategy for developing cancer therapeutics
PI : Dr Gayatri Ramakrishna
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	1251366.00	Opening Balance	1251366.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**1251366.00**		**1251366.00**
1251366.00	Excess of Expenditure Over Income	1251366.00	0.00	Closing Balance	0.00
1251366.00		**1251366.00**	**1251366.00**		**1251366.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-119 : Analysis of DNA copy number alterations in esophaeal cancer
PI : Dr M D Bashyam
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	2892.00	Opening Balance	2892.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**2892.00**		**2892.00**
2892.00	Excess of Expenditure Over Income	2892.00	0.00	Closing Balance	0.00
2892.00		**2892.00**	**2892.00**		**2892.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-120 : Effect of reactive oxygen species on macrophage signalosome: impact on antigen presentation functions and T Cell priming responses

PI : Dr Sangita Mukhopadhyay

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	769484.00	Opening Balance	769484.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**769484.00**		**769484.00**
769484.00	Excess of Expenditure Over Income	769484.00	0.00	Closing Balance	0.00
769484.00		**769484.00**	**769484.00**		**769484.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-121 : Identification and characterization of PTEN regulators

PI : Dr M Subba Reddy

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	1130866.00	Opening Balance	1130866.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**1130866.00**		**1130866.00**
1130866.00	Excess of Expenditure Over Income	1130866.00	0.00	Closing Balance	0.00
1130866.00		**1130866.00**	**1130866.00**		**1130866.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-122 : Understanding the role of Hox genes in anterior-posterior axis determination of the central nervous system
PI : Dr Rohit Joshi
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2017 TO 31.03.2018

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
2951109.00	Opening Balance	21124.00		Opening Balance	0.00
2722184.00	Grant In Aid	3462961.00	194574.00	Salaries - Manpower	328944.00
0.00		0.00	3368228.00	Consumables	2174165.00
0.00		0.00	3377.00	Contingencies	0.00
0.00		0.00	19369.00	Travel	332877.00
0.00		0.00	513833.00	Overheads	316734.00
0.00		0.00	1552788.00	Equipment	331365.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
5673293.00		**3484085.00**	**5652169.00**		**3484085.00**
0.00	Excess of Expenditure Over Income	0.00	21124.00	Closing Balance	0.00
5673293.00		**3484085.00**	**5673293.00**		**3484085.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-123 : Establish a Max Planck Partner Group for Genetic Diversity Studies at CDFD
PI : Dr N Madhusudan Reddy
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2017 TO 31.03.2018

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
771699.00	Opening Balance	1440687.00		Opening Balance	0.00
1648000.00	Grant In Aid	0.00	199277.00	Salaries - Manpower	-151175.00
0.00		0.00	428574.00	Consumables	132565.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	186183.00	Travel	88726.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	164978.00	Equipment	258013.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
2419699.00		**1440687.00**	**979012.00**		**328129.00**
0.00	Excess of Expenditure Over Income	0.00	1440687.00	Closing Balance	1112558.00
2419699.00		**1440687.00**	**2419699.00**		**1440687.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-124 : Preparation and characterization of peroxometal compounds and studies and their biological significance in cellular signalling

PI : Dr Gayatri Ramakrishna

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	748411.00	Opening Balance	748411.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**748411.00**		**748411.00**
748411.00	Excess of Expenditure Over Income	748411.00	0.00	Closing Balance	0.00
748411.00		**748411.00**	**748411.00**		**748411.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-126 : Rho-dependent transcription termination machinery: mechanism of action

PI : Dr Ranjan Sen

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
209670.00	Opening Balance	160270.00		Opening Balance	0.00
0.00	Grant In Aid	0.00	49400.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
209670.00		**160270.00**	**49400.00**		**0.00**
0.00	Excess of Expenditure Over Income	0.00	160270.00	Closing Balance	160270.00
209670.00		**160270.00**	**209670.00**		**160270.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-127 : Systematic studies on the functional network of phosphatases in cell life and death
PI : Dr M Subba Reddy
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
1895283.00	Opening Balance	0.00		Opening Balance	0.00
663747.00	Grant In Aid	0.00	144000.00	Salaries - Manpower	0.00
0.00		0.00	2182390.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	232640.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
2559030.00		**0.00**	**2559030.00**		**0.00**
0.00	Excess of Expenditure Over Income	0.00	0.00	Closing Balance	0.00
2559030.00		**0.00**	**2559030.00**		**0.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-128 : Mechanism of iron acquisition and iron homeostasis in an opportunistic human pathogen Candida glabrata
PI : Dr Rupinder Kaur
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	158488.00	Opening Balance	158488.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**158488.00**		**158488.00**
158488.00	Excess of Expenditure Over Income	158488.00	0.00	Closing Balance	0.00
158488.00		**158488.00**	**158488.00**		**158488.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-130 : Comparative genetic analysis of sex chromosomes and sex determining genes in silkmoths
PI : Dr J Nagaraju
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
869.00	Opening Balance	0.00		Opening Balance	142258.00
0.00	Grant In Aid	0.00	125471.00	Salaries - Manpower	0.00
0.00		0.00	17656.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
869.00		**0.00**	**143127.00**		**142258.00**
142258.00	Excess of Expenditure Over Income	142258.00	0.00	Closing Balance	0.00
143127.00		**142258.00**	**143127.00**		**142258.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-131 : Structural and functional studies of Acyl CoA Binding proteins from plasmodium falciparum
PI : Dr Akash Ranjan
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
398632.00	Opening Balance	398632.00		Opening Balance	0.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
398632.00		**398632.00**	**0.00**		**0.00**
0.00	Excess of Expenditure Over Income	0.00	398632.00	Closing Balance	398632.00
398632.00		**398632.00**	**398632.00**		**398632.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-132 : Characterization of tumor suppressor function of ARIDIB, a component of the human SWI/SNF chromatin remodelling complex
PI : Dr M D Bashyam, Dr Rohit Joshi
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	12199.00	Opening Balance	12199.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**12199.00**		**12199.00**
12199.00	Excess of Expenditure Over Income	12199.00	0.00	Closing Balance	0.00
12199.00		**12199.00**	**12199.00**		**12199.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-133 : Investigating the role of Hox gene deformed in central nervous system patterning in Drosophila melanogaster
PI : Dr Rohit Joshi
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	702990.00	Opening Balance	1324223.00
500000.00	Grant In Aid	0.00	132600.00	Salaries - Manpower	0.00
0.00		0.00	988633.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
500000.00		**0.00**	**1824223.00**		**1324223.00**
1324223.00	Excess of Expenditure Over Income	1324223.00	0.00	Closing Balance	0.00
1824223.00		**1324223.00**	**1824223.00**		**1324223.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-134 : Exploration of wild silk moth biodiversity in Manipur and their genetic characterization using molecular markers
PI : Dr K P Arun Kumar
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	77061.00	Opening Balance	77061.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**77061.00**		**77061.00**
77061.00	Excess of Expenditure Over Income	77061.00	0.00	Closing Balance	0.00
77061.00		**77061.00**	**77061.00**		**77061.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-135 : Sys TB: A Network Program for Resolving the Intracellular Dynamics of Host Phthogen Interaction in TB Infection
PI : Dr. Sanjeev Kholsa
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2017 TO 31.03.2018

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	336135.00	Opening Balance	1118756.00
0.00	Grant In Aid	2424800.00	343200.00	Salaries - Manpower	114400.00
0.00		0.00	423237.00	Consumables	1276819.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	16184.00	Travel	86364.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**2424800.00**	**1118756.00**		**2596339.00**
1118756.00	Excess of Expenditure Over Income	171539.00	0.00	Closing Balance	0.00
1118756.00		**2596339.00**	**1118756.00**		**2596339.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-160 : Understanding the role of novel adhesins of Xanthomonas oryzae PV orzae in Virulence and colonization in Rice
PI : Dr Subhadeep Chatterjee
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	147180.00	Opening Balance	147180.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	162792.00	Consumables	162792.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**309972.00**		**309972.00**
309972.00	Excess of Expenditure Over Income	309972.00	0.00	Closing Balance	0.00
309972.00		**309972.00**	**147180.00**		**309972.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-163 : Unravelling new functions for the H-NS family of proteins in Gram-negative bacterial pathogens
PI : Dr J Gowrishankar
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
1530338.17	Opening Balance	247175.17		Opening Balance	0.00
0.00	Grant In Aid	0.00	230400.00	Salaries - Manpower	0.00
0.00		0.00	726570.00	Consumables	0.00
0.00		0.00	8000.00	Contingencies	0.00
0.00		0.00	318193.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
1530338.17		**247175.17**	**1283163.00**		**0.00**
0.00	Excess of Expenditure Over Income	0.00	247175.17	Closing Balance	247175.17
1530338.17		**247175.17**	**1530338.17**		**247175.17**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-164 : A Yeast based screen for discovery of novel sirtuin inhibitors as anticancer agents
PI : Dr Devyani Halder
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	29200.00	Opening Balance	29200.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**29200.00**		**29200.00**
29200.00	Excess of Expenditure Over Income	29200.00	0.00	Closing Balance	0.00
29200.00		**29200.00**	**29200.00**		**29200.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-166 : Sequencing analysis of transcriptome variants in early-onset sporadic rectal cancer
PI : Dr M D Bashyam
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	368609.00	Opening Balance	0.00
1359100.00	Grant In Aid	0.00	102658.00	Salaries - Manpower	0.00
0.00		0.00	1022407.00	Consumables	0.00
0.00		0.00	1000.00	Contingencies	0.00
0.00		0.00	2687.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
1359100.00		**0.00**	**1497361.00**		**0.00**
138261.00	Excess of Expenditure Over Income	0.00	138261.00	Closing Balance	0.00
1497361.00		**0.00**	**1497361.00**		**0.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-167 : To elucidate the role of MLL complex in epigenetic specification of centromeres
PI : Dr Shweta Tyagi
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
780652.00	Opening Balance	0.00	0.00	Opening Balance	0.00
0.00	Grant In Aid	0.00	295416.00	Salaries - Manpower	0.00
0.00		0.00	185016.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	105490.00	Travel	0.00
0.00		0.00	200000.00	Overheads	0.00
0.00		0.00	-72757.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	67487.00	Transfer of Funds	0.00
780652.00		**0.00**	**780652.00**		**0.00**
0.00	Excess of Expenditure Over Income	0.00	0.00	Closing Balance	0.00
780652.00		**0.00**	**780652.00**		**0.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-168 : A Search for nucleus -limited genes in Neurospora
PI : Dr D P Kasbekar
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2017 TO 31.03.2018

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00		Opening Balance	161318.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	236913.00
0.00		0.00	161318.00	Consumables	23770.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	17553.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**161318.00**		**439554.00**
161318.00	Excess of Expenditure Over Income	439554.00	0.00	Closing Balance	0.00
161318.00		**439554.00**	**161318.00**		**439554.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-169 : Implementation of 3 year DNB Program in Medical Genetics by Department of Biotechnology in colloboration with National Board of Examination ag SGHR, NIBMG&CDFD

PI : Dr J Gowrishankar

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	332017.00	Opening Balance	0.00
3858700.00	Grant In Aid	0.00	3433548.00	Salaries - Manpower	0.00
0.00		0.00	110700.00	Consumables	0.00
0.00		0.00	25000.00	Contingencies	0.00
0.00		0.00	300000.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
3858700.00		**0.00**	**4201265.00**		**0.00**
342565.00	Excess of Expenditure Over Income	0.00	0.00	Closing Balance	0.00
4201265.00		**0.00**	**4201265.00**		**0.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-170 : Women Scientist Scheme "Identification and character of deregulated micro RNAs in defined sub-set of early onset sporadic rectal cancer patients using transcriptome sequencing"

PI : Dr Mithu Ray Chaudhuri

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	383863.00	Opening Balance	0.00
0.00	Grant In Aid	0.00	275000.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**658863.00**		**0.00**
658863.00	Excess of Expenditure Over Income	0.00	0.00	Closing Balance	0.00
658863.00		**0.00**	**658863.00**		**0.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-171 : Role of vesicle-mediated transport and chromatin remodelling in the virulence of Candida glabrata
PI : Dr Rupinder Kaur
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	1237535.00	Opening Balance	0.00
3533564.00	Grant In Aid	0.00	502987.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	46000.00	Contingencies	0.00
0.00		0.00	40149.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	110741.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
3533564.00		**0.00**	**1937412.00**		**0.00**
	Excess of Expenditure Over Income	0.00	1596152.00	Closing Balance	0.00
3533564.00		**0.00**	**3533564.00**		**0.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-172 : Molecular Characterization of early onset sporadic rectal cancer
PI : Dr M D Bashyam
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
40020.00	Opening Balance	0.00	0.00	Opening Balance	0.00
800000.00	Grant In Aid	0.00	235510.00	Salaries - Manpower	0.00
0.00		0.00	475262.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
840020.00		**0.00**	**710772.00**		**0.00**
0.00	Excess of Expenditure Over Income	0.00	129248.00	Closing Balance	0.00
840020.00		**0.00**	**840020.00**		**0.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-173 : Development and application of a next generation sequencing approach for molecular genetic analysis of lysosomal storage disorders

PI : Dr Ashwin B Dalal

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
1672130.00	Opening Balance	1018438.00	0.00	Opening Balance	0.00
355990.00	Grant In Aid	355990.00	794702.00	Salaries - Manpower	0.00
0.00		0.00	214980.00	Consumables	951030.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
2028120.00		**1374428.00**	**1009682.00**		**951030.00**
0.00	Excess of Expenditure Over Income	0.00	1018438.00	Closing Balance	423398.00
2028120.00		**1374428.00**	**2028120.00**		**1374428.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-174 : Is non-canonical Wnt signalling a major player in early-onset sporadic rectal cancer

PI : Dr M D Bashyam

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2017 TO 31.03.2018

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
209406.00	Opening Balance	459319.00	0.00	Opening Balance	0.00
500000.00	Grant In Aid	0.00	229087.00	Salaries - Manpower	0.00
0.00		0.00	21000.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
709406.00		**459319.00**	**250087.00**		**0.00**
0.00	Excess of Expenditure Over Income	0.00	459319.00	Closing Balance	459319.00
709406.00		**459319.00**	**709406.00**		**459319.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-175 : Multi Centri Collaborative study of the Clinical, Biochemical and Molecular Characterization of Lysosomal storage disorders in India - The initiative for research in Lysosomal Storage Disorders"

PI : Dr Ashwin B Dalal

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2017 TO 31.03.2018

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	121669.00	Opening Balance	0.00
363913.00	Grant In Aid	0.00	715854.00	Salaries - Manpower	0.00
0.00		0.00	406187.00	Consumables	0.00
0.00		0.00	2217.00	Contingencies	0.00
0.00		0.00	16470.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
363913.00		**0.00**	**1262397.00**		**0.00**
898484.00	Excess of Expenditure Over Income		0.00	Closing Balance	0.00
1262397.00		**0.00**	**1262397.00**		**0.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-176 : International Atomic Energy Agency

PI : Dr K P Arun Kumar

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
208017.00	Opening Balance	139289.00	0.00	Opening Balance	0.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	25569.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	43159.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
208017.00		**139289.00**	**68728.00**		**0.00**
0.00	Excess of Expenditure Over Income	68728.00	139289.00	Closing Balance	208017.00
208017.00		**208017.00**	**208017.00**		**208017.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-177 : Morphological and molecular taxonomy of the Phlebotomus argendtipes species complex in relation to transmission of Kala-azar in India"

PI : Dr J Gowrishankar

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	119970.00	Opening Balance	0.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**0.00**	**119970.00**		**0.00**
119970.00	Excess of Expenditure Over Income	0.00	0.00	Closing Balance	0.00
119970.00		**0.00**	**119970.00**		**0.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-178 : Understanding differential signaling via toll like receptor-2: A proteomics approach

PI : Dr Rameshwaram Nagender Rao

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
268252.00	Opening Balance	268252.00	0.00	Opening Balance	0.00
900000.00	Grant In Aid	0.00	589032.00	Salaries - Manpower	55000.00
0.00		0.00	194594.00	Consumables	86226.00
0.00		0.00	26521.00	Contingencies	0.00
0.00		0.00	5800.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
1168252.00		**268252.00**	**815947.00**		**141226.00**
0.00	Excess of Expenditure Over Income	0.00	352305.00	Closing Balance	127026.00
1168252.00		**268252.00**	**1168252.00**		**268252.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-179 : Quality Assurance Programme for Molecular and Prenatal Diagnosis of Hemoglobin Opathies
PI : Dr Ashwin B Dalal
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
50000.00	Opening Balance	0.00	0.00	Opening Balance	0.00
50000.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	100000.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
100000.00		**0.00**	**100000.00**		**0.00**
0.00	Excess of Expenditure Over Income	0.00	0.00	Closing Balance	0.00
100000.00		**100000.00**	**100000.00**		**0.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-180 : Collaborative studies on genomic diversity among bombycoid silkmoths in Asia
PI : Dr K P Arun Kumar
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
117886.00	Opening Balance	63384.00		Opening Balance	0.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	4223.00	Contingencies	0.00
0.00		0.00	50279.00	Travel	54763.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
117886.00		**63384.00**	**54502.00**		**54763.00**
0.00	Excess of Expenditure Over Income	0.00	63384.00	Closing Balance	8621.00
117886.00		**63384.00**	**117886.00**		**63384.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-181 : To conduct multilocational field trails on transgenic BmNPV resistant silkworm strains to establish their efficacy and generate data for their regulatory approval

PI : Dr V V Satyavathi

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2017 TO 31.03.2018

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
1744000.00	Opening Balance	1223096.00		Opening Balance	0.00
0.00	Grant In Aid	1164000.00	446512.00	Salaries - Manpower	661050.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	74392.00	Travel	34254.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
1744000.00		**2387096.00**	**520904.00**		**695304.00**
0.00	Excess of Expenditure Over Income	0.00	1223096.00	Closing Balance	1691792.00
1744000.00		**2387096.00**	**1744000.00**		**2387096.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-182 : Ramalingaswami Fellowship

PI : Dr Mohan C Joshi

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
533274.00	Opening Balance	0.00	0.00	Opening Balance	0.00
0.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	136369.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	396905.00	Transfer of Funds	0.00
533274.00		**0.00**	**533274.00**		**0.00**
0.00	Excess of Expenditure Over Income	0.00	0.00	Closing Balance	0.00
533274.00		**0.00**	**533274.00**		**0.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-183 : "Prevalence and predictors of vitamin B12 deficiency: genetic associations for low vitamin B12 levels-multi-center a pan India study", PI : Dr G R Chandak
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00		Opening Balance	0.00
1091800.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	1091800.00	Transfer of Funds	0.00
1091800.00		**0.00**	**1091800.00**		**0.00**
0.00	Excess of Expenditure Over Income	0.00	0.00	Closing Balance	0.00
1091800.00		**0.00**	**1091800.00**		**0.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-184 : Computational Approaches to Understanding Peptide- Protein Interactions involved in the Regulatory Events in the Cell" PI : Dr Raghavender Surya Upadhyayula
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
957742.00	Opening Balance	123065.00		Opening Balance	0.00
0.00	Grant In Aid	0.00	660000.00	Salaries - Manpower	168667.00
0.00		0.00	0.00	Consumables	13271.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	7948.00	Travel	6729.00
0.00		0.00	0.00	Overheads	83500.00
0.00		0.00	166729.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
957742.00		**123065.00**	**834677.00**		**272167.00**
0.00	Excess of Expenditure Over Income	149102.00	123065.00	Closing Balance	0.00
957742.00		**272167.00**	**957742.00**		**272167.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-185 : Investigating potential of mycobacterium tuberculosis protein PPE18 encapsulated nanoparticle as therapy for microbial sepsis

PI : Dr Sangita Mukhopadhyay

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
1271410.00	Opening Balance	885366.00	0.00	Opening Balance	0.00
545000.00	Grant In Aid	0.00	385889.00	Salaries - Manpower	436800.00
0.00		0.00	345750.00	Consumables	300000.00
0.00		0.00	0.00	Contingencies	30000.00
0.00		0.00	19635.00	Travel	19635.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	179770.00	Equipment	13000.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
1816410.00		**885366.00**	**931044.00**		**799435.00**
0.00	Excess of Expenditure Over Income	0.00	885366.00	Closing Balance	85931.00
1816410.00		**885366.00**	**1816410.00**		**885366.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-186 : In vivo corss-talks between Rho-dependent transcription termination and other biological processes

PI : Dr Ranjan Sen

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
449029.00	Opening Balance	604691.00	0.00	Opening Balance	0.00
1599800.00	Grant In Aid	0.00	469678.00	Salaries - Manpower	501149.00
0.00		0.00	974460.00	Consumables	600289.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	30000.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
2048829.00		**604691.00**	**1444138.00**		**1131438.00**
0.00	Excess of Expenditure Over Income	0.00	604691.00	Closing Balance	526747.00
2048829.00		**604691.00**	**2048829.00**		**604691.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-187 : Understanding the mechanism of induction of innate immunity in plants by the Xanthomonas Diffusible signal factor (DSF)
PI : Dr Subhadeep Chatterjee
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
1282677.00	Opening Balance	1488067.00	0.00	Opening Balance	0.00
600000.00	Grant In Aid	1000000.00	338923.00	Salaries - Manpower	187200.00
0.00		0.00	0.00	Consumables	1017596.00
0.00		0.00	12000.00	Contingencies	30000.00
0.00		0.00	43687.00	Travel	10500.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
1882677.00		**2488067.00**	**394610.00**		**1245296.00**
0.00	Excess of Expenditure Over Income	0.00	1488067.00	Closing Balance	1242771.00
1882677.00		**2488067.00**	**1882677.00**		**2488067.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-188 : Identification of Novel Genes for Intellectual Disability
PI : Dr Aneek Das Bhowmik
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
832894.00	Opening Balance	806614.00	0.00	Opening Balance	0.00
1250000.00	Grant In Aid	1270000.00	661250.00	Salaries - Manpower	597903.00
0.00		0.00	500000.00	Consumables	496983.00
0.00		0.00	4500.00	Contingencies	110000.00
0.00		0.00	1100.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	109430.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
2082894.00		**2076614.00**	**1276280.00**		**1204886.00**
0.00	Excess of Expenditure Over Income	0.00	806614.00	Closing Balance	871728.00
2082894.00		**2076614.00**	**2082894.00**		**2076614.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-189 : Characterization of glycosylphosphatidylinositol-linked aspartyl proteases in Candida glabrata: role in pathosgenicity

PI : Dr Rupinder Kaur

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
17423746.00	Opening Balance	14714544.00	0.00	Opening Balance	0.00
3605421.00	Grant In Aid	0.00	652270.00	Salaries - Manpower	1184981.00
0.00		0.00	3927919.00	Consumables	2401705.00
0.00		0.00	14778.00	Contingencies	0.00
0.00		0.00	97324.00	Travel	24470.00
0.00		0.00	574057.00	Overheads	502291.00
0.00		0.00	1048275.00	Equipment	1411752.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
21029167.00		**14714544.00**	**6314623.00**		**5525199.00**
0.00	Excess of Expenditure Over Income	0.00	14714544.00	Closing Balance	9189345.00
21029167.00		**14714544.00**	**21029167.00**		**14714544.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-190 : Exploring mycobacteriophages to source novel factors / regulators of bacterial transcription machinery

PI : Dr Shweta Singh

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
245026.00	Opening Balance	234953.00	0.00	Opening Balance	0.00
950000.00	Grant In Aid	1000000.00	660000.00	Salaries - Manpower	550000.00
0.00		0.00	295685.00	Consumables	150000.00
0.00		0.00	0.00	Contingencies	32500.00
0.00		0.00	4388.00	Travel	8249.00
0.00		0.00	0.00	Overheads	67500.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
1195026.00		**1234953.00**	**960073.00**		**808249.00**
0.00	Excess of Expenditure Over Income	0.00	234953.00	Closing Balance	426704.00
1195026.00		**1234953.00**	**1195026.00**		**1234953.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-191 : "Human Frontier Science Program Reseearch Grant - A comprehensive approach towards the chemistry & biology of polyphosphate: the forgotten biopolymer

PI : Dr Rashna Bhandari

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2017 TO 31.03.2018

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	5718535.00		Opening Balance	0.00
7765092.00	Grant In Aid	0.00	1144105.00	Salaries - Manpower	2847195.00
0.00		0.00	500000.00	Consumables	736127.00
0.00		0.00	177341.00	Contingencies	0.00
0.00		0.00	0.00	Travel	46056.00
0.00		0.00	186051.00	Overheads	519867.00
0.00		0.00	39060.00	Equipment	1412117.00
0.00		0.00	0.00	Books	157173.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
7765092.00		**5718535.00**	**2046557.00**		**5718535.00**
0.00	Excess of Expenditure Over Income	0.00	5718535.00	Closing Balance	0.00
7765092.00		**5718535.00**	**7765092.00**		**5718535.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-192 : Design of peptide inhibitor(s) for the bacterial trancription terminator Rho, a potent drug target

PI : Dr Ranjan Sen

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
458917.00	Opening Balance	1648409.00		Opening Balance	0.00
1819800.00	Grant In Aid	1150000.00	436800.00	Salaries - Manpower	436800.00
0.00		0.00	181687.00	Consumables	477238.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	11821.00	Travel	30217.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
2278717.00		**2798409.00**	**630308.00**		**944255.00**
0.00	Excess of Expenditure Over Income	0.00	1648409.00	Closing Balance	1854154.00
2278717.00		**2798409.00**	**2278717.00**		**2798409.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-193 : Screening for male infertility markers in the human Yq12 heterochromatic block
PI : Dr Ashwin B Dalal
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
1001347.00	Opening Balance	77682.00		Opening Balance	0.00
0.00	Grant In Aid	0.00	197903.00	Salaries - Manpower	338500.00
0.00		0.00	684330.00	Consumables	0.00
0.00		0.00	10000.00	Contingencies	0.00
0.00		0.00	31432.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
1001347.00		**77682.00**	**923665.00**		**338500.00**
0.00	Excess of Expenditure Over Income	260818.00	77682.00	Closing Balance	0.00
1001347.00		**338500.00**	**1001347.00**		**338500.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-194 : Mechanisms and regulation of iron transportin the pathogenic yeast Candida glabrata
PI : Dr Rupinder Kaur
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
210034.00	Opening Balance	0.00		Opening Balance	0.00
0.00	Grant In Aid	500000.00	0.00	Salaries - Manpower	209300.00
0.00		0.00	0.00	Consumables	278500.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	210034.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
210034.00		**500000.00**	**210034.00**		**487800.00**
0.00	Excess of Expenditure Over Income	0.00	0.00	Closing Balance	12200.00
210034.00		**500000.00**	**210034.00**		**500000.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-195 : Molecular and biophysical characterization of the ESAT-6: 2M complex and its effect on intracellular iron concentration and macrophage anti-mycobacterial effector responses"

PI : Dr Sangita Mukhopadhyay

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
872204.00	Opening Balance	1475532.00	0.00	Opening Balance	0.00
1285000.00	Grant In Aid	0.00	455755.00	Salaries - Manpower	468000.00
0.00		0.00	218735.00	Consumables	486835.00
0.00		0.00	5500.00	Contingencies	27000.00
0.00		0.00	1682.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
2157204.00		**1475532.00**	**681672.00**		**981835.00**
0.00	Excess of Expenditure Over Income	0.00	1475532.00	Closing Balance	493697.00
2157204.00		**1475532.00**	**2157204.00**		**1475532.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

p-196 : Exploring the volatome of noncommunicable diseases as a promising, innovative and integrating approach for its rapid diagnostics"

PI : Dr H A Nagarajaram

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2017 TO 31.03.2018

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	1164020.70		Opening Balance	0.00
1281744.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	117723.30	Travel	0.00
0.00		0.00	0.00	Overheads	9418.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	1154603.00
1281744.00		**1164020.70**	**117723.30**		**1164021.00**
0.00	Excess of Expenditure Over Income	0.30	1164020.70	Closing Balance	0.00
1281744.00		**1164021.00**	**1281744.00**		**1164021.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-197 : National Post Doctoral Fellowship
PI : Dr Madhu Babu Battu
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
583730.00	Opening Balance	268350.00		Opening Balance	0.00
559246.00	Grant In Aid	380754.00	660000.00	Salaries - Manpower	330000.00
0.00		0.00	90785.00	Consumables	82000.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	123841.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
1142976.00		**649104.00**	**874626.00**		**412000.00**
0.00	Excess of Expenditure Over Income	0.00	268350.00	Closing Balance	237104.00
1142976.00		**649104.00**	**960000.00**		**649104.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-198 : Whole Genome Sequencing for characterization of novel genes and de novo balanced chromosomal rearrangements in human genectic disorders"
PI : Dr Ashwin Dalal
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
2493600.00	Opening Balance	0.00		Opening Balance	0.00
400000.00	Grant In Aid	2500000.00	729600.00	Salaries - Manpower	671046.00
0.00		0.00	1956131.00	Consumables	983737.00
0.00		0.00	20081.00	Contingencies	50000.00
0.00		0.00	48538.00	Travel	0.00
0.00		0.00	0.00	Overheads	136000.00
0.00		0.00	193695.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
2893600.00		**2500000.00**	**2948045.00**		**1840783.00**
	Excess of Expenditure Over Income	0.00	54445.00	Closing Balance	659217.00
2893600.00		**2500000.00**	**2893600.00**		**2500000.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-199 : Investigating cellular processes and pathways controlled by phosphatases
PI : Dr M Subba Reddy
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
4013536.00	Opening Balance	1747473.00	0.00	Opening Balance	0.00
8034427.00	Grant In Aid	6255247.00	850787.00	Salaries - Manpower	1324170.00
0.00		0.00	7105134.00	Consumables	4552940.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	44879.00
0.00		0.00	936408.00	Overheads	622307.00
0.00		0.00	1408161.00	Equipment	293606.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
12047963.00		**8002720.00**	**10300490.00**		**6837902.00**
0.00	Excess of Expenditure Over Income	0.00	1747473.00	Closing Balance	1164818.00
12047963.00		**8002720.00**	**12047963.00**		**8002720.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-200 : Characterization of divergent functions of ARID1A and ARID1B: the two alternative DNA binding constituents of the human SWI/SNF chromatic remodelling complex
PI : Dr M D Bashyam
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
1806199.00	Opening Balance	288591.00		Opening Balance	0.00
0.00	Grant In Aid	1940000.00	300887.00	Salaries - Manpower	266900.00
0.00		0.00	1181247.00	Consumables	1596083.00
0.00		0.00	12552.00	Contingencies	20000.00
0.00		0.00	22922.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
1806199.00		**2228591.00**	**1517608.00**		**1882983.00**
0.00	Excess of Expenditure Over Income	0.00	288591.00	Closing Balance	345608.00
1806199.00		**2228591.00**	**1806199.00**		**2228591.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-201 : Defining the functions of MLL in mitosis
PI : Dr Shweta Tyagi
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
1241000.00	Opening Balance	1435959.00	0.00	Opening Balance	0.00
2320000.00	Grant In Aid	0.00	218615.00	Salaries - Manpower	218615.00
0.00		0.00	1686613.00	Consumables	51000.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	25500.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	194313.00	Equipment	1000166.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
3561000.00		**1435959.00**	**2125041.00**		**1269781.00**
0.00	Excess of Expenditure Over Income	0.00	1435959.00	Closing Balance	1435959.00
3561000.00		**3561000.00**	**3561000.00**		**3561000.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-202 : To decipher the role of MLL Complex in the process of cytokinesis
PI : Dr Shweta Tyagi
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2017 TO 31.03.2018

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
603000.00	Opening Balance	1736697.00		Opening Balance	0.00
1800000.00	Grant In Aid	1850000.00	226619.00	Salaries - Manpower	371755.00
0.00		0.00	139571.00	Consumables	1200000.00
0.00		0.00	0.00	Contingencies	50000.00
0.00		0.00	43375.00	Travel	45000.00
0.00		0.00	0.00	Overheads	150000.00
0.00		0.00	256738.00	Equipment	184433.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
2403000.00		**3586697.00**	**666303.00**		**2001188.00**
0.00	Excess of Expenditure Over Income	0.00	1736697.00	Closing Balance	401812.00
2403000.00		**3586697.00**	**2403000.00**		**2403000.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-203 : Investigation of a potential novel function of fission yeast sirtuin family histone deacetylase Hst4 in regulation of DNA replication
PI : Dr Devyani Haldar
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
1186706.00	Opening Balance	1764289.00		Opening Balance	0.00
1538000.00	Grant In Aid	1200000.00	278633.00	Salaries - Manpower	187200.00
0.00		0.00	560629.00	Consumables	1194526.00
0.00		0.00	1504.00	Contingencies	50000.00
0.00		0.00	39006.00	Travel	50000.00
0.00		0.00	0.00	Overheads	125000.00
0.00		0.00	80645.00	Equipment	29994.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
2724706.00		**2964289.00**	**960417.00**		**1636720.00**
0.00	Excess of Expenditure Over Income	0.00	1764289.00	Closing Balance	1327569.00
2724706.00		**2964289.00**	**2724706.00**		**2964289.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-204 : To deliniate the role of MLL complex in Mircrotubule organizing capability of Cetrosome
PI : Dr Shweta Tyagi
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	144331.00	0.00	Opening Balance	0.00
558333.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	414002.00	Consumables	500000.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
558333.00		**144331.00**	**414002.00**		**500000.00**
0.00	Excess of Expenditure Over Income	355669.00	144331.00	Closing Balance	0.00
558333.00		**144331.00**	**558333.00**		**500000.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-205 : Genetic studies of foetuses with malformations for identification of Non-chromosomal syndromes and Mendelian disorders

PI : Dr Ashwin B Dalal

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	630948.00	0.00	Opening Balance	0.00
1484600.00	Grant In Aid	1200000.00	327600.00	Salaries - Manpower	561600.00
0.00		0.00	497632.00	Consumables	252018.00
0.00		0.00	0.00	Contingencies	25000.00
0.00		0.00	28420.00	Travel	5886.00
0.00		0.00	0.00	Overheads	110000.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
1484600.00		**1830948.00**	**853652.00**		**954504.00**
0.00	Excess of Expenditure Over Income	0.00	630948.00	Closing Balance	876444.00
1484600.00		**1830948.00**	**1484600.00**		**1830948.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-206 : Characterization of the genetic etiological spectrum and identification of novel genetic etiologies for non-immune fetal hydrops"

PI : Dr Ashwin B Dalal

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	300000.00		Opening Balance	0.00
300000.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	164240.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
300000.00		**300000.00**	**0.00**		**164240.00**
0.00	Excess of Expenditure Over Income	0.00	300000.00	Closing Balance	135760.00
300000.00		**300000.00**	**300000.00**		**300000.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-207 : Genome and transcriptome analysis of chilli anthracnose fungus colletotrichum truncatum
PI : Dr N Madhusudan Reddy
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	2114590.00		Opening Balance	0.00
2456600.00	Grant In Aid	1532200.00	264026.00	Salaries - Manpower	284700.00
0.00		0.00	68400.00	Consumables	327667.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	9584.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	446397.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
2456600.00		**3646790.00**	**342010.00**		**1058764.00**
0.00	Excess of Expenditure Over Income	0.00	2114590.00	Closing Balance	2588026.00
2456600.00		**3646790.00**	**2456600.00**		**3646790.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-208 : National Post Doctoral Fellowship
PI : Dr Reshma Chowdary Alokam
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	173333.00		Opening Balance	0.00
960000.00	Grant In Aid	910000.00	586667.00	Salaries - Manpower	660000.00
0.00		0.00	200000.00	Consumables	149895.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
960000.00		**1083333.00**	**786667.00**		**809895.00**
0.00	Excess of Expenditure Over Income	0.00	173333.00	Closing Balance	273438.00
960000.00		**1083333.00**	**960000.00**		**1083333.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-209 : Dissecting the contribution and interplay of MSI and CIMP in colrectal cancer in India
PI : Dr M D Bashyam
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	1985915.00		Opening Balance	0.00
3054000.00	Grant In Aid	0.00	274124.00	Salaries - Manpower	462030.00
0.00		0.00	398778.00	Consumables	12434.00
0.00		0.00	5000.00	Contingencies	50000.00
0.00		0.00	2683.00	Travel	65771.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	387500.00	Equipment	733045.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
3054000.00		**1985915.00**	**1068085.00**		**1323280.00**
0.00	Excess of Expenditure Over Income	0.00	1985915.00	Closing Balance	662635.00
3054000.00		**1985915.00**	**3054000.00**		**1985915.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-211 : " A comprehensive approach towards the chemistry & biology of polyphosphate: the forgotten biopolymer
PI : Dr Rashna Bhandari
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	7112780.66		Opening Balance	0.00
7602399.66	Grant In Aid	7936075.00	378675.00	Salaries - Manpower	2073555.00
0.00		0.00	110944.00	Consumables	2682240.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	344405.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
7602399.66		**15048855.66**	**489619.00**		**5100200.00**
0.00	Excess of Expenditure Over Income	0.00	7112780.66	Closing Balance	9948655.66
7602399.66		**15048855.66**	**7602399.66**		**15048855.66**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-212 : Approaching Mycobacterium tuberculosis PPE protein Rv1168c (PPE17) as a potential marker for diagnosis of Tuberculosis (TB) patients in India

PI : Dr Sangita Mukhopadhyay

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2017 TO 31.03.2018

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00	0.00	Opening Balance	0.00
2179000.00	Grant In Aid	0.00	0.00	Salaries - Manpower	421300.00
0.00		0.00	0.00	Consumables	511662.00
0.00		0.00	0.00	Contingencies	40000.00
0.00		0.00	0.00	Travel	40000.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	437300.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
2179000.00		**0.00**	**0.00**		**1450262.00**
0.00	Excess of Expenditure Over Income	0.00	2179000.00	Closing Balance	728738.00
2179000.00		**0.00**	**2179000.00**		**2179000.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-213 : Exploring an oncogenic function of p53 mutations identified in Indian squamous cell carcinoma patients

PI : Dr M D Bashyam

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	2724000.00		Opening Balance	0.00
2724000.00	Grant In Aid	0.00	0.00	Salaries - Manpower	384000.00
0.00		0.00	0.00	Consumables	1412314.00
0.00		0.00	0.00	Contingencies	20000.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	700000.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
2724000.00		**2724000.00**	**0.00**		**2516314.00**
0.00	Excess of Expenditure Over Income	0.00	2724000.00	Closing Balance	207686.00
2724000.00		**2724000.00**	**2724000.00**		**2724000.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-213 : Exploring an oncogenic function of p53 mutations identified in Indian squamous cell carcinoma patients
PI : Dr M D Bashyam
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	2724000.00		Opening Balance	0.00
2724000.00	Grant In Aid	0.00	0.00	Salaries - Manpower	384000.00
0.00		0.00	0.00	Consumables	1412314.00
0.00		0.00	0.00	Contingencies	20000.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	700000.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
2724000.00		**2724000.00**	**0.00**		**2516314.00**
0.00	Excess of Expenditure Over Income	0.00	2724000.00	Closing Balance	207686.00
2724000.00		**2724000.00**	**2724000.00**		**2724000.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-214 : Studies on Non-Canonical functions of splicing proteins in maintaining genomic stability
PI : Dr M V Subba Reddy
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	824440.00	0.00	Opening Balance	0.00
854333.00	Grant In Aid	0.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	12000.00	Contingencies	0.00
0.00		0.00	17893.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
854333.00		**824440.00**	**29893.00**		**0.00**
0.00	Excess of Expenditure Over Income	0.00	824440.00	Closing Balance	1678773.00
854333.00		**1678773.00**	**854333.00**		**1678773.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-215 : Understanding Homothorax independent role of Hox cofactor Extradenticle in Drosphila neuroblast apoptosis
PI : Dr Rohit Joshi
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	970000.00	0.00	Opening Balance	0.00
970000.00	Grant In Aid	0.00	0.00	Salaries - Manpower	321744.00
0.00		0.00	0.00	Consumables	1504376.00
0.00		0.00	0.00	Contingencies	50000.00
0.00		0.00	0.00	Travel	33726.00
0.00		0.00	0.00	Overheads	120000.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
970000.00		**970000.00**	**0.00**		**2029846.00**
0.00	Excess of Expenditure Over Income	1059846.00	970000.00	Closing Balance	0.00
970000.00		**2029846.00**	**970000.00**		**2029846.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-216 : Investigating the role of mycobacterial protein Rv2966c in modulating the host epigenetic circuitry during infection
PI : Dr Sanjeev Khosla
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	1768000.00		Opening Balance	0.00
1768000.00	Grant In Aid	0.00	0.00	Salaries - Manpower	187200.00
0.00		0.00	0.00	Consumables	1132400.00
0.00		0.00	0.00	Contingencies	50000.00
0.00		0.00	0.00	Travel	2044.00
0.00		0.00	0.00	Overheads	130000.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
1768000.00		**1768000.00**	**0.00**		**1501644.00**
0.00	Excess of Expenditure Over Income	0.00	1768000.00	Closing Balance	266356.00
1768000.00		**1768000.00**	**0.00**		**1768000.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-217 : BRICS Research Project - EpiMacroTB, "Epigenetics of macrophages during Mycobacterium tuberculosis infection"

PI : Dr Sanjeev Khosla

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	1141600.00		Opening Balance	0.00
1141600.00	Grant In Aid	0.00	0.00	Salaries - Manpower	319800.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	150000.00
0.00		0.00	0.00	Overheads	80000.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
1141600.00		**1141600.00**	**0.00**		**549800.00**
0.00	Excess of Expenditure Over Income	0.00	1141600.00	Closing Balance	591800.00
1141600.00		**1141600.00**	**1141600.00**		**1141600.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-219 : Identification and molecular characterization of the CgHogl kinase interactome: impact on iron homeostasis and Candida pathogenesis

PI : Dr Rupinder Kaur

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	1500000.00		Opening Balance	0.00
1500000.00	Grant In Aid	0.00	0.00	Salaries - Manpower	561258.00
0.00		0.00	0.00	Consumables	1379872.00
0.00		0.00	0.00	Contingencies	50000.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	205000.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
1500000.00		**1500000.00**	**0.00**		**2196130.00**
0.00	Excess of Expenditure Over Income	696130.00	1500000.00	Closing Balance	0.00
1500000.00		**2196130.00**	**1500000.00**		**2196130.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-220 : Profiling placental immune cell signatures to compare the physiological role of T cell immune response in term and pre-term births

PI : Dr Reelina Basu

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00		Opening Balance	0.00
0.00	Grant In Aid	960000.00	0.00	Salaries - Manpower	531667.00
0.00		0.00	0.00	Consumables	200000.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	100000.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**960000.00**	**0.00**		**831667.00**
0.00	Excess of Expenditure Over Income	0.00	0.00	Closing Balance	128333.00
0.00		**960000.00**	**0.00**		**960000.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-221 : The role of COP9 signalosome and DNA damage response pathways in hematopoiesis

PI : Dr Bama Charan Mondal

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00		Opening Balance	0.00
0.00	Grant In Aid	2422000.00	0.00	Salaries - Manpower	1422200.00
0.00		0.00	0.00	Consumables	924500.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**2422000.00**	**0.00**		**2346700.00**
0.00	Excess of Expenditure Over Income	0.00	0.00	Closing Balance	75300.00
0.00		**2422000.00**	**0.00**		**2422000.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD					
P-222 : Development of CRISPR/Cas9 system for generating efficient targeted gene knock outs in chilli pathogen Colletotrichum truncatum					
PI : Dr Mugda Singh					
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019					
Previous Year (Amount in Rs.)	**Receipts**	**Current Year (Amount in Rs.)**	**Previous Year (Amount in Rs.)**	**Payments**	**Current Year (Amount in Rs.)**
0.00	Opening Balance	0.00		Opening Balance	0.00
0.00	Grant In Aid	1085000.00	0.00	Salaries - Manpower	183174.00
0.00		0.00	0.00	Consumables	499036.00
0.00		0.00	0.00	Contingencies	69759.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	111613.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**1085000.00**	**0.00**		**863582.00**
0.00	Excess of Expenditure Over Income	0.00	0.00	Closing Balance	221418.00
0.00		**1085000.00**	**0.00**		**1085000.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD					
P-223 : Inhibition of TLR2-PPE18 interaction as novel therapeutic to improve the Th1-based anti-TB protective immune response of the host					
PI : Dr Sangita Mukhopadyay					
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019					
Previous Year (Amount in Rs.)	**Receipts**	**Current Year (Amount in Rs.)**	**Previous Year (Amount in Rs.)**	**Payments**	**Current Year (Amount in Rs.)**
0.00	Opening Balance	0.00		Opening Balance	0.00
0.00	Grant In Aid	900000.00	0.00	Salaries - Manpower	300000.00
0.00		0.00	0.00	Consumables	593193.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**900000.00**	**0.00**		**893193.00**
0.00	Excess of Expenditure Over Income	0.00	0.00	Closing Balance	6807.00
0.00		**900000.00**	**0.00**		**900000.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-224 : J C Bose National fellowship
PI : Dr Debashis Mitra
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00		Opening Balance	0.00
0.00	Grant In Aid	300000.00	0.00	Salaries - Manpower	261290.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**300000.00**	**0.00**		**261290.00**
0.00	Excess of Expenditure Over Income	0.00	0.00	Closing Balance	38710.00
0.00		**300000.00**	**0.00**		**300000.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-225 : Molecular mechanism of designated feerocene scaffold appended with organostannyl benzoates for anticancer acitivity
PI : Dr Sunil Kumar Manna
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00		Opening Balance	0.00
0.00	Grant In Aid	1040000.00	0.00	Salaries - Manpower	105000.00
0.00		0.00	0.00	Consumables	359331.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**1040000.00**	**0.00**		**464331.00**
0.00	Excess of Expenditure Over Income	0.00	0.00	Closing Balance	575669.00
0.00		**1040000.00**	**0.00**		**1040000.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-226 : Molecular mechanism of designated feerocene scaffold appended with organostannyl benzoates for anticancer acitivity

PI : Dr Rohit Joshi

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00		Opening Balance	0.00
0.00	Grant In Aid	2293000.00	0.00	Salaries - Manpower	155400.00
0.00		0.00	0.00	Consumables	1481100.00
0.00		0.00	0.00	Contingencies	20000.00
0.00		0.00	0.00	Travel	11800.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	424400.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**2293000.00**	**0.00**		**2092700.00**
0.00	Excess of Expenditure Over Income	0.00	0.00	Closing Balance	200300.00
0.00		**2293000.00**	**0.00**		**2293000.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD

P-227 : Investigation of the role of Notch signalling in abdominal neural stem cell apoptosis in Drosophila

PI : Dr Rohit Joshi

RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00		Opening Balance	0.00
0.00	Grant In Aid	3368700.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	178295.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**3368700.00**	**0.00**		**178295.00**
0.00	Excess of Expenditure Over Income	0.00	0.00	Closing Balance	3190405.00
0.00		**3368700.00**	**0.00**		**3368700.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-228 : Deciphering cellular roles of non-canonical ubiquitination
PI : Dr M V Subba Reddy
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00		Opening Balance	0.00
0.00	Grant In Aid	810000.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	904679.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**810000.00**	**0.00**		**904679.00**
0.00	Excess of Expenditure Over Income	272974.00	0.00	Closing Balance	0.00
0.00		**810000.00**	**0.00**		**810000.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-229 : Genetic Markers of Electrical Storm in patients with underlying myocardial Infarction
PI : Dr Advithi Rangaraju
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00		Opening Balance	0.00
0.00	Grant In Aid	1044000.00	0.00	Salaries - Manpower	110000.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	15667.00
0.00		0.00	0.00	Equipment	0.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**1044000.00**	**0.00**		**125667.00**
0.00	Excess of Expenditure Over Income	0.00	0.00	Closing Balance	918333.00
0.00		**1044000.00**	**0.00**		**1044000.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-230 : Understanding the role of iron in the virulence and host adaptation of Xanthomonas phytopathogens
PI : Dr Subhadeep Chatterjee
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00		Opening Balance	0.00
0.00	Grant In Aid	1990000.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	101800.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**1990000.00**	**0.00**		**101800.00**
0.00	Excess of Expenditure Over Income	0.00	0.00	Closing Balance	1888200.00
0.00		**1990000.00**	**0.00**		**1990000.00**

CENTER FOR DNA FINGERPRINTING AND DIAGNOSTICS, HYDERABAD
P-232 : Proposal for creation of a National Genomics Core Phase
PI : Dr Debashis Mitra
RECEIPTS AND PAYMENTS ACCOUNT FROM 01.04.2018 TO 31.03.2019

Previous Year (Amount in Rs.)	Receipts	Current Year (Amount in Rs.)	Previous Year (Amount in Rs.)	Payments	Current Year (Amount in Rs.)
0.00	Opening Balance	0.00		Opening Balance	0.00
0.00	Grant In Aid	39650000.00	0.00	Salaries - Manpower	0.00
0.00		0.00	0.00	Consumables	0.00
0.00		0.00	0.00	Contingencies	0.00
0.00		0.00	0.00	Travel	0.00
0.00		0.00	0.00	Overheads	0.00
0.00		0.00	0.00	Equipment	19650000.00
0.00		0.00	0.00	Books	0.00
0.00		0.00	0.00	AMC	0.00
0.00		0.00	0.00	Others	0.00
0.00		0.00	0.00	Transfer of Funds	0.00
0.00		**39650000.00**	**0.00**		**19650000.00**
0.00	Excess of Expenditure Over Income	0.00	0.00	Closing Balance	20000000.00
0.00		**39650000.00**	**0.00**		**39650000.00**

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CDFD

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Photo Gallery

Swachhta Pakhwada at CDFD during May 1-15, 2018

Workshop on effective implementation of Hindi as an Official Language by DBT personals on 14.06.2018

International Yoga Day Celebrations at CDFD on 21.06.2018

Independence Day celebrations, 2018 at CDFD Uppal Campus

Hindi Day celebrations during September 14-28, 2018

On the occasion of India International Science Festival (IISF-2018), Open Day celebrations at CDFD on 25.09.2018

Public lecture at CDFD by Prof. D. Balasubramanian, LVPEI, Hyderabad
on the occasion of India International Science Festival (IISF-2018) on 03.10.2018

Vigilance Awareness Week during 29.10.2018 to 03.11.2018

Republic Day Celebrations, 2019

Cultural programs during Foundation Day celebrations on 26.01.2019

Foundation day lecture by Prof. Seyed E. Hasnain, Vice Chancellor, Jamia Hamdard, New Delhi on 28.01.2019

Open Day on 28.01.2019 during Foundation Day celebrations

Molecular Immunology Forum (MIF) at Leonia Holistic Destination, Hyderabad during February 7-9, 2019

National Science Day Celebrations on 28.02.2019

International Women's Day Celebrations on 08.03.2019