Biotech Start-up Ecosystem at KIIT-TBI BioNEST

Enabled by BIRAC, GoI

IMPACT REPORT

FOREWORD

KIIT TBI's since inception philosophy is to support early-stage startups or young entrepreneurs by providing all support to grow and scale. Attention towards the biotechnology sector got a flip only when BIRAC extended its support in establishing globally competent bioincubation facilities at KIIT TBI under the BIRAC BioNEST scheme. The BioNEST at KIIT TBI then led to the gateway to many other opportunities for biotech startups like the BIRAC BIG Partner, SPARSH center, BIRAC Regional Techno entrepreneurship Centre(BRTC) and the recent technology Transfer office (KIIT TBI-TTO) set up at KIIT TBI under the National BioPharma Mission of BIRAC.

For KIIT TBI, the selection by BIRAC as the Implementing Partner for the Biotechnology Ignition Grant was an important milestone in strengthening its Biotechnology-led innovations. Till date, 184 biotech startups are supported across various domains of biotechnology which are inching ahead from proof of concept to validation to commercialization. A total of 80+ IPs has been created with 40+ products commercialised. About INR 65 Cr of external funding has been raised and 1500+ jobs have been created by the biotech startups at KIIT TBI.

We see a shift happening in recent years in academic settings. Many academicians including women researchers are now more inclined towards business-driven science and ventures led by women scientists. KIIT TBI is also one of the SPARSH centers of BIRAC for implementing the Social Innovation Immersion Program with the focus on creating a pool of Social Innovators who would develop solutions to address some of these pressing problems of our society that will have a social and economic impact. So far 18 social innovators have been supported under the BIRAC SIIP scheme who are inching fast towords product commercialisation.

With a vision to promote regional innovations to solve local problems & build the capacity of the local incubation ecosystem in E&NE, BIRAC Regional Centre for Technology promotion (BRTC) was set up at KIIT TBI. Till date 5k+ aspiring Entrepreneurs and Innovators from northeast have found a new zeal to convert their ideas into impactful ventures and have supported 25+ home grown startups from NE. BRTC has forged 16 institutional collaborations and trained 31 Incubation managers and leaders from 19 Incubators located across the North-Eastern region to manage and build sustainable incubators. To further spur the commercialization of research discoveries from academia and startups, KIIT TBI Technology Transfer Office was set up in the year 2019 under the National Biopharma Mission of BIRAC. The TTO at KIIT TBI has brought a unique flavor to the ecosystem of E & NE by bridging the gap between industry & academia. The magnitude of the results reflects its significance. 50+ indigenous technologies have been identified with 7 license agreements executed.

The 12 years journey of KIIT TBI BioNEST Bioinucbator has been very progressive, and we are hopeful that the coming years will be as promising and productive with the support of the BIRAC and its stakeholders towards the advancement of the next generation of biotech innovators.

Onwards & Upwards

SNAPSHOT OF BIOTECH ECOSYSTEM

BIRAC supported BioNEST Bioincubator at KIIT-TBI was established in 2014 with the aim to foster biotech innovation ecosystem and provide incubation support to enterprising individuals and startups.

Social Innovation Immersion Program (SIIP) IS a flagship program of Biotechnology Industry Research Assistance Council (BIRAC) launched in the year 2015 with the focus on creating a pool of Social Innovators who would identify the needs of the community and bridge the gaps with mentoring support from implementing and knowledge partner TISS.

Biotechnology Ignition Grant, the flagship program of BIRAC provides the right amount of encouragement and funding support to young startups and innovators. In the year 2014, KIIT-TBI was recognized as one of the Incubation Partners for this program and has been stimulating entrepreneurship development across all sectors.

Sustainable Entrepreneurship And Enterprise Development (SEED) and Launching Entrepreneurial Driven Affordable Products Fund (LEAP) schemes have been operational at KIIT-TBI since 2017 to provide capital assistance to commercialization and validate the product or technologies of post-PoC stage startups.

An exclusive grant-in-aid scheme for funding Northeast startups and entrepreneurial individuals was launched in 2020 with KIIT-TBI acting as the only implementing partner for the scheme

KIIT TBI Technology Transfer office (KIIT-TBI) is one of the seven Regional Technology Transfer Office (RTTO) established in the country by BIRAC, Department of Biotechnology, GOI. The TTO was functional from the year 2020. It is first of its kind to cater to the needs of the innovators, researchers and startups under the industry-academia collaboration in the East and North-East of India.

BioNEST

Bioincubators Nurturing Entrepreneurship for Scaling Technologies

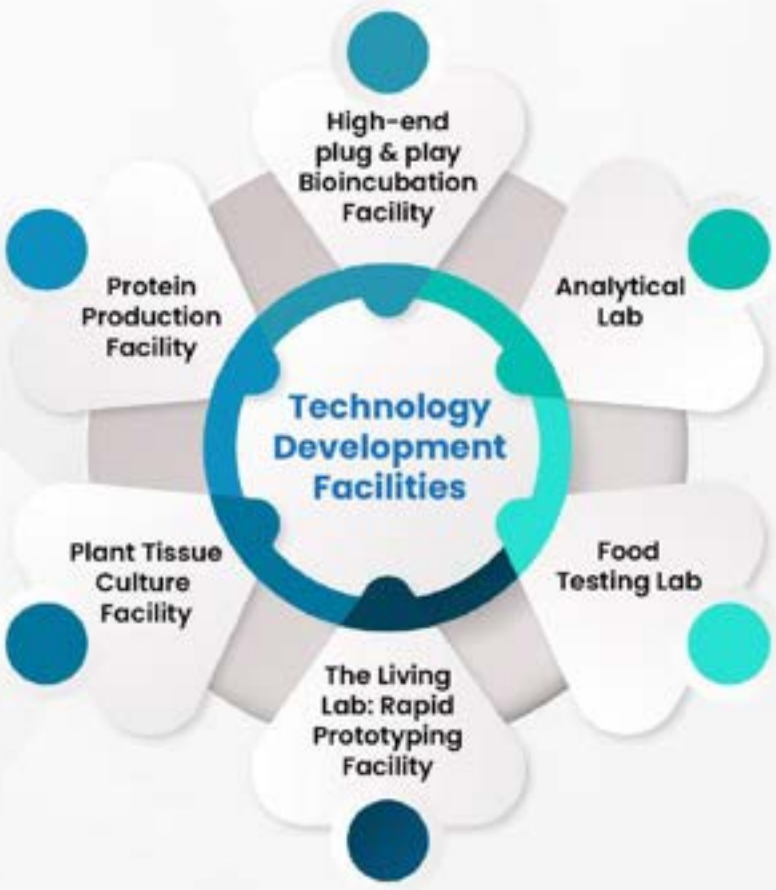
BioNEST Bioincubator was established at KIIT-TBI in the year 2014 to create an empowering ecosystem for biotech startups and innovators. The bioincubator at KIIT-TBI with 6 dedicated labs for research and product development provides an enabling platform for entrepreneurial reformers.

Along with the high-end instrumentation facilities, KIIT-TBI BioNEST also offer advisory support for ideation, prototyping and commercialization stage startup. Networking, access to the market with overall legal and regulatory support is provided to all the incubatees at the BioNEST Bioincubator.

Focused Areas of BioNEST

- Industrial Biotechnology & Clean Tech
- Healthcare: Device & Diagnostics and Drugs
- Agri & Food Tech
- IoT & AI/ML

150+ Total Incubatees	**75** Ongoing Incubatees
50+ Women led Startups	**80+** Startup catalysed
60+ Graduated Incubatees	**5** Avg Team Members



BIOTECHNOLOGY IGNITION GRANT (BIG)

Igniting Innovation Sparks !

Year Wise BIG Grantees Onboarded

TOTAL APPLICATIONS RECEIVED

1984

Startups 41.4%

Individuals 58.6%

TOTAL GRANTS SANCTIONED

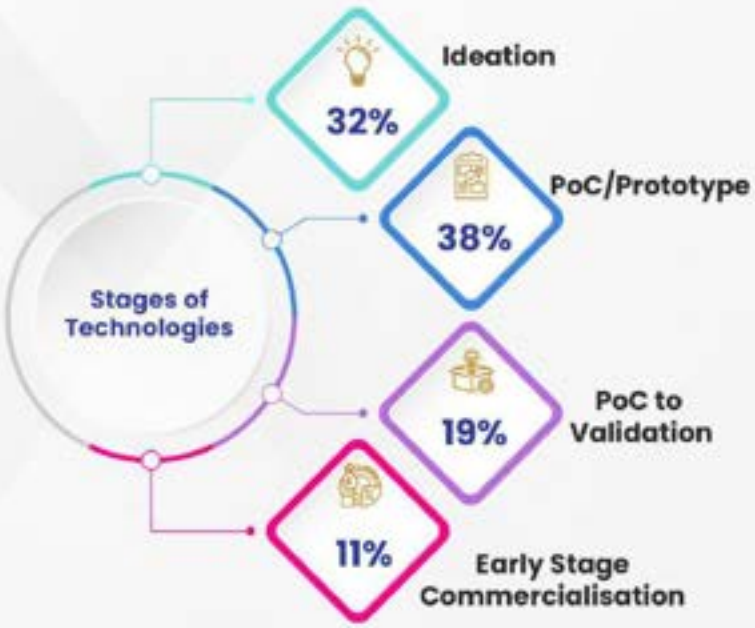
148

Startups 41.4%

Individuals 58.6%

Healthcare: Devices	Healthcare: Drugs & Vaccines	Diagnostics
49	25	14
Agriculture	**Industrial Biotechnology & Manufacturing**	**Waste Mangement, Clean Energy and Water**
19	27	14

BIG GRANTEES SPREAD ACROSS **GEOGRAPHIES**



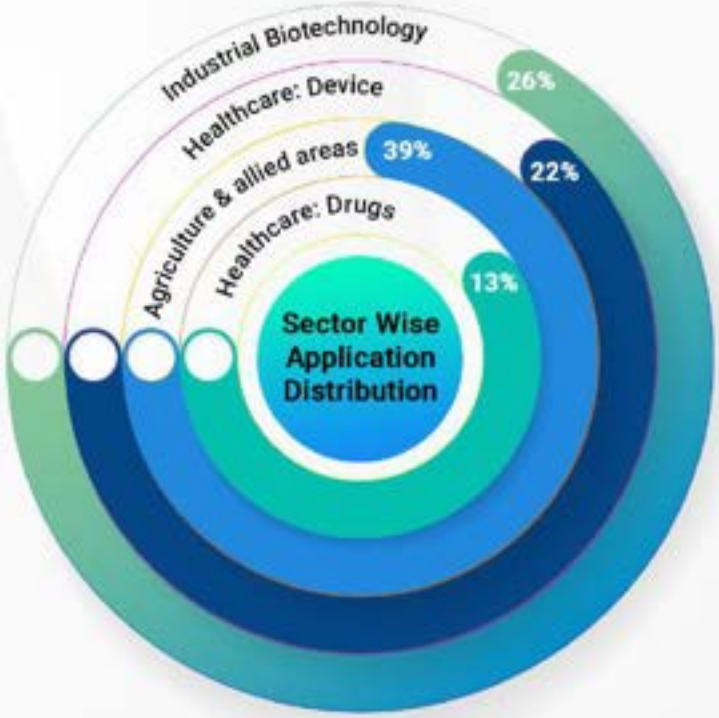
PROPELLING BIOTECH STARTUP ECOSYSTEM

RESEARCH INCHING TOWORDS MARKET DISCOVERIES

BIOTECHNOLOGY IGNITION GRANT NORTH EAST (BIG-NE)

Early Indicators from North East Region are very positive!!

State-wise application distribution



25M+
Funds Mobilized

6+
Innovators Supported

4+
Startups Catalysed

BIRAC- BioNEST Incubators accross NER

BIONEST IIT GUWAHATI

BioNEST Incubator

APPLICATIONS RECEIVED

290+

Company **22%**

Individuals **78%**

BIRAC-SEED| IMPLEMENTING PARTNER

Sustainable Entrepreneurship & Enterprise Development

Total Startups Supported 6

Healthcare: Devices	Industrial Biotechnology & Manufacturing	Healthcare: Drugs & Vaccines
3	2	1

Total Investment Raised	Total IP Generated	Products Commercialised
4 Cr+	7	3

Startup Name: Neukelp Innovation Technology Pvt Ltd
Founder: Saurabh Agarwal
Innovation: Neukelp Posture
Funding Raised: 90 lakhs

Startup Name: Primary Healthtech Pvt Ltd
Founder: Sahil Jagnani
Innovation: Nanotechnology Based Affordable, Portable And Easy To Use Multi Diagnostic Point-Of-Care Device For Kidney, Liver, Pancreas, And Thyroid Disorders
Funding Raised: 1.58 Cr

Startup Name: Miraqules MedSolutions Pvt Ltd
Founder: Sabbir Hossain
Innovation: Development of a commercially viable and easily applicable first acting haemostatic agent: A First Aid Essential
Funding Raised: 80 lakhs

Startup Name: Krea Foods & Beverages Pvt Ltd
Founder: Rahul Chatterjee
Innovation: Development of novel enzyme based processing aid for the reduction of acrylamide in different thermally processed food products
Funding Raised: 2.21 Cr

Startup Name: Probiokem India Pvt Ltd
Founder: Md Gulebahar Sheikh
Innovation: Value added products from Agricultural waste (microcrystalline cellulose and silica from rice husk)
Funding Raised: 25 lakhs

Startup Name: inDNA Lifesciences Pvt Ltd
Founder: Birendranath Banerjee
Innovation: Affordable DNA based diagnostic tests
Funding Raised: 40 lakhs

BIRAC-LEAP| IMPLEMENTING PARTNER

Launching Entrepreneurial Driven Affordable Products Fund

Total Startups Supported 5

Healthcare: Devices	Digital Health	Agriculture
3	2	1

Total Investment Raised	Total IP Generated	Products Commercialised
18 Cr+	7	5

Startup Name: Flixrop Technology Pvt Ltd
Founder: Dharmendra Kumar
Innovation: CHMS: Cattle Health Monitoring Solution
Funding Raised: 1.52 Cr

Startup Name: Medtel Healthcare Pvt Ltd
Founder: Lalit Manik
Innovation: iLAB & iRPM: Remote Patient Monitoring System
Funding Raised: 4.9 Cr

Startup Name: EzeRx Healthtech Pvt Ltd
Founder: Partha Pratim Mahapatra
Innovation: Non-Invasive Non-Contact Robust Portable Hand-held device for Accurate Measurement of Haemoglobin Concentration
Funding Raised: 7 Cr

Startup Name: Comofi Medtech Pvt Ltd
Founder: Satish Kalme
Innovation: An augmented reality based robotic device to access kidney for PCNL surgery
Funding Raised: 4.15 Cr

Startup Name: Avay Biosciences Pvt Ltd
Founder: Manish Amin
Innovation: Manufacturing of Customized PEEK Implants using 3D Printing
Funding Raised: 2.33 Cr

Social Innovation Immersion Program (SIIP)

SIIP instilling a mindset of entrepreneurship towords social impact

Implementing Partner

Sector Wise SIIP Innovators Supported

4	4	5	5
Maternal and Child Health	Ageing and Health	Food & Nutrition	Waste to Wealth
2016	2018	2020	2022

Program Highlights

Calls Announced	Applications Received	Total Funds Mobilized
4	413	2.66 Cr
IPs Created	**External Investment Raised**	**Products Commercialized**
26	4.2 Cr	7

Call - 1 (Maternal and Child Health)

Year of Incubation - 2016

Innovator Name: Dr. Sumonna Karjee
Innovation: Developing a predictive diagnosis kit for detection of pregnancy induced hypertensive disorder- preeclampsia.

Innovator Name: Kiran V
Innovation: Developing a nutrient loaded cosmetic preparation for tackling iron and Vitamin deficiency, anemia

Innovator Name: Ashfaq Ashraf
Innovation: A smart blood bag monitoring device for safe and reliable blood transfusion in rural India

Innovator Name: Anurag Kyal
Innovation: Developed a hydrogel-based, slow-release iron jelly candy, which would serve as an alternative for iron/folic acid (IFA) and Vitamin C tablets

Call - 2 (Ageing and Health)

Year of Incubation - 2018

Innovator Name: Dr. Steward Gracian
Innovation: Assistive Oral care Device for Dependent Elderly

Innovator Name: Sruthi Babu
Innovation: Assistive locomotory device with EC defecation kit

Innovator Name: Rishi Agarwal
Innovation: Portable and cost-effective VR-AI based device for early screening of glaucoma and other visual defects of elderly.

Innovator Name: Pooja Jha
Innovation: Affordable and assistive care device for osteoarthritic knee

Call - 3 (Food & Nutrition)

Year of Incubation - 2020

Innovator Name: Swapnil Muley
Innovation: Formulation of Moringa-based ready-to-eat (RTE) nutritious food option to tackle disease related malnutrition in recovering patients and an affordable sprouted nutribar to address malnutrition

Innovator Name: Dr Mahesh Patil
Innovation: Fermented concentrate of Garcinia to reduce abdominal obesity

Innovator Name: Amrita Suhasini
Innovation: Zinc fortified ashew apple powder (instant mix) to meet micronutrient (Ca, Iron, Phosphorous, Vitamin C) deficiency

Innovator Name: Harini R
Innovation: Development of Plant based Umami Flavor fortified with nutrients that can be instantly added to food for Taste Enhancement

Innovator Name: Asha Rani
Innovation: On-the-Go affordable Snack to help with the Menstrual Issues

Call - 4 (Waste to Value)

Year of Incubation - 2022

Innovator Name: Dr. Balaganesh P
Innovation: Mechano-chemical extraction of cellulose based hydro gel from jack fruit peel

Innovator Name: Dr A Chandralekha Devi
Innovation: Extraction of Keratin from poultry feathers by sustainable methods

Innovator Name: M Sriraaman
Innovation: High calorific and completely combustible green briquettes production by infusing juliflora based esterified fast pyrolysis bio-oil

Innovator Name: Romi Kumari
Innovation: Organic Black Pigment from Palm Oil Waste (Empty Fruit Bunches and Kernel Shell)

Innovator Name: Rajnis Pratap Singh
Innovation: Developing a flash joule heating apparatus capable of creating consistent and larger graphene molecules from waste with polymer carbon

KIIT-TBI TECHNOLOGY TRANSFER OFFICE (TTO)

KIIT TBI Technology Transfer office (KIIT-TBI) is one of the seven Regional Technology Transfer Office (RTTO) established in the country by BIRAC, Department of Biotechnology, GOI.

The TTO was functional from the year 2020. It is first of its kind to cater to the needs of the innovators, researchers and startups under the industry-academia collaboration in the East and North-East of India.

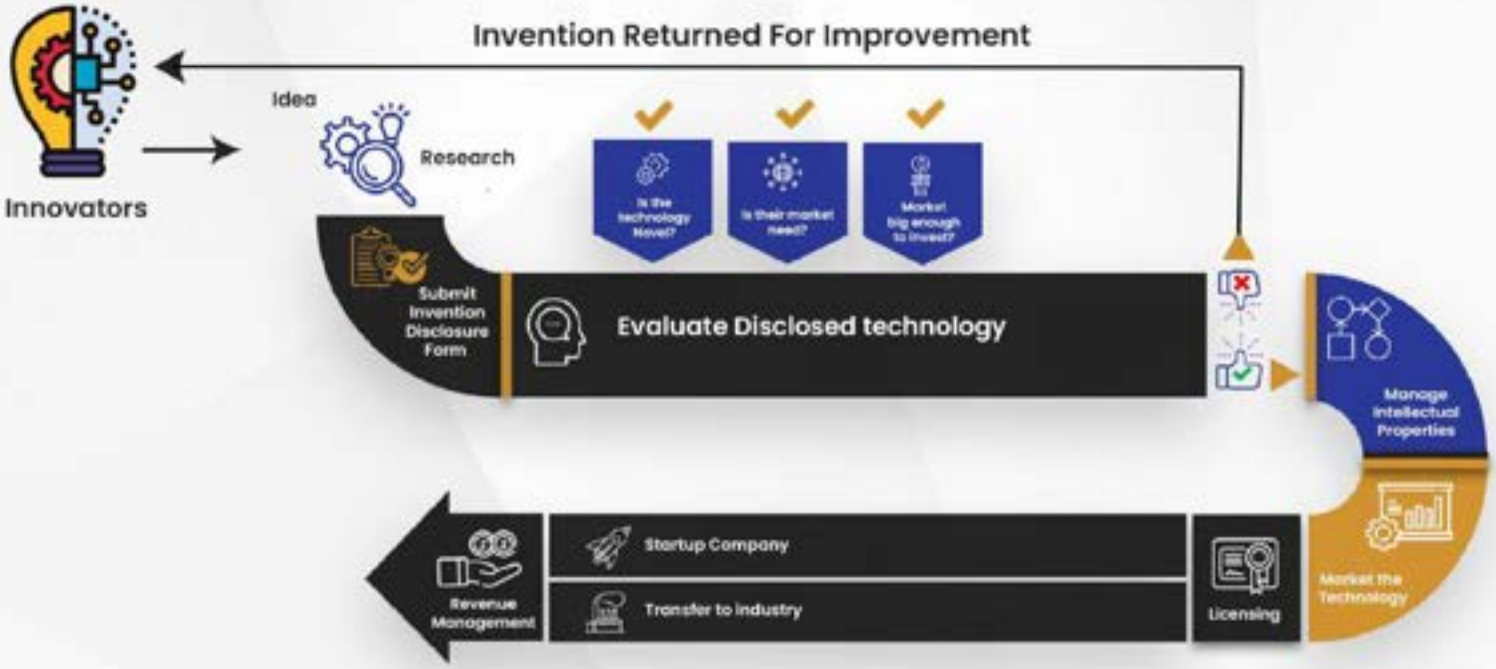
We invite innovators, academic institutions, start-ups and industry to connect with us to translate their research into reality.

KIIT-TBI TTO office functions collaboratively with industry and the innovators to take the indigenous technologies forward from the East and the North East regions of India with a vision to improve the lives of people and boosting local and national economy.

Enabling

- Bringing in Disruptive Technologies from academic research
- Transfer of know how in the shape of patent
- Prepare FTO clearance report
- Assessing the commercial potential of inventions
- Marketing technologies to potential licensees and partners
- Negotiate IP & TT agreements, Sponsored Research Contracts, Non-Disclosure Agreements, Material Transfer Agreements, Option Agreements.
- Post contract license agreement monitoring
- Securing patent and intellectual property rights
- Sponsored Research Projects - Problem Statement from the Industry
- Securing funding for research and start-up

TECHNOLOGY TRANSFER PROCESS



PERFORMANCE SNAPSHOT

16 University MoUs	**15+** Spin-out creation	**50+** Technologies identified	**30+** Tech Briefs	**20** Tech briefs under process	**9** Sponsored Research Projects
7 License agreement executed	**14** Term sheet (under negotiations)	**5** Option Agreement	**50+** Patents evaluated	**35** IP awareness workshop	**50+** IP filing
75+ Innovators explored	**2** Regulatory compliance	**60+** Start-ups involved	**100+** Industry connected	**3** International TTO collaboration	**75+** Capacity Building

PROACTIVE SUPPORT SYSTEM TO ACCLERATE & DE-RISK THE GROWTH

ROADSHOWS

Roadshows are the inaugural activities held in each of the target states to raise public knowledge about the different schemes and programmes available to start-ups and entrepreneurs.

2020-21	9	2021-22	23

ENTREPRENEUR AWARENESS & SENSITIZATION PROGRAMS

The objective of these training series was to enable and empower bio-entrepreneurs through business and technology advice and mentorship covering wide aspects of ideation, prototyping, product development, business plan & Go-to-Market strategies and also help them identify the areas where they can start their entrepreneurial journey.

2020-21	28	2021-22	64

GRANT WRITING WORKSHOPS

Objective is to assist potential innovators & startups so that they can write a grant winning proposal along with the key components.

2020-21	33	2021-22	68

CAPACITY BUILDING TRAINING PROGRAMS

The two-day structured capacity building training is a follow up of the roadshows with a focus on imparting with necessary knowledge and skills to innovators for transforming their ideas into successful & sustainable ventures.

2020-21	29	2021-22	41

INSTITUTE CONNECT

Institute connections are events where we reach out to institutions and universities with prospective innovators to educate them on the many schemes offered via BIRAC.

2020-21	22	2021-22	93

MENTOR CLINIC

Mentor clinic is a programme in which innovators have the chance to meet specialists from various domains in order to resolve any issues that may arise throughout their BIG term.

2020-21	18	2021-22	40

IP WORKSHOP

The workshop aimed to sensitize innovators, startups & entrepreneurs to learn how to identify & protect intellectual property of innovation & technology.Session focused on the basics of intellectual property rights, process of filing for patents and trademarks and case studies.

2020-21	10	2021-22	33

REGULATORY COMPLIANCES

The aim of the session is to inform innovators about regulatory requirements and mandates for clinical trials, as well as to assist them in identifying relevant standards and their role in regulatory compliance.

2020-21	7	2021-22	16

BUSINESS MENTORING WORKSHOP

The aim of the workshop is to build a business strategy and what components to focus on while doing so. In addition, to help innovators through the commercial prospects of translational research.

2020-21	10	2021-22	23

MARKET CONNECT

Market Connect allows qualifying startups to level up their engagement and gain access to customer, product and marketing ecosystems.

2020-21	4	2021-22	17

TRAILBLAZERS

Ready to make BIG changes in Biotech Industry

Tan90 Thermal Solutions Pvt Ltd

Founder: Soumalya Mukherjee

Innovation: Portable Cold Storages with Proprietary Phase Change Material for Cold Supply Chain

Sector: Agriculture

Achievements:
- Received BIRAC BIG Grant worth INR 50 lakhs
- Equity fund from INVENT Program & Social Alpha worth INR 90 lakhs
- Received CSR funds worth 60 lakhs from CISCO and CINI (IAIN)
- Raised INR 5 Cr from Blue Ashva Capital and 3i Partners

Swayogya Rehab Solutions Pvt Ltd

Founder: Pooja Jha & Vikas Kumar

Innovation: A portable Biophysically stimulated Therapeutic device for persons with knee osteoarthritis

Sector: Healthcare

Achievements:
- Startup Odisha Product development fund worth INR 15 Lakhs
- Received INR 49.8 lakhs grant-in-aid from BIRAC BIG scheme.
- NIDHI Prayas Grant worth INR 6 Lakhs
- Supported under AMTZ Medivalley Incubation Council

Biopioneer Private Limited

Founder: Dr Bijayananda Panigrahi

Innovation: A novel, cost-effective material with enhanced activity and thermostability: a new generation protease inhibitor for biotech industry

Sector: Industrial Biotech

Achievements:
- Raised INR 49.38 lakhs grant-in-aid from BIRAC BIG scheme.
- Raised INR 15 lakhs grant-in-aid from Startup Odisha Product Development Fund
- Raised INR 50 Lakhs under BIRAC SBIRI scheme

Waste to Wealth Innovative Technologies LLP

Founders: Shaon Ray Chaydhuri
Ashoke Ranjan Thakur

Innovation: Microbial consortium based biofertilizer for increased Ramie Fiber yield

Sector: Waste Management

Achievements:
- Received BIRAC BIG Grant worth INR 50 lakhs
- Received MSME Startup Fund worth INR 15 lakhs
- Received Regional Climate Launchpad winner in 2019
- Received Visitor's award in Technology Category 2019
- Received NASI Reliance Industries Platinum Jubilee Award 2020
- Non-Exclusive License agreement with Amalgam Biotech, Pune

Comofi Medtech Pvt Ltd

Founder: Satish Kalme

Innovation: An augmented reality based robotic device to access kidney for PCNL surgery

Sector: Healthcare

Achievements:
- BIRAC BIG-12 Call. Funds received: 47.91 lakhs.
- BIRAC SBIRI. Funds Received: 25.00 lakhs.
- Seed Funding (Open round). Funds: 1.5 Cr
- DST CAWACH. Funds received: 65 Lakhs
- Awards: Top 10 startups selected for AIT-Swissnex program, 2018

Medtel Healthcare Pvt Ltd

Founders: Lalit Manik and Soumyakant Das

Innovation: iLAB & iRPM: Remote Patient Monitoring System

Sector: Digital Health

Achievements:
- BIRAC LEAP fund worth INR 50 lakhs
- Pre Series A: 5 Cr INR raised already. 2.5 Cr INR to be raised
- Singapore based institutional funding
- HNIs and Angels from Australia, USA and Europe
- Majority of funds to be utilized in Business Development and Product Improvement

Dhanvantri Biomedical Pvt Ltd

Founder : Sruthi Babu

Innovation: Sahayatha a smart defecation cleansing assistive device for immobile population

Sector: Healthcare-Devices

Achievements:
- Raised INR 5 Lakhs from Social innovation immersion program by BIRAC
- INR 49.75 lakhs grant-in-aid from BIRAC BIG scheme
- Raised INR 48 lakhs fund from DST NIDHI4COVID

Pareto Tree Pvt Ltd

Founder: Thalansh Batra

Innovation: A wrist wearable medical device with a software platform to continuously and non-invasively monitor [Vital Signs, Cardiac Output, Stroke Volume, Systemic Vascular Resistance, and Arterial Stiffness], detect and predict inpatient health deterioration.

Sector: Healthcare-Devices

Achievements:
- Received BIRAC BIG Grant worth INR 50 lakhs
- Selected for MeiTy SAMARIDH Accelerator Program

Primary Healthtech Pvt. Ltd.

Founder: Sahil Jagnani

Innovation: Mobilab - Affordable IOT Enabled Smart Multi Diagnostic device for chronic diseases detection

Sector: Healthcare-Devices

Achievements:
- Received INR 50 lakhs from BIRAC BIG Grant
- Raised INR 25 lakhs from BIRAC SEED fund
- Raised INR 25 lakhs from Pontaq Venture & STPI
- Received INR 33 lakhs from MeiTY SASACT
- Raised INR 25 lakhs from Villgro

Avay Biosciences Pvt Ltd

Founders: Aditya VS & Manish Amin

Innovation: Development of Advanced 3D Bioprinter

Sector: Healthcare

Achievements:
- Received BIRAC BIG Grant worth INR 50 lakhs
- Private Capital of $288,000 raised as Seed Round
- Selected for MeiTy SAMARIDH Accelerator Program

Ameliorate Biotech Pvt. Ltd.

Founder: Dr. Rashbehari Tunga & Dr. Binita Shrivastava Tunga

Innovation: Affordable Sensitive Specific User friendly Rapid/robust Equipment free Device. Single diagnostic device for early stage simultaneous detection of Malaria, Chikungunya & Dengue

Sector: Healthcare-Diagnostic

Krea Food & Beverages Pvt Ltd

Founder: Rahul Chatterjee

Innovation: Development of novel enzyme-based processing aid for the reduction of acrylamide in different thermally processed food products

Sector: Industrial Biotechnology

Achievements:
- Received IOCL startup grant worth 1.21 Cr
- Received MSME and NSTEDB SEED fund
- Recipient of Best Young Innovative Entrepreneur Citizen's Award 2017
- Received Best Startup Award 2017 at Citizen's Award
- Received MSME Startup Excellence Award, MSME Trade Fair 2018

BIRAC Supported Startups: Sectoral Distribution

Healthcare

Startup Name: SkinCurate Research Pvt Ltd
Innovation: Multispectral Optical Imaging For Real Time In-Situ Functional Characterization And Monitoring Of Cutaneous Wound Healing Progression
YOI: 2014

Innovator Name: Dr. Shrikant Mishra
Innovation: Recombinant Enabling MDR Platform
YOI: 2014

Innovator Name: Dr. Biswadeep Das
Innovation: Multiplexed Bead Based Suspension Array For Dengue Serotyping
YOI: 2014

Innovator Name: Dr. Chaitali Vibhakar Surve
Innovation: Design And Evaluation Of Novel Formulations Of Some Anti- Cancer Drugs For Metronomic Chemotherapy
YOI: 2014

Startup Name: Cygenica OncoSolutions Pvt Ltd
Innovation: Development of A Molecular Needle as A Novel Platform for Delivery of Anticancer Drugs
YOI: 2014

Startup Name: Lattice Innovations Pvt Ltd
Innovation: Networked Critical Care Monitoring In Low Resource Settings
YOI: 2014

Innovator Name: Dr Priti Sundar Mohanty
Innovation: Point-Of-Care Diagnostic Kit for Diarrheal Bacterial Pathogens
YOI: 2014

Innovator Name: Dr. Aparna Rao
Innovation: Tear Dipstick Immunoassay For Diagnosis Of Adult Primary Glaucoma
YOI: 2014

Startup Name: Viravecs Labs LLP
Innovation: Development of A Novel Technology for Generation of Stable Transgenic Systems With No Off-Target Effects
YOI: 2014

Innovator Name: Surajit Bhattacharjee
Innovation: Detection And Diagnosis Of Urinary Tract Infection Through Development Of A Rapid And Sensitive Non-Invasive Agglutination Method
YOI: 2014

Startup Name: Trans Integra Healthcare Pvt Ltd
Innovation: Development And Validation Of A Low-Cost Micro Device For Point-Of-Care Diagnosis Of Alzheimer's Disease
YOI: 2015

Startup Name: SynThera Biomedical Private Limited
Innovation: Dental Alloplasts Made From Bioactive Phosphate Glasses
YOI: 2015

Startup Name: Embryyo Technologies Private Limited
Innovation: Design, Prototyping And Testing Of Novel, Self-Expandable, Axially Flexible Non-Vascular Stents At One-Tenth The Cost Of Similar Products
YOI: 2015

Startup Name: DEE DEE Labs Private Limited
Innovation: To demonstrate POC for a Non-invasive Myoelectric arm with SEMG sensors and Machine Learning algorithms
YOI: 2015

Innovator Name: Dr Avinash Sonawane
Innovation: Development And Evaluation Of Therapeutic Efficacy Of Novel Escherichia Coli Asparaginase For The Treatment Of Lymphatic Leukemia
YOI: 2015

Innovator Name: Dr. Debasis Biswas
Innovation: Developing improved diagnostics for Dengue, based on NASBA assay of non-invasive clinical samples
YOI: 2016

Startup Name: Lorven Biologics Pvt Ltd
Innovation: Management of Indian snake bites by developing a IgY based LFA-SVDK for cost effective onsite application
YOI: 2016

Startup Name: Makk Curatives OPC Private Limited
Innovation: Biodegradable & Medicated Root Canal Scaffolds- A Potential Breakthrough in Regenerative Endodontic Procedures
YOI: 2016

Startup Name: Vidcare Innovation Pvt Ltd
Innovation: An integrated immunoassay device for community screening
YOI: 2017

Startup Name: Smartify Health Pvt Ltd
Innovation: Smart IV, a biomedical device for efficient surveillance of impatients on IV line
YOI: 2017

Startup Name: Rmmedi Innovations Pvt Ltd
Innovation: Commercial Production of low cost negative pressure wound therapy device
YOI: 2017

Innovator Name: Dr. Smruti Rekha Priyadarshini
Innovation: TiMis (Tissue Fluid microbiology screening tool)-A novel screening tool for rapid detection of ocular pathogens
YOI: 2017

Startup Name: Ameliorate Biotech Pvt Ltd
Innovation: Development of Innovative cloning strategy and process for Ranibizumab production in antibiotic free media for higher yield
YOI: 2017

Startup Name: OHS Biotech Pvt Ltd
Innovation: RapCHIK: An affordable antigen based diagnostic kit for early detection of acute Chikungunya virus infection
YOI: 2017

Innovator Name: Dr. Suryasnata Rath
Innovation: Nasolacrimal Recanalizer: Novel Minimally-Invasive Treatment for Chronic Dacryocysititis
YOI: 2017

Innovator Name: Raman Parkesh
Innovation: Venoms derived drugs for multi drug resistant-tuberculosis
YOI: 2017

BIRAC Supported Startups: Sectoral Distribution

Healthcare

Innovator Name: Raman Parkesh
Innovation: Venoms derived drugs for multi drug resistant-tuberculosis
YOI: 2017

Startup Name: Bonayu Lifesciences Pvt Ltd
Innovation: Novel drug eluting Bio-film platform for oral and tropical delivery with extensive applications for the nutraceutical, pharmaceutical & cosmetics
YOI: 2017

Startup Name: Aveeti Biomedical Pvt Ltd
Innovation: Development of novel electromagnetic wave based rapid tissue fixation and processing device
YOI: 2018

Innovator Name: Dr. Ashoke Sharon
Innovation: Cross-linked protein matrix hydrogels CPMH as topical formulation for skin regeneration
YOI: 2018

Startup Name: Biomac life Scienecs Pvt Ltd
Innovation: Development and validation of Chimeric Antigen Receptor T cells for the treatment of patients with recurrent or relapsed B-cell Leukemia
YOI: 2018

Startup Name: Comofi Medtech Pvt Ltd
Innovation: An augmented reality based robotic device to access kidney for PCNL surgery
YOI: 2018

Startup Name: Ekistics Solutions Pvt Ltd
Innovation: Autologous Reconstruction of Aortic valve AuRA
YOI: 2018

Startup Name: Purplas IT Services Pvt Ltd
Innovation: Real-time Object Recognition in Ultrasound Video for Detection and Censoring of Foetal Genitals
YOI: 2018

Startup Name: Miraqules MedSolutions Private Limited
Innovation: Development of a commercially viable and easily applicable first acting haemostatic agent: A First Aid Essential
YOI: 2018

Startup Name: Biosia Innovation Pvt Ltd
Innovation: Bio-inspired Small Molecule Mimetics of Host Defense Peptide to Treat Acute Bacterial Skin and Skin Structure Infections ABSSSI
YOI: 2018

Startup Name: Kodigerao Innoventures Pvt Ltd
Innovation: Nano-particle Impregnation on Surgical Silk Suture to reduce its Capillarity and Tissue reaction- A Novel Approach
YOI: 2018

Startup Name: Chimera Translational Research Fraternity Pvt Ltd
Innovation: Development of solid phase multiplex assay for the identification of antibodies against most frequent and unique Indian HLA antigens
YOI: 2018

Startup Name: Sephirah Innovations Pvt Ltd
Innovation: Patient Stratification for Transoral Robotic Surgery in Oropharyngeal Cancers through development of a Non-invasive HPV Detection Panel
YOI: 2018

Startup Name: Tvasta Bio-Science Private Limited
Innovation: Manufacturing of Customized PEEK Implants using 3D Printing
YOI: 2018

Startup Name: Whatnot Dental Solutions Pvt Ltd
Innovation: Development of Novel Endodontic File Viewing Box
YOI: 2018

Startup Name: Quick Blue Oral Care Pvt Ltd
Innovation: Aerosolized Toluidine Blue Sprayer for Early Diagnosis of Oral Potentially Malignant and Malignant Disorders
YOI: 2018

Startup Name: Alicorn Medical Pvt Ltd
Innovation: PrisTINE: a technology for fabricating wound healing matrices from mammalian tissues for rapid wound healing
YOI: 2018

Startup Name: EzeRx Health Tech Pvt Ltd
Innovation: Non-Invasive Non-Contact Robust Portable Hand-held device for Accurate Measurement of Haemoglobin Concentration
YOI: 2018

Startup Name: Neukelp Innovation Technology Pvt Ltd
Innovation: Neukelp Posture
YOI: 2018

Startup Name: SocioDent Pvt Ltd
Innovation: Assistive Oral Care Device for dependent individuals in homes, hospitals, care homes
YOI: 2019

Startup Name: Heilen Meditech Pvt Ltd
Innovation: Accurate Point-of-Care Quantification of Serum Creatine Kinase, Human Serum Albumin and KIM-1 for Easy and Rapid Diagnosis of Kidney Injury
YOI: 2019

Startup Name: Roncov Diagnostics Pvt Ltd
Innovation: Indigenous Targeted Radiopharmaceuticals for Detection and Therapy of Prostate Malignancy
YOI: 2019

Startup Name: Phixgen Pvt Ltd
Innovation: Up-scaling and commercialization of 24-desmethyl rifampicin effective against major resistant strains of Mycobacterium tuberculosis
YOI: 2019

Startup Name: Dhanavantri Biomedical Pvt Ltd
Innovation: A smart locomotory device with a novel mechanism for defecation assistance
YOI: 2019

Innovator Name: Ashok Somasundaram
Innovation: Low-cost Bone densitometer using back illumination camera array
YOI: 2019

Startup Name: Envisage Medtech Pvt Ltd
Innovation: Highly Biocompatible and Injectable hydrogel for prevention of post-surgical adhesions
YOI: 2019

BIRAC Supported Startups: Sectoral Distribution

Industrial Biotechnology

Startups Name: Elvikon India Private Limited
Innovation: Printed Smart Label for detection of packaged food status
YOI: 2020

Startups Name: Rigel Bioenviron Solutions Private Limited
Innovation: Polyhydroxy alkanoate-based bioplastics from agro wastewater
YOI: 2020

Startups Name: Rigel Bioenviron Solutions Private Limited
Innovation: Polyhydroxy alkanoate-based bioplastics from agro wastewater
YOI: 2020

Startups Name: Himalayan Hemp Industries Private Limited
Innovation: Reusable and Disposable Himalayan Hemp Sanitary Pads by using Indigenous Cannabis-Hemp FibeRS
YOI: 2021

Startups Name: Ipanelklean solar Private Limited
Innovation: Waterless Solar Panels Self Cleaning System using nanocoatings and air
YOI: 2021

Startups Name: F3 Biotechnology Private Limited
Innovation: Development of Micro Emulsified Water-Soluble Salt MEWSS to enhance starch gelatinization in animal feed
YOI: 2021

Startups Name: Xython Biotech Private Limited
Innovation: CyFinD - A Proteomics platform technology for Coverage analysis of HCP and HCP Immunoreagents
YOI: 2021

Startups Name: Renewable Envirogic Private Limited
Innovation: Development of Novel Products from Biomedical Plastic Waste Recycling Facility
YOI: 2021

Startups Name: Primogen Biotech Private Limited
Innovation: Development of an affordable kit for simultaneous and rapid 3 h isolation of DNA, RNA and protein from a single leaf sample for genomic and proteomic analysis
YOI: 2021

Startups Name: Senztech Technologies Private Limited
Innovation: Development of multimodal optofluidic prototype for sensing heavy metal ionsanalysis
YOI: 2021

Startups Name: PepThera Laboratories Private Limited
Innovation: Biomolecular Surface Disinfectant for Households and Commercial Establishments
YOI: 2022

Startups Name: JAS Biotech LLP
Innovation: Bio-sunscreen Product formulation using Mycosporine-Like Amino Acids MAAs of Cyanobacteria
YOI: 2022

Startups Name: Bariflo-labs Private limited
Innovation: Intelligent mobile multipurpose dispenser and its integration with in-house developed aquaculture management system
YOI: 2022

Innovators Name: S. Naganandhini
Innovation: Production of functional supplementary poultry feed enriched with hypocholesterolemic compounds of probiotic origin using agro-industrial waste cassava bagasse
YOI: 2022

Startups Name: Palletize-Green Tech Private Limited
Innovation: Palletize -Where Quality Meets Sustainability
YOI: 2022

Startups Name: Mycoblooms Mushroomery Private Limited
Innovation: To design and develop eco-friendly 'Cordybloomer readymade kit' for the efficient growth of Cordyceps mushrooms using smart technology
YOI: 2022

Startups Name: Generation Net Nutrition Private Limited
Innovation: Development of myco and phyco flour for fortification in traditional food
YOI: 2022

Startups Name: Aves Foodtech Private Limited
Innovation: Phytofit: a novel functional fermented food concentrate to reduce abdominal obesity
YOI: 2022

Startups Name: Ensect Farm Private Limited
Innovation: Efficient mass degradation of segregated organic Municipal Solid Waste and Bioremediation of MSW leachate eluted from conventional bin composting, using Hermetia illucens - thereby generating value added products from the processed waste.
YOI: 2022

Startups Name: Prayogik Technologies Private Limited
Innovation: B-TMSG – DC Biomass Gasifier based Thermoelectric Module Static Generator DC Power
YOI: 2022

Innovator Name: Sangeetha Sriram
Innovation: Bio-inspired Superliquiphobic Coatings for Multifunctional Applications
YOI: 2022

Startups Name: Jayma Bio Innovations Private Limited
Innovation: Fortified Biochar - Algal Biostimulants Nutrimix for Precision Agronomic-Fertilization
YOI: 2022

Startups Name: E Embedded Ai Technologies Private Limited
Innovation: Digital Controller Embedded with Artificial Intelligence for Plotting Water Quality and Saving Ground Water Bhumi Jal for Country
YOI: 2022

BIRAC Supported Startups: Sectoral Distribution

Industrial Biotechnology

Startups Name: Felis Leo Widgets Private Limited
Innovation: A Novel bio-degradable, non-toxic battery for Electric Vehicles and other Industrial applications from natural bio wastes like agricultural crop residue.
YOI: 2022

Startups Name: Arasilk Private Limited
Innovation: Development of environment-friendly spider silk-derived composite materials for a wide range of applications
YOI: 2022

Startups Name: Convergent biosciences Private Limited
Innovation: Technology development and demonstration for pilot-scale production of Arachidonic acid ARA from indigenously isolated fungal sources
YOI: 2022

Agriculture & Allied Fields

Startups Name: Visargha Agri Sciences Private Limited
Innovation: Development Of A Genetic Transformation Kit For Plants
YOI: 2015

Startups Name: Adit Bioscience Private Limited
Innovation: Affordable sexed semen technology for successful dairy farming
YOI: 2015

Innovators Name: Dr. Nishat Passricha
Innovation: Multilegume rhizobial biofertilizer for profitable pulse farming
YOI: 2018

Innovators Name: Dr. Adnan Naim
Innovation: Cryopreservation of Chicken Kadaknath and Aseel Primordial Germ Cells PGCs for Commercial poultry breeding line development
YOI: 2018

Startups Name: Arrelic Reliability Private Limited
Innovation: Krsika: An Intelligent, Cost effective Predictive Soil Management System through IOT sensors and AI/ML based Analytics platform
YOI: 2018

Startups Name: GR Agritek Labs Private Limited
Innovation: Management of Crop Diseases via Drone Assisted Detection of Pheromones and Kairomones in a Cotton Farming Land
YOI: 2018

Startups Name: Upsoil Technologies (OPC) Private Limited
Innovation: Point-of-care rapid nutrient testing and soil health analyser or Soil-Pen
YOI: 2018

Startups Name: Balasore Agro Private Limited
Innovation: Innovated Multi-Crop Seed Drill For Sowing Of Groundnut, Maize, Black/Green Grams, Soyabean, Etc. During The Cultivation For Small And Marginal Farmer
YOI: 2019

Startups Name: Tan90 Thermal Solutions Private Limited
Innovation: Portable Cold Storages with Proprietary Thermal Batteries to combat post Harvest Losses.
YOI: 2019

Innovator Name: Ajanto Kumar Hazarika
Innovation: Development of a portable spectroscopic instrument for on-site estimation of quality compounds in tea
YOI: 2021

Startups Name: Sri Bioaesthetics Private Limited
Innovation: Rhizosphere Microbiome Engineering of Chickpea for Drought Tolerance: Development of seed priming delivery system
YOI: 2021

Startups Name: Innoweave Biocare Private Limited
Innovation: Smart interconnected sensors for high yield aquaculture
YOI: 2021

Startups Name: Aranyam Innovations Private Limited
Innovation: Development of microbial bioformulation/s for Tea Camellia sinensis growth promotion and blister blight disease control
YOI: 2021

Startups Name: Nibiaa Devices Private Limited
Innovation: To Prototype the utility of LoRaWAN based IoT Protocol and Smart-Contract based Blockchain Technology for quality tea production and systematic supply-chain traceability and Transparency Solution.
YOI: 2022

Startups Name: Villa Mart Private Limited
Innovation: To Prototype the utility of LoRaWAN based IoT Protocol and Smart-Contract based Blockchain Technology for quality tea production and systematic supply-chain traceability and Transparency Solution.
YOI: 2022

Startups Name: Tech Sumo Services Private Limited
Innovation: To demonstrate POC for a low cost and novel AIoT sensor for monitoring bovine behavior and early detection of bovine diseases by reporting continuous health status
YOI: 2022

BIRAC Supported Startups: Sectoral Distribution

Industrial Biotechnology

Startups Name: Elvikon India Private Limited
Innovation: Printed Smart Label for detection of packaged food status
YOI: 2020

Startups Name: Rigel Bioenviron Solutions Private Limited
Innovation: Polyhydroxy alkanoate-based bioplastics from agro wastewater
YOI: 2020

Startups Name: Rigel Bioenviron Solutions Private Limited
Innovation: Polyhydroxy alkanoate-based bioplastics from agro wastewater
YOI: 2020

Startups Name: Himalayan Hemp Industries Private Limited
Innovation: Reusable and Disposable Himalayan Hemp Sanitary Pads by using Indigenous Cannabis-Hemp FibeRS
YOI: 2021

Startups Name: Ipanelklean solar Private Limited
Innovation: Waterless Solar Panels Self Cleaning System using nanocoatings and air
YOI: 2021

Startups Name: F3 Biotechnology Private Limited
Innovation: Development of Micro Emulsified Water-Soluble Salt MEWSS to enhance starch gelatinization in animal feed
YOI: 2021

Startups Name: Xython Biotech Private Limited
Innovation: CyFinD - A Proteomics platform technology for Coverage analysis of HCP and HCP Immunoreagents
YOI: 2021

Startups Name: Renewable Envirogic Private Limited
Innovation: Development of Novel Products from Biomedical Plastic Waste Recycling Facility
YOI: 2021

Startups Name: Primogen Biotech Private Limited
Innovation: Development of an affordable kit for simultaneous and rapid 3 h isolation of DNA, RNA and protein from a single leaf sample for genomic and proteomic analysis
YOI: 2021

Startups Name: Senztech Technologies Private Limited
Innovation: Development of multimodal optofluidic prototype for sensing heavy metal ionsanalysis
YOI: 2021

Startups Name: PepThera Laboratories Private Limited
Innovation: Biomolecular Surface Disinfectant for Households and Commercial Establishments
YOI: 2022

Startups Name: JAS Biotech LLP
Innovation: Bio-sunscreen Product formulation using Mycosporine-Like Amino Acids MAAs of Cyanobacteria
YOI: 2022

Startups Name: Bariflo-labs Private limited
Innovation: Intelligent mobile multipurpose dispenser and its integration with in-house developed aquaculture management system
YOI: 2022

Innovators Name: S. Naganandhini
Innovation: Production of functional supplementary poultry feed enriched with hypocholesterolemic compounds of probiotic origin using agro-industrial waste cassava bagasse
YOI: 2022

Startups Name: Palletize-Green Tech Private Limited
Innovation: Palletize -Where Quality Meets Sustainability
YOI: 2022

Startups Name: Mycoblooms Mushroomery Private Limited
Innovation: To design and develop eco-friendly 'Cordybloomer readymade kit' for the efficient growth of Cordyceps mushrooms using smart technology
YOI: 2022

Startups Name: Generation Net Nutrition Private Limited
Innovation: Development of myco and phyco flour for fortification in traditional food
YOI: 2022

Startups Name: Aves Foodtech Private Limited
Innovation: Phytofit: a novel functional fermented food concentrate to reduce abdominal obesity
YOI: 2022

Startups Name: Ensect Farm Private Limited
Innovation: Efficient mass degradation of segregated organic Municipal Solid Waste and Bioremediation of MSW leachate eluted from conventional bin composting, using Hermetia illucens - thereby generating value added products from the processed waste.
YOI: 2022

Startups Name: Prayogik Technologies Private Limited
Innovation: B-TMSG – DC Biomass Gasifier based Thermoelectric Module Static Generator DC Power
YOI: 2022

Innovator Name: Sangeetha Sriram
Innovation: Bio-inspired Superliquiphobic Coatings for Multifunctional Applications
YOI: 2022

Startups Name: Jayma Bio Innovations Private Limited
Innovation: Fortified Biochar - Algal Biostimulants Nutrimix for Precision Agronomic-Fertilization
YOI: 2022

Startups Name: E Embedded Ai Technologies Private Limited
Innovation: Digital Controller Embedded with Artificial Intelligence for Plotting Water Quality and Saving Ground Water Bhumi Jal for Country
YOI: 2022

BIRAC Supported Startups: Sectoral Distribution

Industrial Biotechnology

Startups Name: Felis Leo Widgets Private Limited
Innovation: A Novel bio-degradable, non-toxic battery for Electric Vehicles and other Industrial applications from natural bio wastes like agricultural crop residue.
YOI: 2022

Startups Name: Arasilk Private Limited
Innovation: Development of environment-friendly spider silk-derived composite materials for a wide range of applications
YOI: 2022

Startups Name: Convergent biosciences Private Limited
Innovation: Technology development and demonstration for pilot-scale production of Arachidonic acid ARA from indigenously isolated fungal sources
YOI: 2022

Agriculture & Allied Fields

Startups Name: Visargha Agri Sciences Private Limited
Innovation: Development Of A Genetic Transformation Kit For Plants
YOI: 2015

Startups Name: Adit Bioscience Private Limited
Innovation: Affordable sexed semen technology for successful dairy farming
YOI: 2015

Innovators Name: Dr. Nishat Passricha
Innovation: Multilegume rhizobial biofertilizer for profitable pulse farming
YOI: 2018

Innovators Name: Dr. Adnan Naim
Innovation: Cryopreservation of Chicken Kadaknath and Aseel Primordial Germ Cells PGCs for Commercial poultry breeding line development
YOI: 2018

Startups Name: Arrelic Reliability Private Limited
Innovation: Krsika: An Intelligent, Cost effective Predictive Soil Management System through IOT sensors and AI/ML based Analytics platform
YOI: 2018

Startups Name: GR Agritek Labs Private Limited
Innovation: Management of Crop Diseases via Drone Assisted Detection of Pheromones and Kairomones in a Cotton Farming Land
YOI: 2018

Startups Name: Upsoil Technologies (OPC) Private Limited
Innovation: Point-of-care rapid nutrient testing and soil health analyser or Soil-Pen
YOI: 2018

Startups Name: Balasore Agro Private Limited
Innovation: Innovated Multi-Crop Seed Drill For Sowing Of Groundnut, Maize, Black/Green Grams, Soyabean, Etc. During The Cultivation For Small And Marginal Farmer
YOI: 2019

Startups Name: Tan90 Thermal Solutions Private Limited
Innovation: Portable Cold Storages with Proprietary Thermal Batteries to combat post Harvest Losses.
YOI: 2019

Innovator Name: Ajanto Kumar Hazarika
Innovation: Development of a portable spectroscopic instrument for on-site estimation of quality compounds in tea
YOI: 2021

Startups Name: Sri Bioaesthetics Private Limited
Innovation: Rhizosphere Microbiome Engineering of Chickpea for Drought Tolerance: Development of seed priming delivery system
YOI: 2021

Startups Name: Innoweave Biocare Private Limited
Innovation: Smart interconnected sensors for high yield aquaculture
YOI: 2021

Startups Name: Aranyam Innovations Private Limited
Innovation: Development of microbial bioformulation/s for Tea Camellia sinensis growth promotion and blister blight disease control
YOI: 2021

Startups Name: Nibiaa Devices Private Limited
Innovation: To Prototype the utility of LoRaWAN based IoT Protocol and Smart-Contract based Blockchain Technology for quality tea production and systematic supply-chain traceability and Transparency Solution.
YOI: 2022

Startups Name: Villa Mart Private Limited
Innovation: To Prototype the utility of LoRaWAN based IoT Protocol and Smart-Contract based Blockchain Technology for quality tea production and systematic supply-chain traceability and Transparency Solution.
YOI: 2022

Startups Name: Tech Sumo Services Private Limited
Innovation: To demonstrate POC for a low cost and novel AIoT sensor for monitoring bovine behavior and early detection of bovine diseases by reporting continuous health status
YOI: 2022

PRODUCT SHOWCASE

On the path of "Make in India"

TAN90 Thermal Solutions Pvt Ltd

Portable Cold Storages with Proprietary Phase Change Material for Cold Supply Chain

Miraqules Medsolutions Pvt Ltd

StopBleed: A commercially viable & easily applicable fast acting haemostatic agent

Prantae Solutions Pvt Ltd (OPC)

Manufacturing & Commercialization of Urine Microalbumin Measurement System Proflo-U®

Flixdrop Technology Pvt Ltd

CHMS: Cattle Health Monitoring Solution

Comofi Medtech Pvt Ltd

An augmented reality based robotic device to access kidney for PCNL surgery

Upsoil Technologies (OPC) Pvt Ltd

Soilscope: Point-of-Use rapid nutrients testing and soil health analyser

Avay Biosciences Pvt Ltd

Development of Advanced 3D Bioprinter

MedTel Healthcare Pvt Ltd

iLAB & iRPM: Remote Patient Monitoring System

Pareto Tree Pvt Ltd

A wrist wearable medical device with a software platform to continuously and non-invasively monitor [Vital Signs, Cardiac Output, Stroke Volume, Systemic Vascular Resistance, and Arterial Stiffness], detect and predict inpatient health deterioration.

PRODUCT SHOWCASE

On the path of "Make in India"

Primary Healthtech Pvt Ltd

Mobilab - Affordable IOT Enabled Smart Multi Diagnostic device for chronic diseases detection

Mediklik Webhealth Pvt Ltd

Development Of Advance Ventilator

Symbica Pvt Ltd

Development of a market ready multi-articulating adaptive myoelectric hand using sensory feedback

Inochi Care Pvt Ltd

A frugal multi therapeutic wound care solution for resource constraint healthcare settings

3456

Swayogya Rehab Solutions Pvt Ltd

A portable Biophysically stimulated Therapeutic device for persons with knee osteoarthritis

Whatnot Dental Solutions Pvt Ltd

Novel Endodontic File Viewing Box (EVA)

Rmmedi Innovations Pvt Ltd

Negative Pressure Wound Therapy System

Biopioneer Pvt Ltd

A novel, cost-effective material with enhanced activity & thermostability: a new generation protease inhibitor for biotech industry

Dhanvantri Biomedical Pvt Ltd

Sahayatha a smart defecation cleansing assistive device for immobile population

Innovator's Journey @ KIIT-TBI BioNEST

Promoting the Entrepreneurial Culture in the Biotech Sector

A correction chair for cerebral palsy, a smart locomotory device for mobility impaired patients, bioplastics from agro waste, portable cold storage device to combat post harvest loss, low cost bone densitometer, smart label for detection of packaged food, device to prevent pressure ulcers, eco friendly adult diapers, plant stem cell extract formulation for skin hyper pigmentation, novel drug against tuberculosis, multi crop seed drill for agriculture, novel wound care solution. To the average person, these might seem like science fiction. They're not. These and other equally innovative solutions are real, and on the cusp of becoming a part of our daily life. And all of these are being developed right here in India with the support of Biotechnology Ignition Grant scheme of BIRAC Government of India.

This report highlights the dynamism in the field of biotechnology and celebrates the spirit of innovators who are moving ahead in their entreprenurial journey with the support of BIRAC and are working on biotechnology innovations such as biomedical devices, agricultures, molecular therapeutics, plant based stem cell, bio plastics, hybrid enzymes, among others. Filled with real leanings from trenches of startups, this innovator journey compndium would hopefully motivate prospective entrepreneurs and nurture a spirit of entrepreneurship amongst budding innovators in biotechnology.

We would like to extend our appreciation to all the BIRAC supported innovators who responded with tremendous enthusiasm in sharing their experiences and insights.

Dr Rajib Biswas

Balya Navarithi Pvt Ltd

"Smart CP Converter" module, which will operate through "Smart Hybrid SMPS".

Proliferation of heavy metal ions in aquatic bodies makes it unusable for life sustenance. There is a need for rapid and inexpensive diagnosis that can sense these ions in limited resource settings.
Dr. Rajib Biswas being a technology enthusiast with an immense expertise in fiber optics technology has come up with an Idea, which can solve the problem of water pollution due to heavy metal contaminations.

Dr. Rajib and his core team consisting Dr. Nirmal Mazumder (expert in fabrication of microfluidic devices) and Prof. Pritam Deb (Material scientist) are going to develop a prototype which will be cost-effective as well as equipped with multimodal functionalities so that qualitative as well as quantitative estimations of heavy metals can be done simultaneously. Under the BIRAC BIG Scheme and handholding of KIIT TBI as incubation partner, the team is currently developing a prototype, which will be a synergetic amalgamation of microfluidic channel and photonics. Subsequently, it will be upgraded to as an opto mechanical part to be assembled in smartphones along with its own app. This way, this unique prototype will provide valid information of the aquatic pollutants that can be stored in cloud storage for later access and remediate action. Dr. Rajib believes that with their bigger vision and hardworking nature they would be able to achieve the ultimate goal to develop the final product to serve the nation.

Dr Amrendra Kumar Pandey

F3 Biotechnology Pvt Ltd

Micro emulsified salts to enhance starch gelatinization in animal feed.

India is amongst the top most countries for animal farming, which requires continuous supply of nutritional animal feed throughout the year. Keeping this in mind Rajani Prashar, an Engineer who belongs to the city of Education, Dehradun and Dr. Amrendra Kumar Pandey who hails from a small village of Bihar founded F3 Biotechnology, an Indian company, which stands for Food, Feed and Farming, catering feed manufacturers in India. Dr. Pandey, co-founder of F3 Biotechnology has extensive research career in animal husbandry segment focused on Nutrition and Additives Development. Due to his family's involvement in a dairy-based cooperative society, he has obtained a good understanding of feeding supply chains since childhood. Eventually, to accomplish his childhood dream, he completed his Ph.D. in Marine Biotechnology with experience in Animal Health and Nutrients. Throughout his research career, Dr. Pandey worked on development of new raw materials, feed formulation, feed additives, functional feed, and nutritional validation. His research continued without stopping, finding possible solutions to problems such as dust formation, sinking and floating, high processing costs, high feed conversion levels, and competitive market disadvantages.

Starch gelatinization is one of the reasons for all problems in good quality nutritional feed manufacturing system. The gelatinization of starch occurs when it is broken down, forming a gel. This gel works as a lubricant for feed processing and as a binder for the physical stability of feed. Gelatinization of starch is influenced by moisture content and heat. As a result of moisture, there is insufficient gelatinization between feed pellets. In order to meet this need, The F3 have developed Nutri-G, a micro-emulsified salt that enhances starch gelatinization in animal feed during processing. Fortunately, 2021 was the turning point where they got BIRAC Grant, as well as support from KIIT-TBI, with which they believe that they can overcome all odds to create their own sustainable venture.

Debasis Tripathy

Renewable Envirogic Pvt Ltd

Fabrication of Automated Mobile Biomedical Plastic Waste Recycling Facility for development of reusable products

Debasis Tripathy, Founder and Managing Director of Renewable Envirogic Pvt Ltd, has always been innovative & creative in finding solutions to social problems. A significant concern over recent years has been the rise in environmental pollution caused by an influx of plastic waste. Due to a lack of bins for recycling, lack of awareness and sense of environmental responsibility, citizens throw away this plastic everywhere, creating problems for our soil systems and wastewater drainage systems. In the past few years, he has realized that the reuse of plastic requires many technological interventions to make it more efficient and sensitive at the same time. His team at Renewable Envirogic Pvt Ltd works on the treatment, disposal and reuse of biomedical waste like manufacture medical tools and devices like surgical gloves, syringes, insulin pens, IV tubes, catheters, inflatable splits, etc.

Biomedical waste generation from healthcare establishments is inevitably an over growing concern from an environmental point of view. In fact, Renewable Envirogic Pvt Ltd is the only authorized recycling company to recycle biomedical plastic waste in the state of Odisha. Mr. Debasis says, "With the support of BIRAC and KIIT Technology Business Incubator, we want to scale-up our business in India by partnering with healthcare care providers, hospitals and diagnostic centers who would join us in our journey. By collaborating with strategic partners, we hope to take this business global".

Mrityunjay Sahu

Bariflo Labs Pvt Ltd

Intelligent solutions for waterbody management and aquaculture management.

Bariflo Labs has developed an innovative water body management system by leveraging fluid dynamics, IoT (Internet of Things), robotics, and AI (Artificial Intelligence) for aqua-farm management. Its intelligent and automated aquaculture management system comprises sediment aeration, water column and sediment mobile monitoring and mobile nutrient control module. The startup has built two verticals based on this technology—the first is aquaculture and the second is waterbody rejuvenation. Its innovatior span across the areas of sediment aeration, Carp health management and recycling.

The founders of Bariflo Labs enrolled for the KIIT-SASACT-TIDE-MeitY (The Ministry of Electronics and Information Technology) program for development of remote monitoring, integration of aeration with monitoring system for remote operations. They developed the prototype to market, and establish ties with the government and other ecosystem stakeholders. They also sought to arrive at the correct pricing strategy to enable their products to scale the innovation journey."The program was the ideal platform for us as it had qualified and experienced mentors with rich expertise who could add value to our technological solutions and scale the business model," says Mrutyunjaya. "The program also connected us with various state governments to onboard them as potential customers by integrating our solutions to address their unique challenges."

Cdr Suchin Jain

ipanelKlean Pvt Ltd

A disruptive patented technology in waterless solar panels self-cleaning system.

Solar plants are loosing power generation upto 70% in rooftop segment and upto 33% in the utility segment due to dust deposition, there's scarcity of water in cleaning them and it is also banned by most municipalities for washing purposes, water also degrades the solar panels, solar structure and rooftop structure, there's risk of life to solar panel cleaning workers due to high voltage DC electrocution and falling while working. Ipanelklean developed by Suchin Jain, overcomes all these problems with its disruptive patented technology.

It is a dual technology in which the solar panels are first coated with nano-coatings, then remaining dust is blown clean using compressed air and the process is repeated multiple times a day such that the power generation increases upto 100% and payback period reduces by upto 40% that too without additional rooftop space or land area. It provides IRR of 28% in utility segment and 47% and 81% in rooftop segments. We are presently doing multiple pilot installations as part of BIG grant across India. It has large potential economic, environmental and social impact of annual extra revenue generation of 8 billion USD worldwide, annually save 100 billion litres of water, annually save 60 million tons of carbon emissions and save numerous human lives.

Saravanan Aijithkumar

Xython Biotech Pvt Ltd

CyFinD - A Proteomics platform technology for Coverage analysis of HCP and HCP Immunoreagents.

As a child, Ajithkumar Saravanan was fascinated with exploring how living things work, and a curiosity to understand living systems opened the door to an interest in biological research. Prior to the humble beginnings of Xython Biotech Private Limited, he worked and gained experience in managing projects and innovations based on R & D. in various aspects of biopharmaceutical industrial requirements, mainly functional assays such as bioassays, RTPCR, ELISA-based predictions, protein profiling, antibody fingerprinting, immunogenicity, hybridomas, cell proliferation and monoclonal antibody production on laboratory scale. He experienced firsthand the complications of developing new bioassays, the limited availability of resources and the high cost of importing such materials and resources and together with his longtime acquaintance Xython Biotech, to develop high quality research material, BA/BE supports assays and methods ready to meet pharmaceutical and biopharmaceutical requirements.

Currently innovation is in the path of conjugating special illuminating dyes that can be used in Bio imaging technologies with broad application in detection of Host cell proteins (HCP) as part of profiling and coverage analysis needed for regulated studies.

In line with Atmanirbhar Bharat's mission, we dream to provide a proteomics platform technology called "Cyfind" for HCP coverage analysis and HCP immune reagents. With the grant support from BIRAC and BIG partner KIIT TBI, helping to make their dream of taking technology to the next level with a vision of application and commercialization.

Dr Mahesh Mansing Patil

Aves FoodTech Pvt Ltd

A novel functional fermented food concentrate to reduce abdominal obesity.

Dr Mahesh is one of those few young entrepreneurs of our country who managed to follow his food industry dream and carved a niche on his own, constantly acquiring knowledge in the area. It was during his doctoral days at CSIR-Central Food Technological Research Institute; he identified a very escalating life style problem of human over-nutrition which constantly degenerating societal health and expanding to next generations. It was that moment which inspired him to develop a scientifically validated food product for managing obesity disorder. In addition to his excellent academic achievements, Mahesh has developed company management skills at biotech industries, received DST-INSPIRE doctoral fellowship, and he has contributed in DBT Indo-UK multi-industry collaborative project. In BIRAC-PACE post-doctoral work at NCCS; Mahesh has also helped to develop anti-obesity technology from lab to industry scale. Opportunity to work with such premier Indian organizations, experience in setting up of R&D lab and new product development for food industries has built in him a vision of his own start-up. This 10 year science innovation journey created passionate interest in him to develop as an entrepreneur.

With the vision of healthy India, Mahesh stepped in to entrepreneurial journey with BIRAC-Social Innovation program. He has come up with an idea about functional food against obesity based on immersion collaboration learning from nutritionists, doctors, patients, scientists, food industrialist and customer stakeholders. On the basis of scientific learnings and hard work, he has developed a patentable fermented food technology which reduces abdominal obesity by decreasing subcutaneous fat. With the support of BIRAC-BIG grant and KIIT-TBI, Mahesh and his brilliant dedicated team are developing premium quality commercially viable functional foods. Dr. Mahesh is now Founder Director of Pune based Aves Food Tech Pvt Ltd and keep desire to scale-up food business by mutual collaboration with expertise in production, marketing and industries from the country.

Haneesh Katnawer & Sonam Sodha

Himalayan Hemp Industries Pvt Ltd

Reusable and Disposable Himalayan Hemp Sanitary Pads by using Indigenous Cannabis-Hemp Fibers.

Any type of revolution begins with an idea, and when it comes to hemp and menstruation, both are taboos that required a revolutionary thought to bring them both justice. Haneesh and Sonam were on one of their frequent mountain climbing strolls when Sonam Sodha came up with the concept of manufacturing the sanitary pad out of hemp. After discovering the concept, they were astounded to discover that there was not a single hemp-based sanitary pad in the world, and they resolved to create one with the assistance of marginalized people. They registered their company as Himalayan Hemp in order to safeguard the indigenous species of cannabis hemp in the Himalayas while also supplying eco-friendly products made from it to the rest of the world. During this incubation, the prototype was produced and evaluated by Ahmedabad Textiles Industries Research Association for leak-proofing and rash-resistance.

Following that, a market research was conducted in two schools in Uttarakhand and Himachal Pradesh with 300 pupils and 25 farmers for the aim of market and supplier research. After the incubation period was through, Sonam began using the sanitary pad herself for the next 12 months, while also distributing it to her peers, sister, and other relatives. From the standpoint of user experience, she confirmed the lab-validated qualities. Himalayan Hemp won their first award in the India International Science Festival in December 2020 as the second runner up for post-harvest technologies. It was followed by a woman entrepreneur award for Sonam, who came in second place under FICCI FLO. Following that, we were incubated at Amrita-TBI through the NIDHI EIR scheme for a stipend of 30,000 INR per month. While competing against other Asian organizations, we also won one Asia Pacific Cooperative Award. Furthermore, in November 2021, we got another honour in the Go Global Awards under the International Trade Council. But the most significant step forward was when we were approved for the BIRAC BIG grant, and the KIIT TBI team assisted us in preparing for it. With them, we are now able to safeguard and test our product more thoroughly for many more features in order to appropriately scale up the project.

Dr Sikha Mandal

JAS Biotech LLP

Scale-up of Mycosporine-Like Amino Acids of Cyanobacteria for formulation of Bio-sunscreen Product.

Innovations that deliver improvements in human life, health and high value product development are often grounded in academic research and are a key factor in the success of any start-up.
Dr. Sikha Mandal completed her Ph.D. and then Post-Doctoral Research in USA and has over 13 years of experience in research with cyanobacteria. Sunscreen products are a billion-dollar industry and were developed to protect against UV radiation. However, despite the use of sunscreen with UV-filters over decades, the incidence of malignant melanoma is still increasing rapidly. The chemical sunscreen products have many bad impacts on human health such as strong estrogenic actions and causing serious problems in sexual development, and associated with low birth weight in children.

In JAS Biotech LLP with the support of BIRAC BIG grant and from our incubator KIIT-TBI, we are developing a sunscreen product from the natural ingredients using Mycosporine-Like Amino Acids of Cyanobacteria which is the strongest UV absorbing compound found in nature, having high antioxidant properties, can prevent human fibroblast cells from UV-induced cell death and can inhibit cell proliferation. With strong scientific background in this field of research and with the support of BIRAC and KIIT TBI we are confident to achieve our goal to develop MAKE IN INDIA safe and natural skin friendly sunscreen products soon.

Dr Gaurav Jerath and Dr Aparna Rai

Pepthera Laboratories Pvt Ltd

Programmable Biomolecules for Combatting Antimicrobial and Multi-Drug Resistance

Pepthera Laboratories incorporated in 2019 was the brain child of two IIT Guwahati researchers Dr. Gaurav Jerath and Dr. Aparna Rai who shared the same interest of developing programmable biomolecules for various tailored bioactivities. They were driven by the passion of transforming Assam as the hub for science and technology start-ups and to create job opportunities for the highly skilled local individuals.

Pepthera Laboratories one of the BIRAC supported start-up incubated at KIIT-TBI is committed to the development of Programmable Biomolecules for the prevention and treatment of infectious and non-infectious diseases. The vision of the company is to develop biomolecular solutions as therapeutics and personal hygiene products, which at present incorporate only chemical moieties, the use of which lead to environmental pollution and rise in antimicrobial resistance.

The team of two has been recognized as the Changemakers of Northeast by BRTC-BIRAC Regional Centre at KIIT-TBI and also won the Antimicrobial Quest 2021 by Centre of Cellular and Molecular Platforms.

Vijay Mamtani

Prayogik Technologies Pvt Ltd

Bio-inspired superliquiphobic coatings for multifunctional applications.

Vijay Mamtani, the founder and CEO of "Prayogik", began his entrepreneurial journey directly after graduating from university with a degree in electrical engineering from National Institute of Technology Bhopal (NIT-B). Having started his journey as a serial entrepreneur Vijay began his mission to reduce traffic in the busiest cities of India, particularly in Mumbai. In order to achieve his dreams and turn India into a traffic free country, his venture Prayogik (Experiment) began with a problem solving approach from his perspective. Following his success in the IIT entrance exam, Mr. Vijay decided to enroll in NIT Bhopal. He soon realized that everyone follows the "BHEDD CHAAL", where students only try to become IAS or IPS officers or are in search of a good job with a good salary package. Vijay, on the other hand, was passionate about hard work, struggle, and achievements, which allowed him to overcome the tough phases of life. Vijay was going through a lot of mind-changing phases during his second year of college, which is typical for the young generation nowadays. It was at this point that he began working on exciting projects such as "MOBILE BIKE ALARM", "Rental bicycle system", "Self-balancing Skate Board" etc.

As soon as Start-up India announced its funding in 2016, Vijay became enthusiastic as it sparked his ambition to solve social and industrial problems. As far as Vijay was concerned, the government of India would help him in terms of funding, infrastructure, and social names under the start-up category. Consequently, Vijay decided to open PRAYOGIK (Experiment) as a venture to provide solutions to Oil & Gas Industries for their unmanned locations offshore platforms, remote oil wells, harsh environmental conditions, where moving parts are a major problem in terms of cost, remote location and equipment life problems. In collaboration with BIRAC, PUSA Krishi, and ICAR, the validity of their idea for the B-TMSG-DC has been done successfully and these funding bodies are now actively supporting Vijay and his team to continue under Start-up India and Make In India and they are very grateful to KIIT TBI in the role of their mentorship and for acting as their supporting incubator.

Prasanna Kumar Vummanani & Sri Harsha Lanka

Palletize Green-Tech Pvt Ltd

Multifunctional Iron-platinum nanoparticle composite for use as MRI contrast agent and therapeutic agent

We at Palletize adopting a circular economy approach, has developed 100% bio-based, durable transportation pallets made from coconut husk. Worldwide only 15% of the coconut husk is reused, meaning the remaining 85% is burned or landfilled. The current demand for imported timber pallets is 1.7 billion in Asia.

To manufacture the pallets, we took inspiration from a method developed by the mother nature. The result is an environmentally friendly pallet that contains no synthetic solvents. In all, it takes between 60 and 70 shells to make a pallet – and they are as strong as those made of wood or plastic. They can be nested, saving up to 70% warehouse space.

In addition, they are resistant to moisture and termites. And in a circular economy approach, at the end of their life the pallets can be recycled, turned into biomass or used as green manure for agriculture.

Dr Sangeetha Sriram

Bio-inspired superliquiphobic coatings for multifunctional applications.

In my childhood, I had queries which were un-answered leading to more queries. The same questions were partially cleared during my higher studies. But, with a profound hope of my graduation days and the inspiration drawn from the Lady of Bio Innovations, Ms. Kiran Mazumdar Shaw; I wished to clear the queries and find solutions that motivated me to become the first woman Entrepreneur of my family.

After completing my dual Master's (M.Sc. and M.Tech : Biotechnology), I felt that Doctoral studies would stretch my intellectual dreams to action. This pushed me to join and explore myself into Advanced Nanomaterials through the Chemical Engineering Department of NIT Rourkela.

"Water sphere on the Lotus Leaf" is the drawing trump card of my research. The Lotus effect phenomenon helped me relate the laboratory scale study of cellulosic-based and other solid surfaces that can be water repellent and liquid-repellent. The correlation to this research started in 2018 from my personal life, and I felt the need to translate this into a product that would be beneficial for all.

Inspired by BIRAC's caption, "Dream Big: Sky is the limit", I applied to BIRAC-BIG 19 to seek support for this idea to pitch in the real world from the walls within my lab. Also, ventured into my own startup, Biomimetic Innovations Private Limited, which is grounded on Biomimicry from the mighty Nature. (Lotus Leaf- Symbol of Purity). I strongly believe that this novel bioinspired "Superliquiphobic Coatings" will fulfill the unmet requirement of people around and again take rebirth as a recyclable option for Mother Nature!

Dr S. Naganandhini

Development of functional supplementary poultry feed enriched with hypocholesterolemic compounds of probiotic origin using agro-industrial waste cassava bagasse.

Dr. S. Naganandhini, a profound researcher who has a keen interest in agricultural microbiology and did her doctorate on detection of food-borne pathogens in food chain, is an ideal example of a scientist turning into an entrepreneur. During her Post-Doc, when she was working on biodiesel production from sago industrial wastewater, she visited multiple sago manufacturing units throughout Salem and Namakkal districts of Tamil Nadu. There she witnessed and understood how the sago processors ineffectively dealt with liquid and solid waste generated and how bitterly it affected the livelihood of the people. To deal this issue, Dr. Naganandhini and her team have developed a technology for simultaneous biodiesel production and sago wastewater decontamination, for which an Indian patent was filed too. The awareness attained from the disastrous effects of solid waste mismanagement in sago processing units encouraged her to apply for biotechnological intervention to renovate waste into green products.

As a result, she came up with the idea of transforming these sago processing industrial wastes into supplement feed with unique benefits for poultry instead of using it as garbage filler presently. For the development of this technology, she is supported with BIRAC BIG grant. Currently, she is developing a functional supplementary poultry feed with distinct hypocholesterolemic property which could be entirely produced from an agro-industrial waste cassava bagasse.

Dr Pranita Hazarika

Development of an affordable kit for simultaneous and rapid 3 h isolation of DNA, RNA and protein from a single leaf sample for genomic and proteomic analysis

While working on tea molecular biology I faced some difficulties in isolating DNA, RNA and protein for synergistic study of genomics and proteomics at a given time of tea leaf sample. Many reports on established protocols are documented and some kits are commercially available for individual isolation of DNA, RNA and protein. Concurrent study of genomics and proteomics is important in order to dissect the molecular mechanism taking place inside a living system at a given condition and time. This gave a clear picture about the co-ordination between structural and function genomics deciphering the molecular functions taking plane inside any living organism. For undergoing such studies simultaneous isolation of DNA, RNA and protein from a single biological sample is required. Reproducible protocols are hardly available in public domain and some kits are available for such type of simultaneous isolation, for which the kits are costly.

During the course of tea transgenic works we successfully established an economical and rapid (3 hours) simultaneous isolation protocol for DNA, RNA and protein. We published the technique in 2017 and filed for Indian patent in 2018. Then an idea came in my mind to commercialize the extraction buffer used in the protocol thinking about its importance. After searching for funding agencies for biotechnological entrepreneurship I came to know about the BIG Grant from DBT, BIRAC. With the hand holding help from KIIT- TBI and generous grant from BIG Grant during 17th call we are following our endeavor to establish our start up to create a business ecosystem for biotechnological intervention for societal development. This will not only help us to be self sustainable but also can create jobs for plural number of people which I think will be the true sense of service to society with the help of our research experience. This idea will also promote "Make in India" concept and to discourage "job seeker" habit and stimulate "job creator" nature of young minds.

Anup TV

Insects - The Future Of Waste Management & Alternative Protein Source.

Anup's entrepreneurial journey started in 2020 when he had to quit his job and move back to India during the COVID period. While his visit to MCC (Micro-composting Center), Vellore, he identified that the municipal solid wastes (MSW) production is increasing day-by-day.

With the enormous population of India, waste as a whole is generated in every household, increase in population instigates to higher waste output. This triggered Anup to find a viable solution to solve the problem of MSW. With this as a goal, together with his friend, they embarked on a journey to innovate Entemo-composting for mass degradation of the organic part of MSW. Initially they successfully demonstrated the pilot scale operations of their proposed technology with higher efficacy and feasibility at Vellore. The successful pilot operation proved to be a right admixture of fuel to accelerate their entrepreneurial journey. Recently their innovation was supported by BIRAC BIG scheme and DST NIDHI PRAYAS scheme to develop an industrial scale process for MSW degradation. Anup being one of the youngest innovators in the BIG family understands that the entrepreneurial path towards success can be challenging but with the handholding and support from BIRAC and KIIT TBI, he believes that he can overcome all the hurdles to create his own sustainable venture.

Asim Bhalerao

Fluid Robotics Pvt Ltd

Monitoring of COVID-19 Community Spread, Through Robotics and Wastewater-Based Epidemiology WBE

In India, a lack of data about wastewater infrastructure performance is the leading cause behind 50 billion liters of sanitary-sewer-overflows (SSO) occurring every day. SSOs occur when raw sewage is discharged into the environment untreated. On average, less than 30% of urban-sewage in India reaches a treatment plant. Majority of it is discharged untreated into lakes, rivers, and coastlines, through a network of drains. The sewage flowing through these drains is also an important source of public health information. If sampled safely and regularly, it can effectively be used for infectious disease surveillance. To resolve this issue with an advanced and innovative technology, Mr. Asim Bhalerao and Ms. Nidhi Jain started Fluid Robotics to change the way cities think of wastewater.

Mr. Bhalerao, founder of Fluid Robotics, has a Master's in Computer Science, Intelligent Robotics from the University of Southern California (USA) and a Master's in Mechanical Engineering, Design from Santa Clara University (USA). He has previously led engineering teams building Unmanned Aerial Vehicles (UAVs), Autonomous Underwater Vehicles (AUVs) and robots for Minimally Invasive Surgery (MIS) in Silicon Valley. Ms. Nidhi Jain, co-founder of Fluid Robotics also has a Master's in Computer Science from the University of Southern California, and brings her vast experience in product development with companies like Qualcomm and start-ups iSkoot and Flint Mobile in Silicon Valley. Together, with the support of BIG grant from BIRAC and continuous monitoring from KIIT-TBI, they want to expand their wastewater based epidemiology program for tracking the spread of infectious diseases, which is currently deployed for monitoring the population of over 8 million across multiple Indian cities.

Prof Hitesh D. Patel

Fluorescent Diagnostic & Research Pvt Ltd

Point of care diagnostic kit development for diagnosis of Mycobacteria

Professor Hitesh D. Patel with his Research team are working on the development of a point care diagnostic kit for diagnosis of Mycobacteria (Sp. For Tuberculosis) work was initiated from serendipity. One day during cleaning of the TLC chamber, Dr. Hitesh found strong fluorescent giving TLC plate, he asked to research scholars. One research scholar Dr. Rajesh Vekaria come forward and said this is my TLC plate. We discussed about the compound and then repeat the reaction for the synthesis. We had found that the same fluorescent-giving compound was formed.

Dr. Hitesh took the sample and asked his research scholar to do the comparison of fluorescent intensity. At the same time, Dr. Hitesh was under communication with Dr. Dhanji Rajani and he requested for testing of compounds synthesized by Dr. Hitesh's lab for the detection of various Gram +Ve and -Ve bacteria, fungi and TB – Tuberculosis too. The first time we had applied for the BIG call – 9, which was too early stage, but then after we have done more work on it and keep applying for BIG – 12, 14, 16 and 17. Finally, at BIG – 17 we were awarded Rs. 49.97 lakhs fund from BIG, BIRAC. During this journey after rejection from BIG – 16, we have collaborated with Labcare Diagnostic (I) Pvt. Ltd. For the manufacturing of strips for the study and also going to support for the manufacturing of future diagnostic kit. We appreciate the support of Labcare during the time of COVID, the team worked for us. We are also thankful to PMO who directed our request to the Gujarat state Health Department to support us for the validation of our kit in the future. We are thankful to the team of KIIT, TBI without their support, guidance, and mentoring we may not get this BIG support.

Once the successful development of the kit, as per the DSIR guidelines, Dr. Hitesh (first professor from the Gujarat University) is going to start the Pvt. Ltd. Company as the Academic Entrepreneur.

Dr Vijaya Kumar Dadi

Krakel Healthcare Pvt Ltd

A Non-Invasive POC Device and Respiratory Diseases Diagnostic Platform

Respiratory diseases, or lung diseases are pathological conditions affecting the organs and tissues that make gas exchange difficult in air-breathing animals. Respiratory diseases like Pneumonia is ranked as the leading cause of death in the world. One child dies in every 39 seconds due to Pneumonia. More than 800,000 children under the age of 5 are diagnosed with pneumonia every year. India had the second largest number of child pneumonia deaths in 2018 UNICEF. Only 1 in 5 Front line Health workers can accurately assess the signs of pneumonia exactly causing misdiagnosis and delay and currently no medical device exists in-market to automate this diagnosis.

To solve with this current market need, Dr. Vijaya Kumar Dadi, CEO of Krakel Healthcare Pvt Ltd is currently working on development of a ML based Respiratory Disease Diagnosis Device with high Sensitivity and Specificity for use in Resource limited settings. This will perform evidence based diagnostics which can increase the screening coverage rate by 60%. To understand the ground reality of the current situation, the team visited primary healthcare centres in different districts of Andhra Pradesh and interacted with front line workers, doctors and pulmonologists at private hospitals. Dr. Vijaya is a recipient of NIDHI Prayas grant which helped him to progress to a stage that helped them to test the initial data for better diagnosis.

Dr Abhishek Dutta

Exsure Pvt Ltd

Targeted Cancer Therapy Using Autologous Engineered Exosomes

While pursuing his PhD research, deciphering the role of cancer stem cell secreted exosomes in manipulating the host immune system to favor tumour growth, Abhishek Dutta, Founder and CEO of EXSURE Pvt Ltd realized the potential of these Nano-vesicles to act as an effective delivery vehicle. The Indian chemotherapy drug market is flooded with effective anti-cancer drugs but all of them lack the specificity needed to target cancer cells and more importantly cancer stem cells, which are the main cause of cancer initiation, progression, and relapse. This leads to therapy-induced toxicity and tumour recurrence.

Observing this huge unmet need in the market, he and his co-founder embarked on a journey to develop an effective and efficacious bio-engineered exosome-based drug delivery platform targeting both cancer cells and cancer stem cells thereby eradicating cancer from its root. Abhishek Dutta and his team believes that with the support from BIG, BIRAC grant and KIIT-TBI they strive to translate their basic research to an industry ready and relevant product.

Dr Shyamali Dutta

Telscie Genetics Pvt Ltd

Novel Antibacterial Medications for Prevention of Antibiotic Resistance

The journey of Dr. Shyamali Dutta (Founder and Managing Director of Telscie Genetics Pvt Ltd) as an entrepreneur began late after having completed 36 years of a full time career in Medicine. Over the course of Dr. Shyamali's career, the field of molecular biology and biotechnology underwent unprecedented and revolutionary developments with a direct effect on the practice of medicine. As a result, an urge arose to return to the basics, which have altered the practice of medicine and led to a deeper understanding of diseases and more effective treatments. A background in medicine helped her to shape the goals for her entrepreneurial journey. With limited resources in hand and passion for research in the field of antibiotic resistant infections, she set up her lab in 2017, which was actually a renovated garage. Dr. Dutta and her team comprising of Anjali Nair, Arpita Biswas and Sayanti Halder began looking for bacterial proteins that enhance antibiotic resistance. One such protein was a novel target with no previously described inhibitors. They used computational methods to screen large chemical databases for inhibitors and came up with two promising molecules.

Dr Dutta and her team finally achieved success in getting the BIG grant under the flagship of BIRAC after four attempts and handholding of KIIT TBI as an incubation partner led to relieve the tension of unpaid bills and they are now able to diversify their protocols for faster achievement of results. Throughout this journey, Dr. Shyamali's team has provided exemplary support throughout the hard times and she laud their patience and hard work. While sharing her experience she said "We could not have kept the company together and reached where we are now without the help and support of the team members, from KIIT TBI and obviously BIG, BIRAC".

Dr Neera Singh

ProCyto Labs Pvt Ltd

Development of a novel preservative-free barrier gel formulation for ocular allergies.

Neera Singh is the founder and CEO of ProCyto Labs, a Biotech startup incubated in KIIT-TBI, Bhubaneswar. With Masters in Biotechnology from Kurukshetra University, she went to study in IIT Mumbai and did her PhD in Maternal and Child Health from "NIRRCH", Mumbai on ICMR fellowship. After her PhD she worked in USA in one of the prestigious cancer hospital "MD Anderson Cancer Centre" in Houston, Texas. In the year, 2011, she moved back to Odisha with her husband. While working as DBT-BioCare women scientist in ILS, she finally decided to start her own Biotech venture that she has been planning since her moving back to India. With few innovative ideas in mind the company incubated in KIIT-TBI in 2019 and received their first funding support from startup Odisha to develop a LAMP kit for quick diagnosis of sepsis causing bacteria. During Covid, they also started making affordable molecular biology products and teaching kits specially targeting Odisha colleges and universities. ProCyto labs also conduct regular training programs and workshops to impart Biotech skills to the students here in Odisha.

With her continuous research, consultation and discussion with treating doctor she discussed the possibility of developing a barrier gel that can form a protective layer over ocular surface and prevent the entry of allergens which triggers the subsequent inflammation and allergic response leading to painful symptoms. With an expert team of formulation specialists from SoA university, Bhubaneswar and ophthalmologist from LVPEI Bhubaneswar, they took this novel idea forward and received BIG-BIRAC (18th call). Dr. Singh is also interested to make artificial intelligence one of her core areas in the company and her vision is to establish a world class biotech company here in Bhubaneswar, Odisha. She strongly believes that there is no shortcut to success and one should do whatever it takes to achieve their dreams. KIIT-TBI has provided us with a right platform and excellent mentoring support to move forward in this journey. With BIRAC funding support it was possible to quickly take this idea ahead for translation.

Dr Madhulekha Gogoi

Multifunctional Iron-platinum nanoparticle composite for use as MRI contrast agent and therapeutic agent

Fundamental Research is the dream of a researcher who dedicated eight years (post PhD) of her life to research only. She has seen the struggle of research scholars to get permanent jobs and has witnessed the struggle of her family to cope with her father's death due to cancer. She was sad, confused, helpless; the constant feeling of doing something to overcome this grief was haunting her. Then, a day came when her patent on "iron-platinum nanoparticle as MRI contrast agent and therapeutic agent" was granted in India. And she promised to herself that one day she will serve the people by helping with early detection of cancer which is the only fruitful measure to treat cancer. She thinks in this way she can did justice to herself and other family members who did not have any choice other than forgo treatment of cancer at the last stage of her beloved father.

Imaging tumor cells and then differencing it from other normal cells is of prime importance during diagnosis of cancer. Contrast agents play the major role in this venture. In India, 100% of MRI contrast agent market is imported. Which is one of the major reason why cancer diagnosis has become so much sophisticated. Dr. Madhulekha Gogoi and co-founder Mr. Aditya Borborah has established Fundamental Research Pvt. Ltd. primarily to develop MRI contrast agents, which can serve dual role of contrast agent as well as therapeutic agent for cancer diagnosis and treatment. Their project was recently awarded the prestigious BIRAC BIG Grant Funding for coming up with "First to market" "Make in India" product for cancer diagnosis.

Dr Balu Ranganathan, Shruthi Raghunath & Team

Breast cancer nanoscaffold therapeutic implant production using machine learning therapeutic algorithms.

Breast cancer is a huge problem, with a total of 31.1 billion dollars spent yearly on breast cancer-related issues for 1.5 million breast cancer patients in the United States and 3.05 million worldwide as of today. The genesis of innovation for the team led by Dr. Balu Ranganathan as Principal Investigator, Shruthi Raghunath and the team of Scientists turned entrepreneurs to save the lives of breast cancer patients has given credence to this unique thought process. The team has more than two decades of technology development experience. They are solution provider for breast cancer patients in terms of reducing recurrence of breast cancer after lumpectomy, which they wish to solve for breast cancer patients in order to improve their longevity and quality of life.
The researchers established that recurrence occurs (cannot be avoided) even after mastectomy because recurrence of breast cancer can arise in the chest wall or skin. This achievement study gain and articulation of learning was accomplished using survival data analytics single result prediction, which our team was able to do through clinical datasets data crunching employing regression analytics.

Their journey was next aided and smoothed by IIT-M Bioincubator, which pointed us in the direction of further knowledge acquisition in the entrepreneurial ecosystem and successful grant proposal pitching to funding agencies by sending us to our BIRAC BIG partner KIIT – Technology Business Incubator. With their thorough and in-depth examination, the KIIT – TBI team improved the content of our final Pitch deck. Our success was obtained by producing therapeutic implants to counteract recurrence and by achieving single result prediction using machine learning algorithms.

Dr Vivekanand Kattimani

Eggshell-derived Nano hydroxyapatite for bone regeneration & reconstruction

The dream of developing economic, ideal bone graft substitutes for bone regeneration started for Dr. Vivekanand Kattimani during his post-graduation days of Dental Surgery. In the initial days, few researchers of IIT Madras following by Periyar University, Salem nurtured the main idea. Later during his Ph.D. training the idea conceptualization and realization took place with the support from the DST, Govt. of India. Through POC and scaling up of the technology, the initial idea has been turned into reality at the pilot-scale level. As a result, the developed technology contributed to turning the dream of producing high quality, innovative, cost effective bone graft material into reality for Dr. Vivekanand who is a Maxillofacial Surgeon, Implantologist and an enthusiastic researcher, presently heading the Department of Clinical Research. As a reward for the entrepreneur journey for this novel "BENCH TO BED" initiative, BIRAC recognized the work and granted BIG to meet the health system's unmet needs. After being awarded with the BIG grant and constant handholding by KIIT TBI, he and his team have been able to set up a fully functional lab where the product produced at a lab-scale and pilot-scale has been tested for its efficacy in cellular, animal, and few investigator-initiated studies. Such developed material will enable the reconstruction of resected, diseased bone regeneration and replacement in a better fashion to achieve function and aesthetics much earlier compared to existing materials.
The solution will provide high quality, economic, and better graft substitute material for clinical use. It is in line with Self-reliant and Self-sustainable India. It is a potential replacement material for high-cost imported materials. It also fills the supply chain for B2C and B2B markets for various Industrial applications as raw material.

Dr Atul Anand Bajoria

Development of first ever bromelain containing muco-adhesive buccal patch for management of oral submucous fibrosis.

Dr. Atul Anand Bajoria, an oral physician and diagnostician always had a keen interest in developing something non-invasive for his patients suffering from oral potentially malignant disorders. Apart from his routine dental practice, he is an expert in preventive oral oncology. He always felt that there is a huge deficit in treatment of oral pre-cancer when it comes to over the counter topical ointment and gels. They were minimally effective and did not promise a guaranteed outcome. Such lesions would have to be treated surgically, which would be invasive for not only the patient but his or her family as well. So, to bridge this gap he came across BIRAC's BIG call in association with KIIT-TBI, Bhubaneswar.

The surgical management of oral pre-cancer is gruesome, requires good clinical skill and experience. On the other hand, the commercially available ointments and gels have poor retention in the oral cavity which gets washed away by the saliva. The net therapeutic result is nil, as a result both the patient as well as the clinician are at the receiving end. As an oral physician, Dr. Bajoria always felt there is need to come up with something targeted and effective that would retain in the oral cavity for a longer duration to achieve the desired clinical outcome. With the help of BIRAC's BIG grant and KIIT TBI, he is able to bridge this gap that would not only revolutionize the oral pharma sector, but will open other avenues for further clinical advancements in the field of oral medicine. He and his team are confident to come up with this revolutionary muco-adhesive buccal patch that would meet all ISO standards, affordable and available over the counter. Dr. Bajoria always believes "The more you sweat on practice, the less you bleed in battle" with this he thrives to provide quality treatment to all his patients.

Dr Vivekanand Kattimani

Eggshell-derived Nano hydroxyapatite for bone regeneration & reconstruction

The dream of developing economic, ideal bone graft substitutes for bone regeneration started for Dr. Vivekanand Kattimani during his post-graduation days of Dental Surgery. In the initial days, few researchers of IIT Madras following by Periyar University, Salem nurtured the main idea. Later during his Ph.D. training the idea conceptualization and realization took place with the support from the DST, Govt. of India. Through POC and scaling up of the technology, the initial idea has been turned into reality at the pilot-scale level. As a result, the developed technology contributed to turning the dream of producing high quality, innovative, cost effective bone graft material into reality for Dr. Vivekanand who is a Maxillofacial Surgeon, Implantologist and an enthusiastic researcher, presently heading the Department of Clinical Research. As a reward for the entrepreneur journey for this novel "BENCH TO BED" initiative, BIRAC recognized the work and granted BIG to meet the health system's unmet needs. After being awarded with the BIG grant and constant handholding by KIIT TBI, he and his team have been able to set up a fully functional lab where the product produced at a lab-scale and pilot-scale has been tested for its efficacy in cellular, animal, and few investigator-initiated studies. Such developed material will enable the reconstruction of resected, diseased bone regeneration and replacement in a better fashion to achieve function and aesthetics much earlier compared to existing materials.
The solution will provide high quality, economic, and better graft substitute material for clinical use. It is in line with Self-reliant and Self-sustainable India. It is a potential replacement material for high-cost imported materials. It also fills the supply chain for B2C and B2B markets for various Industrial applications as raw material.

Dr Atul Anand Bajoria

Development of first ever bromelain containing muco-adhesive buccal patch for management of oral submucous fibrosis.

Dr. Atul Anand Bajoria, an oral physician and diagnostician always had a keen interest in developing something non-invasive for his patients suffering from oral potentially malignant disorders. Apart from his routine dental practice, he is an expert in preventive oral oncology. He always felt that there is a huge deficit in treatment of oral pre-cancer when it comes to over the counter topical ointment and gels. They were minimally effective and did not promise a guaranteed outcome. Such lesions would have to be treated surgically, which would be invasive for not only the patient but his or her family as well. So, to bridge this gap he came across BIRAC's BIG call in association with KIIT-TBI, Bhubaneswar.

The surgical management of oral pre-cancer is gruesome, requires good clinical skill and experience. On the other hand, the commercially available ointments and gels have poor retention in the oral cavity which gets washed away by the saliva. The net therapeutic result is nil, as a result both the patient as well as the clinician are at the receiving end. As an oral physician, Dr. Bajoria always felt there is need to come up with something targeted and effective that would retain in the oral cavity for a longer duration to achieve the desired clinical outcome. With the help of BIRAC's BIG grant and KIIT TBI, he is able to bridge this gap that would not only revolutionize the oral pharma sector, but will open other avenues for further clinical advancements in the field of oral medicine. He and his team are confident to come up with this revolutionary muco-adhesive buccal patch that would meet all ISO standards, affordable and available over the counter. Dr. Bajoria always believes "The more you sweat on practice, the less you bleed in battle" with this he thrives to provide quality treatment to all his patients.

Dr Akash Bihari Pati

Balya Navarithi Pvt Ltd

A novel device for detecting the proximal extent of pathology (Leveling) in Hirsch sprung disease

Many believe that disease and defects are the results of bad personal practices. Then why should a newborn or a child suffer due to the same? To alleviate the suffering of these little kids, Dr. Akash Bihari Pati, founder of Balya Navarithi Pvt Ltd, a specialist in the field of Pediatric Surgery, has tried his level best. He believes that this is the only branch in medical science where the patient will outlive the surgeon. Hence, the surgeon's work should be as meticulous as possible so that his patient does not face any difficulty even if he is not there. Innovation is the only way to bring about such results in the field and perform, which is thought impossible. Child health care (not being bread earners) is neglected, particularly in low-income families. In addition, the industry is not keen on innovations because of low returns. Many practice-changing ideas can result in better outcomes in pediatrics.

Hirsch sprung disease is such an area where the time of surgery can be drastically reduced by a handheld device that will detect the pathological segment of the colon in real-time. This device does not require the expertise of a pathologist, which is not available in many centers of our country. To fulfil his dream, he sought the help of KIIT TBI, Bhubaneswar. With their guidance and monitoring, he received the Biotechnology Ignition Grant (BIG) a flagship program of BIRAC, then incubated at KIIT TBI. The device will significantly help pediatric patients requiring surgery for intestinal obstruction worldwide. Hence, his message to all innovators is – Dream wild, which is the first step to innovate.

Dr Swadheena Patro

KNK Square Pvt Ltd

An adaptive device to combat noise generated by dental equipment and enable bidirectional communication between the dentist and the patient.

As an experienced dentist, Dr. Swadheena always believes there is a need to eliminate the annoying noise generated by most dental equipment such as drills, scalers, etc. The long-term effects of this noise are very common among dentists in the form of anxiety, imparted hearing, etc. In the same way, the noise generated by the devices creates anxiety in the patient and hampers communication between doctor and patient, making the process more tedious and time-consuming.

With this in mind, the team at KNK Square conceived the first concept of an AI-enabled adaptive headset for dental clinics. The team has a very unusual combination of doctors and engineers. With the clinical experience of the doctors and the technical expertise of the engineers, the first draft of the solution is prepared and presented amid the COVID pandemic BIRAC for BIG Call7 in 2020.The idea was highly appreciated by the BIRAC committee and the grant is approved with the support of KIIT TBI. Now KNK Square is in the process of preparing an furnished device for entering the market in both products and services. The solution has tremendous applications in other areas and they believe in scaling and realizing the dream of Make in India and Make for World Moto.

Vikramaditya Tirthani

Mediklik Webhealth Pvt Ltd

Development of Advance Ventilator.

Vikramaditya Tirthani, Founder of MediklikWebhealth Pvt Ltd, embarked on the entrepreneurial journey after graduating in Electrical & Telecommunications Engineering and accumulating 13 years of experience in Health Technology business. He also started his career as a service engineer at a medical equipment refurbishment company and dealt with hardware. He later worked in a hospital and gained knowledge about the application of medical devices and then had the opportunity to work in a company with Johnson and Johnson, which is one of the top 5 companies in the medical device industry. He studied economics and leadership where through severe training from NIS Sparta and he was in touch with all aspects of business development.

After rigorous experience, he started his business career in 2012 and founded Asha Medical System, dedicated to marketing high quality medical devices. In 2013 he founded BIONICS, specializing in technical service, maintenance and consulting for the start of turnkey projects for healthcare institutes. In 2016, he launched Asha Didi App India, India's first AI health help app in local languages to help our country's common person access health related information interactively. During his entrepreneurial journey, he felt that 95% of our medical devices are imported and we are dependent on other countries, so we have to pay very high costs for high-quality medical devices, which increases the treatment costs for the patients and makes the medical care for the ordinary citizens unaffordable and expensive. Through deep research, he found that more than 3.6 million people die from respiratory diseases in India alone every year and More than 46 percent of these patients die due to the lack of a mechanical ventilator. Most of the ventilators currently available are application and environment-specific like, transport ventilators or adult ventilators, which cannot be used for neonatal patients. Most of the international devices currently available are not designed for the needs of our country and are not affordable. To meet these critical needs, Vikram and his team, with the help of the BIRAC BIG grant at KIIT TBI, are developing an advance ventilator that can function in all settings (transport, long-term or convalescence).

Ramya Yellapragada

StimVeda Neurosciences Pvt Ltd

Affordable, Compact, Portable non-invasive brain stimulation device with 32 channel brain monitoring with EEG.

Ramya and Lakshay are founders of StimVeda Neurosciences. They have seen immediate families suffer from different neuro-psychiatric issues and not have an adequate solution. The medications, if effective, had serious side effects. In light of her personal struggles, Ramya, started to study more about the brain from a fundamental perspective - the neuroscience and neurobiology of the brain while she studied computer science at IIITD, and ended up minoring in computational biology too. Lakshay, independently researched computational neuroscience at DTU (formerly DCE).

When they met at a fellowship, they pooled their knowledge and decided to work together in coming up with a safe, efficient and data-driven solution. During their research into better treatments, they learned about brain stimulation as an add-on/alternative to psychiatric medication. The research and application of brain stimulation has come a long way from the shock treatments popularised by media. Technologies like tDCS and rTMS are much more safer than medication and have a faster effect time than medication.

Today, doctors in the best hospitals use a combination of brain stimulation and medication to treat neuro-psychiatric disorders. Brain stimulation helps accelerate the treatment and helps reduce the dosage of everyday medication. However, this technology is not widespread in India yet because of the high costs of the technology, the ease of use of the devices, and the awareness of doctors to additional/alternate treatments. In addition, largely neuro-psychiatric treatment is subjective. There is a lack of affordable brain monitoring technology and appropriate algorithms that quickly understand the signals to provide a more data-driven treatment for the patient. With StimVeda, they are building affordable, easy-to-use, portable brain stimulation and brain monitoring devices and algorithms that can be used by doctors and technicians easily, that is much more affordable in the Indian context, and makes treatment safer and data-driven. StimVeda closely collaborates with AIIMS Delhi to build this technology for India and abroad. They are guided by their esteemed advisors: former Dean of Engineering UC Berkeley, Clinical Psychiatrist AIIMS Delhi, CEO & MD, InfoEdge.

Thalansh Batra

Pareto Tree Pvt Ltd

A wrist wearable medical device with a software platform to continuously and non-invasively monitor to detect and predict inpatient health deterioration.

For Thalansh Batra, the founder of Pareto Tree, beginning his career in the aerospace industry has been extremely rewarding and a great learning experience, but not internally satisfying. In the wake of this Thalansh realized, he had to gain a deeper understanding of the business side of things, so he launched a California-based strategy consulting business. This gave him a perspective of what really matters to businesses in different industries and what challenges are on their priority list. Inspired by various companies, Thalansh then went on to become a partner at a venture capital firm supporting student entrepreneurs in Southern California. It was here that he learned what investors really look for and how to generate substantial returns.

It was clear that he did not want to build just another SaaS company helping businesses. Thalansh was looking for a meaningful challenge! Neither a problem nor technology was available to him when he began; he started with empty handed. With a self-realization that the world is based on Pareto Optimality (achieving a state where everyone is at their best possible outcome); he asked himself: "where is there a dire need to achieve Pareto optimality?" The answer of course was healthcare! Keeping this vision in his mind, his entrepreneurial journey kick started when finally launched Pareto Tree with the help of BIG funding supported by BIRAC and continues assistance of KIIT TBI as an incubation partner. As Thalansh had shared some nuggets of his learning throughout his trip to Pareto Tree, he believes "it is crucial in the early stages of a company's development to meet leaders/people with significant experience in launching and selling similar businesses. Technology is only one piece of the puzzle; no innovations in the world have reached the hands of their users without a financial value proposition for their customers. It is admirable to be excited about technology, but to actually make a difference, measurable outcomes are more valuable. A business's most critical task is to make a significant impact on measurable outcomes that matter to its customers, especially healthcare businesses."

Saurya Mishra

Articulus Surgical Pvt Ltd

Design and Development of a Portable and Affordable Surgical Robotic System for Abdominal Surgery.

At its core, Articulus believes in challenging the way technology interacts with the surgical domain. Although the present solution in Surgical Robotics may seem appropriate from a clinical perspective, the product proposition, economics, and business model leaves much to be desired for. What drove us all as a team to take up this challenge was a suggestion from senior official at a major surgical robotics company questioning the competency of India in developing and manufacturing a viable surgical robotics platform and thats how Articulus Surgical was formed.

Over 75% of 170 million abdominal and pelvic surgeries are still being conducted through open procedures, resulting in high recovery time, high blood loss, patient trauma, surgical site hernia and leaves the patient with a massive scar to remind them of the traumatizing experience for the rest of their lives. Minimally invasive procedures still lack the scale due to the high surgical skills required for manual laparoscopy and the current surgical robotics being practically unaffordable for both hospitals and patients. Articulus aims to be the most affordable and portable surgical robotics system in the world enabling surgeons and hospitals to provide unprecedented level of care to their patients.
Articulus Surgical focuses on truly democratizing better surgical outcomes through affordable and accessible minimal invasive surgery.

Dr Pragathi Priyadharsini Balasubramani

A pragmatic tool to identify responsiveness to depression treatments and choose personalized treatment strategies.

Depression is a leading cause of disability, affecting 264 million people worldwide and nearly 4% of Indians. A recent GOQii online survey has found that the COVID pandemic has affected almost 43% of 10,000 surveyed online to suffer from some form of depression, and 6% of them were found to be experiencing a severe form of depression. We need effective management of this depression disorder. Though effective medications are available, notably, Non-remission or non-response to treatments is as high as ~50-60% for depression treatments.

The team comprising a neuroscientist, neurologist, computer scientist, and business strategist, decided to work on this important problem of building effective strategies to predict treatment outcomes in depression, and help the society that we were walking with, during this critical after-phase of the COVID wave. Their idea was supported by BIRAC Biotechnology Ignition Grant, 18th Call and the team is currently incubated at KIIT-TBI for holistic enterprise development.

Arun Somasundaram

A Low cost CT Scan

The recent Covid-19 pandemic has exposed the fault lines and healthcare infrastructure issues in the Indian medical industry. During the Covid-19 pandemic, hospitals were heavily relying on diagnostic medical imaging equipment like CT scan and X-ray for diagnostics. The truth is, 86% of Indian medical devices like these are imported from foreign countries. Most of the hospitals purchase the refurbished CT scan equipment that are imported from other countries.
Mr. Arun Somasundaram, who had prior experience in medical imaging products, started developing a CT scan in his lab and he proved the Image quality and dosage similar to conventional CT scan equipment. He also proved the feasibility of making it a low cost CT scan, which is around 1/7th of the conventional product price in the market. With the support from prestigious BIG grant and through mentorship advice and handholding from KIIT TBI, Mr. Arun is developing a CT scan equipment, which is going to be purely designed and developed in India.

For the first time, the dream of having affordable radiology in rural hospitals could come true. Hence, those living in rural areas do not have to travel long distances for a CT scan. The lives of many accident victims can be saved if only CT scan facility is accessible. The affordability will lead to accessibility of healthcare. This way, we are sure; we will contribute for 'Atma Nirbhar' Bharat mission of India to make our nation self-reliant on radiological medical imaging devices.

Priyankar Shivhare

Innoweave Biocare Pvt Ltd

Smart interconnected sensors for high yield aquaculture.

Matsya presents a state of the art Water quality monitoring and biomass estimation solution tailor made for the needs of aquaculture. Designed system is just more than a water monitoring system, it is an end to end solution for aquaculture management that has an ability to track crucial parameters and take corrective actions to prevent crop wastage thereby increasing ROI for the farmers. Description of the Company. We at Innoweave Smart Solutions, are a team of passionate Engineers, Designers and Marketers working towards developing and marketing cost effective IOT (Internet of things), AI (Artificial Intelligence) and CV (Computer Vision) enabled solutions tailor made for developing markets for solving unmet needs in the domain of Digital Agriculture and Precision Agriculture.

Founder - Priyankar co-founded Innoweave Biocare in 2018 with a goal to increase the income of Indian farmers by designing and deploying recent advancements in the field of Agritech. He was rewarded with the prestigious School of International Biodesign fellowship from the Department of Biotechnology in 2017. He has completed MS from IIT Madras where he worked on developing patented Artificial Intelligence based microFACS technology. He was awarded with Research Scholar Innovative Project fellowship and was President of The Optical Society, IIT Madras Chapter in 2015-16. He believes in setting high benchmarks and pushing himself to achieve them.

Dr General Thiyam

Cultivated Mushroom and microalgae flour for fortification in traditional food.

Coming from the Northeastern state of Manipur, Dr. Thiyam General, a microbiologist working on microbial fermentation and biotechnology has been supported by BIRAC under the BIG-18th Call. His work is focused on the production of microbial biomass for application in the food, agriculture, and pharmaceutical industries. He is also a recipient of the National Post-Doctoral Fellows Govt India, Korean Government Scholarship for pursuing a Ph.D. in Biochemical Engineering. His 16 years of R&D experience has driven him to translate scientific research to industry know-how. He has been part of the Korean National Branding program and was incubated in various agribusiness start-up incubators like NeatEhub, Naavic, and is currently incubated at KIIT-TBI as a BIG Grantee.

Lack of color of Chlorella for food application and expensive and time consuming artificial production processes have led to the idea of producing Cordyceps and Chlorella flour (yellow color) a base material using heterotrophic fermentation technology for application in fortification in food products like noodles. It primarily targets the geriatric population and to bring a change in the sector of dietary preferences, food cosmetics, and food of healthy origin, alternative protein, and bioactive substances.

Aeroshil Nameirakpam

Nibiaa Devices Pvt Ltd

To Prototype the utility of LoRaWAN based IoT Protocol and Smart-Contract based Blockchain Technology for quality tea production.

While startups are brewing at major metro cities, there is a rising trend in northeastern region of the country as the preferred destination for startups. People of this region are passionate and enthusiastic to dive in to the one-of-a-kind startup ecosystem in the country. Mr Aeroshil Nameirakpam, Co-founder of Nibiaa Devices Pvt Ltd is one such prominent example who is trying to bring indigenous technologies to solve the problems of local marginal farmers and agricultural practitioners. Nibiaa's origin story began with a simple conversation between Professor N. Irabanta Singh, an agricultural researcher for over 42 years, and his son, Aeroshil Nameirakpam, who just returned back from US Studying and working there for nearly 10 years, who has a background in technology, sat down one day to discuss how agriculture and technology might be combined to help local farmers in India. Having authored numerous case studies and research projects, Prof. N. Irabanta Singh knew first-hand that farmers rarely read or implemented the findings from his research and other innovation in technology that has been happening across the globe.

This insight led Prof. N.Irabanta Singh and Aeroshil Nameirakpam to create Nibiaa for the purpose of equipping farmers with new agricultural technology for an increase in overall revenue and with close ties to the land, the two also vowed to only produce solutions that are sustainable and environmentally friendly combing each other's strength to build this company. Being a native of North Eastern part of India where Tea is a prominent industry, the duo had firsthand experience on the challenges faced by the planters and the industry as a whole due to age old practices, non – adoption of newer technologies and competition from Global market. They decided to do something about it and started working on innovative solutions that will increase the Market presence of the Indian Tea industry in the global arena and make revolutionary changes to the industry on which nearly 1 to 1.5 million People are depended. Currently, with BIRAC BIG and KIIT TBI support and handholding they are developing a novel blockchain and IoT based technology to determine the quality of the tea production and monitor the supply – chain traceability. This would ensure quality tea production at larger scale at an affordable cost.

Dr Ajanto Kumar Hazarika

Development of Advance Ventilator

Dr. Ajanto Kumar Hazarika is a scientist at Tocklai Tea Research Institute (TTRI), Tea Research Association, Jorhat, Assam. He has more than 28 years of experience in tea manufacturing & quality evaluation, design and development of tea processing machines and Agri-Meteorology. During the course of his research, one vital area identified was to implement stringent quality assurance and process control measures during tea processing, by implementation of sensors and electronics for accurate and onsite measurement of tea quality. He, along with a team of dedicated researchers, namely, Prof. Rajib Bandyopadhyay and Dilip Sing of Jadavpur University, Kolkata, Er. Sandip Sanyal (Mechanical Engineer), Dr. Santanu Sabhapondit (Bio-chemist), Mr. Romen Ch. Gogoi (Tea Taster) of TTRI, Jorhat and Dr. Arunangshu Ghosh of NIT, Patna are now jointly working towards the development of a near infrared (NIR) spectroscopy based sensor system for rapid and onsite assessment of tea quality. They had an opportunity to interact with a team of researchers from Nagoya University of Japan, and came to know the immense application potential of NIR spectroscopy.

With the financial support from BIRAC through KIIT TBI, the team is now actively developing an indigenous NIR instrument for use in the tea industry. This innovation will enable real-time quality assessment of finished tea or fresh tea leaves, facilitate onsite monitoring & process control during tea manufacturing process, lead to the development of low-cost portable NIR with chemo metric software with user-friendly interface, and will be customizable for rapid use by other food & beverage industries.

Refana Shahul

A pragmatic tool to identify responsiveness to depression treatments and choose personalized treatment strategies.

With remarkable academic accolades, Ms. Refana Shahul is a gold-medallist both in her UG & PG and has started her research career through a SERB funded project at Central University of Jammu, Jammu & Kashmir. During her initial research, she studied about medicinal mushrooms especially Cordyceps militaris, its properties, and health benefits and was able to identify a bigger problem in the society regarding this mushroom's cultivation. Her deep passion for entrepreneurship and her urge of contributing to the society has helped her to realize the need for solving this genuine mushroom cultivation problem which is real and will impact many farmers' lives.

With her expertise in applied microbiology and her team's help, she came up with Cordybloomer Readymade Kit, which will simplify the process of this mushroom cultivation, will reduce the cost of investment, improve organic food produce and will involve farmers, women entrepreneurs and students to learn more about this medicinal mushroom and its cultivation technology. With the support of BIRAC BIG Grant they are currently involved in designing and developing an eco-friendly "Cordybloomer readymade kit" for the efficient growth of Cordyceps mushrooms using smart technology.

Dr KRK Reddy

Development of innovative agricultural inputs for integrated crop management with special reference to improve nutrient efficiency by crop plants, mitigate abiotic and biotic stress environments utilizing soil, plant and insect microbiomes.

Mr. KRK Reddy, is an entrepreneur and has done his Ph. D in Plant Sciences from Kakatiya University, India, M.Sc, Plant Sciences from Kakatiya University, Warangal, India and Post-Doctoral Research: plant biotechnology, University of Hyderabad, India and University of Bayreuth, Germany. Following post-doctoral research, Dr. Reddy founded Sri Biotech in Hyderabad in 1994 with the goal of developing safe and environmentally friendly alternatives to agrochemicals for crop nutrition and protection. The company's in-house R&D is well acknowledged by national and international research institutions. In addition, the organisation successfully completed various research projects financed by the Department of Biotechnology, Government of India.

Dr. Reddy also serves on the boards of studies and biotech committees of Osmania University, Kakatiya University, Yogivemana University, Nagarjuna University, and Padmavathi Mahila University, as well as the board of studies and biotech committees of Osmania University, Kakatiya University, Yogivemana University, Nagarjuna University, and Padmavathi Mahila University. Aside from that, he worked with the Government of India's Department of Biotechnology as a member of the task force on biofertilizers and biopesticides. He is currently a member of the FICCI-Telangana Agriculture and Food Processing Subcommittee and the CII-Telangana Agriculture Task Force. To pursue his interest for producing breakthrough microbial products for crop management, he founded Sri BioAesthetics Pvt. Ltd. (2016) and Global BioInnovations (2018), which cater to the biological demands of Indian agriculture and international collaborations, respectively.

He goes on to say that while starting a business is always risky and uncertain, the BIRAC BIG programme and the holistic incubation support provided by the KIIT- TBI assisted him in transitioning from the academic mindset that is very focused on your own technology and how great it is, to realising that as a business.

Dr Ananya Barman

Eco-friendly and cost effective microbial bioformulation/s for Tea growth promotion and disease control

Ananya being from North East India has been an ardent lover of tea right from her childhood. However, one day her outlook towards this highly popular drink completely changed when a local newspaper published that tea samples from Assam has failed chemical residue tests and countries importing tea from India has increased the frequency of tea originating from our country. Being a researcher herself with a Ph.D in Biosciences and Bioengineering from IIT Guwahati in 2018 she got into the grass root level of this problem with a visit to different tea gardens of Assam, Meghalaya and West Bengal. The same year she received a grant from the Department of Biotechnology (DBT) of the Government of India to study the pathogenesis of different bacterial and fungal diseases that have been severely affecting different tea plantations in North East India and thereby crippling the entire tea industry and economic growth of the country.

She became concern not only for herself and her family members but for the society as well as she became aware that the cup of tea we all are happily sipping regularly in our home or office consists of different types of residues of chemicals and pesticides. This is when she came up with a solution and ventured into developing a product, which will be purely organic with no chemicals or pesticides, cost effective, safe, easy to use, and environmental friendly. She formed a team comprising of a microbiologist, a chemist, and a business mentor and together they started working on the prototype. Meanwhile, she applied for the most sought after grant for startups, which is Biotechnology Ignition Grant (BIG), a flagship program of BIRAC, Government of India that is aimed towards finding innovative solutions to societal problems through biotechnological interventions. Luckily, she got the BIG grant and with the support of BIRAC and KIIT TBI, she has finally embarked on her entrepreneurship journey. Dr. Ananya likely sums it up with a few words "Believe in yourself and in your dreams. There is nothing that we cannot achieve. Hard work, patience and perseverance are the doors to your success and beyond. Most importantly, failures teaches you more than success. So dream BIG and do not be afraid of failures".

Dr Pritam Chattopdhyay

Scale-up of Nature Identical Vanillin Production from Biotransformation of Agro-waste

While startups has been brewing in major cities, the last few years have revealed an interesting trend – the rise of the tier-two cities as preferred startup destinations. Nestled in the mountains, the North Eastern Region (NER) of India is a treasure unleashed and is also fast emerging as a one-of-a-kind startup ecosystem. The youth of the northeastern region of the country comprising of eight states are no exception. Dr. Pritam Chattopadhyay, a biotechnologist by background, is one such example who is trying to leverage the uniqueness of the region in terms of the available raw material and human resources. Vanillin is a plant secondary metabolite and the main constituent of natural vanilla, which acts as an important flavouring and aromatic component used worldwide in food, beverage, confectionary, pharmaceutical, and cosmetics industries. Price variation and high consumer demand for natural flavours have moved towards vanillin production from natural resources. Vanillin production by applying biotechnological techniques such as microbial bioconversion of substrates like eugenol or ferulic acid is considered an alternative and economically feasible way of obtaining vanillin. Thus, it has gained much interest in recent years due to European and US legislation already classifying the product as 'natural'. Against this backdrop, Dr. Pritam is developing a novel cost-effective technology utilising the agro waste abundant in NE region containing ferulic acid to produce bio-vanillin through microbial conversion rather than conventional chemical reagents. Thus, there is much potential in converting the waste into wealth and useful product. Dr. Pritam is one among the few people from NER who have received the BIRAC BIG grant and gained recognition for their endeavors. Recently BIRAC have also started a special call of BIG specific for North East region, to which Dr. Pritam remarks "BIRAC is certainly creating a supportive ecosystem for early-stage entrepreneurs from North-East India to help them scale up their businesses. Unique initiatives like BIRAC Regional Techno entrepreneurship Centre for impacting Northeast & East (BRTC at KIIT TBI) brought together the key stakeholders in the regional entrepreneurship ecosystem including start-ups, investors, mentors and subject matter experts to help unlock the huge potential of the North Eastern states by unleashing the innovative energy of the emerging entrepreneurs of the region. This would have multiple benefits – create many more employment opportunities, reduce or reverse migration of local youth, energise the local business

Dr. Steward Gracian

Assistive Oral Care Device for long term bedridden elderly

As a dentist, Dr. Steward always felt that there was a need to do something unique to provide oral care to the vulnerable population in India. With that in mind, in 2016, he quit his conventional job as a dental practitioner in a multispecialty dental hospital in Chennai and moved to rural Odisha to work on a short-term social impact project for children from tribal and marginalized communities. It was only during this time that he came across BIRAC's SIIP fellowship in association with KIIT TBI, Bhubaneswar. While doing a deep-dive as part of clinical immersion and visits to many hospitals and old age homes, he found that adequate oral care is one of the most neglected aspects in bedside care of elderly where India has approximately 3 million bedridden elderly and the caregiver ratio is 1:10. Therefore, caregivers face practical challenges in providing oral care for bedridden elderly because of their work burden.

Furthermore, he observed that nurses still used the crude method of cotton and mouthwash for providing oral care for bedridden elderly. As a dentist, he realized that this approach is not only ineffective but also increases the transient bacteremia in the oral cavity. With the support of BIRAC, SIIP, and later BIG Grant he is developing an affordable Assistive Oral Care Device which can potentially redefine oral care for bedridden elderly and other dependent individuals. Dr. Steward says that the foundation on which the device would be built is simple and will provide a complete oral care support system for the geriatric and disabled population that does not have any dependency, be it on physical infrastructure or the availability of a trained clinical person. He and his team members are clear that the device they build would be of gold standard quality, low cost, and be applicable for use across the globe.

Sruthi Babu

Dhanvantri Biomedical Pvt. Ltd.

A smart locomotory device with a novel mechanism for defecation assistance

Sruthi Babu, CEO, and founder of Dhanvantri Biomedical Pvt Ltd started her entrepreneurial journey straight after graduate school and believes the biggest gap when it comes to women turning entrepreneurs is the way girls are raised. She shared with us a story that puts things in perspective for many. She says "My mother did not have the opportunity to obtain a higher education degree, but she emphasized the value of education in my life. My teachers saw potential in me when I couldn't see it myself. I could become who I am, as my father didn't see me any differently for being a girl. The best gift he gave me was by setting the same standards and expectations of me that he would have for a son". In 2016, after completing her bachelor of engineering degree in Biomedical Instrumentation from Avinashilingam University in Coimbatore, she knew she can become nothing else except an entrepreneur but did not know how to make a start. Luckily, she got selected for a social innovation immersion program (SIIP), a flagship program of BIRAC, Govt of India aimed towards finding innovative solutions to society's most pressing social problems through biotechnological interventions and got incubated at KIIT TBI. During the course of clinical and rural immersion, she visited many hospitals and old age homes which inspired her to come up with a solution for mobility-impaired patients. With easy access to a wide range of mentors and prototyping facilities at KIIT TBI, she developed an alpha prototype of a smart convertible wheelchair cum bed with inbuilt defecation assembly to assist the mobility impaired patients to carry out their basic activities of daily living such as locomotion and defecation. And then, it was never looking back, consequently she got selected for the most sought-after grant among life science innovators called the BIRAC Biotechnology Ignition Grant in 2019 for product development. Ms. Sruthi sums it up when she says, "Let's raise our daughters as equals. Believe in them, dream big for them and I am sure we'll create more women entrepreneurs 'in our homes' and 'out of our daughters'".

Prof. Rup Lal

PhiXgen Pvt. Ltd.

Up-scaling and commercialization of 24-desmethyl rifampicin effective against major first line drug rifampicin resistant strains of Mycobacterium tuberculosis.

It's widely believed that the most successful entrepreneurs are young. Bill Gates, Steve Jobs, and Mark Zuckerberg were in their early twenties when they launched what would become world-changing companies. Inconsistent with this believe, Prof Rup Lal who is a retired professor from Delhi University and now founder of startup PhiXgen Pvt Ltd believes that advancing age is a powerful feature, not a bug, for starting the most successful firms due to greater access to financial resources, deeper social networks, and most importantly years of research experience. Having over 35 years of strong and longstanding experience in teaching and research in various capacities at the University of Delhi, the 60-year-old scientist has done as much as anyone to improve our ability to read, write and edit the genome, the basic operating system of life.

Along the way, he has mentored a generation of leading genetic researchers, sequencing and annotating more than 18 metagenomes from varied niches, filed many patents and authored or co-authored hundreds of scientific papers. He along with his few young students with an entrepreneurial bent of mind has successfully developed mutants producing novel analogs of rifamycin. Now, with BIRAC BIG support and KIIT TBI, the professor-student team want to upscale the production of novel 24-desmethyl-rifamycin that is more effective against MDR strains and rifampicin-resistant (RR) strains of Mycobacterium. Tuberculosis is one of the major infectious diseases that claim millions of lives worldwide. The drug will be 50 times more effective towards drug-resistant mycobacterial strains.

Prameela Rao

Eco-friendly adult diapers with antimicrobial properties and disease indicators based on natural fibers and hydrogels

Mrs. Prameela Rao who is widely known as 'Padwoman' of Karnataka and whose work has been appreciated by Bollywood actor like Akshay Kumar is one of our inspiring women entrepreneurs who has recently been supported by BIRAC, Government of India with the BIG Grant in aid. As Prameela Rao is also working as a lecturer in Government First Grade College in Kavoor, she is always closely connected with the girl students and their problems. Usually, women face a lot of problems during menstruation. In many cultures, menstruating women are treated as "impure". In order to get rid of such blind beliefs, Prameela Rao has decided to help women with the support of 'Kalpa Trust who has been disbursing eco-friendly, hygienic sanitary pads under the name 'Swasthya' to women at free of cost from the past four years. But, Prameela clarifies that her entrepreneurial vision is not limited to sanitary napkins and she wants to solve real-life challenges.

She is now in a quest to develop adult diapers. While taking care of her elderly father who had suffered a stroke and was bedridden for months, she found the adult diapers extremely expensive and that the market was dominated by foreign brands. With the support of BIRAC and KIIT TBI, she is now developing eco-friendly, elderly-friendly adult diaper and Urinary Incontinence (UI) pads with disease indicators which can be detected using urine. These adult diapers will have antimicrobial properties based on natural fibres and hydrogels with the potential to safely reuse multiple times. The product will be the first of its kind an early, self-detection tool for common diseases and can help elderly people in an efficient way to manage urinary incontinence. Her goal is to set up a low-cost sanitary diapers manufacturing unit in rural areas where people cannot afford to buy them.

Shivani Gupta

Inochi Care Pvt. Ltd.

A frugal multi therapeutic wound care solution for resource constraint healthcare settings

Shivani Gupta, Founder of Inochi Care and receiver of Star Women Entrepreneur award from BIRAC, says "I've always wanted to start my own company since I was in high school. In my high school yearbook, there was a section where students could write what they thought we might end up doing as a career. Mine said, 'She's going to start her own company'. That turned out to be true and I think the same could be said of my co-founders, starting a business was always something we all had in mind". Backed by IIPME Grant, DBT-BIRAC, Department of Electronics and Information Technology, Stanford India Biodesign fellowship and KIIT TBI, and, among others, the entrepreneurs have been on a quest to address unmet needs in the healthcare industry by engineering innovative, high-quality MedTech devices for not just the Indian market but across the globe. An advanced wound healing device for resource constrain settings, which was a project funded by BIRAC under the BIG grant scheme, is also the first-of-its-kind a one-stop solution for four expensive discrete technologies used for wound healing namely, negative pressure wound therapy, oxygenation, saline wash, and antibiotic delivery.

This indigenous patch system will be a frugal solution to replace different expensive solutions for different types of wound healing therapies and cut dependency on the imported products. Shivani's advice to entrepreneurs starting out is: "Don't do it alone. Have the courage to ask for help. When we started Inochi Care, we were hit by so many questions about tech, legal, and whatever, so I called anyone I thought might know the answers and asked them: 'Hey, I have a problem, can you help?' No-one turned me down or expected anything in return because they know they can call me if they need to. My other piece of advice: 'Be nice and be helpful.' There's no such thing as a free lunch, but you'll have the chance to repay it in a good way at some point".

Bijaynanda Panigrahi

BioPioneer Pvt. Ltd.

A novel, cost-effective material with enhanced activity and thermostability: a new generation protease inhibitor for biotech industry.

Biotech start-ups are no longer the exclusive realm of tenured professors and scientists with decades of research experience under their belt, instead, freshly minted PhDs are skipping opportunity for higher studies to start their own biotech companies. One of these young biotech entrepreneurs is Bijayananda Panigrahi, co-founder of Biopioneer Pvt Ltd. He joined as a doctorate student, at the KIIT School of Biotechnology to study the role and mechanism of Protease inhibitors that play an important role in the Biotechnology Industry. When he started his research experiments, he found that commercially available protease inhibitors are made up of different organic molecules which are active against different enzymes. Furthermore, their storing condition, toxicity, high cost restricts their use for a wide range of applications. He realized that to answer his research question he has to develop a novel hybrid material containing flavonoids and metal as an efficient protease inhibitor for a wide range of protease enzymes. He now had a way to efficiently address his basic research questions, but he realized that his technology had major implications for a wide range of engineering of new or optimized protein inhibitors which had great opportunities both in academic research and in a variety of industries from industrial enzymes to pharmaceuticals. Not going to another lab for a postdoc was a difficult decision. Bijayananda says "On one hand I wanted to continue my scientific training with aspirations for a faculty position.

I interviewed with a few labs but soon found out that many struggled with dwindling funding and often times a postdoctoral position was contingent on coming in with a grant award. I also had several friends who were quite unhappy with the postdoctoral experience. Starting a company offered the possibility of earlier independence to pursue a career track, learn a new set of skills essential in business and entrepreneurship while bringing a useful technology to the market that could benefit the society". He further adds that for him while starting a business was always risky and uncertain, the BIRAC BIG program and the holistic incubation support provided by the KIIT TBI helped transitioning from the academic mindset that is very focused on your own technology and how great it is, to realizing that as a business. Customers don't care at all about the technology. All they care about at the end of the day is what value does it brings to them.

Sahil Jagnani

Primary Healthtech Pvt. Ltd

Nanotechnology based affordable, portable and easy to use multi diagnostic point-of-care device for Kidney, Liver, Pancreas, and Thyroid disorders

As a B. Tech graduate from the Indian Institute of Technology Guwahati, Mr. Sahil Jagnani, Co-founder of Primary Health Tech Pvt Ltd always wants to implement problem-solving approach to come up with a solution which makes healthcare accessible to the last-mile population. After completion of his engineering, he gained experience in several tech-based startups for end-to-end supply chain management in B2C and B2B markets. During this phase, he realized that India has made a lot of progress in the software domain but there are very few startups who are committed to solve problems using the hardware solutions. India imports more than 90% of medical devices starting from small cuvettes to major chemicals which are costly and are outside the reach of common people. Further after networking with many mentors and clinicians in the healthcare domain, he observed that Non-Communicable Diseases (NCD) are one of the biggest problems in providing a good and healthy environment across the globe. Except for large hospitals or specialty centres, the ability to perform proper NCD diagnosis is absent in India. This is the case globally in all emerging markets. The conventional diagnostics face limitations with costly installation, dependency on highly-skilled manpower, and bulky-setups. With the increase in the number of patients with NCD, and specialized diagnostic facilities available are operable only in tertiary care centres, the reach of precision diagnosis is very poor. Thus, there was a need for a solution that gives the power to clinicians to carry out better diagnostics and help take quick decisions based on in-depth-validated information without the need of being present near the patient and be able to run this kind of comprehensive analysis in small and medium hospitals. To overcome this, a team of young enthusiastic entrepreneurs at Primary Health Tech Pvt Ltd under the mentorship of Dr. Dipankar Bandyopadhyay, Head of Center, Center of Nanotechnology and Professor, IIT Guwahati are currently developing an affordable, portable, multi-organ point-of-care diagnostic device, "Magic BOX" which shall provide quantitative estimations of the levels of bilirubin, albumin, creatinine, amylase, lipase, T3, T4, TSH, hemoglobin, urea, pH, Na, and K in the blood serum and/or urine. The device will enable the assessment of the health of heart, thyroid, kidney, liver, pancreas, and blood at the patient site. The size of the proposed Magic BOX kit will be of a smartphone so that it will be easy to handle and would provide real-time, high-quality diagnostics at 1/10th to 1/5th of the existing test costs. The device is also IoT enabled in a manner that the data will be transferred to cloud-data servers where the patient test history can be made available to doctors and AI enabled data machines can provide recommendations of the next steps, doctors or hospitals for treatment. In line with Atmanirbhar Bharat mission and with BIRAC and KIIT TBI support, the company aims to provide a real-time, high-quality diagnostic at an affordable price which can be a potential replacement for the high cost imported devices

---

Dr. Rambabu Atluri

Elvikon India Pvt. Ltd.

Printed Smart Label for detection of packaged food status

Dr. Rambabu Atluri, Director, Elvikon India Pvt Ltd has expertise in material chemist and PhD from the Department of Engineering Sciences Uppsala, Sweden. Before venturing his own startup, he had prior experience in handling R&D base innovation projects at various industries as well as projects of international coordination. What inspired him to start his entrepreneurial journey was to solve a global problem. i.e. Reduce Food Waste and Increase Food Safety!! Being a vegetarian, he finds it difficult to see a lot of animal slaughtering and meat waste and feel that today humans are misbalancing the complete circle of life with unnecessary food habits by growing billions of animals and wasting millions of meat. Global greenhouse emissions from wasted meat alone accounts to 1.5 times the entire aviation industry.

In addition, he realized that food safety is a major issue as there is no traceability on the quality of food products from slaughtering to packaging and reaching to the consumer. Hence, with BIG grant, they are developing a smart label that monitors the packaged meat quality along the food value chain and indicates the best date for consumption thereby ensuring the food safety of meat products and eventually reducing the food wastage. The label can communicate with a smartphone and is a simple, innovative, cost-efficient, and food grade. The smart label is certainly the future of smart packaging to stop food wastage reduce animal breeding and slaughtering. To put it simply, Elvikon India has made it its mission to solve global problems like food waste and create a social impact in the community.

Pooja Kumari Jha

Swayogya Rehab Solution Pvt. Ltd.

A portable Biophysically stimulated Therapeutic device for persons with knee osteoarthritis.

Ms. Pooja Kumari Jha is a professional Prosthetist & Orthotist having completed her masters in prosthetics & orthotics from the Indian Spinal Injuries Centre at the Institute of Rehabilitation Sciences, New Delhi. She has more than two years of clinical experience working with mobility impaired individuals and rehabilitation of the elderly at CMC Vellore and Safdarjung Hospital, New Delhi. After which she was involved with an NGO working towards ensuring social security and empowerment of persons with disabilities. Ms. Pooja has previously designed a cost-effective system comprising functional electrical stimulation with ankle-foot orthosis for hemiparetic patients and been associated in a study to determine the effectiveness of wrist hand orthosis in the early stages of carpal tunnel syndrome among computer users. Her professional experience, passion and a keen interest in rehabilitation led her towards Social Innovation Immersion Program (BIRAC SIIP) at KIITTBI. The fellowship made her go through a rigorous process of need identification, clinical immersion and evaluation. The most recurrent gap she observed was the lack of an effective treatment modality for patients suffering from osteoarthritis. Since completing the fellowship she founded Swayogya Rehab Solution Pvt Ltd with an aim to innovate cutting edge solutions for various orthosis problems that can be addressed with advanced engineering and technology. The innovative wearable assistive device for the elderly suffering from mobility impairment is a first step towards that endeavor with the support of BIRAC BIG grant and KIIT TBI. She expects to launch her first product in India within the next three years and her goal for the next five years is to have a full suite of orthosis and prosthetic care products. Pooja has always said that for her the tag of 'woman entrepreneur' is an unnecessary one. She needed no special treatment for being a woman. She just wants to be treated as equals when it came to solving problems, raising funds, and hiring people.

Manoranjan Adhikari

Balasore Agro Pvt. Ltd.

Innovated Multi-crop seed drill for sowing of Groundnut, Maize,Black/green grame, Soyabean etc. during the cultivation for small And marginal farmer

For many years, entrepreneurship has largely remained a big city phenomenon, even though a significant part of the population lives in smaller cities and rural areas. But this seems to be changing now as more people from smaller towns are trying their hand at starting up their own ventures. While startups in metros are mostly looking at consumer solutions, their peers from smaller towns seem to be solving more real problems that impact larger sections of the population. Take for instance Manoranjan Das Adhikari, who hails from a small town Balasore in Odisha,has proved that nothing can stop him from transforming his dreams into reality. With the believe in the fact that everything is possible; if there is a will to do that, Mr. Adhikari established a small fabrication unit in 2007 to repair various instruments and machinery used by the local farmers. 2013 was the turning point in his life when he registered his fabrication unit and took approval from Dept. of Agriculture, Govt. of Odisha to supply small agriculture machinery to marginal farmers. During this time, he identified a huge problem of farmers for seed sowing of groundnut, Bengal gram, green gram and pulse seed, etc. which navigated him to the way towards developing a single wow multi-crop seed drill for the groundnut and pulses which can significantly solve the problems faced by marginal farmers. In 2018, Mr. Adhikari started his company named Balasore Agro Pvt Ltd and got selected for the prestigious BIRAC BIG funding scheme for his innovation. The broader goal of the company is to set up a manufacturing unit of agricultural devices and machinery for the farmers of our nation and contribute to the Indian economy through agricultural produce.

Ravindra Singh Khestri

Sumit Healthtech Pvt. Ltd.

India's only end to end solution for organ transplant.

Ravindra's perspective towards life changed when he witnessed a sudden completely avoidable tragedy in his family when his brother died while waiting for an organ transplant. He did a thorough research study and realised that in India alone, hundreds died unnecessarily every year due to challenges underpinning organ transplantation. That year, Ravindra set out to develop a one-stop platform solution that would address the issue by assisting the patient and their family in every step of the organ transplant journey. The AI driven platform connects donor, receiver, hospitals, diagnostic labs, rehabilitation centers all in one base within the purview of legal organ transplant policies. In addition, it would engage them in constructive activities like counseling and skill development. His innovation has been recognized nationally by DIPP, MSME and Startup India and he has also been awarded the youth icon in 2018 by Chhattisgarh Government for his initiative and also awarded by Startup India, Think Raipur Program. Backed by, Biotechnology Industry Research Assistance Council (BIRAC), KIIT TBI, among others, the young entrepreneur from Chhattisgarh have been on a quest to develop innovative MedTech solutions to save precious human lives through his startup 'Sumit Healthtech Pvt Ltd'. Ravindra says "Put yourself in the shoes of someone waiting for a transplant. If you are willing to accept an organ donation, it is only right that you should be willing to donate the special gift of life to another family."

Subrata Kumar Haldar

Halder Rehab Pvt. Ltd.

Adjustable Postural Correction Chair : Cerebral Palsy

In 2018., President Ram Nath Kovind presented the National Awards for Empowerment of Persons with Disabilities, among the recipients was Subrata Kumar Haldar from Swami Vivekananda National Institute of Rehabilitation Training and Research (SVNIRTAR), Cuttack, Odisha who has been selected in the category of 'Best new cost-effective product development aimed at improving the lives of persons with disabilities'. Haldar was awarded for developing an adaptive seating device that promises to transform lives of children suffering from cerebral palsy (CP). The Postural Correction (PC) chair, as it is called, is an innovation that not only ensures postural improvement in CP children but also accommodates their physical growth and encourages changes in physical activity. It is cost-effective and at the same time provides a single therapeutic aid for all the different disabilities manifested in CP. Working as a Senior Occupational Therapist for more than a decade, he observed that Cerebral palsy is the most common locomotor disability in children with an estimated prevalence of 2.5-3 per 1,000 live births. It results in impaired muscle coordination and movements, but the disabilities vastly differ from child to child.

"The PC chair is one-of-its-kind in the world as it can be adjusted to all kinds of CP impairments and helps posture correction of different manifestations be it muscular weakness, paralysis, floppy and rigid limbs and necks or exaggerated reflexes. Further, it works long-term through the child's growth from 2 years to 10 years", said Haldar. Besides CP, the chair is also beneficial for down syndrome, spina bifida, brain injury or other neurological motor disabilities. The PC chair has been tested on over 30 children with very successful results and his patent application for this product has been accepted by the World Intellectual Property Organisation and it is expected to be granted soon. Though he had conceptualised the appliance long back, he started working on it recently in 2016 and now with the support of BIRAC BIG grant and KIIT TBI, the PC chair will go into mass-scale production and he is confident that by 2021 the PC chair will be ready to hit the market. Haldar states "It will cost only around Rs 7,000 to Rs 8,000 so that all sections of the society can afford".

Dr. Lita Mohapatra

LosJovenes Clinilogical Pvt. Ltd.

Matricaria chamomilla L. Chamomile nanospheres in the treatment of Skin Hyperpigmentation- a novel approach with stem cell extracts

Dr. Lita Mohaptra, Founder of LosJovenes Clinilogical Pvt Ltd is a cosmetologist with an MBBS and double Master of Medicine from Australia, & a Fellow in Aesthetic Medicine. She received Full Bright Scholarship from the University of New Castle Australia for her study in Medicine and later another scholarship from the Government of Australia to study aboriginal health. Being a clinician and an aesthetic medicine practitioner she always felt that there is a huge gap between availability of effective skincare products in India which has minimal side effects and is backed by reliable technology. Hence, after returning back to India she started her own startup and partnered with KIIT TBI for incubation and support to develop a novel plant stem cell extract formulation for reducing skin pigmentation with BIRAC-BIG funding. LosJovenes Clinilogical is currently under the R&D operations of skin regenerative deep science products and regenerative medicines based on plant stem cell nanotechnologies as platforms. She has received innumerable awards and accolades in her journey. A few of the commendable recognitions are the 'Times Health Icon Award' in July 2019, 'Excellence as Doctor in Aesthetic Medicine Award' in December 2019 and 'Top Inspiring Women Entrepreneur Award' in 2019 among others. To all women who aspire to be entrepreneurs someday, Dr. Lita has this one thing to say "Dream big! Prove your point right to the world and why they need your insight, knowledge and talent. Make them believe that you are the one who can bring them the best deals on the table. And last but not the least; follow your heart to conquer the world."

Dr. Madhusudhan Bhat

iHeal Innovations LLP

Electrically Active Anti-Microbial Bandage for Wound Healing

Dr. Madhusudan Bhat's entrepreneur journey dates back to his PhD days at All India Institute of Medical Sciences, New Delhi while working on interdisciplinary research of nanomedicine. Right from fabricating nanoparticles for various applications, he always believed in the indigenous development of novel healthcare products using biotechnology. While looking at this space in India, he found that advanced wound care is quite nascent and opportunities to build a world-class brand product brand are abundant. Dr. Bhat feels, he is fortunate to have smart and well-meaning people to guide and more importantly support him in all endeavors right from the beginning. Prof Dinda, currently working as a Professor and officer-in-charge of Division of Renal, AIIMS New Delhi who was his PhD supervisor encouraged him to consider becoming an entrepreneur and to start a start-up "iHeal Innovations LLP" which focuses on developing affordable, effective bandage for wound healing with minimal intervention of chemotherapeutic/antibiotics. Under the BIRAC BIG Scheme and incubated at KIIT TBI, the team is currently developing a unique bandage called ElectraSA Bandage for wound healing which exploits the micro-current flowing through leachable/non-leachable conductive threads woven on silk fabric. Most of the burn wounds or bruises usually need frequent dressing, application/administration of antibiotics. However, this unique bandage demonstrates anti-microbial as well as pro-healing. iHeal Innovations envisages a future where contemporary knowledge of biomaterials, medicine and engineering will be integrated in designing novel solutions to address the huge unmet need in management of chronic infectious wounds. His advice to the budding entrepreneurs is simple, "One should build a minimal product with the most important features and take it to a hospital for patient testing. No amount of laboratory testing will get the product ready and the team needs to get real feedback from users at an early stage".

Dr. Sanchita Mukherjee

Rigel Bioenviron Solutions Pvt. Ltd.

Polyhydroxy alkanoate based bioplastics from agro waste

Dr. Sanchita Mukherjee, an experimentalist turned entrepreneur and Founder Director of Rigel Bioenviron Solutions Pvt Ltd is addressing major environmental problems of agro-waste utilisation to produce biodegradable bioplastics using innovative solutions. Rigel Bioenviron Solutions Pvt Ltd is into processing raw industrial wastewater in a complete multi reactor system to produce PHB polymer for downstream applications. She is a technocrat, successfully running the teams converting evidence-based science to business opportunities with an intent to solve serious environmental issues in the country.

It is her optimism; over 10 years of R&D experience from elite institutions of India, unwavering drive to translate research towards productisation and industry know-how that helped her to get support from BIRAC, BIG program for successful execution of industrial demo plant for pilot scale PHB production. Her core team comprised of Dr. Partha Chakravarty, Bioprocess expert and Mr. Mayur Ved, Plastic engineer and many established cross-functional industry players boosting the very proposition. Sanchita suggests to young entrepreneurs that "Unless it is your technology and you are from the domain, don't dream to become an entrepreneur on borrowed ideas as it will be a futile attempt. Entrepreneurship in the biotech space is a serious and intense practice with high stakes involved and requires not just money but conviction, belief and grip on science".

Dr. Soumalya Mukherjee

TAN90 Thermal Solutions Pvt. Ltd.

Portable Cold Storages with Proprietary Thermal Batteries to combat post Harvest Losses.

High capital and operational costs involved in cold storage logistics elevate the post-harvest loss which is one of the major problems the marginal farmers have been facing for decades. Tan90 Thermal Solutions Pvt Ltd, a spinoff, founded by Dr. Soumalya and two other PhD graduates from IIT Madras, challenging this status quo and working on portable cold storages that are run by proprietary thermal batteries. As compared to other solutions available in the market, these thermal batteries can be charged twice as fast, resulting in giving the end-users a faster turnaround time. It was during their doctoral studies when they felt the need to take innovations from labs to the field. Dr. Soumalya along with his team of complementary skill sets are committed towards the development of the rural segment of our society especially the marginal farmers.

Team Tan90 says that "It wasn't that we wanted to be independent or not have a boss, but purely that we were curious about what could be achieved, loved building products, and realised there was a real need for innovative software solutions. We understood that a farmers' son doesn't want to follow his parent's footsteps. So, we are committed towards delivering simple technologies to the marginal farmers for efficient agricultural practices. With the support from BIRAC and handholding from our incubator KIIT-TBI we are pretty much sure that our technology will reach out to each and every farmer in the country, irrespective of his/her land-holding".

Asish Mohandas

Cureous Labs Pvt. Ltd.

An effective device to detect and prevent pressure buildup in bedridden patients in order to prevent pressure ulcers.

Since childhood, Asish Mohandas always wanted to build new things, starting from small models in high school to science fair projects. That interest got him into pursuing bachelors in Mechanical Engineering and later Masters in Product Design from the Indian Institute of Technology (IIT) Kanpur. After being the recipient of a few prestigious accolades including the James Dyson Award in 2017 and the winner of many medical hackathons and design competitions, he realized the need for solving genuine healthcare problems is real and impactful. He then went on to do Biodesign Fellowship Programme from School of International Biodesign, AIIMS which was focused on Medical Product development. The exposure to real Indian healthcare system during the clinical immersion made him empathize with some of the genuine problems, which if solved can create a greater impact for the people.

Cureous Labs was later founded in 2020 with the belief of changing the lives of people for better. With the support of BIRAC BIG Grant, they are currently involved in the development of an effective solution which can prevent the problem of bedsores affecting millions of bedridden populations. Asish says "We started our venture with the product development in our mind. Though we could scale up our technology to a significant level, but we had to face technical and financial hurdles. BIRAC and our BIG partner KIIT TBI supported and helped us in making our journey easy and targets achievable".

Dr. Sandeep Shetty

Eishita Healthtech Pvt. Ltd.

The Save Appliance-an Innovative Device For Correcting Skeletal Class III Malocclusion

The founder of Eishita Healthtech Pvt Ltd, Dr. Sandeep Shetty is a Professor at Yenepoya Dental College and Adjunct Assistant Professor in U.N.C Dental School, Chapel Hill, U.S.A and among the finest Dental Surgeons in the city. It is during his 20 years of clinical experience; he identified a genuine problem with the appliances used to treat skeletal class III malocclusion. The management of skeletal class III malocclusion is considered as one of the most complex malocclusions to treat and involves devices which are uncomfortable and bulky for the patients. To get the better of this problem, he is currently developing "The Save Appliance" which is a maxillary protraction device and can be used in the correction of skeletal class III malocclusion with the deficient maxilla. This proposed device will overcome the drawbacks of existing devices by decreasing treatment time, increasing comfort, reducing the bulk and minimizing patients' compliances. Additionally, this device can create a good social impact as it improves facial appearance and speech of the patient as well as contribute to a better psychological state and better social acceptability. Dr. Sandeep says "Being a clinician and meeting a large number of patients helped me to validate the unmet need. After about 6 months since we begin working on the prototype development, we started applying for funds and got incubated at the KIIT TBI as associate incubatees. We got the first success in the form of BIRAC BIG Grant for further development and validation of the maxillary protraction device in 2019. Through Eishita Healthtech, we have also started connecting with a large number of doctors to validate our ideas and also investors interested in the medical technology space".

Ashok Somasundsaram

Innovation: Low cost Bone densitometer using back illumination camera array

A major issue in the healthcare industry is the lack of radiologists to complete a review of scans to allow for a medical problem to be diagnosed. It is a challenge that is especially acute in rural areas where there is a shortage of equipment as well as qualified personnel. Ashok Somasundaram who is an engineer, zeroed in on coming up with a low-cost bone densitometer using innovative back illumination camera array that can reduce the cost of the radiography imaging detector by more than 60% and also reduce the complexity of the movement mechanism. Their innovation is that instead of expensive X-Ray sensor, a back-illumination camera is used along with phosphor screen, lens and lead glass in particular order to produce X-ray image that is of sufficient quality to be used for estimating bone density.

Many rural daily wagers have less bone density, if there is a low-cost bone densitometer this can be identified early and cured. Apart from entrepreneurship, the founders had a larger aim to provide quality healthcare to the people of India, especially in rural areas. As Ashok poignantly says, "The next big thing is to scale up. Taking our devices to all possible patients, all the people for whom this would have an impact. In short, to take it to the masses and ensure that there is an impact because of what we are doing. With support from BIRAC and through KIIT TBI we will definitely achieve our goal very soon"

Nirmal Kumar

A novel way to prevent Catheter Associated Urinary Tract Infection CAUTI

While participating in a clinical-needs analysis programme run by the BioDesign Fellowship in 2018 at the School of International Bio-design, AIIMS Delhi, Nirmal Kumar with mechanical and plastic engineering background realised Catheter Associated Urinary Tract Infection [CAUTI] accounts for 34 percent of all hospitals acquired infections and results in excess morbidity, mortality and health care costs. Globally, every year over 10 million incidences, 241000 deaths, and USD 7.8 billion economic burden are associated with this infection. Research on HAI infection showed that in India alone, Over 1.8 million incidences and 43 thousand deaths occur every year. Further, 15-25 percent of hospitalized patients are required to use urinary catheters. Out of these, 3-7 percent have high risk of acquiring a CAUTI due to catheterization. He also found that a "Urodhield" is the only product in UK which dislodges the biofilm or bacteria and reduces CAUTI only by 50 percent and the cost is also too high making it unaffordable to stock such devices at primary and rural healthcare centres. He was clear that there is a need to solve this big problem by taking an engineering approach by a combination of two proven technologies, i.e., UV irradiation and Surface Acoustic Wave. With the support of BIRAC BIG grant in aid and KIIIT TBI, he is building a device that prevents both extraluminal and intraluminal routes of infection and most importantly not going to change current catheter system and procedure. UROVIB, a CAUTI prevention device can bring the biggest innovation in urinary catheter systems, since the invention of Foley catheter in 1930's. It will be the first device that targets to reduce 80 to 100 percent of the infections' burden and costs 50 percent less than the existing product. Nirmal plans to start a company soon, he quips, "The technology is very promising, but there are still countless technical and business challenges that need to be addressed, so there's still a lot up in the air". Nirmal's words of wisdom for current grad students who might be interested in making a transition like his is "Start building your network long before you think you need to because it takes a long time. One good way to do this is to get involved with Incubators and entrepreneurship fellowship programs that have networking and business mentoring opportunities".

Dr. Koushik Chakrabarty

Development of serum free and chemically defined med to generate and culture human pluripotent embryoid bodies

Dr. Koushik, currently a scientist at GROW Laboratory, Narayana Nethralaya, Bangalore, with over 15 years of R&D experience in stem cell biology, neuroscience and microbiology from elite institutions of India, Germany and Netherland; such as the Indian Institute of Science, National Institute of Mental Health and Neurosciences, the Ruhr University Rudolf Magnus Institute of Neuroscience, Utrecht University, Netherlands. With his vast experience in harnessing the human pluripotent embroyid bodies (EB) developed from pluripotent stem cells and with the support of BIRAC and KIIT TBI, he strives towards translating adult stem cell technologies prowess into clinical reality. Research on stem cell technology shows that embroyid bodies (EB) generated from stem cells is a common method for its biomedical applications. EBs is the pertinent platform for banking and utilization of the induced pluripotent stem cells iPSC technology. The market for iPSC-based therapies is growing rapidly in all spheres of the life science industry. However, there are very limited number of companies that exclusively focuses and caters to this rapidly growing segment. The key prerequisites for a broad application of EBs in the biopharmaceutical and biomedical sectors are to generate large quantities of highly purified EBs in standardised formats. In addition, the recently introduced regulations from the Food and Drug Administration and European Medicines Agency requiring the removal of serum and other animal-derived components in all bio-manufacturing processes. Currently, Stemcell Technologies Vancouver, BC, Canada is the sole global provider of Serum Free Medium (SFM) to culture EBs. Addressing this dearth of alternatives, Koushik is developing a cost-effective SF-CDM for generating and culturing EBs for its biopharmaceutical and clinical application and the product name is EBpro SF-CDM. Preliminary data comparing the commercial medium revealed it to be more consistent in generating EBs and retention of its critical features. With BIG grant, further optimization of the EBpro SF-CDM is being carried out to achieve optimal performance with the aim of streamlining pilot production processes and achieve consistency and predictability at a reduced cost.

Shashank Ranebennur

Heilen Meditech Pvt. Ltd.

Accurate Point-of-Care Quantification of Serum Creatine Kinase, Human Serum Albumin and KIM-1 for Easy and Rapid Diagnosis of Acute Kidney Injury

Shashank Ranebennur Nagaraj, a tech graduate and the founder of Heilen Meditech Pvt Ltd who always has been tinkering with new innovative solutions to the engineering problems. But only a couple of years ago, he realized that the diagnostic sector needs a lot of innovative and technological interventions to make it more efficient and sensitive at the same time. With his increasing interest in healthcare sector, he identified a major problem of Acute kidney injury (AKI) and its current diagnostic methods. AKI is the foremost origin of nephrology consultation and is associated with high mortality rates. To overcome this, and after several brainstorming sessions with mentors and clinicians, Shashank and his team at Heilen Meditech Pvt Ltd is now developing a point-of-care, portable and low-cost device for quantification of serum creatine kinase, human serum albumin and KIM-1 which will assist in rapid diagnosis of AKI and many other renal disorders. Mr. Shashank says that "With the support of BIRAC and our incubator KIIT TBI, we want to scale-up our business in India by partnering with care providers, channel partners, distributors and business associates who would join us in our journey. We wish to take this business globally by collaborating with strategic partners".

Dr. Sudhamani Muddada

Utopia Nutraceuticals Pvt. Ltd.

A Novel Food Fortification Technology addressing Trace Metal Malnutrition Hidden Hunger

An upsurge in cases of malnourishment across the globe and its health impairments such as stunting, low immunity, cognitive losses, and reduced physical and mental capabilities, particularly among children in rural India inspired Dr. Sudhamani to venture into the nutrition business in 2019 and start his own venture Utopia Nutraceuticals Pvt Ltd and incubate at KIIT TBI. Reports suggest that over 70% of the Indian population still consumes less than half of the Recommended Dietary Allowance (RDA) endorsed micronutrients that can result from deficits in food supply or a poor-quality diet. Particularly, lack or shortage of trace metal Fe, Cu, Zn, Se, etc. intake through food can lead to malnutrition called 'Hidden Hunger'. Fortification of food with these trace metals is now considered as the best method for combating malnutrition at the global level. Currently, 79 countries have made it mandatory to fortify at least one major grain. In its mission to revolutionise India's sustainable food market, Utopia Neutraceuticals Pvt ltd is currently developing a Cost-effective technology which involves the use of food grade microorganisms coupled with the trace metals for industrial production and commercialization of different fortified food products. The startup envisages for inclusion of local manufactured fortified foods in the Public Distribution System (PDS) and Mid-Day Meal Scheme, which can provide metal-dense food at an affordable cost to larger sections of the underserved communities. While sharing his experience he said "I failed in identifying the real opportunity when I started off my journey. One needs to leave behind the academic mind-set and get into the shoes of a real entrepreneur. In academic viewpoint, every piece of science is an exciting opportunity. However, building a sustainable enterprise needs a little detached approach towards science. Although I failed multiple times to get funding support through BIRAC BIG grant but eventually with the mentorship of BIRAC and KIIT TBI, I understood the bottlenecks in my technology, improved my business plan and eventually achieved what we have aimed for".

Pijush Giri

Highly biocompatible and injectable hydrogel for prevention of post-surgical adhesions

India has been producing graduate engineers at breakneck speed over the years. But there are very few among these tech graduates who choose to start their own ventures. One such exceptional example is of Pijush Giri, an M. Tech graduate in Biomedical Engineering from NIT Rourkela, Odisha is one such new age entrepreneur who chooses to dive into the startup ecosystem right after the completion of his engineering. It was during his post-graduation days; he identified a very prominent problem of post-operative adhesion of the tissue with other tissue or organs which causes many complications and increases the therapeutic cost as well. But due to technical challenges, he couldn't figure out the correct framework to proceed with. To overcome this he started building his team with complementary skill sets and framed an idea to develop a hydrogel which can prevent post-surgical adhesion. This simple innovative idea bagged the BIG grant last year. Pijush understands that the entrepreneurial path towards success can be quite challenging but with the help and support from BIRAC mentors and holistic incubation support provided by KIIT TBI , he believes that he can overcome all these odds to create his own sustainable startup.

Dr. Venkatesh Chelvam

RONCOV Diagnostic and Therapeutics Pvt. Ltd.

Indigenous Targeted Radiopharmaceuticals for Detection and Therapy of Prostate Malignancy

The scientific and medical community comes up with breakthroughs that save lives, fighting illnesses and discovering new and better ways to live. And these breakthroughs are not just happening in heavily funded research centers; they are happening at startups headed by enthusiastic scientists as well. RONCOV Diagnostic and Therapeutics Pvt Ltd is one such company that is working on some cutting-edge science in cancer research. Founded in 2019 by a IIT Indore Professor, Dr. Venkatesh Chelvam, an organic chemist and a chemical biologist with interest in synthesis of anticancer natural products, diagnostic and therapeutic applications of new targeting ligands for cancers. Cancer research indicates that prostate cancer (Pca) ranks first in terms of cancer-related deaths among men in the United States whereas in India it ranks second or third among all cancers in Indian men as per the Indian Council of Medical Research (ICMR). Therefore, with the support of BIRAC BIG grant and KIIT TBI, RONCOV Diagnostic and Therapeutics Pvt Ltd is developing new PCa radiopharmaceuticals using indigenous technology which will result in production of accurate cost effective diagnostic and therapeutic tools that can detect and treat all stages of PCa. Dr. Chelvam says "It is a good idea to seek validation of the concept, product, service or methods by participating in grant applications and incubating at incubator like KIIT TBI where you connect with many mentors and listen to experienced players and avoid reinventing the wheel. Success is good and necessary for an entrepreneur, but failures teach lessons for a lifetime and make one stronger. So welcome failures and look for the lessons. Pivoting is a key asset of a successful entrepreneur".

Dr. Subhankar Kumar Singh

Development of antigen detection-based novel and accurate diagnostic approach to detect leishmaniasis

Dr. Subhankar Kumar Singh is a Scientist at ICMR-Rajendra Memorial Research Institute of Medical Sciences, Patna. Being one of the leading parasitology researchers from India at present, with BIRAC BIG support and in collaboration with various international agencies, namely WHO/TDR, BMGF, DNDi, and DST, is working hard to translate his research findings in order to make an impact on the National Leishmania Control Program by the National Vector-Borne Disease Control Programme (NVBDCP), Government of India. While conducting his field survey across primarily healthcare centres in rural settings in Bihar, the state which is one of the worst VL affected areas in the world contributing more than 70% of total KA cases reported and India being one of the six countries which share 90% of global burden of VL, he realized that out of the 38 districts of Bihar, 34 are affected. The population at risk is 34.65 million, with 500 or more cases are detected annually. Working in the field of immunology for over 20 years and with a strong urge to harness the science for meeting the societal needs is the ultimate motivation for Dr. Subhankar to embark his entrepreneurial journey. He and his team is now developing a field based accurate, sensitive and cost effective rapid diagnostic tools that can detect disease in its mildest form which is significantly essential for effective control and reaching the goal of VL elimination. His suggestion to the young aspirants who would like to take up parasitology as a research interest, "Developed nations are mainly working on noncommunicable diseases such as cardiovascular, cerebrovascular, cancer, diabetes, and other metabolic disorders. Developing countries, on the other hand, are mainly dealing with communicable tropical diseases. Research in NTDs is growing up as a challenging and interesting aspect. Hence, young aspirants should also take up parasitology as a research interest".

KIIT-TBI acknowledges the support of...

Address: Campus 11, KIIT-DU, Bhubaneswar- 751024, Odisha
Email: tbi@kiitincubator.in
Web: kiitincubator.in