

# birac

# i3

*Ignite • Innovate • Incubate*

**Global  
Bio-India  
2021**

## Transforming Lives Biosciences to Bio Economy



**Global  
Bio-India  
2021**



Biotechnology Industry Research Assistance Council  
(A Government of India Enterprise)



**Jan-March 2021**

No. 1 Vol. 8



# **birac**

## **Editorial Committee**

**Dr. Shirshendu Mukherjee**  
Mission Director  
Grand Challenges India

**Dr. Supreet Kaur**  
Consultant (Comm.)  
National Biopharma Mission

**Ms. Ginny Bansal**  
Consultant (Comm.)  
Grand Challenges India

## **Design and Production**

Airads Limited, 433, F.I.E., Patparganj, New Delhi 110 092, Email : [airads2013@gmail.com](mailto:airads2013@gmail.com)



## IN THIS ISSUE

<b>Leader's Message</b>	<b>02</b>	<b>BioNest Network Updates</b>	<b>23</b>
<b>Chief Editor's Take</b>	<b>03</b>	Aspire BioNEST	
<b>BIRAC Feature</b>	<b>04</b>	Venture Centre	
Global Bio-India 2021		IIT Madras HTIC MedTech Incubator	
<b>BIRAC Reports</b>	<b>14</b>	Inauguration of ABLEST	
BIRAC'S 9th Foundation Day		ILS Bioincubator Inaugurated	
IP & Tech Management Law Clinic Connect		<b>HR &amp; Admin</b>	<b>40</b>
BIRAC TiE-WiNER Awards		<b>Partnerships</b>	<b>43</b>
Innovation Challenge Award SoCH 2020-21		Grand Challenges India	
4th Meeting of SSC-NTBN		<b>National Programmes</b>	<b>44</b>
BIRAC webinar Series		Make In India	
BIIS-8 Online School		National Biopharma Mission	
		Ind-CEPI Mission	







**Dr Renu Swarup**

Secretary, DBT  
& Chairperson, BIRAC

## Leader's Message

The potential of the Biotech innovation ecosystem and its rapid growth has been well recognized as the key contributors to the growth of the global bioeconomy. Globally there has been a major thrust towards encouraging the growth of Start-ups, entrepreneurs, academia, and industry which is further helping in the development of the Indian Biotechnology ecosystem. India's Biotech Innovation Ecosystem is growing globally with the potential to emerge as the Global Innovation Hub for the world.

India ranks amongst the top 12 preferred destinations for biotech in the world. It gives me immense pleasure to say that the contribution of the scientific community in dealing with the COVID crisis has been unparalleled. The pandemic has truly underlined the role of science in our daily lives. The

biotech sector is growing exponentially in India. It has become the backbone of various industrial sectors and is the driving force of significant transformation. Hon'ble Prime Minister's clarion call to make India a 100-billion-dollar manufacturing hub and 150-billion-dollar industry by 2025 is a testimony of the nation's expectations from the Biotech sector. Atmanirbhar Bharat is one initiative that is truly championing the global visibility of India's innovation proposition.

India is being looked upon as an Innovation hub by the global community and Make in India innovations have carved a niche for itself. There could not have been a better opportunity to host the second edition of Global Bio-India 2021. This global summit brought the best of India's biotechnology innovation ecosystem to the world's attention, as well as the opportunity to learn from the best. The confluence of best practices, ideas, innovations in this event was immense. The event received a great response and participation from the various ministries and scientific agencies. About 8000+ delegates from 50+ countries participated in the event. Policy dialogues, regulators meet, bio-partnering, start-up-conclave, several round tables, were some of the significant highlights from the event. India has proved time and again that it is definitely in an outstanding position to transition from a biotech industry to a bio-economy.

The size of Bioeconomy has grown more than 12% in 2020. We were able to respond so quickly during the pandemic due to previous research work and collaborations such as the collaboration of the National Biopharma Mission launched in 2017. India has set a strong example for the rest of the world on how promoting the culture of science and innovation can result in progress on public health priorities – both within the country as well as globally. We are one of the most innovative countries in the world today, contributing significantly to scientific and innovative solutions.

I am confident that with the vibrancy and enthusiasm shown by this sector and the enabling policies and ecosystem put in place by the government, we will not only achieve our target but also be in a position to sustain this pace of growth. My good wishes to all on the 9th Foundation Day of BIRAC.



**Anju Bhalla**

Joint Secretary DST and MD BIRAC

## Chief Editor's Take

Globally, the pandemic has wreaked havoc on economies. Even in such resilient times, Indian scientists, entrepreneurs, and innovators turned-up with the solutions to deal with the crisis, and gave a boost to the Indian economy as a whole. They illustrated what 'AtmaNirbhar Bharat' and 'Make in India' really means. DBT and BIRAC have played a frontline role to answer the concerns of the scientists, entrepreneurs, and innovators of India.

BIRAC through its various initiatives, like the COVID Research Consortium, COVID Suraksha and the Ind-CEPI Missions is further marching ahead to consolidate and streamline available resources towards accelerated vaccine development. The National Biopharma Mission had been conducting trainings, workshops and webinars to nurture,

maintain, and implement an ecosystem for preparing India's biopharmaceutical technical and product development capabilities to a globally competitive level. BIRAC's Ind-CEPI Mission has been conducting training programs to augment and strengthen the clinical trial research capacity in India's neighbouring and friendly countries. These trainings under DBT's Indian PACT (Partnerships for Accelerating Clinical Trials) programme have received a tremendous response from international participants.

DBT-BIRAC organized the second edition of Global Bio-India (GBI) 2021 from 1<sup>st</sup>-3<sup>rd</sup> March 2021 on a digital platform, along with Confederation of Indian Industry (CII), Association of Biotechnology Led Enterprises (ABLE), and Invest India. The three-day event was based on the theme 'Transforming lives: Biosciences to Bio-economy', and had 24 knowledge sessions, covering diverse aspects of biotechnology. The Hon'ble Union Minister for Science and Technology, Health and Family Welfare and Earth Sciences, Dr. Harsh Vardhan inaugurated the event. The Hon'ble Vice President, Shri M. Venkaiah Naidu, graced the Valedictory and Award function. This mega-biotech congregation ignited a spark among the scientists, entrepreneurs, and innovators of India, to contribute to the betterment of the society. Around 8000 delegates from across the globe attended the event. The response to the GBI 2021 event was overwhelming, and the event has been globally applauded.

BIRAC's team, with the support of DBT and GoI, has been promoting the entrepreneurial mindset in India since its foundation in 2012. BIRAC family has been committed to empower and energize the emerging biotechnology ecosystem, which is projected to have a cascading multiplier effect on the country's target of USD 5 trillion by 2024-25. I am confident, that BIRAC will continue to strive to foster strategic innovations to address the nationally relevant needs.





**Transforming Lives**  
Biosciences to Bioeconomy

## GLOBAL BIO-INDIA 2021

The Department of Biotechnology (DBT), Ministry of Science & Technology, Government of India along with its Public Sector Undertaking, Biotechnology Industry Research Assistance Council (BIRAC) organized the second edition of Global Bio-India 2021 from 1<sup>st</sup>-3<sup>rd</sup> March 2021 on a digital platform. The associated partners for this event were Confederation of Indian Industry (CII), Association of Biotechnology Led Enterprises (ABLE) and Invest India. The first edition of Global Bio-India 2019 at New Delhi was a huge success which saw a participation from over 25+ countries, 190 exhibitors, 2500+ delegates, 300+start-ups, 50+incubators, 60+ Research Institutes, 800+ Bio-partnering meetings and representation from 9 states.

The event showcased India's potential in the biotech sector both within the country and to the international community. The theme for this year was 'Transforming lives' with the tag line 'Biosciences to Bio-economy'.



**DEPARTMENT OF BIOINFORMATICS**  
Ministry of Science & Technology  
Government of India



**BIRAC**  
BIOINFORMATICS RESEARCH ADVISORY CENTRE  
GOVERNMENT OF INDIA



**Global Bio-India 2021**  
The International Summit  
on Bioinformatics & Biotechnology  
**1-3 March 2021: Digital Platform**

Bioinformatics India is recognized as the first of its kind, the only digital India IED & Bioinformatics Summit for 2021. As India progresses on the Bioinformatics journey, Global Bio-India 2021, the largest of its kind, would showcase a paradigm shift.

Represented by Bioinformatics (BIC), Ministry of Science & Technology, Government of India, IED & BIRAC, several internationally renowned industry, research, academic & clinical (IARC) are organizing Global Bio-India Summit 2021 as a virtual international congregate of bioinformatics ecosystem, including international bioinformatics leaders, Chief Executive and Senior Managers, BIRAC, High Potential Scientists, research scientist, clinician, clinician, and the startup ecosystem.

## Destination India

### #1

Topmost of 100 best  
destinations globally

### #2

Product of  
India globally

### #3

Improver of the  
world's economic  
growth

## 2nd

Highest ranked IED India & Drug  
Administration (FDA) approval  
biotechnology parks across the US

## 3500+

Startups

## 3rd

Topmost research  
development in the  
Asia Pacific Region

## 3%

Share in the global  
biotechnology  
industry

## 100+

Biotechnology  
ventures

## Virtual event at a glance

- 100+ Countries
- 200+ Exhibitors
- 1000+ Speakers
- 10+ Sessions

- 100+ Countries
- Awards
- Policy Dialogue
- Country Profiles
- Address and Government's Perspective

- 200+ Researchers
- Global Registration
- Virtualized Ecosystem
- Networking & Meeting
- Startup Pavilion

- 100+ Researchers
- Start-Up Bioinformatics Award Challenge Program
- 1000+ Startups
- BIRAC, IED, IEDS Meeting &

### Who should attend?



Large Hospitals, Bio-Pharma, Endometrial, Immunobiology, Bio-Pharma, Bio-Agriculture, Bio-Energy, Bio-Electronics, Med-Tech, Bio-COS, and CMOs  
 International seeking for business partners and distributors in India and other global markets  
 Investors seeking opportunity to invest in biotechnology sector  
 Entrepreneurs and Domestic Public officials, Regulatory agencies, Procurement officials, Government, Transnational research institutions, Technology Transfer Offices, Experts and Mentors  
 International Biotechnology Industry Association

## A billion reasons to invest in India

with a turnover of **USD 70 Bn**  
in 2000 is expected  
to grow to  
**USD 150 Bn**  
by 2020.

**350+**  
Innovative &  
**200+**  
Direct, Revenue  
and Coaching  
opportunities

**3500+**  
Blindenschrift-Kommunikations-  
systeme weltweit  
**10,000+**  
seit 2005

**800+**  
Core NetTech  
Companies

**48<sup>th</sup>**  
 1998 in October  
 1998 in October  
 1998 in October

**#1**  
KIDZ ranking  
in South Asia

For more information, contact:

© 2000 by John Wiley & Sons, Inc.

[info@openaccesspublishing.com](mailto:info@openaccesspublishing.com)  
[www.openaccesspublishing.com](http://www.openaccesspublishing.com)  
[www.openaccesspublishing.com/submit](http://www.openaccesspublishing.com/submit)  
[www.openaccesspublishing.com/journals](http://www.openaccesspublishing.com/journals)



Global Bio-India 2021 covered all Biotech subsectors with dedicated sessions including India Fights COVID: The COVID 19 Vaccine Journey from Science to Delivery; Health Conclave; Start-up Conclave; Agritech Conclave; Emerging Technologies; Phytopharma & Traditional Knowledge;



Building Capacities for Future India; Clean Energy Conclave; Women Entrepreneurs Conclave; CEO Round Table; Blue Economy; AMR & Neglected Diseases; Precision Medicine; Country Focus & State sessions; International Investors Meet; Regulation and Policies for Global Convergence and many more. All together there were about 30 sessions including workshop, CEO Roundtable, policy dialogues etc. and Bio-partnering that took place during the whole technical programme over a period of 3 days.

The event witnessed the participation from 8400+ delegates, 40+ countries, 50+ international speakers, 1000+ Entrepreneurs & start-ups, 23 Awards Facilitated, 140+ investor-start-up meetings, 150+ exhibitors, 350+ Bio-partnering meetings.



## Day 1 - 1<sup>st</sup> March 2021

Dr. Harsh Vardhan, Hon'ble Union Minister for Science & Technology, Earth Sciences and Health & Family Welfare and the Chief Guest, Hon'ble Union Minister of Finance & Corporate Affairs, Smt. Nirmala Sitharaman along with Dr. Renu Swarup, Secretary DBT & Chairperson BIRAC inaugurated the 2<sup>nd</sup> edition of Global Bio-India-2021 in New Delhi on a Digital platform. The 3-day event showcased the strength and opportunities of the India's Biotechnology sector at national and international level.

Dr. Harsh Vardhan commended DBT - BIRAC for supporting technology-driven 3500+ Entrepreneurs, Startups and SMEs; through various operational models of cooperation and also building up a network of 60 Bio-incubators with more than 5,50,000+ sq. ft. Incubation space. This has helped innovators to create a pool of intellectual wealth (260+ IP filed) and has supported the launch of 200+ products and technologies in the market. The Finance Minister highlighted the budgetary support to R&D and Innovation ecosystem in the country in line with the 'Atmanirbhar' vision. Dr. Harsh Vardhan unveiled the 'National Biotech Development Strategy (NBDS) 2021-2025' and inaugurated the Virtual Exhibition of Global Bio-India.



*Release of NBDS 2021-2025*



*Inaugural of Global Bio-India 2021*



The 'Atmanirbhar Bharat' session addressed how India's campaign of 'Make in India' has translated into 'Atmanirbhar Bharat Abhiyaan' to provide resilience and self-sufficiency to the country. It highlighted the National Priorities, examples from India's experience in turning COVID pandemic challenges into opportunities for developing domestic innovation ecosystem gaining self-sufficiency in requirements e.g., Vaccine, Drugs, Diagnostics, Personal Protective Equipment (PPE) kits, Ventilators, Thermal Scanners, Masks etc. The session was also graced by Dr. Ralf Heckner, Ambassador, Embassy of Switzerland in India and Bhutan; Mr. Marten van den Berg, Ambassador, Embassy of Netherlands in India, Nepal and Bhutan; Dr Vinod Paul, Member, NITI Aayog; Dr. V K Saraswat, Member, NITI Aayog; Mr. Junaid Ahmad, Country Director, World Bank; Prof. M Vidyasagar, Chair, NBDS Formulation Group and Distinguished Prof IIT – Hyderabad; Shri Deepak Bagla, CEO, Invest India; Shri Chanderjit Banerjee, DG, CII and Dr Kiran Mazumdar Shaw, CMD, Biocon Ltd among others.

**This session also witnessed the following releases:**

- Release of BIRAC Technical Compendium 2021
- Biotech Product Showcase [www.biotech-solutions.com](http://www.biotech-solutions.com):  
150+Commercialized Technologies

Subsequent session on 'India Fights COVID' discussed COVID-19 vaccine journey from Science to Delivery, showcasing India's contribution in the COVID Vaccine development for India and for the World. Key National and International efforts have been leveraged by Government of India's to boost vaccine development and manufacturing, catalyze India's vaccine development activities. Engagements with WHO, Coalition for Epidemic Preparedness Innovations (CEPI), Bill and Melinda Gates Foundation (BMGF), Wellcome Trust and Global Alliance for Vaccines and Immunizations (GAVI) have positioned India as key vaccine developer and manufacturer.

A special session highlighting the technological advancements in the development of mRNA Vaccines for COVID-19 was also held, which summarized the efforts for the development of nucleoside modified mRNA molecules, which could resist degradation and destruction by host immune system and their emergence as a new class of drugs.

International Investors Meet was designed to showcase the opportunities by the lens of Department of Biotechnology and BIRAC, Government of India at large in Indian Biotechnology sector and discuss the Investment trends, challenges & opportunities for Startups and Global Venture Capital, Private Equity Funds in the biotech/bio sciences category in India.

The Medical Device Industry in India, at present is evolving at a much faster pace and since there is constant innovation and research work driving the entire ecosystem, the Medical Devices and IVD are becoming more affordable and accessible in the market. In purview of this, a separate 'MedTech Regulatory Workshop' was deliberated on Changing Indian Regulatory Requirements for Manufacturing License, Performing Animal Study and Biological Risk Evaluation, Verification requirements for Proof-of-Concept device and Understanding Usability aspects before initiating the clinical validation.





*Glimpses of Day 1*

## Day 2 – 2<sup>nd</sup> March 2021

The potential of biotech innovation ecosystem and its rapid growth have been well recognized as the key contributors to the growth of global bioeconomy. The Indian biotechnology industry can provide significant economic growth and development to the people of India and around the world. Taking the same into account, The Startup Conclave- Innovation driven Bioeconomy session was organized which had 3 major sections: Innovation focus, Policy Initiatives, Startup showcase; Country Focus for Ecosystem Connect & State Focus; Biotech Clusters.

The Chief Guest, Shri Piyush Goyal, Hon'ble Union Minister of Railways, Commerce and Industry and Minister of Consumer Affairs, Food and Public Distribution, Government of India felicitated product launches and Reports Release as follows:

- Announcement for setting up of Project Development Cell for Biotechnology at BIRAC by Department of Biotechnology in association with Invest India
- Release of Reports:
  - India Bioeconomy Report 2021 by Association of Biotechnology Led Enterprises (ABLE)
  - Realizing Investment Potential For Indian States by Institute of Competitiveness (IFC)
- Launch of TechOla, a single window e-market place app designed by Kalam Institute of Health Technology (KIHT)
- Product Launch by Startups:
  - Emvollo - A portable, battery-powered refrigerator for Vaccine delivery from Blackfrog Technologies Pvt. Ltd.



- Grippy - Battery powered prosthetic hand with a sense of touch and multi-grip control from Bionic Hope Pvt. Ltd.
- KEYAR - Wireless intrapartum monitoring device with DAKSH mobile application for monitoring risky pregnancies from Janitri Innovations Pvt. Ltd.
- easyNav - Computer-guided Surgical navigation system for neuro-surgery Happy Reliable Surgeries Pvt Ltd
- VoDCa - Vortex Devices based on Cavitation Technology for waste water treatment by Vivira Process Technologies Pvt. Ltd

The Minister congratulated the selected startups and reiterated that it is reflection of the contemporary thinking of India's Atmanirbhar Bharat campaign. Shri Piyush Goyal further stressed that the combination of BioEconomy with digital & information economy would lead to flourish Biotechnology sector further.

The session 'Country Focus' saw the participation from 9 countries which enumerated international best practices, initiatives, joint efforts & achievements across the globe and how this can be leveraged through building productive partnerships to scale Biotechnology Innovation Ecosystem globally. The session focused on exploring joint initiatives with DBT-BIRAC in new and emerging sectors within life sciences domain and also prioritized on collaboration beyond funding joint programs in terms of sharing of best practices in regulation, IPR, repositories, research translation and commercialization, support for soft landing of start-ups in distant locations for product development and market for sectoral advancement across the countries.

Session designed to promote investment at the State level, 'State focus: Biotech Clusters' session brought forth a special focus on 'Opportunities and Incentives provided by State Governments' in India. Top officials from 4 States presented the strength of Biotech ecosystem within their respective State and utilized the platform to talk about their upcoming policies, incentive packages, industrial clusters, regulatory ecosystem, research & development opportunities which are imperative to their investment decisions.

'CEO Roundtable Session' included the representatives from the Indian government and Biotech Industries for a discussion focused on how India is making progress to become a Global Biotechnology destination for the whole world. The discussion revolved around how to position India as a bio-manufacturing hub for development of innovative, affordable and accessible products for the country and also for global markets.

The session on 'Diagnostics – a success story', featured the success story of the developers and manufacturers who have been ably supported by various Government initiatives such as grants, activation of testing centers, fast track approvals, regulatory facilitation etc.; and how well the ecosystem has responded with greater measures to not only fulfill the need of the country, but to make India an overall export-oriented destination. A specialized session on Chimeric antigen receptor (CAR) – T cell therapy: Overcoming CART cells CMC Challenges organized by USP Ltd. discussed the CMC requirements, logistics, and regulatory processes that need to be considered for high quality cell therapies from an Indian perspective and list the potential strategies to overcome challenges relating to affordability and scalability.



In recent times, AYUSH (Ayurveda, Yoga & Naturopathy, Unani, Siddha, Sowa-Rigpa and Homeopathy) sector has shown tremendous growth and phyto-pharmaceuticals have created a platform for innovation for the development of new drugs from botanicals. The session on 'Phytopharma & Traditional Knowledge' provided the insights on the phytopharmaceuticals and Traditional Knowledge from AYUSH perspective. The session also focussed on the opportunities of innovation from business and regulatory aspects, and process of drug development through Traditional systems as well as scope and challenges prevalent in this sector.

De-centralized off-grid energy solutions are emerging as a mainstream solution to expand access to modern energy services in a timely and environmentally sustainable manner. The session on 'Clean Energy' focused on the nexus that exists between the health of an individual and how can it be affected by providing clean energy and environment and explored the role of innovation on the intersection of clean energy and human health. Hon'ble Minister for Petroleum & Natural Gas & Steel Shri Dharmendra Pradhan, graced the session & announced the SoCH Awards as follows:

### SoCH (Solution for Community Health) Awards

- Ohm Clean Tech Private Ltd.
- Shayonam Technologies Pvt. Ltd.
- Energy Swaraj Foundation
- Dr Ajay G. Chandak
- Mr. Arun Chauhan & Ms. Sejal Mishra
- Dr. V. Karthikeyan
- Dr. Nishant Gopalan
- Dr. Muthukumar P
- Mr. Meraj Ahmad

A power packed session on 'Pioneer the Possible – Precision Health' deliberated on the collaborative opportunities between Indian and Swedish Industry, researchers, agencies, incubators and start-ups in Precision Medicine and Data-Driven Life Sciences (DDLs). Infectious diseases, cardio metabolic diseases, cancer, and rare genetic disorders have been identified as priority areas for precision medicine.

A specialized 'FIRST Hub' session resolved queries of Startups, Entrepreneurs, Researchers, Academicians, Incubation Centers, SMEs, etc. related to Regulatory pathways and Regulation, Funding opportunities, Mentorship, Investment opportunities, Intellectual Property and others.

Entrepreneurship among women has the power to change the economic and social trajectory of a country. The session on 'Women Entrepreneurs Conclave' highlighted various initiatives and measures taken by India to boost women entrepreneurship. This session also brought together women leaders from across the globe to share their experiences highlighting the challenges and learnings from their respective experiences.

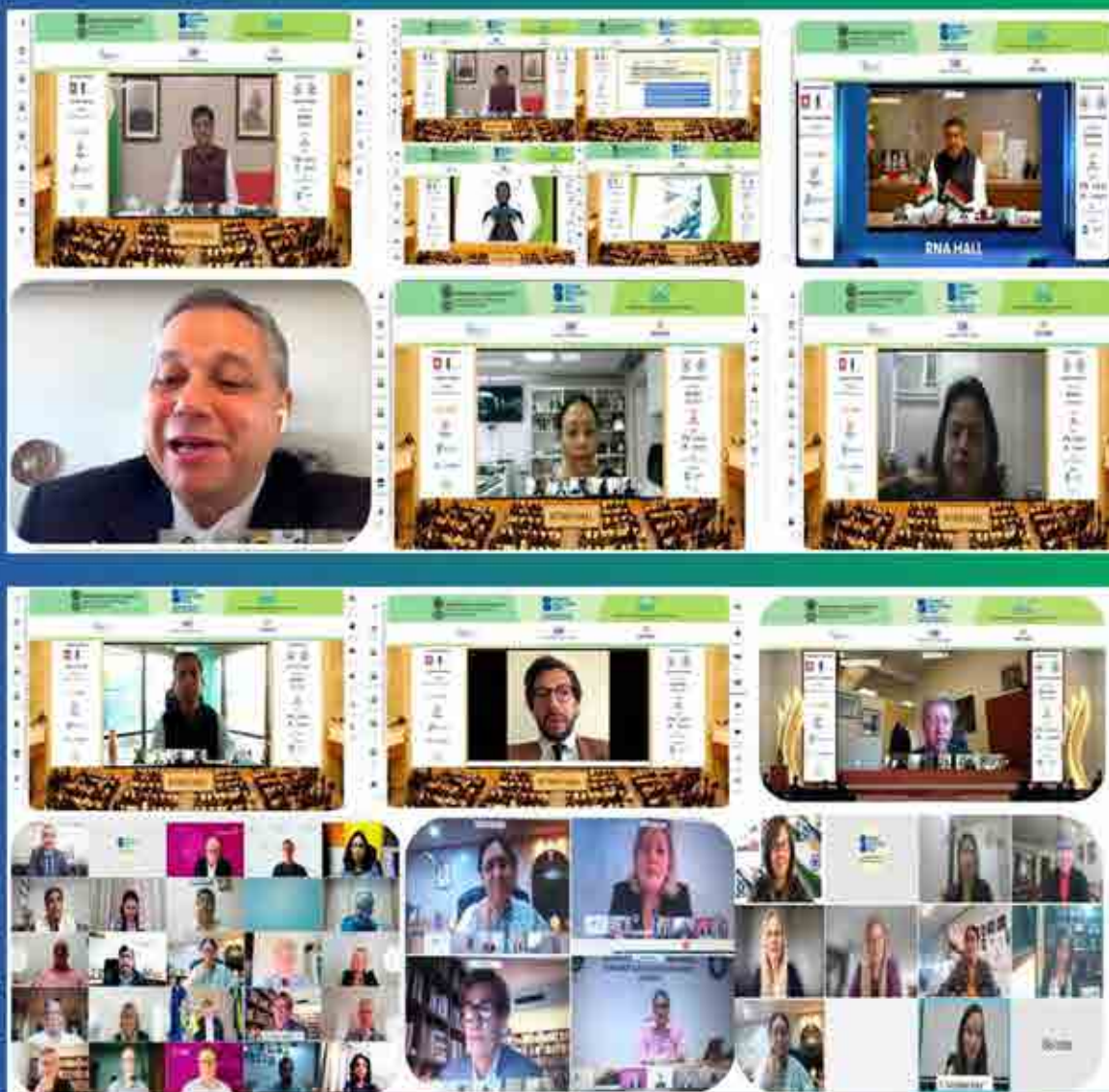
Following Women in Entrepreneurial Research Awards by BIRAC-TiE Delhi NCR, were announced during the session:



## WInER (Women in Entrepreneurial Research) Awards by BIRAC-TiE Delhi NCR

- Dr. Mousumi Mondal, Mallipathra Nutraceutical Private Limited
- Ms. Menaka Gurnani, Hidaa Life Sciences LLP
- Dr. Ruby Gupta, Duosis Bio-Innovations Pvt. Ltd.

A focused session on 'Blue Economy' discussed different aspects for the sustainable use of marine resources. United Nations agenda on sustainable development is on conservation, sustainability and use of oceans, seas and marine resources for increasing the economic benefits to Small Island developing states and least developed countries for sustainable use of marine resources, including sustainable management of fisheries, aqua culture and tourism.



*Glimpses of Day 2*



## Day 3 – 3<sup>rd</sup> March 2021

The final day of the event commenced with session on 'Building Capacities for Future India'. The session highlighted and showcased the existing initiatives and extensive contribution towards capacity building in the country. In addition, the session on Building Entrepreneurial Culture was designed to discuss the initiatives, opportunities and challenges towards building a strong entrepreneurial culture with special focus on grassroots innovations.

Availability of early stage funding has been one of the major challenges faced by Biotech Start-Ups; Biotech Ignition Grant (BIG) scheme of DBT/BIRAC is one of the prominent opportunities available to individual entrepreneurs and early stage start-ups for funding risky innovative ideas. BIG has revolutionized the landscape of early stage funding in biotech sector by supporting 550+ innovative ideas. The 'BIG Leap' session discussed the successful case studies of few early stage start-ups supported through BIG and deliberated on the current challenges faced by them.

Considering AMR as a National priority under the National Action Plan endorsed by the Government of India, the Department of Biotechnology (DBT) has initiated a major Mission on Antimicrobial Resistance. A specialized session on 'AMR & Neglected diseases' highlighted the technological advancements in the development of mRNA Vaccines for COVID-19 and explored feasible strategies to support innovative technological interventions to tackle problems associated with Neglected Tropical Diseases (NTDs), Antimicrobial Resistance (AMR), and other infectious diseases in India.

Additionally, a panel discussion on 'Regulation and Policies for Global Convergence' was organized which was led by CDSCO. The session involved key Industry Stakeholders, Regulators and Government representatives who deliberated on the Indian regulatory system, major challenges and road ahead to enhance the Regulatory facilitation for Global convergence.

Department of Biotechnology's ongoing Biotech-Kisan Hubs offers an alternate channel for testing novel ideas and technologies directly with farmers thereby minimizing the time involved in trials and validating the use-cases and adoption of proven technologies through large-scale field demonstrations at the grassroots level. Taking the same into account, a dedicated session 'Agritech Conclave' was designed with agritech start-up ecosystem leaders and stakeholders for leveraging the Kissan Hub and Agri Biotech Cluster for further growth of agribusiness-based start-ups and SMEs in the country to address the needs of our farmers in a better way for Atmanirbhar Bharat Abhiyaan.

Subsequent session on 'Enhancing Capacities in Medtech Ecosystem' involved a discussion among all the Medtech Prototyping, testing, manufacturing and scale-up facilities for their wider outreach and assistance to the medical device innovators to develop innovative and indigenous products at affordable costs. A focused session on 'Emerging technologies' covering areas like Health, Food, Energy and Environment was also organized. The participants deliberated on the scope & potential of emerging technologies i.e Synthetic Biology, Smart Proteins, Alternate Dairy products, New Analytical tools, Waste to values etc.

India-US ties with an intent for stronger partnerships are taking myriad of 'policy' measures to rampant evolving landscape towards manufacturing resilience, improving affordability, accessibility and quality of care in the biotechnology sector. On similar lines, USISPF organized a session on theme of 'Learnings from Pandemic and Future of US-India Collaborations in BioPharmaceuticals'. The session involved stakeholders from US Biotech industry and policy 'makers' deliberating on the



opportunities and industry views to establish win-win partnerships in bio pharmaceutical sector.

During Valedictory & Award ceremony, BIRAC announced and virtually felicitated the winner under different categories in the presence of the Sh. Venkaiah Naidu, Hon'ble Vice President of India and Dr. Harsh Vardhan, Hon'ble Union Minister of Science & Technology; Health & Family Welfare and Minister of Earth Sciences.

Details of the Awards, Announcements, and Releases are as follows:

## **BIRAC's Innovators Awards**

- Biomedical Devices & Diagnostics
  - Voxelgrids Innovations Private Limited
  - 4s Medical Research Pvt. Ltd.
- Therapeutics, Vaccines & Drug Delivery
  - Himedia Laboratories Pvt. Ltd.
- Agriculture, Veterinary Science And Aquaculture
  - Indo-American Hybrid Seeds (India) Pvt. Ltd
- Energy, Environment & Secondary Agriculture
  - Mallipathra Nutraceutical Private Limited (Collaborator: Sir M Visvesvaraya Institute of Technology, Bangalore)
  - Kanpur Flow recycling Private Limited

## **Best Start-up Awards**

- Agriculture & Allied areas category
  - SNRAS System Pvt. Ltd.
- Medical devices & diagnostics category
  - InAccel technologies Pvt Ltd.
  - Test Right Nano systems

## **BIRAC's Best Bio-incubator Award**

- IKP Life Science Incubator, under Mature category
- ASPIRE BioNesTBioincubator, under Emerging category

**Release of Indian Pathogen Priority List by Dr. Harsh Vardhan, Hon'ble Union Minister, Science & Technology; Health, and Family Welfare and Minister of Earth Sciences.**

The 03 Days event successfully concluded with the Event summary of Global Bio-India 2021 by Dr. Manish Diwan, Head-SPED, BIRAC and address of Ms. Anju Bhalla Joint Secretary, DST & MD, BIRAC. Dr. Renu Swarup Secretary, Department of Biotechnology congratulated the whole biotech community for exhibiting the strength of fulfilling the goal of AtmaNirbhar Bharat and conveyed her gratitude to all for putting forth a magnificent event followed by closing remarks from CII, ABLE & Invest India. The Vote of thanks were given by Dr. Bhuvnesh Shrivastava, Manager Make in India Cell of BIRAC.



The Biotechnology sector has emerged as an integral part of the Indian economy over the past few decades, and the Government of India is playing a transformative and catalytic role in building a \$150 Bn bio-economy by 2025. The sector has been recognized as a sunshine sector which has potential to contribute effectively to the national target of \$ 5 Trillion economy by 2024-25. The second edition of Global Bio-India 2021 held successfully through virtual mode and attracted large pool of industry leaders, academia, innovators, researchers, startups, medium and large companies for facilitating the innovation ecosystem in India, 'moving towards Atmanirbhar' Bharat. The event also witnessed exhibitors showcasing their products and drawing the attention of potential investors. The Bio-partnering event provided an interactive platform to investors and stakeholders for one-to-one connect.



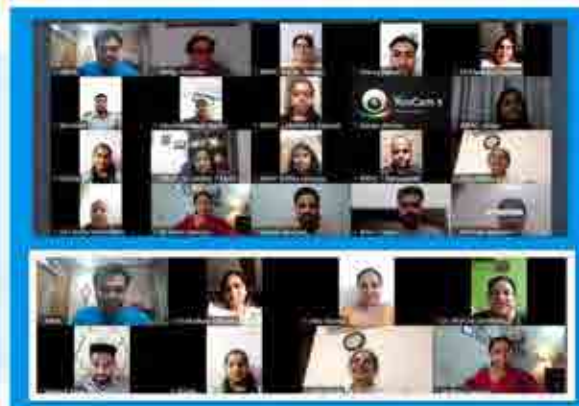
### *Glimpses of Day 3*

The multi-faceted three-day event showcased the strengths and opportunities of India's biotechnology sector at the national level and to the global community. The knowledge that has been generated requires wider dissemination throughout the biotech sector, from academia, researchers, innovators, startups to industry stakeholders to work in a collaborative manner for developing a \$100 Bn Bio-manufacturing Hub and achieving the target of \$150 Bn Bioeconomy through Biosciences by 2024-25.



## BIRAC's 9<sup>th</sup> Foundation Day

Biotechnology Industry Research Assistance Council (BIRAC) celebrated its 9<sup>th</sup> Foundation Day on March 20<sup>th</sup> 2021, via a virtual platform. Since its inception in 2012, BIRAC has been diligently working towards enabling and empowering the biotech innovation ecosystem of the country. The theme for the 9th Foundation Day was *'Scaling Biotech Innovations for Societal Unmet Needs'*.



Ms. Anju Bhalla, Joint Secretary, Department of Science and Technology, and Managing Director, BIRAC, welcomed all the participants at the outset of the event and congratulated BIRAC team on the successful completion of nine years. She inspired the BIRAC team to continue creating success stories in the foreseeable future, especially in unprecedented times like the current pandemic.

A short video featuring the wonderful journey of BIRAC for nine years was captured, showcasing the schemes, partnerships, success stories, impact, efforts for COVID-19 and highlights of various trainings/workshops.

Secretary, Department of Biotechnology and Chairperson, BIRAC, Dr Renu Swarup, shared BIRAC's inspiring journey in these nine years, highlighting the initiatives and achievements of BIRAC, and congratulated the entire team on the 9<sup>th</sup> Foundation Day. Dr. Renu Swarup motivated the BIRAC team to keep working to achieve greater heights. She further opined that in order to move ahead for a successful journey, one must understand what are the learnings from the past and what is the way forward.

Mr. Binod Kumar Bawri, Founder, Think India Foundation, delivered the keynote lecture on 'Scaling Biotech Innovations for Societal Unmet Needs'. Mr. Binod highlighted in his talk that there will be an evolutionary change in the way proteins are prepared, over the next ten years.







Dr Manish Diwan, Head, SPED, moderated a panel discussion with the innovators/ entrepreneurs on 'Scaling Biotech Innovations for Societal Unmet Needs' to discuss about how the BIRAC supported start-ups have been scaling up to match with the societal needs. Dr. Diwan focussed on how BIRAC has been boosting the growth of affordable and internationally competitive technology-driven products to meet unmet needs of society by nurturing biotech innovations and start-up ecosystems in India. Representatives from MicroGo, BioPrime Agri Solutions Pvt. Ltd., Hanugen Therapeutics, Molbio Diagnostics Pvt. Ltd., were some of the supported innovations by BIRAC, that were a part of the panel discussion.

Dr Shirshendu Mukherjee, Mission Director, Grand Challenges India, National Biopharma Mission and Ind-CEPI, delivered the vote of thanks, emphasizing on the fact that the nine-year journey wouldn't have been possible without the vision of BIRAC's founders, the Department of Biotechnology, and the Ministry of Science and Technology.

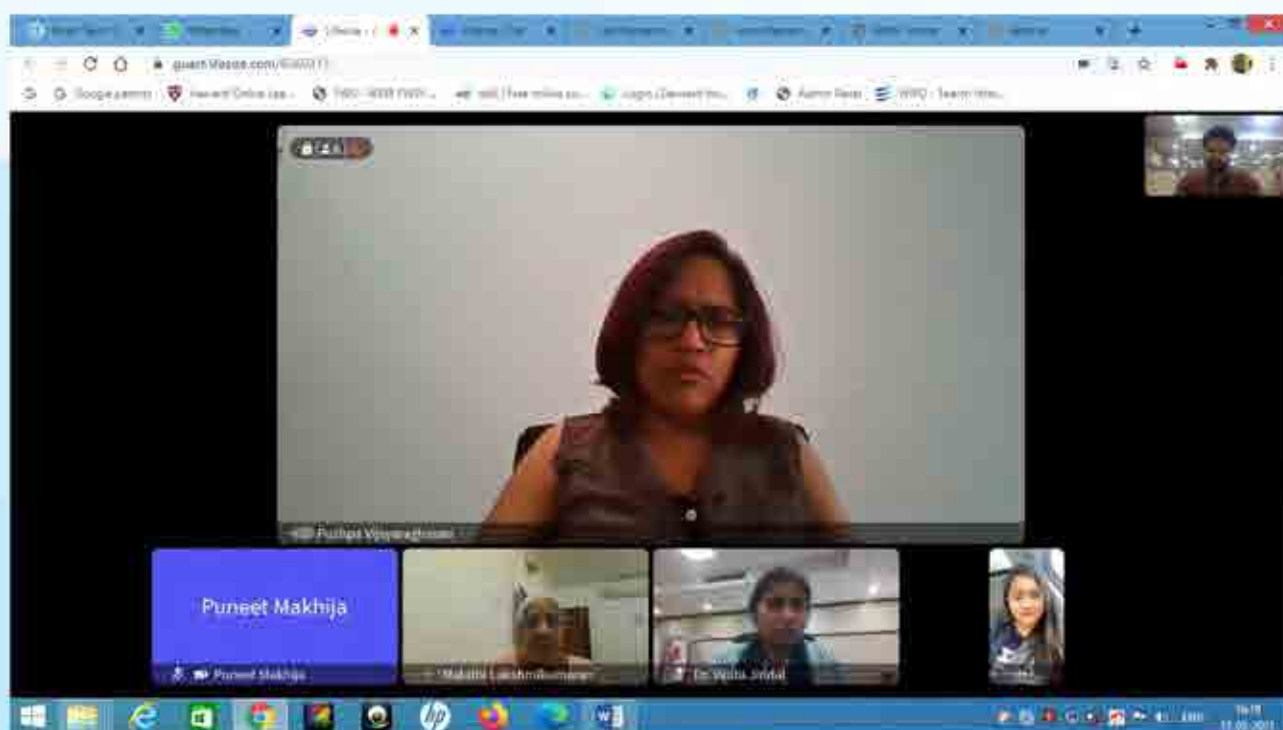




## IP & Technology Management Law Clinic Connect

BIRAC has initiated '**IP & Technology Management Law Clinic Connect**' program that shall act as a counsel to the Small Business, Startups, Institutes, Universities, Companies, and entrepreneurs to advise and mentor broadly on Patentability Criteria and Patentable subject matter, on Foreign filing strategy, IP Management, Technology Transfer and Commercialization Process and Strategy, Patent & Technology Valuation and requirement of regulatory approvals while utilizing the Biological Resources.

The Clinic operates on Second Friday of every Month through Video conferencing from 4 pm to 6 pm. BIRAC has conducted 3 sessions so far where around 18 entrepreneurs have interacted with the experts on the diverse matters.





## BIRAC TiE-WInER AWARDS

BIRAC is playing a significant role in promoting 'women entrepreneurship' in the country. BIRAC TiE Women in Entrepreneurial Research (WInER) Award is one such effort. This is a dedicated award to reward and recognize woman entrepreneurs in Biotech sector. The Award is announced annually in partnership with TiE-Delhi NCR. Under this national award programme, 15 women entrepreneurs working on the innovative ideas that have large societal impact, are awarded INR 5 lakhs each along with mentoring, handholding, an opportunity to participate in an intensive and customised accelerator programme. After the accelerator program, the 15 contestants compete through Business Pitching for the award of INR 25 lakhs each to 3 final winners. So far, 45 awardees have been felicitated through its 3 successful editions. The 3 final winners of the 3<sup>rd</sup> edition of WInER Award were felicitated by Dr Kiran Majumdar Shaw, Executive chairperson Biocon and Dr Renu Swarup, Secretary, Department of Biotechnology, GoI during Global Bio India 2021.

### The Awardees Are:

#### **Mousumi Mondal, Mallipathra Nutraceuticals Pvt. Ltd.**

Mallipathra Nutraceutical has developed novel technique to grow Cordyceps mushrooms on non-vegetarian and vegetarian media in an artificial environmental condition within 60 days.

#### **Menaka Gurnani, Hidaa Life sciences Pvt Ltd**

Hidaa Life sciences has developed a natural vitamin D source product called, 'D'bello ®', which is chemical free, 100% vegan, whole food nutrition from vegetable, cost effective and cooking stable.

#### **Ruby Gupta, Duosis BioInnovations Pvt Ltd**

Duosis BioInnovations has developed a product called 'Jellnex', a novel, cost-effective and sustainable source of edible hydrocolloid by utilizing tamarind seeds. Jellnex will replace Pectin in food industries. Currently, Pectin is imported to India.





## **BIRAC Innovation Challenge Award SoCH 2020-21 Stage-1 Awardees Announcement**

BIRAC in association with Social Alpha and BIRAC's Bio-NEST Incubator Clean Energy International Incubation Centre (CEIIC) launched the 2<sup>nd</sup> call of the BIRAC-Innovation Challenge award, SoCH (Solution for Community Health) 2020-21. The challenge is designed to identify and support promising technologies that can be translated into an efficient solution which addresses the issues of community health. This SoCH challenge's theme is 'Innovative, Efficient and Affordable Solutions for Clean Cooking in Rural and Community Settings'. The expression of interest (Eols)/ proposals were invited in the areas of Biomass, Electricity, LPG, Solar and Biogas based cooking solutions from both individuals and companies. Selected proposals would be supported to develop proof of concept including designing, developing and acquiring Voice of Customer from the field deployment.

A 130+ Eols were received at the national level that were evaluated through a multi-phase process, including a pitch to the expert jury members. The SoCH stage-1 awardees were chosen based on the grounds of Technological Innovation, Stage of the technology, Value proposition, Product-Market fit, focus on Affordability and Accessibility, potential Socio-economic impact and Path to market.

The Awardees were declared by Shri Dharmendra Pradhan, Hon'ble Minister for Petroleum and Natural Gas and Steel, Govt of India in the Global Bio-India 2020-21. Among the awardees, there were 3 companies and 6 individual applicants. These include - Ohm Clean Tech Private Ltd., Shayonam Technologies Pvt. Ltd., Energy Swaraj Foundation, Dr. Ajay G. Chandak, Mr. Arun Chauhan & Ms. Sejal Mishra, Dr. V. Karthikeyan, Dr. Nishant Gopalan, Dr. Muthukumar P, and Mr. Meraj Ahmad. The selected awardees proposed solutions include Solar PV Induction based hybrid cooking, Solar PV Salt Battery Induction based cooking, Solar Steamer with Autoclaving for Community Cooking, Biogas based units, Smart packaging for household use, and Improved Biomass Stove. The awardees were further assisted with a grant prize up to INR 5 lakh each meant to support the development of Minimal Viable Prototypes besides Incubation and Mentorship.

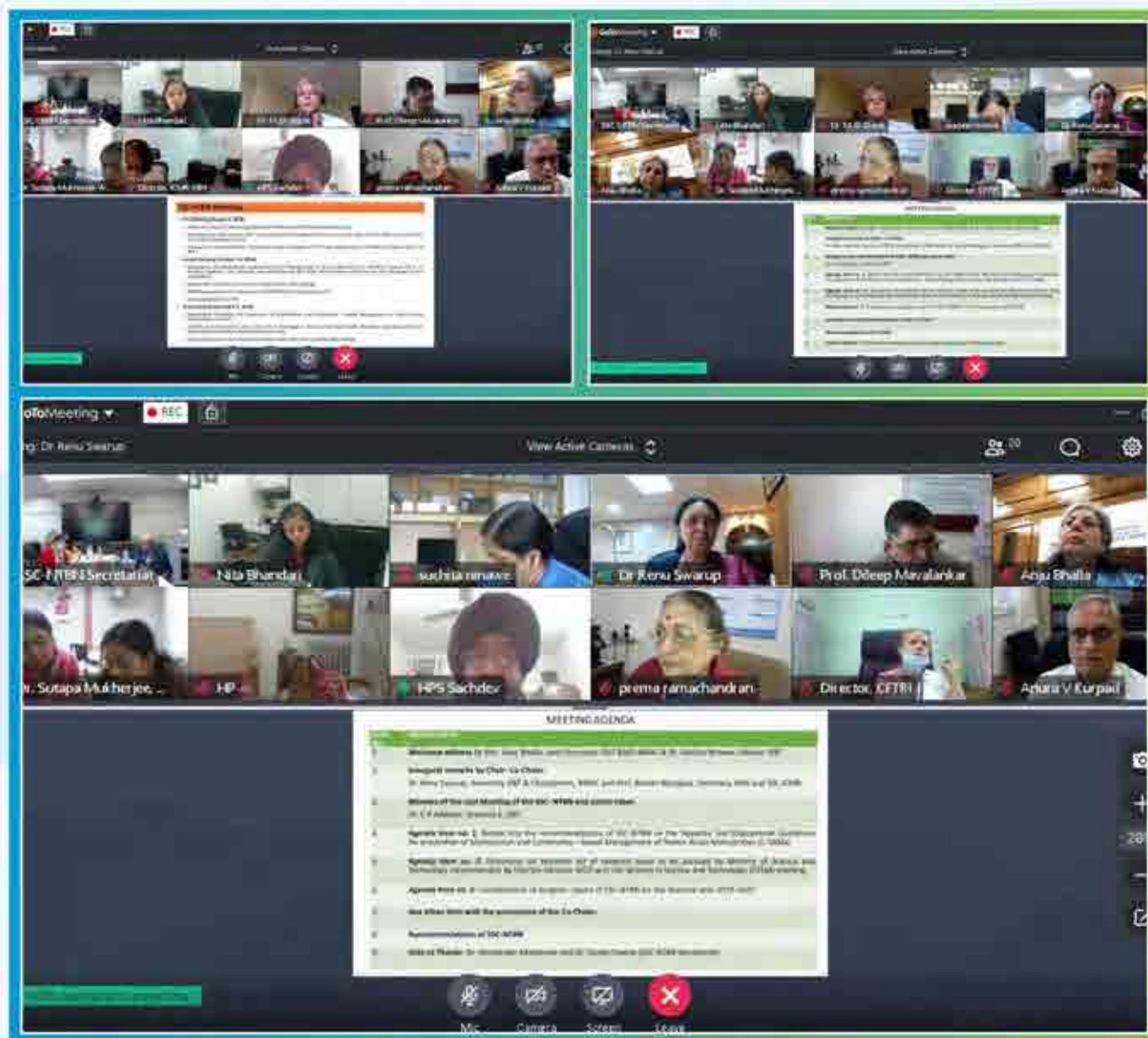
The awardees received appreciation for recognizing the need of clean cooking innovations and providing solutions that can potentially address the problem of health and environmental hazards associated with the traditional cooking practices.



## 4<sup>TH</sup> MEETING OF SCIENTIFIC SUB-COMMITTEE OF NATIONAL TECHNICAL BOARD ON NUTRITION (SSC-NTBN)

A Scientific Sub-Committee of National Technical Board on Nutrition (SSC-NTBN) was constituted by NITI Aayog with Secretary, DBT and Secretary DHR as Co-Chairs to make technical recommendations to National Technical Board on Nutrition (NTBN).

Fourth meeting of SSC-NTBN was held on January 27, 2021 in which operational modalities of 'Appetite Assessment Test' under 'Operational Guidelines for Prevention of Malnutrition and Community based Management of Severe Acute Malnutrition (C-SAM)' were discussed in detail. The committee also decided to identify and propose research questions for initiation of relevant projects in mission mode. Expansion of the board and work area is also under process.





## BIRAC WEBINAR SERIES

ON

### 'Protecting AI (Artificial Intelligence) based inventions through Patents'

BIRAC organized series of webinar on 'Protecting AI (Artificial Intelligence) based inventions through Patents' and 'Patenting and Licensing Landscape of CRISPR/Cas revolutionary technologies' on 22<sup>nd</sup> & 23<sup>rd</sup> March, 2020. Webinars were designed to sensitize the Start-ups, Academic Scientists, Entrepreneurs and SMEs on the following:

- Patentability requirements of AI based inventions, key issues surrounding the protection of AI technology through Patent and possible strategies to protect AI based inventions
- Foundational patents involved in CRISPR/Cas9 technologies, recent developments in CRISPR/Cas licensing and surrogate licensing model for CRISPR/Cas

Both the webinars were well attended by around 60 participants from academic institutes, medical colleges, start-ups and aspiring entrepreneurs engaged in life science sector.

The first webinar 'Protecting AI based inventions through patents' was delivered by Mr. Tarun Khurana to sensitize the participants on patentability requirements for AI based inventions and strategies to be followed while applying patent for such inventions.

Second webinar was delivered by Dr. Malathi Lakshmikumaran on 'Patenting and Licensing landscape of CRISPR/Cas revolutionary technologies' to apprise the participants on the licensing landscape of CRISPR Cas9 technologies and the foundational patents involved in CRISPR/Cas9 technology.





## BIRAC WEBINAR SERIES

### "Protecting AI (Artificial Intelligence) based inventions through Patents"



**Mr. Tarun Khurana,**  
Founding Partner, Khurana and  
Khurana, Advocates and IP  
Attorneys

**Learn about:**

- Patentable requirements for AI based inventions
- Key issues overruling the protection of AI technology through Patent
- Incentivizing for AI based inventions
- Strategies for Protecting AI inventions

**Session Moderators:** Dr. G. Balakrishna, Balakrishna, Mohan, Khurana, Sharda  
**Co-Moderators:** India's Most IP's Technology Management, IIT-Delhi  
**Hosts of Session:** Dr. Pooja Shah, Co-Ed, Women's IP's Technology Management  
**BIRAC**

Target Audience: Start-ups, Researchers, Scientists

Registration Link: <https://calendar.google.com/calendar/invite?source=calendar>

**Registration is free and Webinars**

Connect: [www.linkedin.com/company/birac/](https://www.linkedin.com/company/birac/)



**March**  
**23**



**4:00 pm to 6:00 pm**

Webinar organized on 22<sup>nd</sup> March, 2021

## BIRAC WEBINAR SERIES

 **BIRAC**  
Bio Innovation Research and Advanced Consulting

### Patenting and Licensing Landscape of CRISPR/Cas Revolutionary Technologies

Learn about:	Speaker
<ul style="list-style-type: none"> <li>Fundamental Patents involved in CRISPR/Cas Technologies</li> <li>Patent interference proceedings of the CRISPR/Cas</li> <li>Recent developments in CRISPR/Cas licensing</li> <li>Surrogate licensing model for CRISPR/Cas</li> <li>Right to use CRISPR/Cas based tools</li> </ul>	 <p style="text-align: center;"><b>Dr. Malathi Lakshminarasimhan, Executive Director, LIC</b></p> <p>Headquarters: 1st Floor, Madhavai Nagar, Wilson Terrace, Gopal Chandra Road Road 19 &amp; Technology Management, BIRAC Floor of Thiruv. Dr. Vignu Jindal, Chief Manager - IT &amp; Technology Management, BIRAC</p>



**March 31**



**Share now, Disseminate, Streamline**  
**10:00 AM - 12:00 PM**

**Registration Link:** <https://www.google.com/calendar/event?time=20180331T100000&time2=20180331T120000>

**Registration by Email and WhatsApp**

Webinar organized on 23<sup>rd</sup> March, 2021



## **BIIS-8 ONLINE SCHOOL**

### **SITARE BIIS: HONING SKILLS AND CAPABILITIES OF YOUNG STUDENTS**

Biotech Innovation Ignition School (BIIS) is a 3-4 weeks residential workshop organized by BIRAC's SITARE Partner, SRISTI. Upto 4 such workshops are conducted annually and are focused at providing hands-on-training to Under Graduate Students for biotech entrepreneurship and grassroots innovations. The BIIS empowers students to work towards developing solutions with grassroots applications for societal good through validation of traditional knowledge, value-addition and product development.

During COVID-19 pandemic, 4 virtual sessions of BIIS have been organized. BIIS-8 was organized from 14<sup>th</sup> Jan to 25<sup>th</sup> Feb, 2021. The focus, as before, was to build the capacity of primarily undergraduate students to develop skills in the field of phytochemistry, pharmacognosy, extraction and separation of phytocompounds, microbial diversity screening, pest control and understanding of the inherent processes including patent process, biostatistics etc.

Dr. Renu Swarup, Secretary, Department of Biotechnology, and Chairperson, BIRAC addressed the young students during inaugural session of BIIS-8. She emphasised on the need to learn about innovation, creative problem solving, and entrepreneurship from the course.

(Inaugural lecture link: <https://www.youtube.com/watch?v=2bQ3SII021Q>)

A total of 49 students participated in the course (including students from aspirational district and from tier-II and tier-III cities). More than 25 Expert live lectures, videos and live experiments were used to build the capabilities of the students. Purpose behind BIIS is to develop a nursery of young minds for pursuing start-up/entrepreneurial opportunities in future. The pursuit of excellence was reinforced through learning about the real life stories and interaction with distinguished scientists of the country.

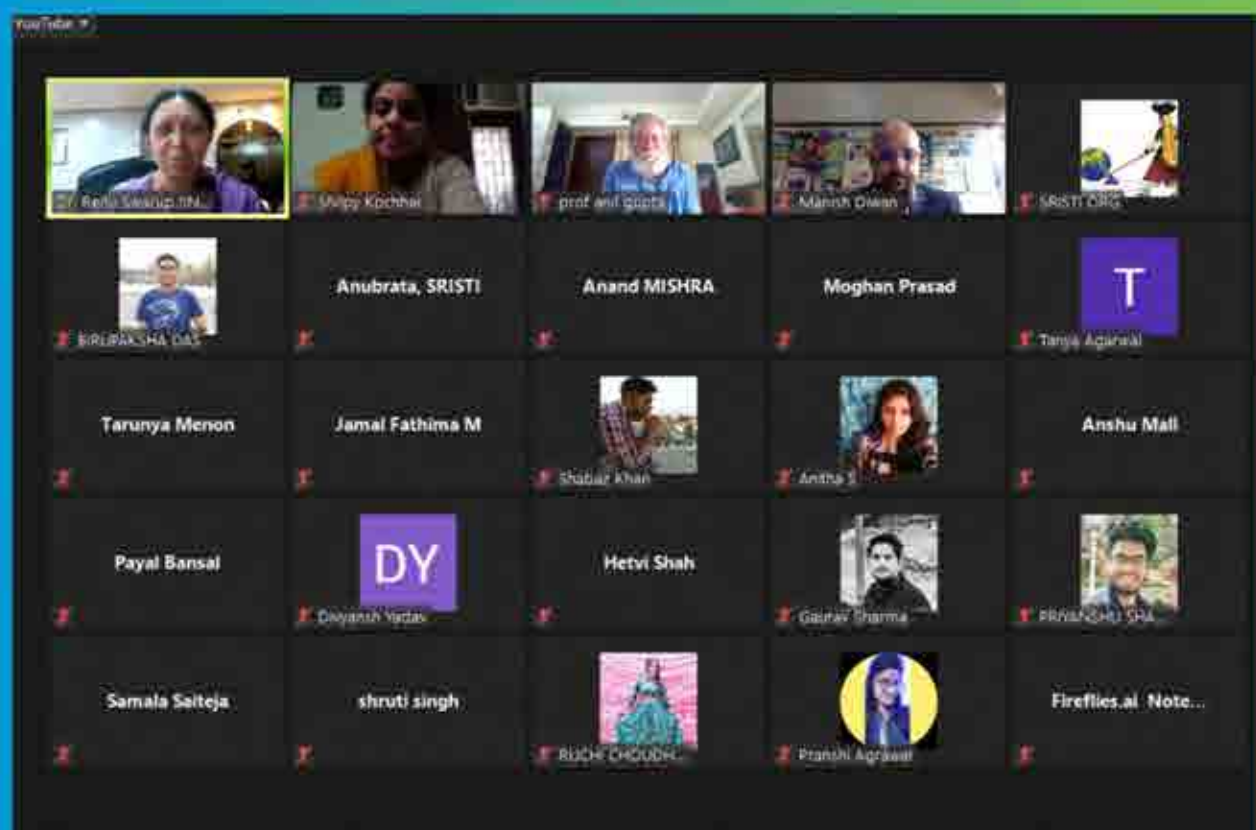
The online school offered a rich learning programme comprising lectures by experts in domains including microbiology, agriculture and veterinary biotechnology, pharmacognosy, herbal drugs and regulatory aspects, data science and bio informatics, COVID-19 management strategies, biomedical sciences and bioengineering. Live experiments and demonstrations using lab equipment were also conducted by the SRISTI team. The students were also provided awareness about Entrepreneurship opportunities in biotech sector by Ms Shilpy Kochhar, Sr Manager, Entrepreneurship Development, BIRAC. Startups shared their journeys and Bioincubator heads presented the spectrum of support services offered by Incubation system.

The valedictory session of online BIIS-8 was chaired by Dr RA Mashelkar, Former Director General, Council of Scientific and Industrial Research (CSIR), and the Chair of SRISTI management board. Dr Manish Diwan, Head, Strategy Partnerships and Entrepreneurship Development, BIRAC also addressed the students during valedictory session.



Key benefits of BIIS to UG students include skill and perspective development about:

- basic concepts in applied biotechnology
- latest technological advancements in life sciences and bio-engineering
- validation of grassroots innovations and other applications in life sciences and
- taking up simple experiments at home during online learning to develop bias for solving practical problems.







## ASPIRE-BioNEST at University of Hyderabad



ASPIRE-BioNEST, formed as a knowledge-based life science incubator with a synergistic vision efforts of University of Hyderabad to develop entrepreneurial ecosystem and the national ecosystem development of BIRAC in life sciences. It nurtures innovation and entrepreneurship in scaling technologies of startups encompassing the Agriculture, Biotechnology, Healthcare, Pharmaceutical, and allied areas of life sciences. With a cumulative space of about 20,000 SqFt, ASPIRE-BioNEST is a deep science plug-and-play incubator with dedicated laboratory spaces of varied sizes enumerating to 11,100 SqFt for incubation, equipped with modern instrumentation placed in common/shared areas of balance space to perform predominantly envisioned translational life sciences research by startups and individual entrepreneurs. Presently, ASPIRE-BioNEST hosts Incubation to 26 startup companies and individuals in co-working spaces, and serving the startups who are actively engaged in addressing the innovations in the fields viz. medical requirements, environment protection, agricultural innovations, human wellness, animal ethics etc. It is also committed for supporting young budding individual entrepreneurs through pre-incubation programs. Located on the 3<sup>rd</sup> Floor of School of Life Sciences of UoH, ASPIRE-BioNEST gives a Spalding View of wide corridors with plenty of light with buzz happening from incubatees seamlessly interacting with the students, researchers, faculty, and visitors.



*Inauguration of ASPIRE-BioNEST  
at University of Hyderabad*



## Elevation and Location of ASPIRE-BioNEST at University of Hyderabad

ASPIRE-BioNEST was inaugurated commemorating National Science Day on 28<sup>th</sup> February, 2018 by renowned Biochemist Prof. G. Padmanaban, Professor of Biochemistry of Indian Institute of Science, Bangalore – who applauded it 'By Far, The Best Bio-incubator ever visited'. Various domestic and international visitors of eminence of science and entrepreneurship have hailed it as the "Hidden Jewel" gave enough confidence to the team that made it established, became fully functional by June'18 for incubation, and sailing smoothly with self-sufficiency criterion established by its management cum advisory and project appraisal committee. These two committees provide steering guidance on the governance of ASPIRE-BioNEST, and, identifying prospective incubatees through rigorous selection criteria, respectively.

University of Hyderabad (UoH), established in 1974, has been recognised recently as the 'Institute of Eminence'. UoH created over 40,000 SFT plug-and-play incubation space and created a section-8, not-for-profit company 'Association for Scientific Pursuits for Innovative Research Enterprises (ASPIRE)' that manages all of its innovation ecosystem through incubation and mentoring activities. The three incubators, namely, TBI, TIDE, and BioNEST funded by various government funding bodies, NSTDB of DST, MEITY, and BIRAC of DBT, respectively, are already function under ASPIRE. ASPIRE, as part of taking care of its incubators' self-sustenance, offer two business models of incubation with or without equity with startups. These business models generate revenue (cash-in-hand) or equity (matured valuation of investment) from the startup companies which take benefit according to their choice. The uniform and normalized monthly per SFT charges across incubators bringing self-sustenance to each incubator, and not burdening the incubatees.







*Central Instrumentation  
and Cell-culture Facilities  
of ASPIRE-BioNEST*

*Fermentation  
(16L and 50L Capacity)  
Facility of ASPIRE-BioNEST*





The facility has been recognized by Department of Scientific & Industrial Research (DSIR), and is issued an Institutional Biosafety Committee (IBSC), while and at least 10 competitive grants have been bagged by its start-ups in various forums. ASPIRE-BioNEST is equipped with the best-in-class scientific equipment where most of the Lifesciences research can be performed. The facility has culture rooms to handle Microbiology and Animal cell culture experiments, a BSL-2+ lab to conduct research on pathogenic organisms. The common instrumentation facility is capable of handling complete upstream and downstream processing of biotechnological products. ASPIRE-BioNEST also established a bioreactor facility in association with M/s Scigenics Biotech Pvt. Ltd under a unique Built-Operate-Manage Model. ASPIRE-BioNEST arranges interactive meetings, with invited notable speakers and different subject matter experts to improve the domain specific knowledge, under the fond memory of Dr. Yellapragada Subbarao (Dr. YSR), great Indian Innovative Scientist. On this occasion ASPIRE-BioNEST felicitates the best publications that has innovative research component with Dr. YSR gold medal and a cash prize. ASPIRE-BioNEST also takes pleasure serving to all its incubatees during the COVID LOCKDOWN **by being available 24/7/365** making sure the incubatees have safe and secured access to their labs. Since inception, ASPIRE-BioNEST has nurtured about 40 incubated startups and 8 startups were graduated mostly due to their expansion/growth requirements and only a couple left due to COVID-19 financial hardships to sustain their businesses.

**Some of the star incubatees of ASPIRE-BioNEST are listed below:**

- **Reagene Innovations Pvt. Ltd.** Incubated in 2019, Reagene Innovations is a subsidiary of Reagene Biosciences Pvt. Ltd is Reagene Innovations, a biotech start-up co-founded by Dr. Uday Saxena and Dr. Subramanyam Vangala, will create a human vascular lung model to study Covid-19 using 3D bioprinting techniques. This new technique is being used to create human organs and tissues, while uses these technologies in screening compounds that are pipped as drug candidates for their ADME/Tox and efficacy and models as alternate to animal usage for high-throughput screening. More about Reagene Innovations can be found from its main website at <https://www.reagenebiosciences.com/>



- **OncoseekBio Pvt. Ltd. :** OncoseekBio (OSB) (<http://oncoseekbio.com/index.html>), founded by Dr. Suresh Poosala, is a leading-edge translational biotechnology company focused on



developing personalized in-vitro and in-vivo modalities using stem cell / patient-derived tumors (PDX platforms) for various diseases including cancer. It enables personalized treatments for cancers and other unmet medical conditions, and screen drug molecules. Following the 3 R's Principle – Replacement, Reduction and Refinement, it visions to substitute in vitro models in case of experimental animal usage as an alternative. OSB also aims to help



the medical oncologists and Pharma R&D take an informed decision in real-time, to treat their patients, or discover new therapeutics by creating stem cell or in vitro patient tumor-derived Organoids/Spheroids platforms. It has been awarded BIRAC's special grants on COVID-19, and secured an international collaborative grant under USISTEF with Cornell University. Its accolades include 'First in India to make Spheroids for Non-alcoholic steatohepatitis (NASH)' and 'First in India to make in vitro Spheroids platform towards solving the COVID-19 puzzle'.



- **30M Genomics Pvt. Ltd.:** 30M Genomics is a DPIIT recognized startup working in the area of point-of-care genetic diagnostics. It is focused in developing unique



technologies to solve various issues in genetic diagnostics, from sample collection to result analysis. We have received BIG grant from BIRAC, and, MEITY's grant TIDE for developing point-of-care pharmacogenetic platform. Some of the developing products of 30M Genomics include 'P3Lyzi' a bedside platform for rapid and accurate diagnosis of neonatal sepsis, 'AmpReady', a ultra-rapid, zero-step, DNA extraction kit from micro-volume blood-samples and forensic samples. It has been founded by Dr. Benet Bosco Dhas, a faculty turned entrepreneur with a young team of researchers, can be reached at <https://www.30mgenomics.com/>.



- **Algen Biotech Pvt. Ltd.:** 'ALGEN Biotech Pvt. Ltd. is a start-up company with the aim of promoting business in Functional Foods and Nutraceuticals. Initial aim is to develop technologies for manufacturing microbial metabolites for improvement of



human health. Apart from this we have plans to expand our area of research in microbial based natural products and probiotics. The team has Pharma and Biotech background and has experience in R&D, commercial manufacturing operations, formulations and also logistics of



biotherapeutics and pharma products. ALGEN constantly work on new products from natural sources to meet the current marketing needs and requirements by facing the challenges in the most efficient manner. We concentrate more on green technologies for transforming lives by using natural technological based Innovation.' Dr. Cherish cofounded the ALGEN and can be reached at 'cherish@algen.co.in.'

- **BYCUS Therapeutics Pvt. Ltd:** BYCUS Therapeutics is a start-up biotech company founded by the University of Hyderabad's alumni, Dr. Nageswara Rao Pulipati, and the promoters have # of years of experience in academia and the biotech industry. The main focus of the company is to do develop high-quality affordable biosimilars and biologics. The company also involved in developing high-value recombinant enzymes for the biopharmaceutical and vaccine industry. BYCUS Therapeutics received Rs 50 lakh BIRAC's BIG grant for developing Pegloticase biosimilar used to treat uncontrolled severe gout and chronic kidney disease. BYCUS Therapeutics has been awarded during 17<sup>th</sup> BIG grant call.



*Team BYCUS Therapeutics Pvt. Ltd.*

ASPIRE-BioNEST has been selected as The Best Emerging Bioincubator in the country, announced in the valedictory function of Global BioIndia 2021, a biannual conference conducted recently in March, 2021 by Biotechnology Industry Research Assistance Council (BIRAC) of Department of Biotechnology (DBT), Govt. of India, in the presence of Hon'ble Vice President Sri M. Venkaiah Naidu and Hon'ble Minister of Science & Technology, Dr. Harsh Vardhan. Incidentally, ASPIRE BioNEST has celebrated its third foundation day. Within one year of establishment, it stood 6<sup>th</sup>-place nationwide for any incubator (2018-19), surveyed by Biospectrum magazine. During August 2020, ASPIRE- BioNEST has been awarded an 'Associate Partner of BIRAC's BIG scheme', and made several outreach exercises at various organizations, promoting the funding and entrepreneurial development across tier-2 and tier-3 cities of Andhra Pradesh and Telangana, and conduct webinars on entrepreneurial development (<https://www.youtube.com/channel/UC48NbgiOGmIBzD1U7mb5Oeg/>). So far, it guided incubatees successfully for at least 10 competitive grants (national and international) like BIRAC's BIG, SBIRI,



USISTEF, COVID-19 special calls by BIRAC etc. Anyone who visits ASPIRE-BioNEST would relax with the displayed Fine Art Paintings in the labs and across the corridors, bringing Science and Art close together. ASPIRE-BioNEST is the custodian of the paintings generously given by the School of Fine Arts of UoH done by its students.

### Part for Pleasure at ASPIRE-BioNEST

These awards are the result of excellent scientific infrastructure, nurturing ecosystem, mentoring, support in grant proposals & business plan preparation etc. provided for the start-ups by a dedicated and committed teamwork. The infrastructure attracts diverse range of deep-tech start-ups from different domains of life sciences and scientific net worth of the start-ups also helped in attaining the best position. On his remarks, the Vice Chancellor Prof. Appa Rao Podile, the chief architect of entrepreneurial vertical of UoH, expressed his happiness and mentioned that this recognition is the result of collective efforts made by the team members of ASPIRE-BioNEST, its members of management cum advisory and project appraisal committees, highly energized incubatees, and the overall ecosystem support envisioned by the University of Hyderabad and BIRAC. For more details, visit <http://bionest.uohyd.ac.in/>, and to contact by email at [srgsl@uohyd.ac.in](mailto:srgsl@uohyd.ac.in) and 040-029881897.



Team - ASPIRE-BioNEST



## **Bioncubator at Entrepreneurship Development Center (Venture Center)**

The BioIncubator at Venture Center aims to nucleate and nurture technology and knowledge-based enterprises leveraging knowledge in the areas of biotechnology (biopharma, agrobiotech, industrial biotech, clean technology), biomedical engineering/devices/ diagnostics, biomass value addition/ renewable fuels/chemicals/materials, bioinformatics, bio/medical services and related disciplines.

- Location- Pune, Maharashtra
- Total space (Incubation, Lab space, common area etc)- 10,900 sqft(BioNest)
- No. of Incubatees supported till now - 141
- Total Products/technologies commercialized-

**a. Number of products commercialized= 25**

**b. Number of IP backed services offered by start-ups=15**

- **Total IPs facilitated-** 100
- **Rentals -** The compensation model is service based and equity is taken only in seed invested companies. All our service offerings and pricing models are available on our website.

**Facilities offered and unique features-** Venture Centre supports its start-ups by offering the following services. We have online resources which provide more information about our portfolio of services and activity map

<b>General infrastructural services</b>	Dedicated office suits, hot desking facility, meeting spaces, Venture Centre reception, mailbox facility, website development
<b>Scientific support services</b>	Dedicated laboratory spaces, shared lab space, analytical equipment, Cell Studio, Tinkering lab, specialised scientific facilities (Centre for Applications of Mass Spectrometry (CAMS), Center for Biopharma Analysis (CBA) Mechanical Testing Services, Confocal Microscopy Services, Flow Cytometry Services, Cell proliferation and viability studies. MedTech clean room
<b>Advisory and mentoring services</b>	Technology assessment, due-diligence, valuation, intellectual property planning, business planning and market feasibility assessments, scientific support in select areas, business support services. The mentoring/guidance & advisory is provided via structured programs like mentoring services, one on one mentoring clinics, talks, events and awareness workshops, sounding boards, Venture Base camps, Pitch clinics, BRBC Mentor pool etc
<b>Information services (library, database access)</b>	<p>IP, Regulatory and technology commercialisation support (see <a href="http://www.ipface.org">http://www.ipface.org</a>, RIFC, Technology Transfer Office)</p> <p>Funding options and advice (NSTDB Seed Fund, TDB Seed Fund, Proof of Concept Fund, Ministry of MSME Support Grant, In-house database funding options)</p> <p>Learning and training opportunities (campaigns, technical and business workshops, sounding board with mentors)</p> <p>Networking opportunities and referrals (events, workshops, seminars)</p>





## About the Team

The Venture Center has total 50 team members (including 11 project leads) which includes 4 full-time BioNest members. The Project leads are operating BIRAC supported programs such as BIG Partnering, BIRAC SEED, BIRAC LEAP, Center for Biopharma Analysis, NBM's Regional Tech Transfer Office etc.







BioprimeAgrisolutions Pvt. Ltd. is scripting success stories for agriculture, horticulture by bringing disruptive innovations in Products as well as Services to improve and transform agriculture. They are developing effective & affordable Agri biologicals with time-proven biomolecules, life-friendly chemistry, smart material and energy use. Their HRF-DH technology, SNIPR technology platform, BioNexus technology platform has received national and international recognition from Singapore, Cambridge etc. More info: <https://www.bioprimeagri.com/>



Actorius Innovations and Research Pvt Ltd (AIR) is a Pune based research and development company focused on creating novel biomaterials that have critical applications in medical device and novel drug delivery systems. Actorius's OncoDiscover Liquid Biopsy Technology is the first indigenously developed technology to receive 'MD-9: License to Manufacture for Sale or for Distribution of Class C or Class D medical device' for a non-predicate device in India under new Medical Device Rules. More info: <https://www.actorius.co.in/>



Indius Medical Technologies is an Indo - US multinational Spine Company focused on the development of US FDA approved global quality products for the treatment of spinal disorders. They are the 1<sup>st</sup> and only spinal implants company in India to offer US FDA approved products for the Indian Market. More Info: <https://www.indiusmedical.com/>



Omni BRx is a Biotech company specifically focused on upstream bioprocessing solutions. They have entered in the bioprocessing market with the most advanced, efficient and scalable CellBRx™ range of bioreactors for adherent cell culture bioprocessing. They are first in India to manufacture automated single-use perfusion bioreactor systems. They provide custom services for GMP production from pre-clinical to commercial in mg to kg quantities. More info: <https://www.omnibrx.com/>



Blackfrog is medical-grade refrigeration company funded and supported by DBT-BIRAC. The company has developed a novel product for last-mile cold chain, for which it has won 6 national awards & represented India in 2 international events. The company played a pivotal role in combating the COVID-19 pandemic especially in remote locations via transport of blood and serums, other collected samples. More info: <https://www.blackfrog.in/>



Mylab Discovery Solutions Pvt. Ltd., is a Young and Dynamic Biotechnology company, that develops and commercializes molecular diagnostic detection kits, to empower labs to obtain reliable, timely, and actionable answers. They are the first in India to launch CDSCO approved indigenous RT-PCR and antigen test kit for COVID-19. More info: <https://mylabdiscoverysolutions.com/>





## IIT Madras HTIC MedTech Incubator



The IITM HTIC MedTech Incubator is strategically located at IITM Research Park, India's first university driven Research that has a thriving research and entrepreneurial ecosystem. The centre leverages the synergies in various strands of excellence driving innovation and entrepreneurship, consisting of cutting-edge research, industrial interactions.

### Total space (Incubation, Lab space, common area etc)

The centre is a state of art facility spread across 17000 sq ft which includes + 5800 sq ft of incubation space, +3700 sq. ft of common facility (includes demo room, board room, workshop space, soldering station, pantry etc), +3800 sq. ft of research space (includes equipment and other facility) equipped to support MedTech start-ups.









## No. of Incubatees supported till now

The Incubator currently has +25 incubated start-ups and has supported over 130 pre-incubated start-ups in the last three years.

## Total Products/technologies commercialized

In a record time of operation more than 50% of start-ups (12-13 start-ups) have made commercial in grounds, more than 70% of the start-ups have raised funding (grants, angels, investors) and two IPs have been filed.

## About some star incubatees

The start-ups incubated in the IITM ecosystem get the opportunity to access the IITM Innovation Fund. 11 of the incubated start-ups at their initial stages of development have been supported through this fund amounting to over INR 100 Lakhs, this includes Streben Healthcare, Kriyaneuro Technologies, iMOV Motion Tech, zBliss Technologies, Buzzark Simulations, Viverva Health Media, QuaMed Technologies, GAAGS Technologies and Curneu MedTech Innovation from the incubated portfolio. Ubicare India Pvt Ltd has also raised INR 42.5 lakhs, co-investment partners include – Social Alpha, CCAMP (AIM Seed), Individual Investors (2 Indians, 3 Foreign). Start-ups like Zasti India Pvt Ltd and Curneu MedTech Innovation has raised funds from foreign investors. Centre has also supported start-ups like Buzzark & Curneu is securing the Innovation Voucher Program fund from the EDI, Govt of TN.

MTI start-ups have also actively participated in several global innovation challenges and competition. iMOV Motion Tech, MediSim VR and Buzzark Simulations were shortlisted as finalists from India for the UMass M2D2 \$200k Challenge – Annual start-up Challenge and Buzzark Simulations won the UMass M2D2 \$200k Challenge with a prize of \$15,000. ZASTI AI has won the prestigious MICCAI AI Challenge on “Pancreatic Cancer Survival Prediction” and also selected as a finalist among top 4 Insurtech Start-ups in the Asia and ANZ region for “The digital insurer’s start-up Insurtech Award”. Three of our start-ups were also selected to present at the ASEAN Conference in Kuala Lumpur Malaysia.



Kornerstone Devices Pvt Ltd is developing “High Noon” an angular guidance for CT guided needle insertions device complying with global standards for medical devices.

Licensed the HighNoon CT Guided Needle Navigation Technology/Patent to vTitan Corporation for INR 3 crores, for the purpose of further product enhancement, manufacturing the product, getting the regulatory approvals, testing & marketing/sales. The start-up has received support worth INR 46 L from govt agencies like BIRAC.





Buzzark Technologies develops VR based Natural Orifice Surgery Training Simulator to allow medical students and surgeons to practice and hone their surgical skills. Buzzark Simulations won the UMass M2D2 \$200k Challenge with a prize worth \$5,000. Buzzark also secured the Innovation Voucher Program fund of INR 4.8 L from the EDI, Govt of TN. The venture has also booked a revenue of 35 L in providing simulation services in the healthcare and other segments.



Swasthchain is developing healthcare solutions to provide accessibility using voice enable technology. Swasthchain was selected for the WHO Geneva Health Forum Awards from India. The start-up has also made revenue worth 15 Lakhs so far.



zMed provides Ecosystem of Products for intensive care units such as zHub - bedside Hardware and zICUChart- SaaS application and mobile apps for data front end, analytics, and intelligence. Raised INR 2 crores of funding from the CAWACH scheme and Angel investors. The services have expanded to 100 ICU bed across the country and made over INR 26 Lakhs of funding



Ubigare health Pvt Ltd provides clinical telepresence platform and related clinical services to enable specialty medical supportive/palliative care away from hospital. The start-up has raised over 42 L of funding and made over INR 20 L of revenue so far.



C3 MedTech is developing and manufacturing affordable and portable smart phone based ophthalmic screening devices. Vision is to reduce cases of avoidable/needless blindness by providing smartphone based portable and affordable eye screening equipment in resource limited and rural areas. The start-up has sold over 130 units across the country and made over INR 19L of revenue by far.

## Rentals

The incubator runs on a 'no rental charges' model to not burden the start-ups at the early stages of development and rather takes stakes in the incubated companies ranging from 1% to 9%.

## Facilities offered and unique features

The incubator provides wide-ranging support such as Technical Support - leveraging the technical abilities of the R&D multidisciplinary centre (HTIC); Seed Funding - Grants, Loans, convertible notes; Business Support Services - Accounting, CS, Legal, IP, Design, HR; Infrastructure & Equipment support start-ups and entrepreneurs working at the intersection of healthcare and technology.



## About the Team

The HTIC MedTech Incubator operates with a very lean young team of 5 members (Prathistha Jain, Archana Balan, Sumithra, Harshini Ragu and Gaurav Yadav) and with a dynamic CEO, Muthu Singaram to effectively manage and execute several programs and events. In a record time of 4 years the centre has received multiple titles and recognitions such as the Associate BIRAC BIG Partner, SPARSH Centre supported by BIRAC, Satellite Centre for CAWACH under DST and DST Entrepreneurship training program. The team works around the clock to run several networking, learning, knowledge and training programs with multiple cohorts and sessions. Overall, the centre has built the capability to run programs, support start-ups and attract a pool of promising entrepreneurs to take the centre to the next level.



## The A Team







## Inauguration of ABLEST, BIRAC Supported BioNEST

'Universities play a key role in building strong capabilities in research and innovation by nurturing and igniting young minds to move in the path of scientific excellence' said Dr. Renu Swarup, Secretary, Department of Biotechnology, Government of India, while speaking on the occasion of the National Science Day Celebrations and the inauguration of the BIRAC supported BioNEST at SASTRA Deemed University held on February 28, 2021.



SASTRA has been sanctioned with an Incubator under the BioNest Scheme of BIRAC in the area of 'Biotherapeutics and Diagnostics Development'. A Section 8 company in the name of Association for Bio-inspired Leaders & Entrepreneurs at SASTRA TBI (ABLEST) has been created for the purpose. Facilities such as BSL3, Central Instrumentation Facility with Next Generation Sequencer, Multimode reader with FRET, Real-time PCR, Inverted fluorescence microscope, Electrophoresis, western blotting with adequate lab spaces for incubatees have been created with the support of BioNEST, BIRAC and SASTRA at a cost of Rs 7 crore.

Dr. Renu Swarup highlighted that the Nation's scientific growth is reflection of the ecosystem and is evident from the surge in innovation index and the number of startups. She outlined the Nation's impetus on Research, Innovation, Translation and Delivery that has put ourselves in a position of

exponential growth changes. While touching upon the International collaborations, she highlighted the transformation of the Nation's role from consumers to co-developers of technology. Dr. Renu Swarup appreciated the contribution of Indian Scientific Community in developing the vaccine for COVID-19.

Prof. S. Vaidhyasubramaniam, Vice-Chancellor, SASTRA welcomed the audience and Dr. Manish Diwan, Head – Strategic Partnership & Entrepreneurship Development, BIRAC illustrated to significant role played by BIRAC in creating and nurturing the bio-innovation ecosystem in the country.





## ILS- BIOINCUBATOR INAUGURATED



Hon'ble Chief Minister, Shri Naveen Patnaik Inaugurated DBT-ILS Bioincubator established with the support from Department of Biotechnology, Govt. of India and Department of Science and Technology, Govt. of Odisha and BIRAC. While appreciating the initiative of Institute of Life Sciences, Chief Minister hoped that the Bioincubator will promote research and development in the area of Biotechnology and encourage the youth to take up entrepreneurship in

biotechnology sector and will be of importance to Odisha and other regions. He said that Govt. of Odisha has developed start up policy for encouraging business opportunity in the state. Shri. Ashok Panda, Minister Science and Technology, Odisha said that with impressive infrastructure and dedicated scientific manpower ILS is well placed for taking these initiatives. Secretary, DBT, Dr. Renu Swarup in her remarks mentioned that Govt. of India and DBT are taking many initiatives for promoting startups and entrepreneurship in Biotechnology and hoped that ILS Bioincubator will play a major role in these aspects in coming days. Shri. Santosh Sarangi, Secretary Department of Science and Technology, Govt. of Odisha appreciated the steps taken by ILS in promoting research in the field of Biotechnology. He mentioned that Odisha Govt. has a biotechnology policy for promoting research and development in the area of Science and Technology. Dr. Manish Diwan, Head, Strategic Partnerships and Entrepreneurship Development BIRAC, complimented ILS for its efforts and assured support from BIRAC. Dr. Ajay Parida, Director, ILS said that the Bioincubator will have an operational area of 10,000 square feet incubation space and all dedicated scientific instrumentation for carrying out research in the field of Agriculture, Health care, Diagnosis, Devices & value addition and Food Processing. Dr. Nivedita Jena, COO, ILS Bioincubator mentioned that 10 entrepreneurs have been selected to join the Bioincubator.



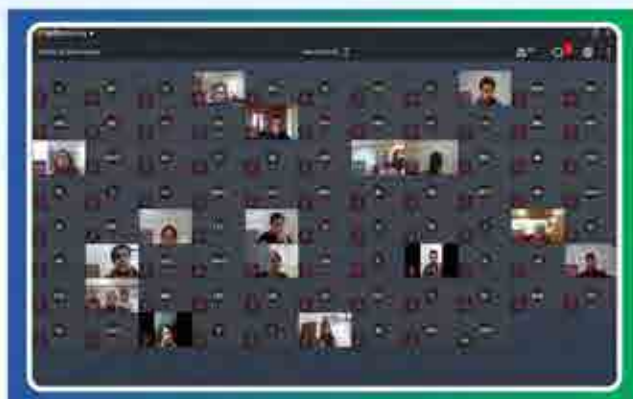


## New year 2021

On the occasion of New Year 2021 Dr. Renu Swarup, Secretary DBT & Chairperson BIRAC and Ms. Anju Bhalla, Joint Secretary DST & MD BIRAC addressed employees virtually.

Glimpses of 2020 were presented during the event and employees experienced a sense of nostalgia as they reflected on the events that took place in the past 12 months.

A wave of joy swept past the office as it was great goodbye to the passing year and a welcome to 2021 with a great zeal and fervour.

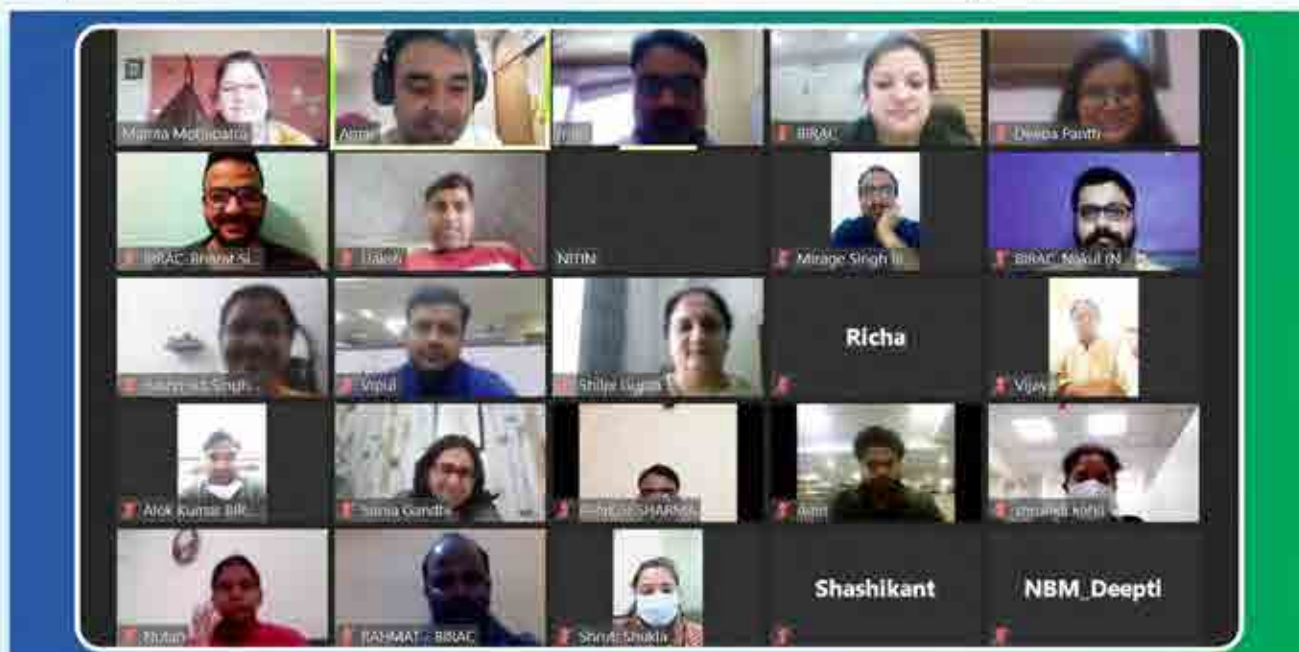


## Workshop on Gender Sensitization & Prevention of Sexual Harassment at Workplace

As per the provisions of 'Sexual Harassment of women at work place (Prevention, Prohibition and Redressal) Act, 2013', BIRAC organises workshops and awareness programmes at regular intervals for sensitising the employees.

In-house Workshop on Gender Sensitization & Prevention of Sexual Harassment at Workplace has been organised on 10<sup>th</sup> February 2021 from International Management Institute (IMI), New Delhi.

The training is to equip employees with necessary skills to combat sexual harassment faced in their daily working life and create a stress free work environment conducive for higher performance.





## Women's Day 2021

International Women's Day is observed on March 8<sup>th</sup> every year celebrating the social, economic, cultural and political achievements of women. BIRAC also celebrated Women's Day where Dr. Renu Swarup, Secretary DBT & Chairperson BIRAC addressed employees virtually.

BIRAC celebrated exceptional work done by Indian women by remembering how Indian Women have broken gender barriers and worked hard for their rights and made progress in the field of politics, arts, science, law etc.

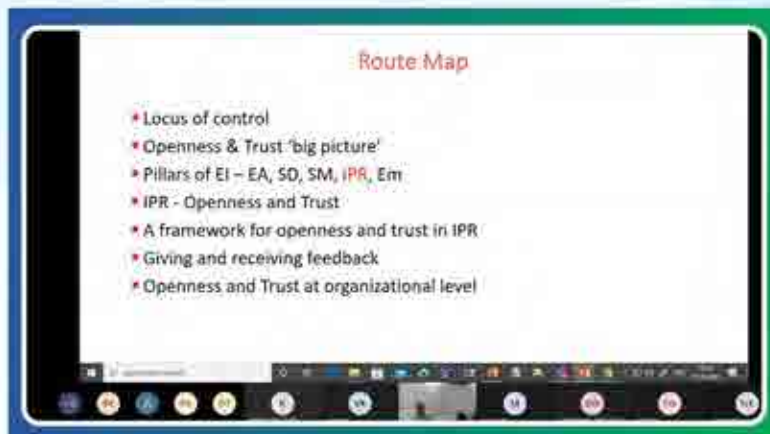


## Training on Openness and Trust at Workplace

Open communication and trust is critical to the effectiveness, efficiency, and overall success of any organisation. In-house training on Openness and Trust at Workplace has been organised for BIRAC employees on 12<sup>th</sup> March 2021 from Fore School of Management.

The training helped employees in how to disclose authentic thoughts and feelings in day-to-day interactions with significant others at work place in an appropriate manner consistently and without offending others.

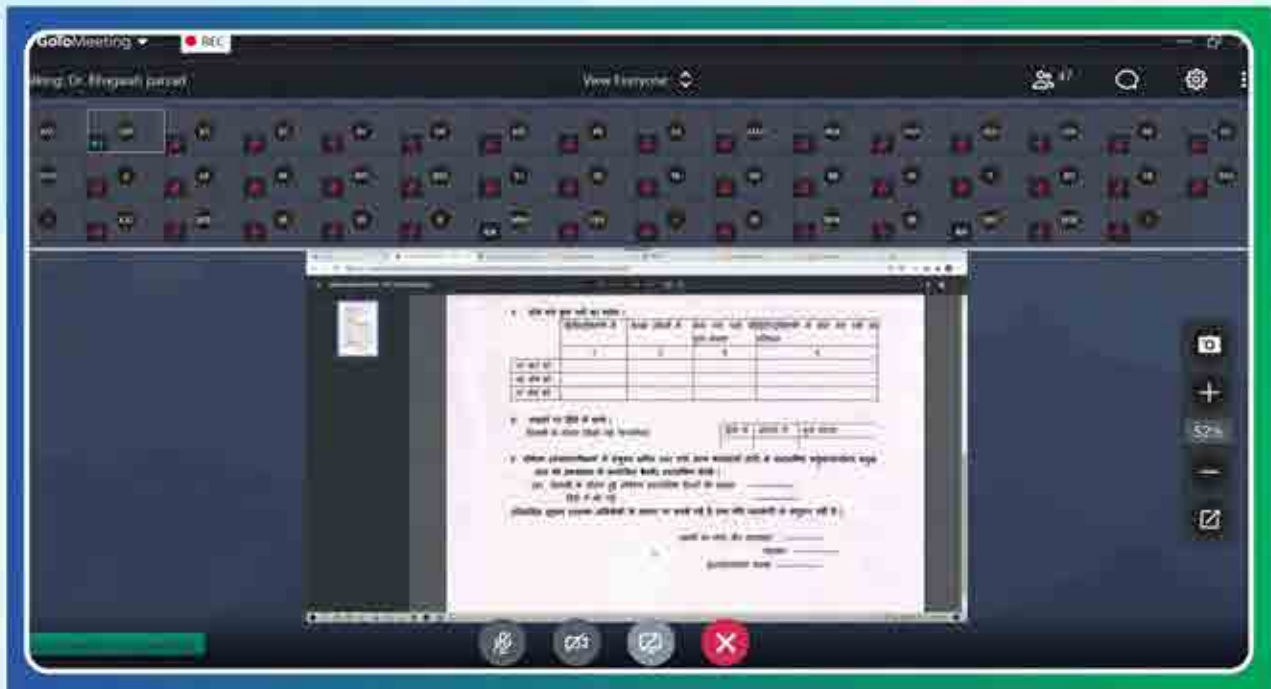
The training also included hands-on exercises which helped employees in giving and receiving candid and constructive feedback.





## Workshop on Official Language Act

In line with the implementation of Official Language Act, a virtual workshop was organised for BIRAC employees on 26<sup>th</sup> March 2021 to acquaint the employees with the importance and provisions of the Official Language. The workshop helped employees in understanding the constitutional provisions of Official Language Act and on implementing official language in day to day official correspondence.





# GRAND CHALLENGES INDIA



## ki Data Challenge - Kick-off Meeting

The ki Data Challenge Community meeting of the Knowledge Integration Grand Challenges (Ki GC) grantees: Data Science Approaches to Improve Maternal and Child Health of India, was held virtually on 26<sup>th</sup> February 2021.

The goal of the meeting was to connect with the grantees and the Grand Challenges (GC) and Knowledge Integration (Ki) teams and orient ki GC grantees towards the Synapse Discussion Forum – in particular, to begin a dialogue among themselves. The agenda also worked to set the platform for engagement and interaction of the grantees community.

The meeting was attended by all the seven grantees, GC India team as well as the ki team from the Bill & Melinda Gates Foundation.

The meeting provided a common platform for ki GC teams to collaborate, engage and talk and share their approaches and ideas for planning their outcomes.

## IDIA - Fourth TAG Meeting

The fourth 'Virtual' TAG meeting was conducted in March 2021 for three consecutive days which served to facilitate conversations between the stakeholders, mentors and the grantees and to review the progress of all nine supported projects and planned the next steps for the program. The grantee teams shared their progress against the project activities, challenges, and experiences through the presentation and interactive sessions.

The Fourth TAG meeting discussed the next steps for the program as a whole were also discussed. Three promising projects were provided no-cost extensions till September 2021, when the next TAG will be called to design and develop proposals for the Phase II from among the promising ones.

## GCI-AMR Second TAG Meeting

Grand Challenges India (GCI) is implementing a program specific to AMR, in an effort to transform public health action on a regional or global scale by identifying and filling gaps in knowledge on AMR burden. The program has supported 10 projects that are broadly aimed at addressing big gaps in the surveillance and response system for infectious diseases threats. As majority of these projects have reached halfway and/or nearing completion, a 'Virtual' TAG meeting was conducted in March 2021 to review the progress of supported projects and guide teams/grantees on way forward as they move to next phase. In this interactive meeting, the grantees of all the 10 projects shared their progress, challenges and experiences through an online presentation. In view of COVID-19 pandemic that has hampered project progress, the TAG experts recommended no-cost extension to the supported projects to achieve the intended objectives. The teams were also provided strategic guidance on way forward. All the grantees were receptive to TAG feedback. The TAG experts were appreciative of updates on diverse solutions that are being explored to address the issue of AMR in Indian setting.





## MAKE IN INDIA FACILITATION CELL FOR BIOTECHNOLOGY

### *Stakeholders Consultation Meeting for National Biotechnology Development Strategy (NBDS) 2020-25*

A high-level Industry and Startup ecosystem stakeholders consultation meeting was organized by DBT, BIRAC through Make in India Cell PMU on 19<sup>th</sup> February 2021 for discussion on National Biotechnology Development Strategy 2020-2025. The meeting was chaired by Dr. Renu Swarup, Secretary DBT and Chairperson, BIRAC.

The meeting with key opinion leaders and stakeholders from Industry, Start-ups, Incubators, Investors, Industry Associations and Academia hosting incubators was conducted to seek key recommendations, identifications of gaps and opportunities, critical measures required, that could be considered in finalizing the strategy document i.e., National Biotechnology Development Strategy 2020-2025.

Secretary DBT, Dr. Swarup apprised the forum about the key verticals and how the new strategy would nurture biotech sector in addressing priority areas. She further elucidated that NBDS 2020-25 is aimed at providing a special impetus to new knowledge generation and discovery, launching major strategically driven and directed missions, scientific empowerment of the country's human resource to create a strong ecosystem for research, knowledge development and translation into commercialization of innovation for a robust bio-economy.



*Stakeholders Consultations Meeting for National Biotechnology Development Strategy (NBDS) 2020-25*



# NATIONAL BIOPHARMA MISSION

*Innovate in India for Inclusiveness (I-3)*



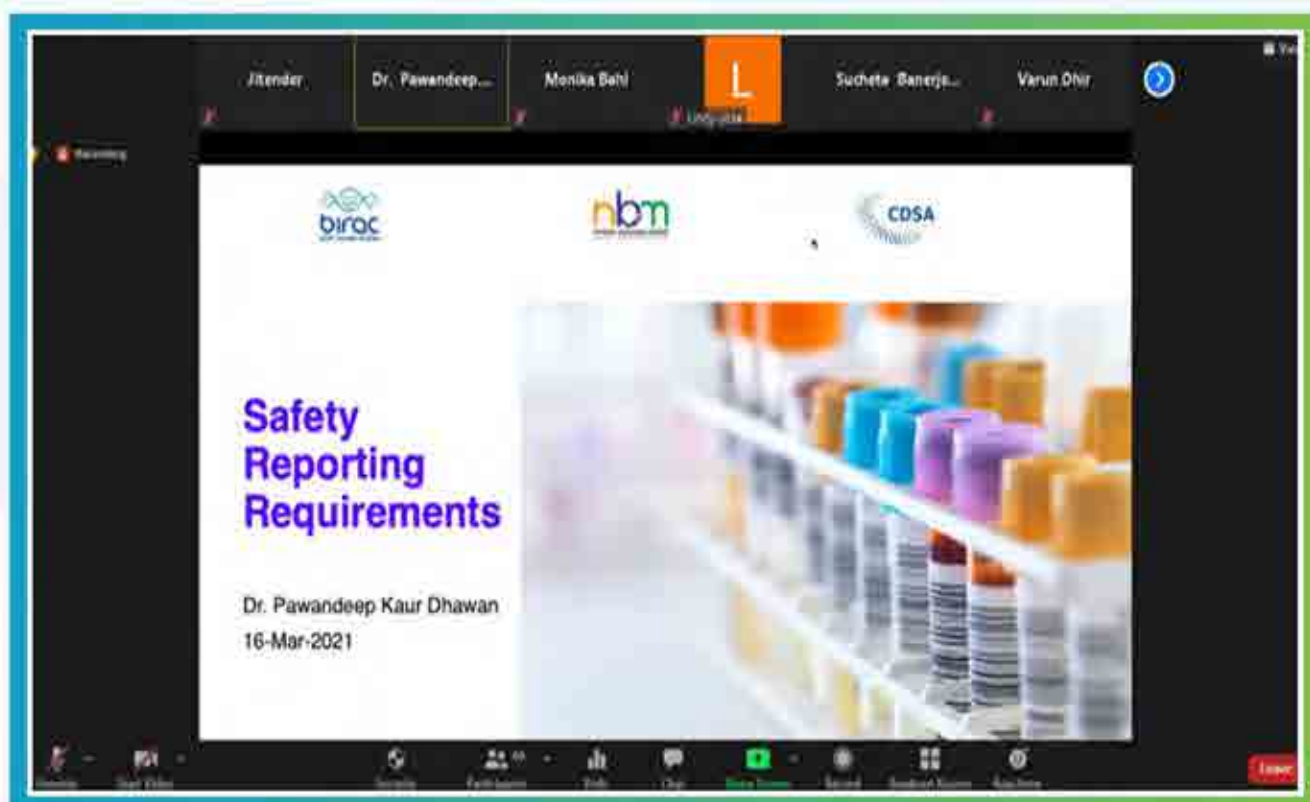
## ***Lecture Series on Good Clinical Practice (GCP) and Bio Ethics for Clinical Trial Network (CTN) for Hospital based specialities***

To strengthen the clinical trial capacity of India, six (06) new Demographic and Health Surveillance Sites (DHS) had been established in different geographical locations of the country. At five (05) of these sites, studies related to COVID, Dengue and Chikungunya seroepidemiology had also been initiated with a total participation of 25000.

National Biopharma Mission had been addressing the setting up good clinical trial sites in the country with research capacity and capabilities in terms of GCP trained staff and infrastructure, who can be approached by national and international pharma/biotech players to commence community-based clinical studies without much time investment on-site preparedness activities. The Clinical Trial Network training programs were planned for GCP one for each specialty (CTN, five (05) consortia under NBM with 36 hospitals). Each training program was held online, and had three (03) webinars, each of four (04) hours with session breaks, interactive quizzes, individual or group exercises/case studies, and an exit assessment (online auto-proctored, single log-in, open for 48 hours). Weekly modules were:

**Module 1:** GCP Principles; Roles & responsibilities of stakeholders

**Module 2:** Regulatory requirements for conducting trials, clinical trial planning, conduct and safety reporting





### **Module 3: Clinical trial documents, records management, quality control (QC) and quality assurance (QA)**

The lectures were delivered by the dignitaries of AIIMS, PGIMER, ICMR, THSTI, CDSA, Guru Nanak Dev University, Seth GS Medical College & KEM Hospital, and Swastik Rheumatology Clinic.

For CTN (Oncology), following participants registered, with participation of 55, 52 and 41 attendees for Module 1, Module 2, and Module 3 respectively;

- 1) Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Pondicherry
- 2) Institute of Medical Sciences and Sum Hospital, Bhubaneswar, Odisha
- 3) All India Institute of Medical Sciences, Rishikesh, Uttarakhand
- 4) Christian Medical College, Ludhiana Society
- 5) Meenakshi Misison Hospital and Research Center, Madurai
- 6) Amala Cancer Hospital Society, Thrissur Kerala

For CTN (Rheumatology), following participants registered, with participation of 40, 44 and 37 attendees for Module 1, Module 2, and Module 3 respectively;

- 1) Medanta Institute of Education and Research (MIER)
- 2) Mahatma Gandhi Institute of Medical Sciences, Sevagram, Maharashtra
- 3) Centre For Arthritis & Rheumatism Excellence, Kerala
- 4) St Johns National Academy of Health Sciences Bangalore
- 5) Kusum Dhirajlal Hospital Ahmedabad, Gujarat
- 6) Post Graduate Institute of Medical Education & Research, Chandigarh







*Glimpses of lecture series on Good Clinical Practice.*

### ***E-Inauguration of facilities in Global Bio-India 2021***

The Mission has supported 19 shared infrastructure facilities, to address the lack of adequate infrastructure, for supporting product development and establishing national service centres that would work with leading academic and industry partners to provide integrated solutions to enable proof of concept establishment, critical evaluation and validation of products that are in early or late stages of development. In continuation to these, three (03) such facilities were e-inaugurated in Global Bio-India 2021 by Ms Anju Bhalla, Joint Secretary DST & MD BIRAC. These are:

#### **1. National Unit for Vaccine Immunogenicity Evaluation and Research located at Central Research Laboratory (CRL)- Kempegowda Institute of Medical Sciences (KIMS), Bangalore.**

Pneumococcal vaccines were launched in the Universal Immunization Programme on May 13<sup>th</sup> 2017. Currently, Indian Pneumococcal vaccine manufacturers and researchers rely on identified facilities in the United States and the United Kingdom to assess immunogenicity, resulting in delays in results and exorbitant prices.

With the support from the National Biopharma Mission, CRL had established an advanced and dedicated ELISA and MOPA facility in collaboration with WHO referral centres in the last one and a half years. The facility has been accredited by NABL, GCLP, and GFMP in a relatively short period of time.

The centre intends to enhance, assess, and indigenize reference strains, QC serum, reagents, and consumables in addition to providing timely immunogenicity testing at an affordable rate to Indian manufacturers. Understanding the serotype distribution, virulence, vaccine impact, and drug resistance across multiple centres in India are among the other services provided by the centre.





*National Centre for Pneumococcal Vaccine Evaluation at KIMS, Bangalore.*

## 2. Facility for Scale-up and Transfer (FaST) at Shilpa Biologicals Pvt. Ltd., Dharwad

In the current scenario, the Indian biologics pipeline is choked at the starting level to clinical stage programs as there is paucity to access high quality cGMP CMC facility, that can create biologics which are of clinical grade.

To overcome such situations, Shilpa Biologicals had setup a leading-edge contract mammalian cell culture-based Biologics CMC facility, including fill-finish, for the production and supply of clinical grade drug substance and drug products to conduct human clinical studies that comply with the cGMP norms.

The GMP facility comprises of a pilot upstream production suite of: Cell Banking and Seed Generation Facility, Upstream and Downstream Processing Facility, and Pilot Filling Unit with Lyophilizer.





*cGMP facility at Shilpa Biologicals Pvt. Ltd., Dharwad.*

### **3. Medical Research Institute for Device Assessment (MRIDA) at Palamur Biosciences Pvt. Ltd., Hyderabad.**

Palamur Biosciences is a Contract Research Organisation (CRO) that specialises in the evaluation of medical devices and drugs in the pre-clinical stage. It offers a full range of pre-clinical services utilising regulatory-approved in-vitro and in-vivo models. CPCSEA has granted permission to the facility to carry out breeding and other experiments on small and large animals such as Beagle Dogs, Swine, Sheep, and Goats, at the facility.



With the support from BIRAC under National Biopharma Mission, a sophisticated medical device testing facility, the Medical Research Institute for Device Assessment (MRIDA) had been established at Palampur Biosciences. MRIDA is well-equipped with high-end infrastructure for animal testing such as C-Arm, Anaesthesia Work Station cum Ventilator, Intravascular Ultrasound, Optical Coherence Tomography, Heart Lung Machine, Cathlab, Physiology Monitors and Defibrillator etc.

### HISTO PATHOLOGY



### CLINICAL PATHOLOGY



*Medical Device Testing Facility at Palampur Biosciences Pvt. Ltd., Hyderabad.*





## IND-CEPI MISSION

The Department of Biotechnology, Ministry of Science and Technology, Government of India is supporting the implementation of the Ind-CEPIs mission 'Epidemic preparedness through rapid vaccine development: Support of Indian vaccine development aligned with the global initiative of the Coalition for Epidemic Preparedness Innovations (CEPI)', through a dedicated Program Management Unit (PMU) at Biotechnology Industry Research Assistance Council (BIRAC).

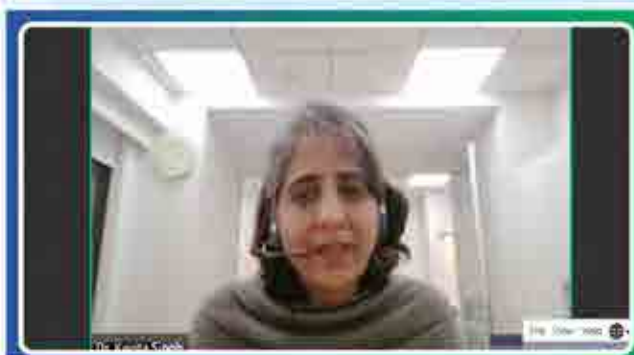
Supporting skill development, capacity building, regional networking and development of surveillance frameworks is one of the important mandates of the Ind-CEPI Mission. After the successful completion of the first E-course series, the Mission initiated an eCourse Series entitled 'Strengthening Clinical Trial Research Capacity in India's Friendly Countries' in collaboration with CDSA, Faridabad. An orientation session to this training program was conducted on 21<sup>st</sup> Jan 2021 through online platform. This training envisages an in-depth coverage of Good Clinical Practice, Ethical considerations in clinical research, Good Clinical Laboratory Practice and Novel vaccine development and immunization policy in a pandemic across a 4 Programs and 10 sessions during 5<sup>th</sup> Feb to 30<sup>th</sup> Apr 2021. Each program closes with exit examinations, after which certifications would be issued.

### Participating Countries:

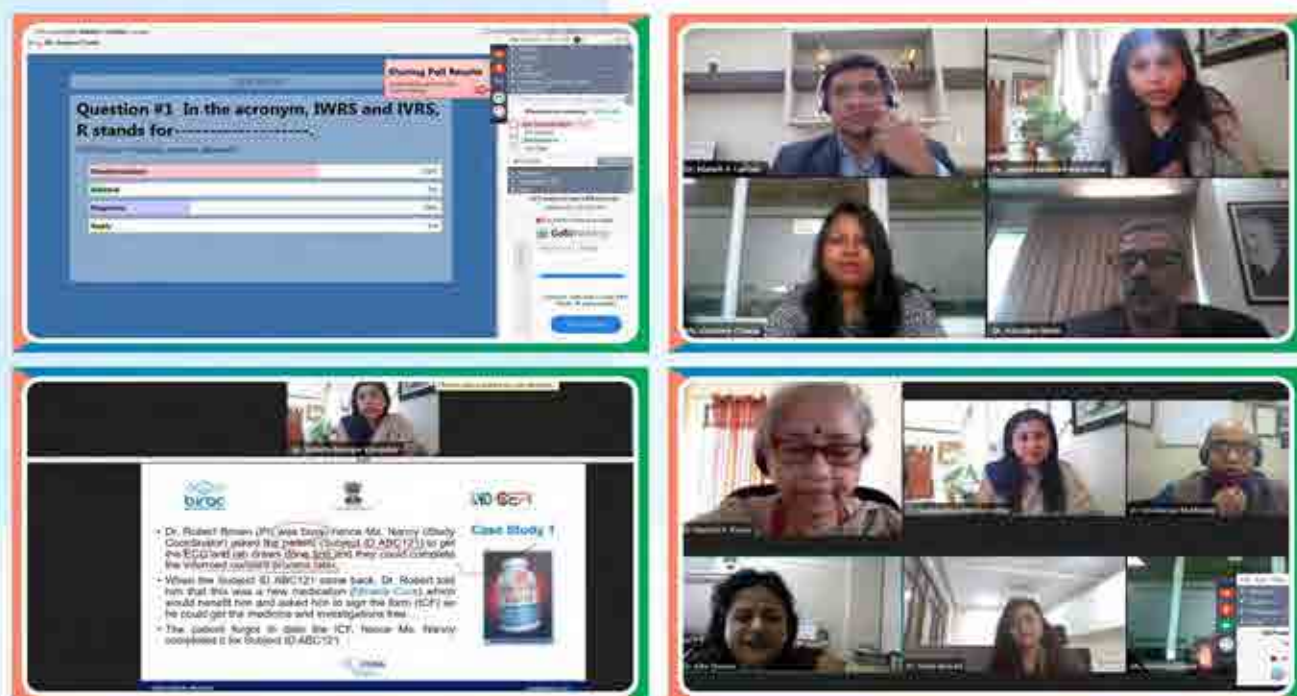
Bahrain, Bhutan, Kenya, Myanmar, Nepal, Oman, Somalia, Vietnam

### Program 1-Good Clinical Practice (GCP):

4 sessions were held on 5<sup>th</sup>, 12<sup>th</sup>, 19<sup>th</sup>, 26<sup>th</sup> Feb 2021 that covered various aspects of GCP by esteemed faculty and key opinion leaders from renowned intuitions from industry and academia. These 4 sessions observed a participation from 259, 173, 215 and 189 participants respectively from neighbouring and friendly countries. Major topics covered included GCP & ICH Guidelines, importance & essential components of protocol, investigational brochure, informed consent, roles and responsibilities of sponsors, investigators and ethics committee, recruitment methods and retaining strategies, types of adverse events, quality assurance, audits and inspections and adoption of Technologies in Clinical Trials, clinical trials of medicinal products in health emergencies, consequences of GCP non-compliance: case studies, research misconduct and assessment.



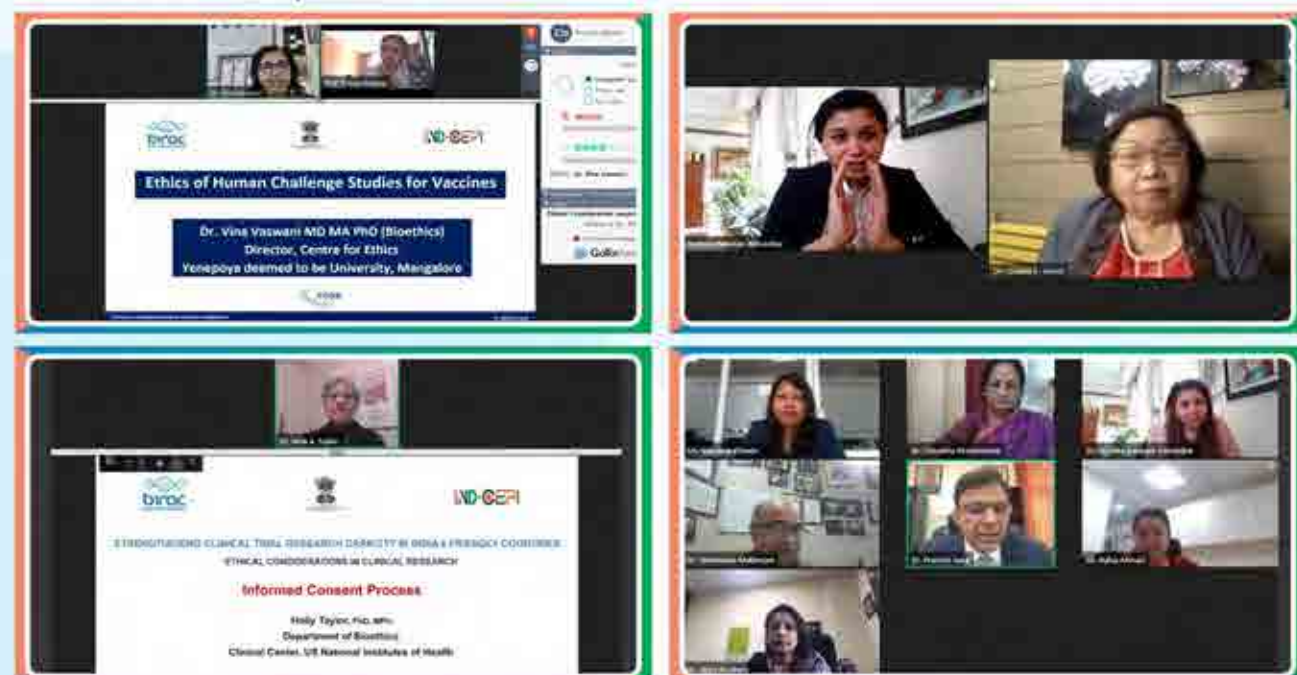




*Glimpses from the Sessions on GCP*

## Program 2-Ethical Considerations in Clinical Research:

2 sessions were held on 12<sup>th</sup> and 19<sup>th</sup> Mar 2021 that were attended by 187 and 163 participants respectively. Major topics covered included introduction to research ethics, challenges ahead for the ethics committees, ethics and human challenge studies for vaccines and ethics in population-based vaccine trials, ethical issues in international collaborative research, composition, competence, functioning and decision making of ethics committee, informed consent process overview: relevance, requirements, and documentation and informed consent process challenges vulnerable population, interventional studies, etc.



*Glimpses from the Sessions on Ethical Considerations in Clinical Research*





For further information please contact:

**Biotechnology Industry Research Assistance Council (BIRAC)**

1st Floor, MTNL Building, 9, CGO Complex, Lodhi Road, New Delhi-110003, INDIA

Tel: + 91-11-24389600 | Fax: + 91-11-24389611

E-mail: [birac.dbt@nic.in](mailto:birac.dbt@nic.in) | Web: [www.birac.nic.in](http://www.birac.nic.in)

Follow us on Twitter : @BIRAC\_2012