ISSN: 2454-6968
RNI No. UPENG/2013/54102

Volume 6
Issue 71
June 2019
Rs. 800

BIOTECH EXPRESS

Guest Article:
Nurturing Entrepreneurship Culture at the University of Hyderabad

Editorial:
Technology for safe mining is available, so what are we waiting for? Interview with Prof. L.B. Shukla

Scientific misconducts- How to Fake Good Sciences

Referred Article:
Long ignored renowned botanist Janaki Ammal finally recognised in biography

JAMIA HAMDARD AWARDS 2019

Wockhardt Excellence Award for academic excellence in science (comprising of a Silver Plaque and Rs. 3 Lakh cash)

This award, sponsored by Wockhardt Laboratories, Mumbai is open to any citizen of India/OCI working at any recognised minority institution of the country (including Jamia Hamdard) or minority candidates working in any institution anywhere in India not exceeding 50 years of age, as reckoned on 31st December, 2018.

Sayeeda Begum Woman Scientist Prize (comprising of a plaque and Rs. 2 Lakh cash)

This award is open only to women scientists, working at any recognised minority institution in India (including Jamia Hamdard) or minority women working in any institution anywhere in India, not exceeding 45 years of age, as reckoned on 31st December, 2018.

The last date of Application/Nomination is July 15, 2019

Applications will be accepted directly as well as through nominations. For details please visit http://jamiahamdard.edu/ or contact Prof. Janendra K. Batra, Head, Department of Biochemistry, Jamia Hamdard, New Delhi 110062; Phone: 011-26059688 ext. 5513; e-mail: jkbatra@jamiahamdard.ac.in.

Learner's Intellectual Sanctuary

ARUNAI

Engineering College

TIRUVANNAMALAI

QUALITY SYSTEM CERTIFICATION DNV·GL ISO 9001:2015

DEPARTMENT OF BIOTECHNOLOGY

M.TECH-BIOTECHNOLOGY

(Affiliated to Anna University Chennai)

Gate Way to Success..

Admission

Eligibility:

B.E/B.Tech(Biotech, Chemical, Leather, Genetic, Biochemical, Industrial Biotech, Petroleum, Petrochemicals,Agricultural Biotech,Petroleum Refining)
M.Sc.(Bio-Chemistry, Micro-Biology, Bio-Physics, Biotechnology, Genetics & B.Pharm)

About the Institution:

Arunai Engineering College, a Co-Educational institution was established in the year 1993 by its founder chairman Mr. E.V.Velu to impart technical education in the world renowned tourism town Tiruvannamalai. The institute is affiliated to Anna University, Chennai and approved by AICTE. AEC is also certified with an ISO 9001 - 2015 and accredited by NAAC which supplements its International Quality.

About the Department:

The Department of Biotechnology of Arunai Engineering College was established in the year 2002. The Department has ever engaging faculties and well equipped state of art laboratories. The Department has been ranked first in infrastructural facilities and sixth in overall performance at all India level top private Biotech school survey conducted by Bio Spectrum, Magazine in May 2007, and since then continuing its journey in the toppers list.

Facilities:

- Microbiology, Cell Biology, Bio-Chemistry, Molecular, Immunology, Bio-process, Genetics Engg laboratories
- Latest Collection of text and reference books
- Wi-fi connectivity
- MoU's with various rearch labs
- Internationally recognized faculties

Milestones:

- The Department has been funded by DBT, DST, UGC, TNSCST for research projects by students and staffs.
- Around 250 National & International publications have been done by students & staffs.
- Department is actively organizing International and National level conferences in alternate years along with other sponsored workshops and conferences.
- The Department has made collaboration with the RAISE.Rural to develop the participation of rural students in the field of science and engineering.
- Achieved top University ranks every years.
- GATE qualifiers are currently pursuing higher education and research in India and abroad.
- About 70% of students in each academic year have got placed in various reputed companies like Biocon.
- Well qualified staff with research exposure in almost all domains of Biotechnology.
- Collaboration with various Internationally reputed Institutions.

For admission contact

The Principal, Arunai Engineering College, Velu Nagar, Tiruvannamalai-606603,Tamilnadu.
Email : aecbiotech@gmail.com, praveenramanujam@gmail.com
Phone: +91 98420 73165, +91 04175-255101, Fax: +91 04175 237789 www.arunai.org

COUNSELLING CODE
1504

CONTENTS

BEM inside...

Volume 6 Issue 71 June 2019

VOLUME 6 ISSUE 71
June 2019

Subscription and Article Submission

Annual Subscription
Please see Subscription Rate card inside.

Send your all entries at:
Biotech Express, V-31/4, Ext-1, Shalimar Garden, Sahibabad, Ghaziabad, U.P- 201005.

Article submission
All queries related to article submission can be sent to biotechexpressindia@gmail.com. For more information kindly visit website: www.kashbiotech.com

Publisher : Kamal Pratap Singh

Printed at : Monex offset, B-12 SD complex, near MMG hospital, Ghaziabad- 201005.

Individual rates available to subscribers paying by personal cheque or NEFT. Order for Students, PhDs, postdoc subscription must be accompanied by a copy of student ID.

CURRENT TOP NEWS

Tamil Nadu received $287 Million World Bank Loan For Health System

26

26 GOVT & INDUSTRY

National Genomics and Genotyping Facility (NGGF) Inaugurated at NIPGR

ICMR has recommended a complete ban on e-cigarettes and other electronic nicotine delivery systems (ENDS)

Eli Lilly's Generic Insulin now available half the price of branded counterpart

Celgene's Revlimid for Follicular Lymphoma approved by FDA

FDA Approves Zolgensma against SMA With a $2M Price for 5 years treatment

Genentech's Blood Cancer Drug 'POLIVY' Approved

Why Merck is buying Tilos for up to $773 Million

Sanofi Selects Novartis Executive to Replace Retiring CEO

40 RESEARCH NEWS

3D-printed 'hyperelasticbbone' for skull reconstruction

New study: All immature cells can develop into stem cells

First gene that increases the risk of fainting identified

Scientists develop technology to capture tumor cells

First-ever spider glue genes sequenced

Notices:

- DBT Invites Applications for Har-Gobind Khorana-Innovative Young Biotechnologist Award (IYBA) 2019
- CSIR Technology Management Directorates
- DBT Letter of Intent in the area of "Genome Engineering Technologies and Their Applications"
- Science & SciLifeLab Prize for Young Scientists etc.

51

Events:

- 16th BRSI Convention, Kerala, 22-24 November 2019
- Sathyabhama University workshop of Nanotechnology

Advisory & Editorial Board

From the very first issue, Biotech Express team has been delivering what's best for Biosciences community. The audience of this magazine includes students, researchers, faculties and executives of highly prestigious organizations of India. In year 2016, BEM has made new editorial Board combining experience of eminent Advisory Board Members who have been into Award winning Research and head prestigious Administrative positions.

Managing Editor
Kamal Pratap Singh

Assistant Editor
Piyush Kumar

Chief Editor
Seema Pavgi Upadhye, MSc, PhD

Advisory Board Members

Sopory Sudhir Kumar

Padma Shri, Shanti Swarup Bhatnagar Awardee
Ph.D., FNA., FNASc., FNAAS., FASc., FTWAS
SERB Distinguished Fellow, DST, ICGEB 2018----
Vice –Chancellor, JNU, Delhi, 2011-16
Director, ICGEB 2014-15

Pandey Ashok

D.Phil., FRSB., FNASc., FBRS., FIOBB., FISEES., FAMI.
Distinguished Scientist, CSIR-IITR
Former Dy Director & Chief Scientist, Centre for Biotechnology & Biofuel Division, CSIR- National Institute for Interdisciplinary Science and Technology
Founder, Biotech Research Society of India.

Mishra Kaushala Prasad

Ph.D., F.M.A.Sc., FNASc.
Former Head, Radiation Biology Dept., BARC, India
Former Vice-Chancellor, Nehru Gram Bharati University
Founder, Radiation Biology Society, Founder President, Society for Radiation Research , India(SRRI)
Mumbai, President, Asian Association for Radiation Research (AARR)2017-2021

Consulting Editors

S Venkata Mohan
FNAE, FBRS, FT(AP)AS, FIEI, FABAP, FISEES
Principal Scientist
Bioengineering and Environmental Sciences (BEES), (CSIR-IICT)
Hyderabad, India.

Pant Deepak
Senior Scientist, VITO – Flemish Institute for Technological Research, Belgium

Dubey K K
Associate Professor and Head. Department of Biotechnology,. Central University of Haryana

Datta Madamwar
Professor
BRD School of Biosciences, Sardar Patel University, Gujarat

Editorial Board Members

Barun K Bhattacharya
Scientist in charge, Biotechnology R&D, East India Pharmaceuticals Works Ltd.

Dinesh K Gautam
Assistant Professor, Department of Zoology, Hansraj College, Delhi University.

Rajni Gupta
Associate Professor, Botany, Kirori Mal college, Delhi University.

Darshan Malik
Associate Professor, Biochemstry, Shivaji College, Delhi University.

Anand Sonkar
Assistant Professor, Department of Botany, Hansraj College, Delhi University

Shailendra K. Saxena
King George's Medical University (KGMU).

Sumit Gandhi
Senior Scientist at CSIR-Indian Institute of Integrative Medicine (CSIR-IIIM), Jammu.

Yogesh Joshi
Assistant Professor at Department of Bioinformatics Solapur, Maharashtra.

Deepak Kala
Assistant Professor, CHANDIGARH UNIVERSITY.

Kavit Mehta
Asst. Prof. biotech at Ganpat university, Ahmedabad, Gujarat, India.

Seema Amin
Assistant Professor at Charotar University of Science & Technology (CHARUSAT), Ahmedabad Area, India.

Sharvan Sehrawat
Asst Professor, IISER Mohali, Punjab, India.

Mukund Bodhankar
Teaching and research at Bharati Vidyapeeth University, Pune.

Selvarajan Ethiraj
Research Assistant Professor at SRM University (Sri Ramaswamy Memorial University), Kanchipuram, Tamil Nadu,

Tathagata Choudhuri
Associate Professor, Dept of Biotechnology, Visva Bharati, Santiniketan, West bengal.

Burusa Prasad Rao
Senior Scientist at CLRI, Chennai Area, India.

Shailesh K Tiwari
Scientist at IIVR, Varanasi.

Pratyush Kumar Das
Ph.D Scholar, Centre for Biotechnology, Siksha 'O' AnusandhanOdisha, India.

Paramjit S Panesar
SLIET University, Longowala, Punjab.

Sukanta Majumdar
Gour Banga University.

Rupesh Chaturvedi
Professor at Jawaharlal Nehru University New Delhi, Delhi, India.

Himani jain
Teaching Associate at deenbandhu chhotu ram university of science & technology, Murthal, Haryana.

Baskar Gurunathan
St.Joseph's College of Engineering, Chennai.

Editorial

Scientific misconducts- How to Fake Good Sciences

by Kamal Pratap Singh

Scientific misconduct is not a new term among Global Scientific community, people like to do anything to prove their research correct. But Since we are living in digital world today, when scientific literature too can be verified by peers, the cross verification is just a click away. In this article we are using Retraction watch and Pubpeer as reference medium to understand scientific misconducts and their possible consequences on research and career. Although we are citing Retraction watch regularly but recently, a post of the 'the Hindu' newspaper which refers Pubpeer, attracted huge attention, including leaders of Biotechnology and Life Sciences field. Some well known research misconducts which resulted in either acceptance of misconduct, retractions, or resignation are listed toward the end of this article.

To understand Scientific misconduct, first we need to understand what is research. Research is defined as an undertaking intended to extend knowledge through a disciplined inquiry or systematic investigation.

Regulatory Bodies defines Research misconduct as: •Fabrication, falsification, or plagiarism in proposing, performing, or reviewing research results * Also deliberate or repeated non-compliance with the regulations can be considered misconduct.

Fabrication making up results and recording or reporting them Falsification: manipulation of research materials, equipment, or processes, or changing or omitting results such that the research is not accurately represented in the record.

Plagiarism: the appropriation of another's ideas, processes, results, or words without giving proper credit. Copying content somehow regarded as least severe form of Scientific misconduct until someone has copied whole article of someone.

Criteria for Research Misconduct

- Represents a significant departure from accepted practices (ex: embryo gene editing)
- Has been committed intentionally, or knowingly, or recklessly
- Can be proven by a preponderance of evidence
- What is NOT misconduct- honest, unintentional error or honest differences of opinion

Top Ten Heroitic Stunts of Scientific misconducts:

1. Falsifying or 'cooking' research data
2. Ignoring major aspects of human-subject requirements
3. Not properly disclosing involvement in firms whose products are based on one's own research
4. Relationships with students, research subjects or clients that may be interpreted as questionable
5. Using another's ideas without obtaining permission or giving due credit (plagiarism)
6. Unauthorized use of confidential information in connection with one's own research
7. Failing to present data that contradict one's own previous research
8. Circumventing certain minor aspects of human-subject requirements
9. Overlooking others' use of flawed data or questionable interpretation of data

Top 10 Scientists of Retraction who intentionally made the mistakes in research publications

Yoshitaka Fujii (140)
Joachim Boldt (97)
Yoshihiro Sato (64)
Diederik Stapel (58)
Jun Iwamoto (54)
Yuhji Saitoh (53)
Adrian Maxim (48)
Chen-Yuan (Peter) Chen (43)
Fazlul Sarkar (41)
Hua Zhong (41)

10. Changing the design, methodology or results of a study in response to pressure from a funding source (falsification).

Other Behaviours

- Publishing the same data or results in two or more publications
- Inappropriately assigning authorship credit
- Withholding details of methodology or results in papers or proposals
- Using inadequate or inappropriate research designs
- Dropping observations or data points from analyses based on a gut feeling that they were inaccurate
- Inadequate record keeping related to research projects

Why does misconduct happen?

- Publish or Perish Pressure
- Desire to "get ahead"
- Personal problems
- Character issues
- Cultural Differences

How is misconduct identified?

- Suspected and reported by a colleague
- Failure to confirm research results by own lab or others
- Peer Review on online website like Retraction Watch and Pubpeer

How to avoid Scientific misconduct

- Adopt zero tolerance
- Protect whistleblowers
- Clarify how to report
- Train the mentors
- Model ethical behavior

Consequences of Misconduct - on Science

- If misconduct takes place in a clinical trial, it places all subjects in that trial at possible safety risk
- Withdrawal or correction of all pending and published papers and abstracts affected by the misconduct
- Loss of Credibity
- Loss of Public money
- Affected Career of Labmates
- Affected Future discoveries and Other related research

Consequences of Misconduct - on career

- Reprimand, removal from project, rank and salary reduction, dismissal
- Restitution of funds to the granting agency
- Ineligibility to apply for grants for years. The end of research career!

Dealing with Misconduct

- Prevention –Identify and eliminate/minimize risk factors for misconduct
- Detection –Monitor and recognize signs of fraud
- Correction –Promptly investigate and report fraud

Institutional Requirements

- Establish policies and procedures for investigating and reporting instances of alleged research misconduct
- Provide training and education
- Promote responsible conduct of research
- Provide support to assist with correcting incidences of misconduct
- Provide annual report
- Promote Professionalism!

How to maintain research ethics and avoid scientific misconduct?

- Develop clear research plan (who will do what when and how)
- Submit protocol to ethical review
- Prepare (communicate) well with your research community
- Agree on authorship During conduct of research
- Follow the approved protocol
- Gain consent
- Involve the community
- Protect yourself, your team, & your participants
- Regularly check your data after research
- Share your study report(s)
- Return 'something' back to the researched community
- Publish following publication ethics
- Use Reference Management Software

Responsible Research Conduct

The Office of Research Integrity (ORI) USA, defines research integrity as "adherence to rules, regulations, guidelines, and commonly accepted professional codes or norms." Research integrity is essential to ensure the reliability of research results and to preserve public support for research.

Accountability of Journals, Editors and Reviewer

Findings from Websites like Pubpeer and reraction watch also raises concern about the role of Publisher of Journals, Editors and reviewers which makes a big team of highly

qualified people in their respective fields. There are many journals of good repute that have been publishing work of Dr Y Shukla, Dr Chitra Manadal Journal of Proteomics, Phytomedicine, Carcinogenesis 5.334, PLoS ONE, European Journal of Pharmaceutics and Biopharmaceutics , International Journal of Cancer Impact factor: 6.513 (2016)

Examples of some Scientific misconduct

Recently according to ''the Hindu'' newspaper, names of few Indian Scientists, Prof Yogeshwar Shukla of CSIR-IITR and Prof Chitra Mandal of CSIR-IICB have come up in the scanner of ''Pubpeer''.

Dr. Yogeshwer Shukla is Chief Scientist in Food, Drug & Chemical Toxicology in CSIR-Indian Institute of Toxicology Research, India. On Pubpeer website, his name is coming up in around 43 suspected papers on 12/05/2019. One paper which received highest comment *https://pubpeer.com/publications/19913878F-1C75788FE95D3FD1FCADE* is looking a case of image cropping and editing, more on that they were flipped and not to mention image recycled between two journals.

Dr Chitra Mandal has also very high number of papers reported on Pubpeer website, on 12th June 2019 her name is coming up in 39 papers.

However the King of Retractions is the one and only Yoshitaka Fujii, the Biggest Fabricator in Science who got caught some years back.

It could not be tossed in more funny way than wrote by ''the better science'' writer *Smut Clyde;*

''Welcome to another hagiography of an acdemic career built on fabricated research results. Today's Photoshop hero is professor Yogeshwer Shukla, a highly distinguished Indian expert of toxicology, cancer research, proteomics and recently also nanotechnology, where he announced to cure cancer with nanoparticles soaked in Ayurvedically-relevant plant extracts. Shukla spent his entire career at the CSIR-Indian Institute of Toxicology Research (IITR) in Lucknow, where he has practised his art for almost 35 years since his early days of PhD in 1984, and where he now made it as Chief Scientist of Food, Drug and Chemical Toxicology. The man who is not afraid to use a mango or even a pomegranate to kill cancer, received awards from the Indian Society of Health, Environment, Education and Research, for his Photoshop contributions in the field of cancer chemoprevention. Shukla, who probably will proclaim resveratrol's antioxidative powers even after his 5th bottle of red wine, also used to be the General Secretary of Environmental Mutagen Society of India and the Indian Society of Toxicology.

About PubPeer

The PubPeer is online journal club, is a California-registered public-benefit corporation with 501(c)(3) nonprofit status in the United States. The overarching goal of the Foundation is to improve the quality of scientific research by enabling innovative approaches for community interaction. The bylaws of the Foundation establish pubpeer.com as a service run for the benefit of its readers and commenters, who create its content. Although started as discussion platform, it's users and interface have made it whistleblower. The job of pubpeer has emerged to facilitate the discussion about questionable research results. It has served as a whistleblowing platform, in that it highlighted shortcomings in several high-profile papers, in some cases leading to retractions and to accusations of scientific fraud, as noted by Retraction Watch. Contrary to most platforms, it allows anonymous post-publication commenting, a controversial feature which is the main factor for its success.

Conclusion

Earlier detection of Scientific misconduct was very difficult because of lack of online journal clubs, but it is not very difficult now, thanks to Pubpeer and Retraction watch. Scientist from all over the world are being caught for their malpractices and many names are coming every hour in the watchlist. Despite being caught the disciplinary actions on such scientists are very less which in future may be responsible for encouraging others to do the same.

Guest Article

Nurturing Entrepreneurship Culture at the University of Hyderabad

by Sreedhar R Voleti, MD, UoH-BIONEST

The University of Hyderabad (UoH), a premier institution of post graduate teaching and research in the country was established by an Act of Parliament (Act No. 39 of 1974) on 2nd October, 1974 as a Central University fully funded by the University Grants Commission. For over four decades, it built cutting-edge research and quality education to millions of students. In addition it builtunparalleled knowledge-based foundation for nurturing innovations and entrepreneurship activities in various science and engineering disciplines.University of Hyderabad always remained in the top 10 universities of India, and past decade, it has been ranked in the top-3.

The establishment and nurturing of science and technology-based enterprises in academic and research orga-

Photo: Incubatee meet discussion at BioNEST

nizations is the new-age thinking of policy makers because of the higher potential in creating dynamic market economies, unmet needs, and more importantly, jobs. As there is rapid development in scientific findings and new technologies in the R&D organizations, various divisions/departments of Ministry of Science & Technology of Govt. of India took the initiative of providing incubation facilities for new entrepreneurs to realize their novel innovative thoughts having high impact to the marketneeds. Such initiatives are now known by the common name of Technology Business Incubators (TBI), BioNEST (BioincubatorsNuturing Entrepreneurship for Scaling Technologies), or TIDE (Technology Incubation and Development of Entrepreneurship), all of which are focused on developing inventive ideas to innovative R&D, technologies, or products for commercializble intellectual properties and platforms.

University of Hyderabad has a large number of faculty spanning across various disciplines conducting research largely in fundamental and yet some in translational and applied disciplines. These outcomes would find benefit in societal usage in shorter timelines. Yet, only few such outcomes have been translated or created commercializble intellectual properties. University of Hyderabad for long time was mulling over on promoting such translatable research outcomes to industry for further commercialization.

Entrepreneurship drive at the University of Hyderabad (UoH) started a while ago in science and engineering disciplines in partnership with and funding from the Govt. of India with mutually agreeable terms and conditions. Taking advantage of its high-quality knowledge-base developed for over four decades, UoH has established TBI, TIDE, and BioNEST incubators funded from MeITy, DST, and DBT organizations of GOI, respectively – each incubator focusing on to its native strengths of research developed by faculty. These incubators, with a strong determination to nurture early stage innovators/innovations, have been helping all incubatees selected after rigorous scrutiny, with physical and intellectual infrastructure to realize their scalable research, technologies, and product outcomes achieved in realistic timeline manner. More about University of Hyderabad can be found at www.uohyd.ac.in

Photo: Research Facilities at BioNEST

Structure: TIE-U and UoH-ASPIRE

In order to promote the already developed intellectual property at the UoH and enhance industry-academia interactions, UoH has established new department named as Technology, Industry Liaison, and Entrepreneurship Unit (TIE-U). TIE-U at UoH promotes, oversees and commercializes the intellectual properties developed by faculty from various departments of UoH across diverse disciplines at the National and Global levels by creating tie-ups with industry across the globe.

University of Hyderabad has stepped up to diversify its activities by spreading into nurturing entrepreneurial activities for innovations, without compromising on its long-built core academic and educational ecosystem. To create such ecosystem, the UoH added a not-for-profit organization, named UoH-ASPIRE (Association for Scientific Pursuits in Innovative Research Enterprises) that function directly under TIE-U and takes care of all such innovation nurturing incubators and growth-phase centers in the years to come. Prime function of this section-8 company is to manage entire entrepreneurial activities initiated by the UoH in a self-contained and sustained manner.

The board of directors of this company, UoH-ASPIRE, constituted by the internal members of UoH and ex-officiowill primarily drive the company and govern its functionality. Currently, all the three incubators TBI, TIDE, and BioNEST at UoH contribute to the financial sustenance of UoH-ASPIRE with defined contribution as agreed by its board of directors. This cooperative financial ecosystem will not only bring organizational structure to the entire entrepreneurial architecture at UoH but also build harmony among the incubators. Any other further incubators established at the UoH Growth-Phase Centers will be joined along with the existing incubators under UoH-ASPIRE, and follow the guidelines established. Graphically, the entire structure of entrepreneurship vertical has been defined and represented as below:

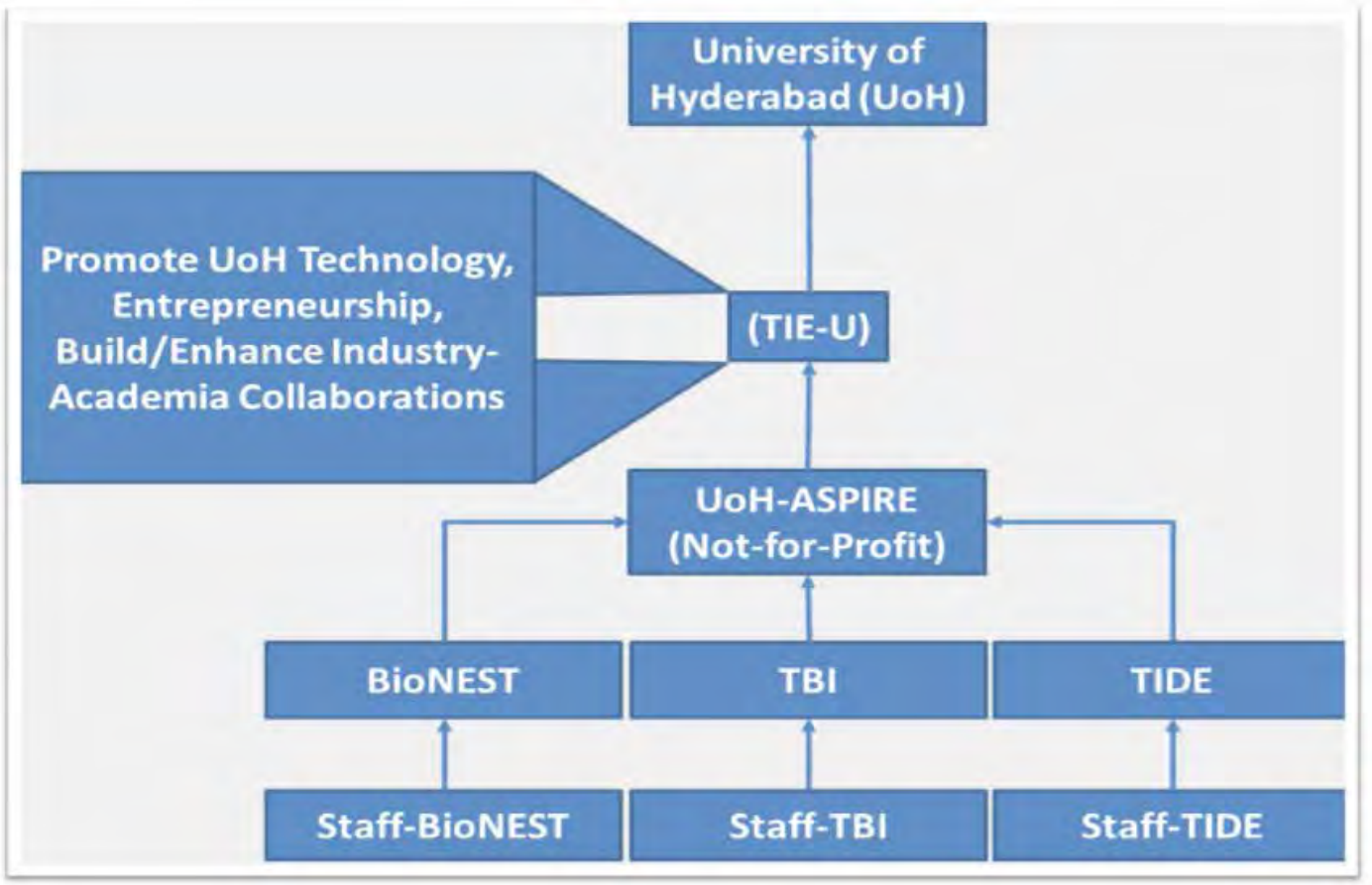


Figure: Organizational Structure to the Entrepreneurship Initiatives at University of Hyderabad

The current vice chancellor of UoH, Prof. ApparaoPodile says "The University of Hyderabad has seen considerable growth in the past few years, with the introduction of new courses of study, new disciplines, and new initiatives. With the range of disciplines represented and the quality of the faculty and students at UoH, the University- which is among the finest in the country- is well poised to make its mark internationally as well".UoH also introduced Faculty Entrepreneurship Scheme(FES) allowing faculty to setup companies with novel ideas in order to encourage innovation and entrepreneurship. He added, "Probably, we will be the first to allow faculty to do so in public-funded universities," The university has the 'best' talent in the form of faculty, who can make a difference to business and innovation. The focus on research and incentives to be innovative is our way of attracting the best talent both in faculty as well as students".

Photo: Prof. ApparaoPodile, Vice Chancellor, University of Hyderabad

Editorial

Technology for safe mining is available, so what are we waiting for?

By Pratyush Kumar Das, Editorial Board Member, Biotech Express Magazine

Introduction

Mining is considered as one of the most economically important activity worldwide. Though economies of developing countries like India are highly dependable on its mines, but still it is associated with many environmental concerns and leads to dire consequences. However, remedial measures to combat such concerns are readily available through applications of modern technology.

Photo: Prof. KA Natarajan (third from right) unravelling the book of abstract at GTCE-2019

"Technology for safe mining is available, then what are we waiting for?", Prof. KA Natarajan, Emeritus Professor in the Department of Materials Engineering at the Indian Institute of Science (IISC), Bengaluru, said while addressing the gathering at recently concluded National Conference on Green Technology for Clean Environment, at Siksha 'O' Anusandhan (Deemed to be University), Bhubaneswar, Odisha.

The conference was organized by the Biofuel and Bioprocessing Research Centre (BBRC) of the University and attracted large numbers of scientists, researchers, academicians and entrepreneurs. Prof. Natarajan listed several environmental concerns, laying special emphasis on threat posed by Acid Mine Drainage (AMD) on the environment, especially in mineral rich states like Odisha. He discussed about possible biotechnological interventions that could help mitigate pollution and thus, protect the environment.

Prof. Natarajan underlined the importance of optimization of microbiological species and useof constructed wetlands for remediation of polluted sites. He even cited some heavily polluted sites in the world that have been cleaned up by following such technologies.

The conference was presided over by Prof. Amit Banerjee (Vice Chancellor, SOA Deemed to be University) who also pointed out that reclamation could be achieved by using the right technology at the right time. Prof. Lala Behari Shukla, convenor of the conference and Director of BBRC, spoke about the renewable energy sector and role of microalgae in production of biofuels as an alternative to the conventional fossil fuels. This could help mitigate environmental problems associated with emissions of greenhouse gases and climate change, he said.

Interview with Prof. L.B. Shukla

On the occasion of the National Conference, we had an interview with Prof. Lala Behari Shukla. Prof. Shukla is the former chief scientist and CSIR-Emeritus scientist at Institute of Minerals and Materials Technology (CSIR – IMMT), Bhubaneswar. With more than 39 years of R&D experience, 174 publications, 4 books and 11 patents, he is currently the Research Professor-cum-Director of Biofuels and Bioprocessing Centre (BBRC), Siksha 'O' Anusandhan (Deemed to be University), Bhubaneswar. He is also an editorial board member in Scientific Reports, a journal from Nature Publishing Group and many others.

1. Being the convener what you have to say on the recently concluded National Conference on "Green Technology for Clean Environment (GTCE-2019)"?

Our planet is steadily suffocating under the impact of different pollutions. The importance of green technologies lies in reducing or mitigating the risks posed by environmental damages and restoring the clean environment. The use of these technologies is widespread and continues to evolve across the globe.

Green technology provides alternative energy sources, facilitates with biodegradable products, encourages recycling, and promotes the sustainability and development. It also significantly helps with curtailing pollutions, decelerating global warming, and preserving natural resources either by direct implementations or by indirect effects.

The National Conference on "Green Technology for Clean Environment (GTCE-19)" aims to deliberate and discuss the innovative applications and advanced researches in the field of different types of pollutions, and their abatement and control among the scientists in India and abroad. We have received a total of 136 abstracts from different institutions and industries covering the themes of the conferences.

The themes are as follows: Water Pollution and Water Quality Control, Air Pollution and Air Quality Control, Land (Soil, Waste Solid) Pollution and Remediation, Ecosystem Assessment and Restoration, Bio-Assessment and Toxicology, Society and the Environment, Environmental Analysis and Measurements Sustainable Development and Environmental Management, Nano technology and Nano materials for environment areas of energy production, alternative and renewable energy supply, energy savings analysis, optimization of energy processes and the environmental impacts of energy production. About 150 participants and attendee have taken part in the discussions and give their valuable suggestions. It was very much successful.

2. There has been observed an upsurge in the research interest of scientists towards utilization of green technologies in the environmental context. In your opinion how far have we succeeded in implementing such technologies on a field scale?

The application of advancement of technology to abate pollution and protect environment needed urgent attention as per the regulations based on the standards fitted by different environmental agencies. Worldwide, many researchers are working in the area, giving their best to develop a clean society. But there are many parts to be need attentions. We need a comprehensive, forward-looking approach in which current barriers and disincentives are removed; appropriate incentives are provided; and fiscal, economic, environmental, and industrial policies are integrated and made mutually supportive. The goal is an environmental protocol that is friendly to both business and society.

3. Many of the environmental projects are only limited to lab scale experiments and end up with publications. What may be the possible reasons for their failure to reach the common masses?

We need to improve processes and products, not find better ways of disposing of wastes. We do not need to throw money at every environmental opportunity that comes along, but we must develop and implement methods to measure environmental performance and assess the contribution it makes to shareholder value both by reducing costs and by enhancing revenues. However, there is awareness in common people in the society at best needed. Secondly government agency should have open handed initiative to make reach the product to the common people.

4. As the Research Professor and Director of the Biofuel and Bioprocessing Research Centre, Siksha'O' Anusandhan (Deemed to be University), what you have to say about the current biofuel scenario in India?

The major sources includes Algae, Jatropha oil and vegetable oils, cellulosic materials, corn and sugarcane etc. have been under surveillance since late 1990s. Major drawback so far for renewable energy sources are continuous flow of energy of biofuel from a single one. Overestimation of potential of Jatropha oil, as a potent source has been identified and slowly rejected by growers and the planners. Algae, one of the most effective sources of biodiesel, production technique and availability of water sources has been under scanner.

The conversion of vegetable oil and food grain sources for biodiesel got thumb down indicator from many. The new addition of cellulosic biofuel as a second generation biofuel has abundant availability of raw material. But, it required a lot of research hours to confirm the best suitable technique and the best source for economically viable production system. Under the mentioned constraints, lays the hope and assurance for finding best source and technique to produce biofuel for the use of masses. As, the conventional sources of energy are drying up at faster rate, the alternate sources be explored, examined and implemented in no time.

Government has set up a target of 20% blending by 2017. Apex financial institutions like the National Bank for Agriculture and Rural Development (NABARD), Indian Renewable Energy Development Agency (IREDA) and Small Industries Development Bank of India (SIDBI) have refinancing provisions to set up biodiesel plantations, oil expelling/ extraction units, and infrastructure for storage and distribution.

The Bio-Diesel Association of India (BDAI), is a non-profit national association representing the biofuels sector more specifically biodiesel industry as the coordinating body for marketing, research and development in India, encourage biofuels specially biodiesel and assure sustainable agricultural growth, rural development, energy security and equal opportunity for the masses with overall environmental protection. India's biofuel policy exempts the biofuel sector from central taxes and duties.

While biodiesel is exempt from excise duty, bioethanol enjoys a concessional excise duty of 16%. Customs and excise duty concessions are also provided on plant and machinery for the production of biodiesel and bioethanol. These policies promote the biofuel sector. Though the policy mentions exemption of central taxes and duties on biofuels, sales tax, license fee, permit fee and import taxes still exist, hindering the growth and development of the industry.

5. How you and your team at BBRC, SOA are striving towards a clean and sustainable environment?

• All aspects related to Biofuels production and their processing(scale up to photobioreactorandraceway pond) are being dealt by the research group
• Biological applications such as Biological fermentation (BioAlcohol); biogas production, algae in food and medicines etc. are also being evaluated in addition to algal biofuels
• Furthermore, the centre will also evaluate other applied potential aspects for the use of bacteria and/or fungi in environmental clean-up programs such as Bioremediation, Bio-mineral processing for the management of solid industrial and domestic wastes and biological implications to energy sector (BioEnergy)
• Bioleaching of Rare earth elements and electronics wastes will be given priority
• Applied aspects such as wastewater treatment, synthesis of nano-particles etc will be the focus of the research group

6. Any message that you would like to convey to the current generation in relation to a clean and green environment?

• Young people should be involved in designing and implementing appropriate environmental policies.
• With the ever increasing use of technology and industries flourishing the amount of pollution in our environment is increasing at a rapid pace. Keeping our environment clean is a very important part of our lives in these days. It is important to focus on this as we have to make sure that the environment is preserved for future generations.

ORGANIZING COMMITTEE

Chief Patrons

Dr. Lavu Rathaiah, Chairman, Vignan Group

Prof. K. Ramamurthy Naidu, Chancellor, VFSTR

Dr. M. Y. S. Prasad, Vice Chancellor, VFSTR

Prof. K. Sathya Prasad, Rector, VFSTR

Prof. B. Suresh, President, PCI

Prof. T. V. Narayana, President, ABAP

Patrons

Prof. S. Krupanidhi
Dean- P & M and Head, Department of Biotechnology

Prof. D. Vijaya Ramu
Dean, Academics & Foreign Collaborations.

Prof. P. Srinivasa Babu
Principal, Vignan's Pharmacy

Prof. K.R.S. Sambasiva Rao
Gen. Secretary, ABAP

Organizing Secretaries

Dr. T. C. Venkteswarulu, Assoc. Prof. & Dy. HoD

Dr. S. Asha, Assoc. Professor

Dr. D. John Babu, Assoc. Professor

Joint Organizing Secretaries

Dr. Prakash Naryana Reddy, INSPIRE Faculty

Dr. R. Karthikeyan, Vignan's Pharmacy

Mr. A. Viswanath, Vignan's Pharmacy

Treasurer

Mrs. M. Indira, Asst. Professor

Members of Steering Committees : VFSTR:

Dr. A. Ranganadha Reddy	Dr. Abraham Peele K
Mr. A. Venkata Narayana	Dr. N. S. Sampath Kumar
Dr. Md. Nazneen Bobby	Dr. N. Jalaja
Dr. Abhinav Parashar	Mrs. Shweta Kulshreshtha
Dr. Charles David	Dr. A. Ranga Rao
Dr. S. Rex Jeya Rajkumar	Dr. D. Benet Bosco Dhas
Dr. Avinash Rasalkar	Dr. Sukesh Kalva

VIGNAN'S
Foundation for Science, Technology & Research
(Deemed to be UNIVERSITY)
-Estd. u/s 3 of UGC Act 1956

www.vignan.ac.in

13th Annual Convention of
ABAP & International Conference
on
"Environmental Sustainability, Human Health and Development"
20th - 22nd December, 2019

FIRST CIRCULAR

Jointly Organized by

Association of Biotechnology and Pharmacy

KNOWLEDGE IS POWER

Department of BIOTECHNOLOGY

VIGNAN'S
Foundation for Science, Technology & Research
(Deemed to be UNIVERSITY)
-Estd. u/s 3 of UGC Act 1956

Vadlamudi, Guntur - 522 213. Andhra Pradesh.
Tel : 0863 2344700 Extn : 158

www.vignan.ac.in

PRESS RELEASE

Establishment of Soybean Processing Industries: Entrepreneurship Development Programme

Introduction

Soybean, being an important food commodity on account of its nutritional value and health benefits, is high in protein, low in fat and carbohydrate and contains no cholesterol. Owing to the amino acids composition, the protein of soybean is known as a complete protein. Due to the presence of vegetable protein which is very nutritious and easy to digest, It is considered to be an excellent food for the babies, children, elderly people and pregnant and lactating women. Since it is a rich source of high quality protein at low cost, there is great potential for utilization of soybean and its products for food, feed, pharmaceutical and industrial applications.

The Soybean can be used to prepare a plethora of different products ranging from soy milk to tofu (soy paneer), soy curd, soy nuts and various bakery based products, etc. The costs of these products are very low and are helpful to combat the malnutrition by the incorporation of the soy-based food products in daily diet.

Establishment of Soybean Processing Industries: Entrepreneurship Development Programme

Keeping the health benefits of Soybean into consideration, the Entrepreneurship Development Programme (EDP) on Soybean processing was started in the Year - 1995 at ICAR-Central Institute of Agricultural Engineering (ICAR-CIAE), Bhopal. The main aim was to develop the enterprise in the area of soybean processing for the livelihood opportunities, employment generation and production of high quality protein products at a low cost. The EDP module on "Soy-based bakery products and Soy snacks" was added in the Year - 2002. The ICAR-CIAE is the only Institute in the country to offer the EDP on Soybean Processing. The participants were also provided with the technical guidance and support for establishing the enterprise and preparing the produce as and when needed.

Until February, 2017, 167 batches (2,524 participants) underwent the EDP, out of which 2,206 persons participated in Soy milk and Soy paneer production and 318 persons in Soy-based bakery products and Soy snacks. The Maximum number of trainees were from Madhya Pradesh (615) followed by Maharashtra, Punjab, Uttar Pradesh, Haryana, Rajasthan and Delhi.

Impact of the Entrepreneurship Development Programme:

Initially, an assessment of the impact of the Entrepreneurship Training Programme was carried out through telephonic contacts with the trainees and then, the personal visits of selected production clusters (Madhya Pradesh, Maharashtra, Punjab, Uttar Pradesh, Delhi, Haryana, Uttarakhand, Gujarat, Rajasthan, Bihar and West Bengal) across the country. Around 198 Soybean processing units are currently operational. The units are distributed in the different parts of country and includes 17 states, however, the maximum 41 units are located in Punjab followed by Maharashtra (40 units), Uttar Pradesh (23 units), Haryana (21 units), Delhi (15 units) and Madhya Pradesh (14 units). The establishment of units geared up mostly after 2010. Out of total working units, only 36 were established before 2010. More than 166 units have been established after 2010.

There have also been some cases of closure of Soy Processing Units. Around 14% trainees established the enterprise, but closed it at the later stage due to the marketing constraints. Based on the information collected, the average annual production of Tofu and Soy milk is 2,700 tonnes and 3,400 kilolitres, respectively. The Total protein content in tofu and Soy milk is 14 and 3.5%, respectively.

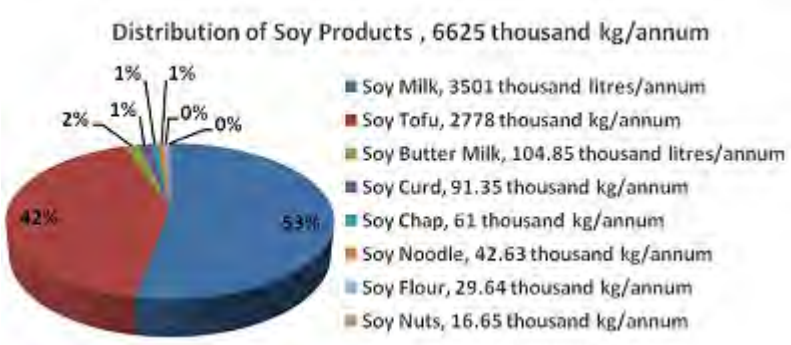
Economic impact:

Establishment of Soybean Processing Industries: Entrepreneurship Development ProgrammeSoybean is processed by 198 entrepreneurs across the country for making the different products like milk, tofu, flours, nuts, curd, biscuits, Kebab, chap and Halwa, etc. The annual working days of these units are 203, while the labor employment was analyzed to be 4.73/unit. These entrepreneurs are now generating the employment to the tune of 1.90 lakh man-days/annum and providing the monetary benefits of Rs. 5.70 crores to the 936 workers engaged in running 198 soybean processing units.

The annual gross return is Rs. 28.18 lakh/entrepreneur with an annual gross expenditure of Rs. 17.00 lakh/entrepreneur. Thus, the annual net return realized to the extent of Rs. 11.20 lakh/entrepreneur with a BCR of 1.66. The annual gross monetary benefit generated from 198 entrepreneurs is about Rs. 56 crores. 198 units of Soybean processing established across the country are generating employment of more than 1.78 lakh man-days/annum. Now, the total monetary benefit from 198 entrepreneurs is about Rs. 51 crore/ annum.

Conclusion:

The Soy food-based Entrepreneurship Development Training Programme organized by the ICAR-Central Institute of Agricultural Engineering since 1995 has enabled the establishment of 198 successful enterprises that are significantly contributing to the nation's economy as well in combating the malnutrition by adding 768 tonnes of edible low cost protein every year. The economic impact due to these enterprises is presently about Rs. 56 crore per annum and is constantly increasing with the popularity of Soy based-food products. The Soy based-food processing industries operating at the cottage to small scale level has been a successful venture in generating the income and employment.



(Source: ICAR-Central Institute of Agricultural Engineering, Bhopal)

PRESS RELEASE

India Giving Foundation World Environment Day Celebration

by Surender Shekhawat

On world environment day, 5th June 2019-06-14 IGF organized an event in ABESIT College, Ghaziabad in which volunteers planted more than 2000 plants in and around campus. On this occasion leaders of nine Gram Panchayats gathered along with officials of Central Polluyion Control Board(CPCB), Ghaziabad. On this occasion CCIL and IGF committed to plant 1000 plants annually and to recruit a dedicated team for their maintenance .

The main event was sponsored by Continental Carbon India Limited. Event was inaugurated by Mr Andrew, Continental Carbon Limited, Vikas Hindu(Pradhan), Ranjeet Singh(Engineer, CPCB) and Chandra Kiran Singh(GS IGF). Other dignitaries present at the occasion were Mr. Brijesh Kumar(NTPC), Pradhans of Villages, Pushpendra Sharma(Tigri village), Mamchand(Greater Noida), Sudhir Choudhary(Chipiana), Raghvinder singh, Neeraj Singh, Hitendra Sharma, Ajay Singh from Continental Carbon India Limited and Jyotish Singh,

President IGF, Surender Shekhawat, Shashi kant Singh, Surender Prasad, Sanjay Singh, Ms. Rekha(VP-KVS), Chaya Sharma, Manju Rathore, Suman Rani , Tanya Singh from IGF. The event witnessed gathering of around 600 attendees.

During the event several talks were presented from beneficiaries of IGF, Patrons and attendees. Cultural dance was also performed by Shri Suresh Vyas, an internationally proclaimed Indian artist and Anuviska Lok Kala Manch. Awards were also presented to the students and members of IGF for their contribution to the society as whole.

About India Giving Foundation

INDIA GIVING FOUNDATION which is working and assist the needy and neglected people at grass root level and helping to find access to sustain in the society with due dignity as an NGO in India has so far directly put more than 2000 children into the path of empowerment through Education. It supports thousands of children, providing them with the help and resources they need to overcome situations in their lives.

About Continental Carbon India Limited

Continental Carbon India Limited (CCIL) was formed in October 2000 upon the acquisition by Continental Carbon Company (CCC), USA of the carbon black assets of Oriental Carbon & Chemicals Ltd. Since then the carbon black manufacturing facility in Ghaziabad, in the state of Uttar Pradesh, has been substantially refurbished. A 15 MW Waste Heat Recovery Power Plant, commissioned in 2008 is co-located with the manufacturing unit and supplies power to the Uttar Pradesh grid. Carbon Black – an engineered carbon is primarily used as a reinforcing filler in rubber compounding. The end products like tires, profiles, hoses and V-belts are mostly consumed by the automotive industry.

NEWS: Govt & Industry

Tamil Nadu received $287 Million World Bank Loan For Health System Reform Programme

The Government of India, Government of Tamil Nadu (GoTN) and the World Bank have signed a $287 million loan agreement, on Tuesday, for the Tamil Nadu Health System Reform Programme. The programme aims to improve the quality of health care, reduce the burden of non-communicable diseases (NCDs), and fill equity gaps in reproductive and child health services in Tamil Nadu.

Tamil Nadu ranks third among all Indian states in the NITI Aayog Health Index which is reflected in vastly improved health outcomes. The state's maternal mortality rate has declined from 90 deaths per 100,000 live births in 2005 to 62 deaths in 2015-16 while infant mortality has declined from 30 deaths per 1000 live births to 20 in the same period. A key contribution to these achievements has been the establishment of emergency obstetric and neonatal care centres and the 108 ambulance service with previous support from the World Bank. These have ensured that no mother has to travel more than 30 minutes to access emergency obstetric and neonatal care 24 hours a day, seven days a week.

Despite these impressive gains, certain challenges in health care remain, including quality of care and variations in reproductive and child health among districts. Tamil Nadu is also dealing with a growing burden of NCDs as they account for nearly 69 percent of deaths in the state.

The Tamil Nadu Health System Reform Program will support the state government to:

develop clinical protocols and guidelines;
achieve national accreditation for primary, secondary, and tertiary-level health facilities in the public sector;
strengthen physicians, nurses and paramedics through continuous medical education;
strengthen the feedback loop between citizens and the state by making quality and other data accessible to the public.

"The programme supports in-

terventions to strengthen institutional and state capacity to achieve results. Good practices and innovations from Tamil Nadu are being scaled up while others from around the world are being introduced through the programme to improve management of the state public health sector, increase transparency, and strengthen accountability," said Hisham Abdo, Acting Country Director, World Bank.

The programme will promote population-based screening, treatment and follow-up for NCDs, and improve monitoring and evaluation. Patients will be equipped with knowledge and skills to self-manage their conditions. Lab services and health provider capacity will also be strengthened to address mental health. To tackle road injuries, the programme will improve in- hospital care, strengthen protocols, strengthen the 24x7 trauma care services and establish a trauma registry.

Another key aim of this programme is to reduce the equity gaps in reproductive and child health. Special focus will be given to nine priority districts, which constitute the bottom quintile of the RCH indicators in the state and have a relatively large proportion of tribal populations.

National Genomics and Genotyping Facility (NGGF) Inaugurated at NIPGR

The National Genomics and Genotyping Facility (NGGF) was inaugurated by Dr Renu Swarup, Secretary, Department of Biotechnology, Government of India, on 4th May 2019 at National Institute of Plant Genome Research, (NIPGR) New Delhi.

The National Genomics and Genotyping Facility (NGGF) has been established by Department of Biotechnology at the National Institute of Plant Genome Research (NIPGR), New Delhi. This Facility would be established in Public Private Partnership and would serve as a "Singe-window service system" providing advanced genomics based solutions to the custom research stakeholders of Agriculture Biotechnology. Stakeholders encompass government and academic labs and industries.

The platform would be supported by a State-of-art Bioinformatics facility. The major objective of this facility is to fast-track development of improved varieties using genomics assisted breeding. This

would be done by providing access to new and improved genomic tools to breeders in public and private sectors alongwith consultancy and advice on choice of appropriate technologies, study design and data analysis. Additionally, this platform would act as a nodal centre for DNA fingerprinting of lines and varieties for certification purpose in coordination with Plant Variety Protection Authority.

ICMR has recommended a complete ban on e-cigarettes and other electronic nicotine delivery systems (ENDS)

It said that it "adversely affects almost all the human body systems with impact…from womb to tomb".

The medical research body published a white paper on Electronic Nicotine Delivery System (ENDS) on the eve of World No Tobacco Day. The ICMR said, "Use of e-cigarettes adversely affects almost all the human body systems with impact across the life course, from the womb to tomb."

Passive smoke from e-cigarettes or vapes is also harmful, it said. "Passive exposure to vapours during pregnancy can severely affect the health of both the mother and foetus," it said in a statement, while also flagging reported cases of "accidental swallowing" by children.

Professor K Srinath Reddy, President, Public Health Foundation of India and public health expert who have chaired the ICMR expert group said, "Tobacco consumption, especially cigarette smoking, has shown a decline in India in recent years, in response to several tobacco control measures that has already been initiated. Thus, at this juncture, marketing of a product like ENDS or ecigarettes, with unproven benefit and high potential harm from addiction and health risks, is unwarranted as a tobacco control measure."

Prof. Ravi Mehrotra, Director, ICMR-National Institute of Cancer Prevention and Research said the declining trends of tobacco smoking in India is a good positive indication to tobacco control measures. However, "Smokeless tobacco use still remains a public health concern beyond the South-east Asia Region and requires a comprehensive approach to deal with the various challenges its control. ENDS or e-cigarettes are not the only products which have been marketed as an alternative to regular tobacco smoking. There are other devices like heating but not burning of tobacco, Non-Nicotine Delivery Systems, already available in the markets which are also used by both the Smokers and well as non-smokers without any known safety and efficacy of these products as tobacco cessation aid.

Prof. Balram Bhargava, Secretary, Department of Health Research, Government of India and Director General ICMR, New Delhi said, "Given the extent of harmful

health effects of e-cigarettes to the users as well passive
exposure and multiple faces of the ENDS or e-cigarettes use epidemic around the world" where it was introduced, if no appropriate interventions are taken at the right time by bringing together all stakeholders under one umbrella to prevent this impending epidemics of e-cigarettes use, it can lead to a public health disaster in India.

Key recommendations:

Based on the currently available scientific data from multiple streams of research, the ICMR recommends complete prohibition on ENDS or e-cigarettes in India in the greater interest of protecting public health, in accordance with the precautionary principle preventing public harm from a noxious agent, considering the following facts and circumstances:

ENDS or e-cigarettes contain nicotine solution, which is highly addictive, and also contain other ingredients as flavouring agents and vapourizers, which are also harmful for health.

Use of ENDS or e-cigarettes has documented adverse effects on humans which include DNA damage; carcinogenesis; cellular, molecular and immunological toxicity; respiratory, cardiovascular and neurological disorders and adverse impact on foetal development and pregnancy.

The magnitude of potential short-term and long-term health risks to the users still remains undetermined at the population level since the products are recent and come in diverse forms.

Whereas, the degree to which, if at all, the ENDS or e-cigarettes benefit as tobacco cessation aides is not firmly established, evidence suggests that there is a risk of dual use to some extent and initiation to tobacco addiction to non-smokers. Hence, on the balance these products have a net negative impact on public health.

Use of ENDS can open a gateway for new tobacco addiction which is a potential threat to the country's tobacco control laws and on-going tobacco control programmes.

The rapidly increasing trend of use of ENDS or e-cigarettes by young persons, in countries where it was introduced, underscores a potential threat to public health.

Eli Lilly's Generic Insulin now available half the price of branded counterpart

Indianapolis-based Eli Lilly announced that its Lispro Injection is available at pharmacies with the significantly lower list price. Lilly said the generic of Humalog is available in both a vial and KwikPen form. Because they are the same insulin, pharmacists will be able to substitute Insulin Lispro Injection for Humalog, Eli Lilly said. The diabetes patients who are most likely to benefit from Insulin Lispro Injection are Medicare Part D beneficiaries, people with high-deductible health plans and the uninsured who use Humalog.

In January, a cost analysis for insulin was released by the nonprofit Health Care Cost Institute that showed the price of insulin doubled between 2012 and 2016. According to the report, an individual with Type 1 diabetes paid on average $2,864 for insulin in 2012 but that jumped to $5.705 by 2016. Last year the American Diabetes Association published recommendations to address the issue of affordable insulin. The ADA's call-to-action was based on data that showed the average price of insulin nearly tripled between 2002 and 2013. In 2017, the ADA said that diabetes, including both Type 1 and Type 2, was the most expensive chronic illness in the U.S. The disease has a total cost of more than $327 billion per year, including $15 billion for insulin, the ADA said in its report.

Mike Mason, senior vice president of Connected Care and Insulins at Eli Lilly, said the availability of this generic version means more people will be able to afford their insulin. For many diabetics, the rising costs of insulin have been a serious concern. Patients have skipped doses or were rationing the doses of the life-saving drug to their inability to afford additional

supplies. Mason said the company, which is one of the primary insulin providers in the U.S., will work with various health plans and the government to "work toward permanent solutions that will help every person with diabetes afford their medicines."

Last year, Eli Lilly also opened its Lilly Diabetes Solution Center to assist people who need help paying for their Lilly insulin. The company said it has provided assistance to more than 10,000 people per month since the company established the center in August 2018.

Celgene's Revlimid for Follicular Lymphoma approved by FDA

The U.S. Food and Drug Administration (FDA) approved Celgene's Revlimid (lenalidomide) in combination with a rituximab product for adults with previously treated follicular lymphoma (FL) or marginal zone lymphoma (MZL). It is the first FDA-approved combination therapy for patients with these forms of non-Hodgkin's lymphoma (NHL) that doesn't include chemotherapy. The combination is dubbed R2.

For its current indications, such as multiple myeloma, Revlimid brought in almost $10 billion in 2018. However, in some markets it is facing generic competition. The first generic is expected in March 2022.

Meghan Gutierrez, chief executive officer for the Lymphoma Research Foundation, stated about the Revlimid-rituximab approval, "Chemotherapy continues to be a standard of care for indolent forms of NHL, but most patients will relapse or become refractory to their current treatment. This approval represents a new therapeutic option for previously treated patients with follicular and marginal zone lymphomas, including those who relapse or no longer respond to initial treatment. We commend the patients and scientists who participated in the clinical study for advancing lymphoma research and treatment."

The approval for the Revlimid-rituximab combo was based mostly on data from the Phase III AUGMENT trial, comparing the combination against placebo. Patients receiving the combination showed a statistically significant improvement in the primary endpoint of progression-free survival (PFS) compared to rituximab-placebo. The median PFS was 39.4 months for patients receiving the combination and 14.1 months for those receiving rituximab-placebo.

The trial was not designed to detect a difference in overall survival (OS), but a numeric trend for improvement in OS was observed with the combination compared to rituximab-placebo.

The combination is currently being reviewed by the European Medicines Agency (EMA) for relapsed/refractory FL and MZL. A supplemental new drug application was also submitted to the Japanese Pharmaceuticals and Medical Devices Agency for an additional indication in addition to dosage and administration updates for Revlimid in combination with rituximab for relapsed/refractory indolent B-cell NHL.

"Nearly 15 years following the initial FDA approval, Revlimid continues to demonstrate benefits for new patient populations," stated Jay Backstrom, Celgene's chief medical officer. "Revlimid in combination with rituximab leads to immune-mediated treatment ef-

fects and represents a chemotherapy-free treatment option that can help patients with previously treated follicular lymphoma and marginal zone lymphoma delay disease progression."

FDA Approves Zolgensma against SMA With A $2M Price for 5 years treatment

A gene therapy to treat children younger than two with spinal muscular atrophy (SMA) has been approved by the FDA, with a price tag of $2.125 million for a five-year course.

The annual price for the drug, Zolgensma, is about $425,000 for five years, according to Novartis, which manufactures the drug. SMA is a rare genetic disease that affects motor neurons in the brain and spinal control muscle movement throughout the body, according to the FDA. Many children with the disease do not survive past early childhood from respiratory failure.

The new treatment minimizes the progression of the disease and is an adeno-associated virus vector-based gene therapy that delivers a fully functional copy of human SMN gene into the target motor neuron cells. A one-time intravenous administration of the product can improve muscle movement and function––as well as survival of a child with the disease. According to Novartis, the price isn't out of touch with current chronic therapies for young children, which can cost more than $4 million in the first 10 years of life, the company stated. Zolgensma's price is 50% less than the current 10-year chronic treatment of SMA and 50% below 10-year cost estimates for the treatment of genetic pediatric ultra-rare diseases (estimated between $4.4 million and $5.7 million).

"We have used value-based pricing frameworks to price Zolgensma at around 50% less than multiple established benchmarks including the 10-year current cost of chronic SMA therapy," Novartis CEO Vas Narasimhan said in a statement. "In addition, the price of Zolgensma is expected to be within the range of traditional cost-effectiveness thresholds used by ICER when updated for its full labeled indications. We believe by taking this responsible approach, we will help patients benefit from this transformative medical innovation and generate significant cost savings for the system over time."

To get FDA approval, the product underwent a clinical trial that is ongoing and a completed clinical trial with 36 pediatric patients with infantile-onset SMA. Patients treated with Zolgensma demonstrated significant improvement in motor development, such as head control and ability to sit without support. The drug does carry a risk of acute serious liver injury as a side effect.

The drug was approved through the FDA's fast-track, breakthrough therapy and priority review designations. The agency also gave Novartis a rare pediatric disease priority review voucher to encourage the development of new drugs and biological products for the prevention and treatment of certain rare pediatric diseases.

"We are at the forefront of an exciting time in healthcare when we'll be able to see major advancements in medical care with potentially curative gene therapies," Steve Miller, MD, chief clinical officer of

Cigna, said in a statement. "While there are many questions that we as a healthcare system need to consider, what does not change is our work to ensure that these life-saving medications are affordable and available to the patients that need them."

Genentech's Blood Cancer Drug 'POLIVY' Approved

South San Francisco-based Genentech's blood cancer drug Polivy earned an accelerated approval from the U.S. Food and Drug Administration (FDA) due to the complete response rate shown during clinical trials. This marks the fifth blood cancer drug approved for Genentech.

Polivy (polatuzumab vedotin-piiq) is a first-of-its-kind anti-CD79b antibody-drug conjugate (ADC) used in combination with bendamustine plus Rituxan (rituximab) for people with diffuse large B-cell lymphoma (DLBCL) whose disease returned after or did not respond to multiple treatment regimens. Polivy, which was also granted Breakthrough Therapy designation, binds to the CD79b protein, which is only found on B cells, then releases the chemotherapy drug into those cells. The ADC technology used in Polivy was developed by Seattle Genetics and licensed to Genentech.

Approval is based on the Phase Ib/II GO29365 study, which showed improved clinical outcomes for people with relapsed or refractory DLBCL compared to a commonly used regimen. The FDA's Accelerated Approval Program allows conditional approval of a medicine that fills an unmet medical need for a serious condition. Polivy was approved two months ahead of its August PDUFA date. Further clinical trials are required to verify and describe Polivy's clinical benefit, the FDA said in its announcement.

DLBCL is the most common form of non-Hodgkin's lymphoma, with nearly 25,000 new cases of DLBCL expected to be diagnosed in 2019. About 30 to 40% of patients suffer relapse. The disease becomes more difficult-to-treat upon multiple relapses or no response to treatment and Polivy combination offers a much-needed option that is available immediately.

"Despite meaningful progress in the treatment of diffuse large B-cell lymphoma, treatment options are very limited when the disease is refractory to or recurrent after multiple regimens," Horning said in a statement.

The Phase Ib/II GO29365 study was the first and only randomized clinical trial that showed higher response rates over the commonly used combination of bendamustine and a rituximab (BR) in people with R/R DLBCL who are ineligible for a hematopoietic stem cell transplant. Data from the study showed that 40% of people treated with Polivy plus BR achieved a complete response compared to 18% with BR. A complete response means no cancer could be detected at the time of the assessment.

Additionally, the GO29365 study showed that 45% of people on Polivy plus BR achieved an objective response at the end of treatment compared to 18% of people treated with BR alone. Of the people treated with Polivy plus BR who achieved a complete or partial response, 64% had a duration of response (DOR) lasting at least six months as compared to 30% of people treated with BR alone. Also, Genentech noted that 48% of people treated with the combination had a DOR lasting at least a year as compared to 20% of people treated with BR alone.

Adverse reactions included low levels of white blood cells, platelets and red blood cells. Other reactions included nerve damage, fatigue, diarrhea, fever, decreased appetite and pneumonia.

Subscription plans

ISSN: 2454-6968 RNI No. UPENG/2013/54102

Biotech Express

TERM	Print		Digital		Country
USER PROFILE	INSTITUTIONAL	INDIVIDUAL	INSTITUTIONAL	INDIVIDUAL	
Annual	₹ 10,000	₹ 5,000	₹ 5000	₹ 1200	India (in Rs.)
	1000	500	300	100	Other (in USD)

For payment: please write to us at biotechexpressindia@gmail.com

Note: Print subscription includes digital subscription as gratis (no extra cost) for the subscribed period.

Terms and Conditions:

1. Please fill the form in CAPITAL letters.
2. Print Subscription is valid in India only. Outside India Subscriber may subscribe Digital version.
3. Print Subscription cost includes first class courier charges.
4. Print subscription includes digital subscription as gratis (no extra cost) for the subcribed period.
4. The mode of payment should be cheque/DD/favouring "Biotech Express". Please write your name and contact details on the back side of cheque/DD.
5. Your subscription will commence from the next available Issue OR within four weeks.
6. For Multiple Subscriptions/error use seprate forms (Photocopies allowed).
7. Biotech Express will not entertain cancellation of subscription after commencement of the same. No request for refund will be entertained.
8. In case of changing address, kindly send us in writing one month in advance.
9. Non delivery should be reported within 20 days of publishing of monthly issue to consider repost by us. After which no request will be entertain under any circumstances.
10. Annual Subscription can be avail throughout the year.
11. Previous Volumes are available on request.

My Details !

Name of Individual/Institution

Address (correspondence) with Pin

Phone/Mobile No.

Subscription plan

To make Online Payment through NEFT, please follow these details:

Account Name: BIOTECH EXPRESS
Account No: 65183799804
Bank Name: SBI, Dilshad Garden,
Bank Address: 7, Local Shopping Centre, B-block, Dilshad Garden, Delhi, India. Pin – 110095.
Branch code : 009370
IFSC: SBIN0009370
MICR code: 110002183

Why Merck is buying Tilos for up to $773 Million

Kenilworth, NJ-based Merck & Co. is buying Lexington, Mass.-based Tilos Therapeutics in a deal that could hit $773 million.

Tilos focuses on developing drugs that target the latency-associated peptide (LAP)-TGF beta complex to treat cancer, fibrosis and autoimmune diseases. TGF beta stands for transforming growth factor beta. The company was founded based on the research of Galina Gabriely and Howard Weiner at the Brigham and Women's Hospital. Weiner's work focused on serious autoimmune diseases, which led to LAP and the expression of LAP on suppressive cell populations. The laboratory developed antibodies to LAP, which have an effect on tumor growth.

Under the terms of the deal, a Merck subsidiary is buying all outstanding shares of Tilos for a total of up to $773 million, including an upfront payment and various potential milestone payments.

Tilos was founded by Boehringer Ingelheim Venture Fund and Partners Innovation Fund. Additional investment was by ShangPharma Innovation Fund.

TGF beta is secreted with LAP. LAP creates a cage around TGF beta, holding it in an inactive state until it is needed. Research has indicated that anti-LAP antibodies block the release of TGF beta from the TGFB-LAP complex.

"We are proud that the Tilos team has advanced the discoveries of our scientific founders by developing a portfolio of anti-LAP antibodies designed to realize the full potential of TGFB-modulating therapeutics," stated Barbara Fox, chief executive officer of Tilos. "This agreement with Merck, an industry leader in biopharmaceutical research and development, provides meaningful validation for our therapeutic approach and best positions our pipeline for broad clinical and commercial success."

TGF beta is produced by a broad spectrum of immune cells. When activated, it can promote cancer by several different mechanisms, including angiogenesis and metastasis and by stimulating the development and differentiation of Tregs (T regulatory cells) and other immunosuppressive cell types. Tilos' approach is to prevent the activation and release of mature TGF beta.

The primary focus has been in cancer with testing of the anti-TGFB antibodies with checkpoint inhibitors. The antibodies are being investigated in melanoma, glioblastoma and colorectal cancer. Other cancers include renal, hepatocellular, lung, breast and pancreatic cancers. It also has potential for treatments for various autoim-

mune diseases and fibrosis.

Merck is interested in ways of broadening the potential of its checkpoint inhibitor Keytruda (pembrolizumab). Although in many ways a miracle drug, only a small percentage of patients respond to checkpoint inhibitors like Keytruda. Anti-TGFB may help with the effectiveness of checkpoint inhibitors.

This deal is the third cancer-focused deal Merck has made recently. It acquired Immune Design in February for $300 million and in May bought Peloton Therapeutics for $2.2 billion.

Sanofi Selects Novartis Executive to Replace Retiring CEO

Sanofi has found its next chief executive officer. Novartis executive Paul Hudson will officially take over for the retiring Olivier Brandicourt on Sept. 1. Hudson, 51, most recently served as CEO of Novartis Pharmaceuticals.

In announcing Hudson as the new CEO, Sanofi described him as a "seasoned leader with a strong international experience, particularly in the United States, Japan and Europe." In addition to his tenure with Novartis, Hudson has also held key roles in AstraZeneca and Schering Plough. He will move to Paris to take over the reins of the company.

Serge Weinberg, chairman of the Sanofi Board of Directors said the company is pleased Hudson will be taking over as CEO. Weinberg pointed to his skills and experience as a leader in the industry and said he has the assets needed to "accelerate growth and lead the group's adaptation to new strategic challenges, particularly in the areas of research and development and digital."

"Throughout his various management positions, he has proven his strategic vision, his strong leadership and his ability to achieve the greatest challenges, particularly in terms of innovation and digital transformation. Mr. Hudson has a very robust track record in successful major product launches," Sanofi said in its announcement. "His human values will enable him to mobilize all the energies and increase the agility that a group such as Sanofi needs, to face the new challenges of our industry and the changes in healthcare systems around the world."

Brandicourt announced his intentions to step down in March as he approached his 65th birthday. The French company has an age limit restriction for its CEO. Brandicourt has helmed Sanofi since 2015. During his tenure, he oversaw a reshaping of the company that included a deal to swap Sanofi's animal health business with Germany-based Boehringer Ingelheim for that company's consumer healthcare operations. He also oversaw the sale of its generics division, Zentiva, to Advent International for $2.4 billion last year. It wasn't just divestitures, During Brandicourt's tenure, Sanofi acquired the Biogen hemophilia-focused spinout, Bioverativ, for about $11.6 billion. The company also snapped up Nanobodies-focused Ablynx for $4.8 billion. The Ablynx deal quickly paid off as the U.S. Food and Drug Administration approved caplacizumab for treating the blood disease acquired thrombotic thrombocytopenic purpura about a month after the deal was announced. Brandicourt also played a significant role in the company's developmental partnership with Regeneron that has led to multiple regulatory wins for Dupixent.

Following Sanofi's announcement, Novartis said Marie-France Tschudin, currently president of its subsidiary Advanced Accelerator Applications, will take over as president of Novartis Pharmaceuticals. In a brief statement announcing Tschudin's appointment, Novartis CEO Vas Narasimhan thanked Hudson for his service and positioning the company's pharmaceutical business for growth.

Explore Biotech with BRSI

India's Biggest Biotech Annual Event with presence of most eminent scientific talent and Industry patrons

International Conference on New Horizons in Biotechnology : NHBT-2019

Trivandrum, Kerala, India. November 20-24, 2019

Industry-Young Researchers Interactive Session
Scientists-Children Meet
BRSI- Skill Development Program
Bio-Entrepreneurs Conclave

THE BIOTECH RESEARCH SOCIETY, INDIA

BRSI IS A NON-PROFIT, SCIENTIFIC, PROFESSIONAL SOCIETY DEDICATED TO PROMOTE EXCELLENCE AND COMPETENCE IN THE FIELD OF BIOTECHNOLOGY FOR THE BENEFIT OF MANKIND. Please find us online @ brsi.in

SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)
Accredited with Grade "A" by NAAC
Jeppiaar Nagar, Rajiv Gandhi Salai, Chennai - 600 119, Tamil Nadu, India.

ISO 9001:2015

HANDS ON TRAINING IN APPLICATION OF NANOMATERIALS IN CELL AND MOLECULAR BIOLOGY

Dates: 24th to 29th June 2019

Venue: Col. Dr. Jeppiaar Research Park

ORGANIZED BY

Col. Dr. JEPPIAAR RESEARCH PARK
CENTRE FOR OCEAN RESEARCH
(DST-FIST Sponsored Centre)
MoES – ESTC (Marine Biotechnological Studies)
Sathyabama Institute of Science and Technology
Chennai - 600 119
Tamil Nadu, India

About The Programme

This programme focuses on the importance of nanomaterials based drug development. This training program will cover on

- Nano and biomaterials synthesis and characterization by spectroscopic techniques
- Isolation of primary culture from zebra fish and cytotoxicity studies of nanomaterials using fish cell lines
- DNA isolation, PCR and agarose gel electrophoresis visualization through Gel documentation
- 16s rRNA Sequence submission in NCBI, Drawing phylogenic tree using MEGA, Primer designing tools

The programme will be helpful for undergraduate and postgraduate students, research scholars and researchers of biotechnology, bioinformatics, microbiology and life sciences.

Module Instructors

Dr. V. Ganesh Kumar, Scientist E
Dr. V. Parameswaran, Scientist D
Dr. Ravi Mani, Scientist C
Dr. Mohammed Riyaz, NPDF
Ms. Jyotsna, SRF

Registration Fee

For Undergraduate & Postgraduate Students : Rs. 1500/-

For Research Scholars, Post Docs, Academicians & Faculties : Rs. 2500/-

PATRONS

Dr. MARIAZEENA JOHNSON
CHANCELLOR

Dr. MARIE JOHNSON
PRESIDENT

Dr. S. SUNDAR MANOHARAN
VICE –CHANCELLOR

ORGANIZING SECRETARY
Dr. B. SHEELA RANI
DIRECTOR (RESEARCH)

CONVENER
Dr. T. STALIN DHAS
Scientist B
CENTRE FOR OCEAN RESEARCH

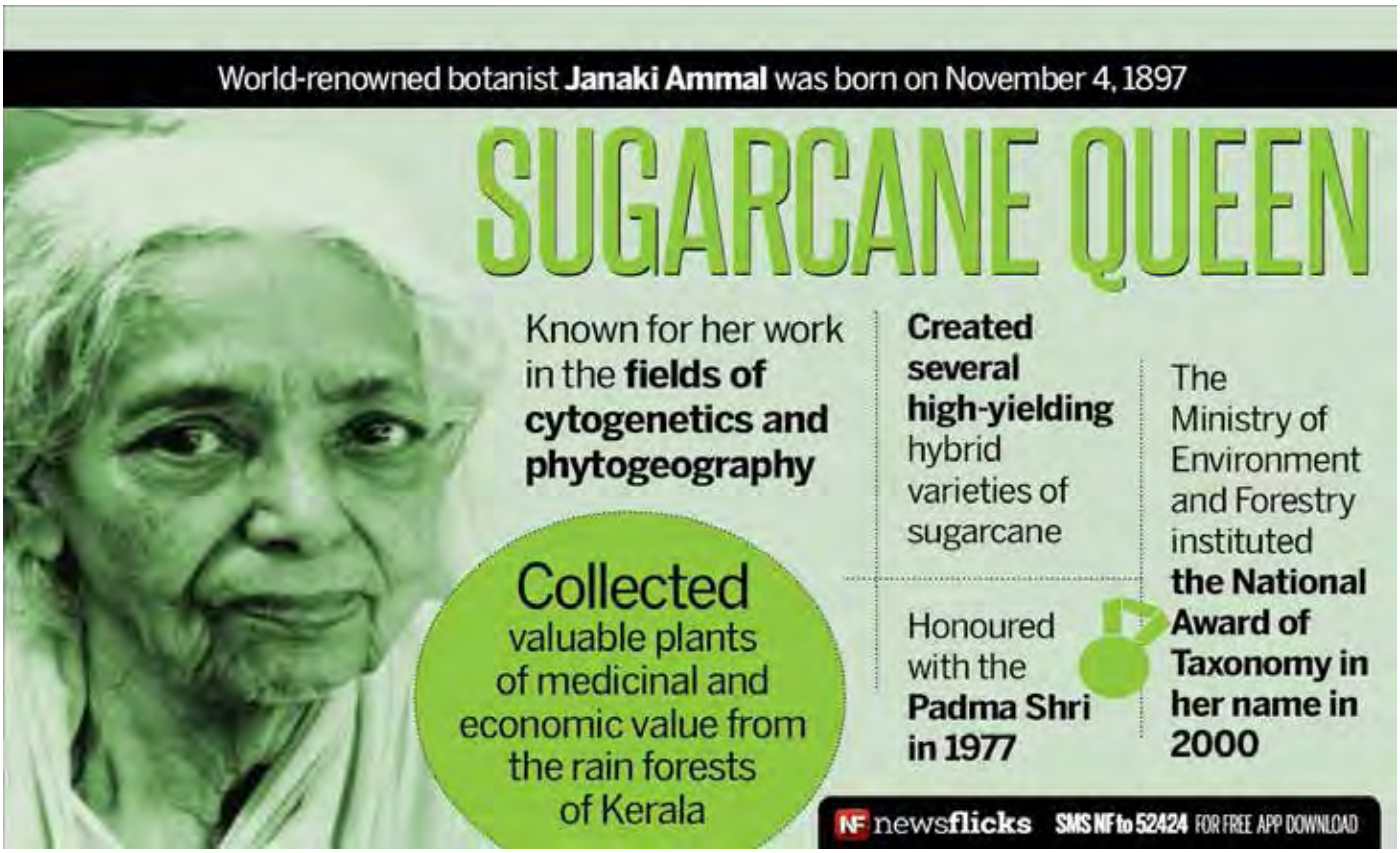
CO-CONVENER
Dr. RAVI MANI
Scientist C
Centre for Ocean Research

CO-CONVENER
Dr. V. PARAMESWARAN
Scientist D
Centre for Ocean Research

For further details
Dr. T. Stalin Dhas,
Scientist B, Centre for Ocean Research
Col. Dr. Jeppiaar Research Park, Sathyabama Institute of Science & Technology,
Rajiv Gandhi Road, Chennai 600119.
Mail ID: stalindhast@gmail.com; Phone: 81445 04346

Referred Article

Long ignored renowned botanist Janaki Ammal finally recognised in biography



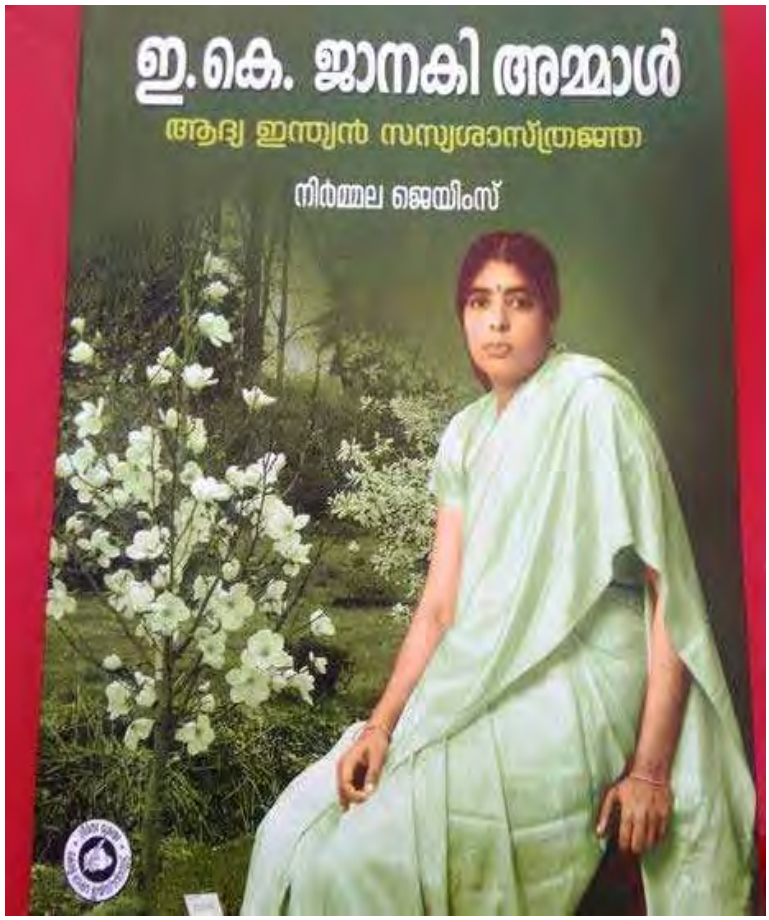
by KA Shaji
June 01, 2019 - 17:09

Appears on:
https://www.thenewsminute.com

Though three-and-a-half decades have passed since the death of renowned Indian botanist, E K Janaki Ammal, her life and immense contributions to the field of cytology remain little known outside academic and scientific circles.

It was a space that retired school teacher Nirmala James of Kadakkal in Kollam district wanted to fill as she went on to write a detailed biography of Janaki, who was also one of the first women scientists to receive a Padma Shri back in 1977.

Even in her native Kerala, no text book carries the story of her illustrious career to inspire younger generations to move into scientific research and exploration. The book was written in Malayalam and published by state government-sponsored Kerala Bhasha Institute. But at a function held at Tropical Botanical Garden and Research Institute at Palode near Thiruvananthapuram on May 24, a number of researchers and scientists moulded by Janaki Ammal called for an English version of the book that could inspire generations.



"Janaki Ammal proved her own mettle by fighting against heavy odds in an area where women had seldom presence. Even outside the realms of science, her life story would inspire people because of the intensity of the struggles she faced. Her life is indeed a glorious chapter of women liberation and empowerment in the post-colonial India," said P Pushpangadhan, a noted Botanist, who was chief guest on the occasion.

Researching Janaki

For Nirmala James, who has penned books on children's literature, art and music, writing the biography of a scientist was a different experience. "It was easy for me to collect details of her scientific research and contributions. Most of the senior botanists in the country are her disciples. But collecting personal details of Janaki was a huge task as none of her immediate relatives are alive. Moreover, no written documents on her are available," said Nirmala.

After numerous trips to Janaki's hometown of Thalassery and to Chennai and Kozhikode, Niramala was able to meet some of the grandchildren of Janaki's relatives. But they only had vague memories of the eminent scientist, who lived in different parts of the country, devoting most of her time to research.

Janaki was famous for putting the sweetness in our sugarcane varieties and speaking with authority against the controversial hydro-electric project in Kerala's Silent Valley. Janaki was also known for her phenomenal study of chromosomes of thousands of species of flowering plants titled, The Chromosome Atlas of Cultivated Plants, which she co-authored with biologist CD Darlington.

The detailed biography is titled, E K Janaki Ammal; Aadya Indian Sasya Sasthranjha (E K Janaki Ammal; First Indian Botanist). "As the botanist community prefers, a detailed biography of Janaki must be brought out in English. A translator can easily bring out an English version of my work. Otherwise, I am ready to share the materials I have collected with anybody who can write an English book independently," said Nirmala, who relocated post-retirement to Kattayikkonam in Thiruvananthapuram.

The journey to scientific discovery

Edavaleth Kakkat Janaki Ammal forged her own path into a male-dominated field at a young age, according to Nirmala. In her time, most women in Thalassery did not continue their education beyond high school, but Janaki chose education over marriage and went to the U.S. to study for her PhD.

Though women's movements in Kerala are still unfamiliar with Janaki's work, she was notably one of very few Asian women to be conferred an honorary doctorate (DSc. honoris causa) by her alma mater, the University of Michigan in 1931. India's pioneering cytogeneticist, she even has a flower named after her, a delicate white bloom called Magnolia Kobus Janaki Ammal.

"She is undoubtedly an extraordinary Kerala woman who braved a highly patriarchal and an ultra-conservative society to pursue her academic dreams with utmost devotion and commitment. Present day women of all fields have a lot to learn from her," said Nirmala.

Photo: Nirmala James (retired school teacher)

Born on November 4, 1897 in Thalassery, Janaki was the daughter of Diwan Bahadur EK Krishnan, a sub-judge under the Madras Presidency. Family members told Nirmala that Krishnan had an active interest in natural sciences and that prompted him to keep close contact with botanists of that time. He used to keep descriptive notes about plant species and created gardens of different trees and plants. Janaki was the tenth among 19 children from his two wives. Her mother was Deviammal.

On completing her school education locally, Janaki then went to Madras to obtain her Bachelor's Degree from Queen Mary's College and an Honours Degree in Botany from Presidency College. After completing her education in 1921, she started teaching at Women's Christian College. She then got the prestigious Barbour scholarship from the University of Michigan in the U.S.

After turning down a marriage proposal from her first cousin, she travelled to to Michigan to continue her education. She obtained her Master's Degree from Michigan in 1925 and returned to Madras to continue teaching at Women's Christian College. Later, she went back to Michigan to pursue her doctoral thesis. On her return, she moved to Thiruvananthapuram to work as professor of Botany at the Maharaja's College of Science, where she taught from 1932 to 1934.

Her contributions to science

The expertise in cytogenetics (the study of chromosomes and inheritance) prompted Janaki to join the Sugarcane Breeding Station in Coimbatore to work on sugarcane biology. In those days, Saccharum officianarum variety from Papua New Guinea was considered the sweetest sugarcane in the world. Though India was importing the crop, the Sugarcane Breeding Station was established in Coimbatore to develop indigenous varieties.

Through intense laboratory experiments, Janaki was able to generate a high-yielding sugarcane variety that would thrive under Indian conditions.

When famous scientist and Noble laureate C V Raman founded the Indian Academy of Sciences in 1935, Janaki was invited to be a research fellow. But she was not able to accept that offer.

According to Nirmala, Janaki was subjected to gender discrimination in Coimbatore because she was from a backward caste, and was unmarried. She ultimately left for London and joined John Innes Horticultural Institute as an assistant cytologist.

Janaki worked at the institute from 1940 to 1945, leaving as German planes began to descend upon London. She used to tell her friends how she dove under her bed during night bombings and had to continue her research work the next day.

Recognising her skill and value, the Royal Horticulture Society invited Janaki to work as a cytologist on their campus at Wisley. The years she spent at Wisley helped Janaki meet some of the most talented cytologists, geneticists and botanists in the world. In 1945, Janaki co-authored her book with biologist CD Darlington, who became her mentor.

In 1951, Prime Minister Jawaharlal Nehru personally invited her to return to India and restructure the Botanical Survey of India (BSI). After appointing her as Officer on Special Duty to the BSI, she reorganised the BSI office in erstwhile Calcutta.

She travelled to extremely remote areas in search of plants and the indigenous wisdom surrounding them. The areas she visited range from Wayanad to Ladakh. In the meantime, she led a simple and Gandhian life.

Post retirement, she served for a short period at the Atomic Research Station at Trombay before serving as an Emeritus Scientist at the Centre for Advanced Study in Botany, University of Madras. At the age of 87, Janaki died on February 7, 1984 while working in her research lab at Maduravoyal in Chennai.

“It was a life dedicated to studies and research. She was active until the end of her life,” says Nirmala.

In 2000, the Ministry of Environment and Forestry created the National Award of Taxonomy in her name. There is also a herbarium with over 25,000 species in Jammu Tawi that is named after this pioneering botanist.

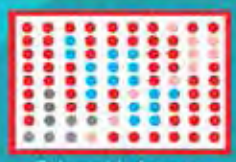
And in recent days, the John Innes Centre in England chose to honour Janaki by launching a new scholarship for post-graduate students from developing countries in her name.

“We have to respect the struggles she fought and the achievements she made. The Kerala Government and civil society must have responsibilities to keep her memories alive,” said Nirmala.

Primary cell solutions
Certificate of Analysis

Trade Name:	Trans-MSC
ID:	Trans-MSC14/R
Cells Harvested Date	
Biosafety Level	1
Organism	Homo sapiens (Human)
Growth properties:	Adherent
Morphology	Spindle Shaped, fibroblast like
Volume/Vial:	5ml (2.3 million cells / 1ml)
No: of Vials	As required
Viability	≥92%
Population Doubling Capacity:	≥ 10 in complete growth medium and support differentiation
Shipped	Frozen
Storage	Liquid nitrogen or for short term storage at -80°C
Quality Assurance:	
Testing	Tested for CD73, CD90, CD105, CD34, and CD45. Primary cells display normal karyotype as assessed by G-banding of 20 metaphase cells
Sterility Tests	Bacteria & Yeast : Negative Mycoplasma: Negative Endotoxin: Negative

Trans-MSC + Test compound

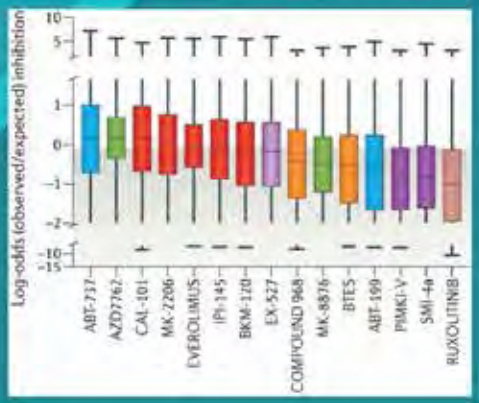


Colormetric Assays

Turbidity Measurements

Cell Marker Expression

Colony Growth & Cell Death



Use Case

STEM CELLS FOR EVERY USE

Plot No. 70A/B, Door No:8293/ 82/ 2,
Sri Venkateswara, Road No 12. Banjara Hills, MLA Colony,
Hyderabad, Telangana 500034
Visit our website for more information: http://trantoxbio.com
write to us at sindhu.b@transtoxbio.com

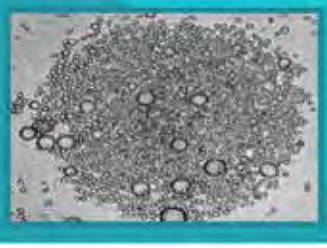
TRANSCELL Oncologics

TRANSTOX BIO

PRIMARY HUMAN DERIVED STEM CELLS FOR PREDICTIVE PLATFORMS

Trans-MSC is Human derived primary pluripotent stem cell aggregate model that can predict test chemical's safety and preclinical prognosis

Trans-HSC is Human derived primary hematopoietic stem cell aggregate model that can predict test chemical's safety and preclinical prognosis



Our products are human derived adult stem/cell based primary platforms that can be predictive real time human/patient relevant tools in your discovery, development, test compound's toxicity related testings, test compound's efficacy

Stem Cells for Real Time Safety & Efficacy studies of Chemical Entity

- ► Our Stem cell aggregates are either stromal or hematopoietic in nature
- ► Test readouts are 100% relevant to humans
- ► Tests performed can be robust, specific, sensitive, and reproducible
- ► Suitable for both low throughput and high throughput screening
- ► Suitable for cell based modelling
- ► Primary in nature; Not transformed; Not genetically modified
- ► Customized units
- ► Ready to use; Can be maintained at -80° C till use

Stem Cells for Real Time End Points Test in Oncology

- ► Cancer and it's type specific primary tissue architecture
- ► Tumor tissue derived primary cancer cells exhibiting native characteristics
- ► Suitable to develop Patient Derived Xenografts
- ► Tissue and Cancer cell based *ex-vivo* models for conducting assays
- ► Suitable for cryopreserved and re-use
- ► Suitable to develop Organoid models for regulatory or R&D testings
- ► Devoid of any bioburden

RESEARCH NEWS

From other High Impact Journals

3D-printed 'hyperelastic bone' for skull reconstruction

The experimental material accelerates bone regeneration across skull defects in rats, according to initial results by Ramille N. Shah, PhD, and colleagues of Northwestern University and University of Illinois Health, Chicago. The researchers write, "Hyperelastic bone has significant potential to be translated to craniofacial reconstructive surgery, where the need for cost-effective bone replacement grafts is enormous."

Promising New 3D-Printed Bone Replacement for Skull Reconstruction

The researchers report initial experiments with hyperelastic bone in rats with surgically created defects of the top of the skull. The surgically created defects were of a "critical size" unlikely to heal on their own -- similar to those seen in patients who have undergone surgery for brain tumors.

Hyperelastic bone is a "3D-printed synthetic scaffold," consisting mainly of bone mineral (hydroxyapatite) plus a widely used, biocompatible material (polyglycolic acid).

Hyperelastic bone consists of an intricate latticework, designed to support the growth and regeneration of new bone. It[TO1] can be quickly and inexpensively produced using current 3D printing hardware platforms and is malleable enough to be press-fit or cut into shape during surgery.

The 3D-printed hyperelastic bone provided good bone regeneration. On follow-up CT scans, hyperelastic bone was about 74 percent effective after eight weeks and 65 percent at 12 weeks, compared to autologous bone. In contrast, defects treated with the polyglycolic acid scaffold showed little new bone formation.

Microscopic examination showed that the hyperelastic bone scaffold was gradually surrounded first by fibrous tissue, then by new bone cells. Over time, the scaffold would be gradually replaced completely by new bone, incorporating the implanted bone mineral.

"Hyperelastic bone has significant potential to be translated to craniofacial reconstructive surgery, where the need for cost-effective bone replacement grafts is enormous," Dr. Shah and colleagues conclude. W

ith further development, they believe this 3D-printed material may provide a valuable alternative to autologous bone and commercially available bone substitutes.

New study: All immature cells can develop into stem cells

All cells in the fetal gut have the potential to develop into stem cells, a new study conducted at the Faculty of Health and Medical Sciences at the University of Copenhagen concludes. The researchers behind the study have discovered that the development of immature intestinal cells -- contrary to previous assumptions -- is not predetermined, but affected by the cells' immediate surroundings in the intestines. This discovery may ease the path to effective stem cell therapy, says Associate Professor Kim Jensen from the Biotech Research & Innovation Centre (BRIC) and the Novo Nordisk Foundation Center for Stem Cell Biology (DanStem).

The surprising findings are the result of a search for understanding of what controls the destiny of intestinal stem cells. Postdoc Jordi Guiu developed a method for monitoring the development of the individual intestinal cells. By introducing luminescent proteins into the cells he could, using advanced microscopy, monitor the development of the individual cells.

After the initial tests, the cells that researchers previously believed to be fetal stem cells were only able to explain a fraction of the growth of the intestines during fetal development. Therefore, they established a collaboration with mathematical experts at the University of Cambridge. And when they studied the data more closely together, they arrived at the surprising hypothesis that all intestinal cells may have the same chance of becoming stem cells. Subsequent tests were able to prove the hypothesis.

Journal Reference:
Jordi Guiu, Edouard Hannezo, Shiro Yui, Samuel Demharter, Svetlana Ulyanchenko, Martti Maimets, Anne Jørgensen, Signe Perlman, Lene Lundvall, Linn Salto Mamsen, Agnete Larsen, Rasmus H. Olesen, Claus Yding Andersen, Lea Langhoff Thuesen, Kristine Juul Hare, Tune H. Pers, Konstantin Khodosevich, Benjamin D. Simons, Kim B. Jensen. Tracing the origin of adult intestinal stem cells. Nature, 2019; DOI: 10.1038/s41586-019-1212-5

First gene that increases the risk of fainting identified

The new research results have been published in the scientific journal Cardiovascular Research. The researchers have analysed data from the UK Biobank containing information on approximately 400,000 Britons. 9,163 out of the 400,000 Britons had been in contact with the healthcare system due to fainting. In order to identify the genetic variants associated with fainting, the researchers systematically analysed millions of genetic variants in the participants' genomes.

'We have learned that a part of chromosome 2 increases the risk of fainting. This means that there is a genetic risk variant that predisposes to fainting. In addition, we are the first to show that fainting is genetically determined by linking an increased risk of fainting with an exact position in the genome,' says Associate Professor Morten Salling Olesen from the Department of Biomedical Sciences, University of Copenhagen and the Laboratory for Molecular Cardiology, Rigshospitalet.

The researchers have also analysed data from a Danish cohort of 54,656 individuals called iPSYCH from Statens Serum Institut. The result confirmed their previous findings. Among the participants who had experienced fainting the researchers found the same genetic risk variant as in the British cohort. They discovered that women under the age of 35 faint approximately twice as often as men under the age of 35. The cause hereof is still unknown.

'In the study we show that if you are a woman and you carry the risk variant on both chromosomes on chromosome pair number 2, you have an approximately three times increased risk of fainting compared with men not carrying the risk variant. Your gender and a single genetic variant in your genome reveal a substantial part of your risk of fainting,' says Morten Salling Olesen.

The common belief is that fainting is caused by shortage of blood and oxygen to the brain, which results in short-term, total loss of consciousness. There are various types of syncope, the most frequent being vasovagal syncope. Here a reflex -- e.g. triggered by the sight of blood -- causes significant lowered blood pressure conditioned by a slow heart rate and a dilation of the blood vessels leading to reduced flow of blood to the brain and fainting.

Journal Reference:
Katra Hadji-Turdeghal, Laura Andreasen, Christian M Hagen, Gustav Ahlberg, Jonas Ghouse, Marie Bækvad-Hansen, Jonas Bybjerg-Grauholm, David M Hougaard, Paula Hedley, Stig Haunsø, Jesper H Svendsen, Jørgen K Kanters, Thomas A Jepps, Morten W Skov, Michael Christiansen, Morten S Olesen. Genome-wide association study identifies locus at chromosome 2q32.1 associated with syncope and collapse. Cardiovascular Research, 2019; DOI: 10.1093/cvr/cvz106

Scientists develop technology to capture tumor cells

Microfluidic device may help researchers better understand metastatic cancer

researchers in the University of Georgia College of Engineering developed a new microfluidic device that separates elusive circulating tumor cells (CTCs) from a sample of whole blood. To more quickly and efficiently isolate these rare cells for analysis, Mao and his team have created a new microfluidic chip that captures nearly every CTC in a sample of blood - more than 99% -- a considerably higher percentage than most existing technologies.

CTCs break away from cancerous tumors and flow through the bloodstream, potentially leading to new metastatic tumors. The isolation of CTCs from the blood provides a minimally invasive alternative for basic understanding, diagnosis and prognosis of metastatic cancer. But most studies are limited by technical challenges in capturing intact and viable CTCs with minimal contamination.

"A typical sample of 7 to 10 milliliters of blood may contain only a few CTCs," said Leidong Mao, a professor in UGA's School of Electrical and Computer Engineering and the project's principal investigator. "They're hiding in whole blood with millions of white blood cells. It's a challenge to get our hands on enough CTCs so scientists can study them and understand them."

Circulating tumor cells are also difficult to isolate because within a sample of a few hundred CTCs, the individual cells may present many characteristics. Some resemble skin cells while others resemble muscle cells. They can also vary greatly in size.

The device, about the size of a USB drive, works by funneling blood through channels smaller in diameter than a human hair. To prepare blood for analysis, the team adds micron-sized magnetic beads to the samples. The white blood cells in the sample attach themselves to these beads. As blood flows through the device, magnets on the top and bottom of the chip draw the white blood cells and their magnetic beads down a specific channel while the circulating tumor cells continue into another channel.

The device combines three steps in one microfluidic chip, another advance over existing technologies that require separate devices for various steps in the process.

"The first step is a filter that removes large debris in the blood," said Yang Liu, a doctoral student in UGA's department of chemistry and the paper's co-lead author. "The second part depletes extra

magnetic beads and the majority of the white blood cells. The third part is designed to focus remaining white blood cells to the middle of channel and to push CTCs to the side walls."

Journal Reference:
Wujun Zhao, Yang Liu, Brittany D. Jenkins, Rui Cheng, Bryana N. Harris, Weizhong Zhang, Jin Xie, Jonathan R. Murrow, Jamie Hodgson, Mary Egan, Ana Bankey, Petros G. Nikolinakos, Haythem Y. Ali, Kristina Meichner, Lisa A. Newman, Melissa B. Davis, Leidong Mao. Tumor antigen-independent and cell size variation-inclusive enrichment of viable circulating tumor cells. Lab on a Chip, 2019; 19 (10): 1860 DOI: 10.1039/C9LC00210C

Danger avoidance can be genetically encoded for four generations, say biologists

"In their natural environment, worms come into contact with many different bacterial species. Some of these are nutritious food sources, while others will infect and kill them," said Murphy, a professor in Princeton's Department of Molecular Biology and the Lewis-Sigler Institute for Integrative Genomics. "Worms are initially attracted to the pathogen Pseudomonas aeruginosa, but upon infection, they learn to avoid it. Otherwise they will die within a few days."

Moore and her colleagues investigated whether C. elegans can convey this learned avoidance behavior to their progeny. They found that when mother worms learned to avoid pathogenic P. aeruginosa, their progeny also knew to avoid the bacteria. The natural attraction of offspring to Pseudomonas was overridden even though they had never previously encountered the pathogen. Remarkably, this inherited aversive behavior lasted for four generations, but in the fifth generation the worms were once again attracted to Pseudomonas. In another surprise, the researchers observed that inheritance of learned avoidance was not universal for all pathogenic bacteria; although mother worms could learn to avoid the pathogenic bacterium Serratia marcescens, which is less abundant than Pseudomonas in C. elegans' environment, this aversion was not passed down to offspring. Intrigued, the researchers set out to explore what controls transmission of P. aeruginosa avoidance behavior across generations.

The authors showed that C. elegans mothers must actually become ill from ingesting P. aeruginosa in order to transmit avoidance to future generations; exposure to odors emitted by the pathogen wasn't sufficient to provoke avoidance. Nonetheless, neuronal sensory pathways are important for inherited avoidance, because avoidance behavior in both mothers and their progeny was associated with upregulated expression of several neuronally-associated genes. Among these, elevated expression of the TGF-β ligand daf -7 in mothers was needed for progeny to inherit pathogen aversion. Moore and her colleagues found that daf-7 expression in a certain type of sensory neuron, ASI neurons, correlated strongly with inherited avoidance behavior.

"The process of inheriting this learned avoidance [also] requires the activity of small RNAs called piRNA," Murphy said. piRNAs have been implicated in other transgenerational epigenetic inheritance pathways in C. elegans, where they're thought to silence gene expression and indirectly regulate DNA packing. The researchers found that the piRNA-associated protein PRG-1, while not necessary for C. elegans mothers to learn avoidance of P. aeruginosa, was required for increased daf-7 expression in progeny, and for their inherited avoidance behavior. Whether piRNAs and PRG-1 operate primarily in the mother, the progeny, or both to promote inheritance of avoidance behavior isn't yet known.

Importantly, expression of daf-7 remains elevated in the ASI neurons of progeny for four generations, then returns to basal levels in the fifth generation, which is when the inherited avoidance behavior also disappears. As Murphy

points out, although inheritance of avoidance behavior provides a survival advantage, it's also necessary for this avoidance behavior to eventually go away. That's because P. aeruginosa is only pathogenic at high temperatures; at lower temperatures, it's increasingly safe to eat, as are other Pseudomonas species. If the pathogenic threat is temporary, the eventual lapsing of inherited avoidance allows future generations to return to feasting on nutritious Pseudomonas.

Journal Reference:
Rebecca S. Moore, Rachel Kaletsky, Coleen T. Murphy. Piwi/PRG-1 Argonaute and TGF-β Mediate Transgenerational Learned Pathogenic Avoidance. Cell, 2019; DOI: 10.1016/j.cell.2019.05.024

First-ever spider glue genes sequenced, paving way to next biomaterials breakthrough

UMBC postdoctoral fellow Sarah Stellwagen and co-author Rebecca Renberg at the Army Research Lab have published the first-ever complete sequences of two genes that allow spiders to produce glue -- a sticky, modified version of spider silk that keeps a spider's prey stuck in its web.

Before Stellwagen and Renberg's work, which was funded by the Army Research Lab, the longest silk gene sequenced was about 20,000 base pairs. When she started this project, Stellwagen was expecting to sequence the glue genes quickly and then move on, building on what she learned from the sequence. Instead, it took her and Renberg two years just to finalize the sequence.

"It ended up being this behemoth of a gene that's more than twice as large as the previous largest silk gene," Stellwagen says. It was a long, hard road to the day she found Renberg in the lab and said, "I think our gene is 42,000 bases long. I think we finished it." And in the end, it was taking a risk on a cutting-edge technique that finally yielded the complete sequence.

Not only was the gene exceptionally long, but, like spider silk genes, it has many repetitions of the same sequence of bases -- A, T, G, and C -- in the middle. Modern sequencing techniques (called "next generation sequencing") work by generating DNA sequences for all of an organism's genes, but chopped up in little pieces. Then, like solving a puzzle, scientists must match up the overlapping ends of the short sections to determine the entire sequence.

Journal Reference:
Sarah D. Stellwagen, Rebecca L. Renberg. Towards Spider Glue: Long Read Scaffolding for Extreme Length and Repetitious Silk Family Genes AgSp1 and AgSp2 with Insights into Functional Adaptation. G3: Genes|Genomes|Genetics, 2019; g3.400065.2019 DOI: 10.1534/g3.119.400065

NOTIFICATIONS

DBT Invites Applications for Har-Gobind Khorana-Innovative Young Biotechnologist Award (IYBA) 2019

IYBA is an attractive Research Award to identify and nurture outstanding young scientists up to 35 years of age with innovative ideas and desirous of pursuing research in frontier areas of Biotechnology/ Biotechnology-related fields. Scientists without regular employment are also eligible for this award. The award consists of Research grant for the proposed innovative project and a fellowship of Rs 75,000 per month for 3 years for those awardees who are not in regular employment. Association of a mentor (senior faculty/scientist in a university, research institute, medical/agriculture/veterinary college or any other research institute of repute) is mandatory for those applicants who are not in regular positions. The mentor should agree to provide laboratory space and other needed facilities for implementing the proposed research work. Applicants having regular (permanent) employment will receive a cash award of Rs 100,000 (Rupees One Lakh only) per year for a period of 3 years in addition to Research grant.

How to Apply:

The application must be forwarded by the head of the institute or duly designated competent authority. Applications in the prescribed proforma should be submitted through online DBT portal (ePromis) (http://www.dbtepromis.nic.in or http://www.dbtepromis.gov.in) on or before 15 July 2019. Three hard copies of the application along with requisite documents should be sent to Dr Kakali Dey Dasgupta, Scientist 'E', Department of Biotechnology, Ministry of Science and Technology, Room No. 814, 8th Floor, Block-2, CGO Complex, Lodhi Road, New Delhi 110 003. For details of the award, application proforma and steps for online submission of application please log on to DBT website (www.dbtindia.gov.in).

Last Date: 15 July 2019

RAMAN–CHARPAK FELLOWSHIP 2019

Call for Applications for Indian & French PhD Students and French Masters' Students

The Raman–Charpak Fellowship program is in honour of two Nobel Laureates in Physics, Prof C.V. Raman, Indian Nobel Laureate (1930) and Prof Georges Charpak, French Nobel Laureate (1992). This fellowship programme is dedicated to highly qualified PhD students registered in an Indian or French Research Institute / University and Master Students from France. The programme offers them an excellent opportunity to carry out a part of their respective PhD/ Masters' research project in each other countries and to further establish professional relationships, promote new S&T cooperation, and experience another cultural context

DURATION: Students can avail the fellowship for minimum of 2 months to maximum of 6 month

End of Deadline

French Masters' Students 31st October, 2019
Indian & French PhD Students 15th July, 2019
Website: http://www.cefipra.org

Connect with peers

Contact: info@kashbiotech.com

https://www.facebook.com/BiotechExpressmagazine

https://in.linkedin.com/in/kashbiotech

Notice

COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH (CSIR)
Anusandhan Bhawan, 2 Rafi Marg, New Delhi-110001

CSIR is looking for Outstanding Scientists

Technology Management Directorates

CSIR proposes to create Technology Management Directorates at its Hqrs. for connecting with Industry and Socio-Economic Ministries.

Position 1 – Scientist H/ Outstanding Scientist - Industry Interface

Position 2 – Scientist H/ Outstanding Scientist - Socio-Economic Ministry Interface

The incumbents will manage CSIR's technology portfolio and take new initiatives and develop new policies for connecting with industry, Socio-Economic Ministries and other stakeholders as per the responsibility assigned. They will be responsible for: (i) developing Technology Strategy for CSIR, its positioning in technology space in diverse areas, along with the targets to be achieved; (ii) helping CSIR laboratories in developing the domain specific technology strategy, and associated outcome driven road map to achieve the targets planned (of technology development and deployment); (iii) connect with industry / cluster of industry and socio-economic ministries for technology need assessment and technology commercialization.

The Directorates will be part of CSIR Headquarters and would work very closely with DG, CSIR and other Laboratory/Institute Directors to achieve the targets. They will be located at New Delhi

How to Apply: Applications/nominations with detailed bio-data alongwith list of publications/ patents etc. may be sent separately for each post through email or by post to Director General, Council of Scientific and Industrial Research (CSIR), Anusandhan Bhawan, 2, Rafi Marg, New Delhi-110001. A brief bio-data in the proforma given below may also be sent. The last date of the receipt of applications is **31/07/2019**. Fax: 011-23710618; Email: dgcsir@csir.res.in or dg@csir.res.in

Department of Biotechnology
Ministry of Science & Technology
Government of India

******

Call for Letter of Intent in the area of "Genome Engineering Technologies and Their Applications"

The Department of Biotechnology (DBT), Govt. of India invites **Letter of Intent** in the area of "Genome Engineering Technologies and Their Applications" in the following Categories:

A. **Development of New Methods, Tools, Processes for Genome Editing.**
B. **Establish Accessible Platforms Facilities on Emerging Genome Editing Technologies for Research & Development and Applied Use.**
C. **Improvement of Existing Genome Editing Technology Platforms.**
D. **Development of New Applications of Existing Genome Editing Technologies -** *such as CRISPR/Cas, TALEN & other emerging approaches, to modify gene expression and its validation that can significantly advance research and development in Human Health, Agriculture & Plant Productivity, Animal Health, Bioenergy & Environmental Research etc.*

Preference will be given to multi-disciplinary, multi-institutional network projects and efforts aiming to develop novel technologies or applying known technologies to specific unmet needs.

Interested applicants are requested to submit **Two (2) hard copies** of the **Letter of Intent** in the above mentioned format to **Dr. Onkar N. Tiwari, Scientist 'E', Department of Biotechnology, R. No. 506, 5th Floor, Block-3, CGO Complex, Lodi Road, New Delhi 110003, and also** by email *(in MSWORD and PDF format)* at onkar.dbt@nic.in & genome@dbt.nic.in

PIs of the shortlisted Letter of Intent will be invited to submit full proposal through DBT epromis.

Last Date for Submission of Letter of Intent: **31st July 2019.**

****

Science & SciLifeLab Prize for Young Scientists

The Science & SciLifeLab Prize for Young Scientists is a global prize, established in 2013, aimed at rewarding scientists at an early stage of their careers. Science/AAAS and SciLifeLab, a coordinated effort of four universities, have joined forces in creating the Science & SciLifeLab Prize for Young Scientists to recognize excellence amongst young researchers from around the world. The Prize was created to recognize that global economic health is dependent upon a vibrant research community and we need to encourage our best and brightest to continue in their chosen fields of research. Considering the difficult economic environment, it is important to provide extra encouragement to young scientists as they begin their scientific careers.

The international Prize is awarded annually to four young scientists for outstanding life science research for which he/she earned a doctoral degree in the previous two years. Each year, a Grand Prize winner is selected from the applicants to receive 30,000 USD in prize money. The three other category winners are awarded 10,000 USD each for their accomplishments. Science/AAAS and SciLifeLab look forward to reviewing the research findings from future entrants.

The 2019 categories are:

1. Cell and Molecular Biology
2. Genomics, Proteomics and Systems Biology
3. Ecology and Environment
4. Molecular Medicine

Please contact: *david.gotthold@scilifelab.se* for more information

ICMR/AU-STRC CAPACITY BUILDING SCHEME

TRAINING COURSES IN INDIA 2019

FOR HEALTH PRACTITIONERS/ RESEARCHERS

CALL FOR APPLICATIONS

The ICMR/AU-STRC Health Sciences Cooperation is developed in response to the outcome of the landmark India Africa Forum Summit (IAFS) III, October 2015 that was hosted by the Hon'ble Prime Minister of India.

This cooperation is set up to leverage resources through innovative inter-disciplinary, multi-sectoral partnerships to capitalize on regional diversity and complementary strengths to enable and nurture an ecosystem that has a strong impact on transforming the health standards of the population.

To guide and institutionalize this cooperation, a Memorandum of Understanding (MoU) was signed between Indian Council of Medical Research (ICMR) and the African Union Scientific, Technical and Research Commission (AU-STRC) on the 27th March, 2019. To this effect, ICMR/AU-STRC Health Practitioners and Researchers Capacity Building Scheme is designed to build the capacity of approx. 400 African health practitioners and researchers over a period of 3years.

Please see guidelines, course details and eligibility for courses, selection criteria, format of application, and other details on how to apply by logging on to website of ICMR: http://www.icmr.nic.in and website of AU- STRC: www.austrc.org, Closing date for receipt of applications: 30th June, 2019

विज्ञान एवं इंजीनियरी अनुसंधान बोर्ड

(विज्ञान और प्रौद्योगिकी विभाग, भारत सरकार काएक सांविधिक निकाय)

SCIENCE & ENGINEERING RESEARCH BOARD

(A Statutory body of Department of Science and Technology, Govt. of India)

(File no. SERB/Rectt./01/2019)

ADVERTISEMENT NOTICE NO.01/2019

1. Applications are invited from Indian citizens for filling up the following posts on Direct Recruitment or Deputation/ absorption (including short term contract) basis in the Science and Engineering Research Board, New Delhi as per details given below:

Sl. No.	Name of the Post	Pay Scale	No. of Posts	Mode of Recruitment	Reservation
(i)	Scientist 'G'	Level-14 in Pay Matrix (Rs. 144200-218200)	03	Direct Recruitment or Deputation/Absorption (including short term contract) basis	2 UR 1 OBC
(ii)	Scientist 'C'	Level-11 in Pay Matrix (Rs.67700-208700)	01	Direct Recruitment or Deputation/Absorption (including short term contract) basis	EWS

Completed applications should be sent to the Under Secretary (SERB), Science and Engineering Research Board, 5 & 5A, Lower Ground Floor, Vasant Square Mall, Plot No. A, Community Centre, Sector-5, Pocket-5, Vasant Kunj, New Delhi 110 070 by Registered Post or through Speed Post in a sealed cover superscribed "APPLICATION FOR THE POST OF Scientist G or ScientistC (as the case may be) within 60 days of the publication of the advertisement (6th June 2019) in the "Employment News" (English Edition). For the candidates from Assam, Meghalaya, Arunachal Pradesh, Mizoram, Manipur, Nagaland, Tripura, Sikkim, Ladakh Division of Jammu and Kashmir State, Lahaul and Spiti District and Pangi Sub Division of Chamba District of Himachal Pradesh, Union Territories of Andaman and Nicobar Islands and Lakshadweep, the application must reach within 75 days of the publication of the advertisement in the "Employment News" (English Edition).

DEPARTMENT OF BIOTECHNOLOGY
Ministry of Science & Technology
Government of India

CALL FOR PROPOSALS UNDER STRENGTHENING COMPONENT OF STAR COLLEGE SCHEME FROM UG COLLEGES OF INDIA

Department of Biotechnology invites applications from colleges of all the states and union territories of India offering undergraduate education in Sciences under **'STAR COLLEGE' Scheme** to brand and nurture excellence in UG Science education. The program emphasizes holistic improvement of science education at undergraduate level with special emphasis on practical training to students. The initiative provides support for (a) Improving knowledge and skills of teachers in basic Sciences and specialized techniques, (b) Access to specialized infrastructure to students, (c) Assurance of consumables, reagents and chemicals for students, (d) Substantial hands-on experience in designing and conducting practicals to ensure critical thinking, (e) and access to books and journals including e-journal facilities. **The program does not envisage initiating new UG courses in Biotechnology. Aim is to improve practical training in existing Science courses like Botany, Zoology, Chemistry, Physics, Microbiology, Biochemistry, Biotechnology, Bioinformatics, Mathematics, Electronics, Computer Science etc. Proposals should clearly highlight additional practicals (as per prescribed curriculum, which could not be done due to lack of equipments or consumables) proposed to be conducted in existing courses by all participating departments, student projects (interdisciplinary/interdepartmental), visits to be undertaken by students to National Laboratories and industries and faculty improvement programs, etc. The Colleges, supported under the Scheme can also apply for addition of new departments not included earlier. Colleges supported under the strengthening component would be evaluated (on completion of three years) for upgradation to Star Status, continuation at existing level or discontinuation.**

For details on the Scheme, related guidelines and proforma please visit DBT website:
www.dbtindia.nic.in
Duly filled proforma (4 copies) and soft copy may please be sent to:

Dr. Garima Gupta
Scientist 'E'
Star College Scheme, HRD Division
Department of Biotechnology, Ministry of Science & Technology,
Block-3, 5th Floor, CGO Complex, Lodhi Road, New Delhi – 110003
Email: garima.g@nic.in

Last Date for Submission of Proposals: 30th June, 2019

Last Date for Submission of Proposals from Remote Areas: 15th July, 2019

DELHI - NCR REGIONAL Young Investigators' Meeting

IndiaBioscience

NIPGR

Registration Deadline: 30th June 2019

Registration Fees: INR 3000

ISSN: 2454-6968, RNI No. UPENG/2013/54102

UNITE, COLLABORATE FOR A BETTER TOMORROW

For more details visit: https://indiabioscience.org/meetings/regional-yim-delhi-ncr

The Delhi NCR region harbours several excellent research institutes and Universities. Several young faculty and scientists are working in these institutions on various different biological systems. Interdisciplinary research is essential to unravel new mechanisms in biological systems. Hence it is important for the cross talk to happen between scientists from various disciplines and institutions. This meeting aims to bring all the researchers on a common platform to discuss and share their work, network and collaborate. It will enable intellectual exchange among the scientists across different scientific disciplines. There will be group discussions, poster presentations and mentor talks.

Organizers

Jagadis Gupta Kapuganti, NIPGR, New Delhi
Senthil Kumar Muttappa, NIPGR, New Delhi
Mukesh Jain, JNU, New Delhi
Divya Chandran, RCB, Faridabad
Rohini Garg, SNU, Uttar Pradesh

Email: yim2019delhi@gmail.com

Meeting Highlights

- Enhancing Interaction of Young Investigators (YI) in biology research across Delhi and NCR.
- Helping each other in sharing resources and platforms
- Accelerating collaboration among researchers
- Enhancing institutional strengths
- Translating ideas into products

Meeting Format

- Mentor talks
- Networking sessions
- Poster Presentations
- Panel Discussions
- Special Talk on Science Communication

6TH – 7TH AUGUST 2019
NATIONAL INSTITUTE OF PLANT GENOME RESEARCH, NEW DELHI