



NEWSLETTER

**Department of Biotechnology
Bhupat & Jyoti Mehta
School of Biosciences**

**ISSUE 2
(Jan-Aug 2024)**



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MESSAGE FROM THE EDITORIAL DESK >>>>>

The Department is pleased to present the second issue of our newsletter. We are encouraged by the positive feedback for the first issue from our well-wishers, particularly their appreciation for the Department's progress. The Department's convocation was a great success, and the second edition of our graduate student symposium, *Biomers*, saw enthusiastic participation from our students. To showcase the research endeavours within our Department, we are introducing a new section that highlights the work of our faculty colleagues, and this issue features the research of Prof. Mahalingam. Finally, we are proud to spotlight a startup venture founded by our alumnus under the mentorship of Prof. Chandraraj. We invite you to explore these updates, and we hope you find reading it as enjoyable as we have in putting it together.

FACULTY ACHIEVEMENTS >>>>>



Prof. Michael Gromiha has been honored as a ScholarGPS Highly Ranked Scholar

Dr. J. Ninitha received the Har Govind Khorana-Innovative Young Biotechnologist Fellowship (IYBF) 2023-2024 from The Department of Biotechnology, Government of India



Dr. Richa Karmakar received the TrendSetter Award 2024, Energy Consortium, IIT Madras, for working on carbon dioxide sequestration by bacteria and its conversion into by-products



STAFF ACHIEVEMENTS >>>>>

Ms. Sasirekha M. has been awarded the EMBO Core Facility Fellowship to undertake a 20-day proteomics training at Dr. Tony Larson's Proteomics and Metabolomics Laboratory, University of York, UK



Dr. Srividhya R. has been awarded the RltrainPlus Staff Exchange Program Fellowship & Core Technologies for Life Sciences (CTLs) Staff Exchange Program Fellowship

BIOMERS 2024 >>>>>

Our department held its annual research scholar symposium, *Biomers* 2024, on August 3, 2024, at the TTJ Auditorium, IIT Madras. The event showcased groundbreaking research from our scholars, featuring 24 oral presentations and 43 poster presentations across three diverse fields: Biological Sciences, Biological Engineering, and Computational Biology. The symposium concluded with awards sponsored by the Dr. Joseph Thomas Memorial Foundation, recognising excellence in research.



START-UP SPOTLIGHT >>>>>

Chrissron Biomass Solutions Pvt. Ltd

Chrissron, founded by Dr. Shereena P. Joy, a recent PhD graduate from our department mentored by Prof. K Chandraraj and Prof. Dali Naidu (Civil Engineering), addresses the issue of stubble waste, a significant contributor to air pollution and soil degradation. Their innovative solution transforms agricultural waste into a sustainable resin, providing benefits such as reduced emissions, improved soil health, and economic opportunities for farmers.

Chrissron is preparing for pilot-scale commercialisation, aiming to revolutionise the bioeconomy with green innovations.



Technology License Agreement Signing Ceremony

STUDENT AWARDS >>>>>

Name of the Student	Awards/Honours/Prizes
Trilochanaa M. (BT22M012)	Buti Foundation Gold Medal Award / Institute Merit Prize / American Express Award
Bincy Lukose (BT18D003) Guide: Athi Narayanan N.	Batch of 1979 Award
Papisetty Lakshmi Soumya Sri (BE19B026)	Biocon Prize
Yogheshwer Raja G. (BS19B034)	The Divashri Award
Pradhyumn Jain (BS19B021)	
Adithi K. (BT18D700) Guide: Athi Narayanan N.	Keshav-Rangnath Award 2023-24

HIGHLIGHTS >>>>>

83



Publications

24



Patents Applied/Granted

10



Consultancy Projects

20



Sponsored Projects

1394 lakhs



Grant Amount

RESEARCH HIGHLIGHT >>>>>

Prof. S. Mahalingam is an expert in cancer biology, and his lab is currently investigating the molecular mechanisms that lead to tumorigenesis. His work in identifying the first putative nuclear GTPase involved in cancer stem cell maintenance was recognised by the government of India with the Outstanding Investigator Award on Medical Science. Prof. Mahalingam has spearheaded the creation of India's first community-based National Cancer Tissue Biobank (NCTB) housed in IIT Madras. Here are excerpts of his interview.



Prof. S. Mahalingam

1. What sparked your interest in cancer research?

While we were using different model systems to understand HIV-1 infection in human non-dividing primary cells, we identified a new novel putative nucleolar GTPase, *GRN1* and later proved that *GRN1* is one of the critical factors required for the proliferation of cancer stem cells as well for rRNA processing and this motivated my research focus towards cancer biology.

2. What was the most challenging period in your research journey, and how did you overcome it?

In 2006, when we submitted a research article on the discovery of *GRN1* and its role in cancer stem cell maintenance and rRNA processing to *Molecular Cell*, one of the reviewers demanded to prove some of the results using primary cancer tissue samples. Unfortunately, in 2006, no human tissue repository facility was available in India to collaborate or purchase the tissue samples for research purposes. Due to this, I had to compromise and publish the same article in the *Molecular Biology of the Cell* and *Journal of Molecular Biology*. This situation stimulated me to initiate the step towards setting up the National Cancer Tissue Biobank facility at IIT Madras, but it took almost 4-5 years to convince the government and realize the critical need for tissue biorepository facility to promote biomedical and translational research in India. Continuous motivation is critical to overcome any bottlenecks.

3. How have your research interests evolved over the years?

A few years back, my lab focused on HIV-1 molecular pathogenesis and cancer biology, particularly on understanding the molecular mechanism involved in maintaining homeostasis between tumour suppressors and proto-oncogenes. Now, my lab completely focuses on cancer biology, particularly identifying the genomics landscape of cancers prevalent in the Indian population and understanding disease pathogenesis.



National Cancer Tissue Biobank

4. How has collaboration with colleagues from other disciplines impacted your work?

Without active collaboration with medical oncologists from different hospitals, it is not possible to carry out the cancer genomics project. Without their support, it would not be possible for me to set up & run the National Cancer Tissue Biobank facility at IIT Madras, which is the backbone of cancer genomics projects.

5. What advice do you have for young researchers trying to navigate the complexities of academia today?

Constant motivation, focusing on the research problem, taking advantage of the available facilities, first proving yourself as an independent investigator and then thinking bigger research questions, and being friendly with colleagues.

VISITS BY DISTINGUISHED SCIENTISTS >>>>>

- Dr. Anand Srivastava, Molecular Biophysics Unit, IISc, Bengaluru
- Dr. Debabrata Dutta, University of Massachusetts Chan Medical School, USA
- Dr. Debayan Chakraborty, The Institute of Mathematical Sciences, Chennai
- Dr. Dhanasekaran Shanmugam, National Chemical Laboratory, Pune
- Dr. Kumar Somasundaram, Indian Institute of Science, Bengaluru
- Prof. Mahalakshmi R., IISER Bhopal
- Prof. Murugaiyan Gopal, Harvard Medical School, USA
- Dr. Pravin S. Iyer, Zydus Life Sciences Ltd.
- Dr. Priya Balasubramanian, University of Oklahoma Health Sciences Center, USA
- Dr. Priyatha Premnath, University of Wisconsin, Milwaukee, USA
- Prof. Sampath K. Loganathan, McGill University, Canada
- Dr. Srinivasa Rao, University of Oxford, UK
- Dr. Varadha Balaji Venkadakrishnan, Harvard Medical School, USA

61ST CONVOCATION 2024 >>>>>



The Departmental Degree Distribution Programme was held on July 19, 2024, at the Terrace @ IITM, celebrating the remarkable achievements of our graduates. The esteemed Padma Shri Dr. Ravi Kannan R., Director of the Cachar Cancer Hospital & Research Centre, Silchar, Assam, graced the occasion as the Chief Guest. A total of 110 degrees were awarded, including 9 B.Tech., 57 Dual Degrees, 14 M.Tech., and 30 PhDs.

SPORTS ACHIEVERS >>>>>

- Nikshep Grampurohit (BE21B021), Deans Football Silver
- Sairam J. (BS22B031), Dean Football Bronze
- Aatman Vashi (BS22B006), Sportsfest Cricket Bronze
- Aditya Vikram K. (BE20B002), Sportsfest Cricket Bronze
- Shambhavi Suhas Fitwe (BS22B004), Deans Powerlifting Bronze
- Vasudha Kannan (BS22B040), Schroeter Volleyball Gold
- Ankit Raj (BS22B008), Sportfest Weightlifting 119kg Bronze & Schroeter Weightlifting 110kg Bronze