



BIO-TRANS

An Annual Newsletter that Transmits the Biotechnology Department Activities

MANIPAL INSTITUTE OF TECHNOLOGY, MANIPAL ACADEMY OF HIGHER EDUCATION, MANIPAL



Message from the HOD

Greetings!

This year is filled with lots of hope and enthusiasm. We have a couple of good news to share, (i) our BTech Program is NBA accredited for 6 years, it is a good recognition for our program and also for our department (ii) we have received Rs. 45.2 Lakhs (out of 1 Crore) grant from Reckitt Benckiser for an industry collaborated research initiated by Dr Naresh Kumar Mani, Associate Professor in our department.

I wholeheartedly thank all the faculty members for their convergence and team work! I hope we can continue to exhibit our team effort with the same energy and enthusiasm for the success of our department. Let us strengthen our academics as well as research culture by motivating our BTech and MTech students to join hands with our faculty and research scholars.

I look forward a more productive year ahead!

NBA VISIT & ACCREDITATION

The NBA team visited Department of Biotechnology, MIT Manipal, during 4th-6th November, 2022 for the accreditation of our UG program B.Tech. Biotechnology. The verification went well and the remarks given by the NBA team Chairman during the exit meeting were satisfactory.

The B.Tech. Biotechnology program of the Department of Biotechnology, MIT Manipal, received NBA accreditation for **Six Years** (2022-2028).

Name of the Institution	Program	Level	Accreditation Status	Accreditation Latest
MANIPAL INSTITUTE OF TECHNOLOGY (Manipal)	Biotechnology	Under Graduate	ACCREDITED	Academic Year 2016-17, 2017-18 and 2018-19, i.e., upto 30-06-2019; Further accredited for Academic Year 2019-20, 2020-21 and 2021-22, i.e., upto 30-06-2022
MANIPAL INSTITUTE OF TECHNOLOGY (Manipal)	Biotechnology	Under Graduate	ACCREDITED	Academic Year 2022-23, 2023-24, 2024-25, 2025-26, 2026-27 and 2027-28, i.e., upto 30-06-2028

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NATIONAL SYMPOSIUM

The flagship annual national symposium in biotechnology “**SymBiot-2022**” was organized by the Department of Biotechnology, MIT, Manipal and the Institution of Engineers Biotechnology (IEBt) student chapter on 11th and 12th November 2022.

Dr. Sharad Bhartiya, Professor, Department of Chemical Engineering, IIT Bombay was the Chief Guest at the inaugural function. Mr. Amit Gaurav, Manager, R&D (Downstream), Sun Pharmaceuticals, Gujarat presided as the Guest of honour. Dr. Balaji S, HoD, Dept. of Biotechnology and Additional Professor, gave the welcome address. Dr. Ramachandra Murthy V, Professor, Dept. of Biotechnology and Associate Director (Development), MIT, Manipal, and Dr. Subbalaxmi, Assistant Professor Selection Grade and Faculty advisor, IE-Bt, Manipal Chapter also graced the function.

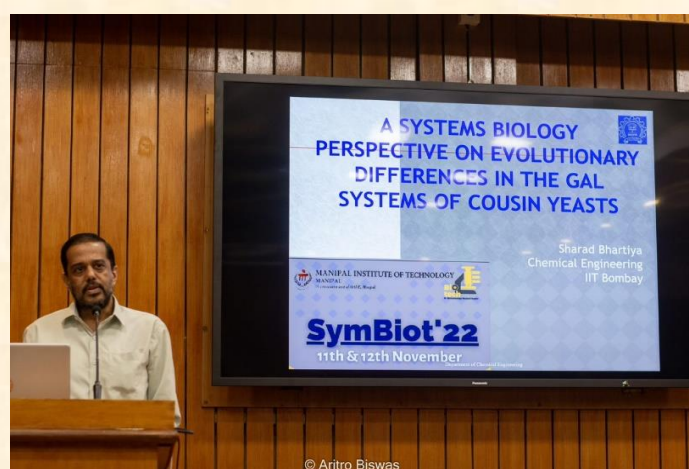
The first volume of the **annual technical magazine** of the department, **BioBuzz 2022**, was released during the event. Dr. Balaji was the initiator and motivator to bring forth the magazine. It was the combined effort of the Research scholars, B.Tech and M.Tech students of the department. Dr. Thivaharan V (Associate Professor) and Dr. Subbalaxmi played a key role as faculty advisors towards this venture.

The Symposium started off with the talk “A systems biology perspective to evolutionary differences of the GAL system in cousin yeasts”, by Dr. Sharad Bhartiya. He talked about the various engineering systems outside biology and explained about similar and more complicated systems in natural systems. He also focussed on the importance of systems biology approach to study biological systems. He gave an overview of the GAL system in yeasts, *S. cerevisiae* and *K. lactis* and the use of systems biology approach to assess the evolution designs. He concluded by giving the students insights into the applications of systems biology in various field like designing personalised medicine.

Mr. Amit Gaurav, an experienced bioprocess developer and a registered patent agent (IN/PA-3673) with the Indian patent office, Mumbai, gave a virtual presentation on “Strategies for purification of Monoclonal Antibodies and challenges associated with it”. He discussed in detail about the process flow, purification, harvest and clarification strategies, and Stage-Gates of Biosimilar product development.

The next session was Paper and Poster presentations by the students. There were a huge number of participants for the competition. Ms. Harini S and Ms. Kamalavarshini B from Sri Venkateshwara College of Engineering bagged the first prize for their paper on “Multi staged gene expression profiling reveals potential genes and critical pathways in kidney cancer”. Ms. Renuka Basawa from MIT, Manipal secured the second Prize on “Crystallization of Antibiotics”.

The symposium culminated with the valedictory function. Our Chief guest and faculties were once again acknowledged for their time and efforts with small tokens of love from the department.



PATENTS FILED

1. **Dr Balaji S** (2022) A Composition Forming a Bio-Plastic Film and Method Thereof. Indian Patent Office (Ref. No. 202241067961)
2. **Dr Narasimhan S** (2022) Green Method for Producing Natural Colorants from Plant Based Materials. Indian Patent Office (Application No. 20224104)
3. **Dr Naresh Kumar Mani** (2022) A Rapid and Sensitive Colorimetric Assay for Detection of Ergosterol In *Candida albicans* (Filed through ICMR). Indian Patent Office (Filing No. 202211077099)

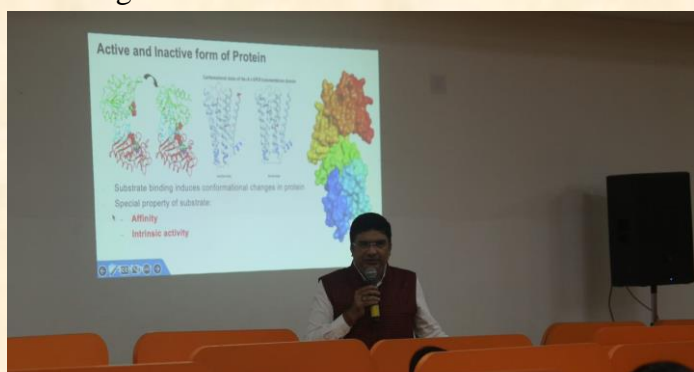
WORKSHOPS

MANIPAL INSTITUTE OF TECHNOLOGY MANIPAL A constituent unit of MAHE, Manipal	
SymBiot'22 A National Biotechnology Symposium	
Itinerary - 12th October	
Timings	Event
9:00 AM - 9:10 AM	Introduction
9:10 AM - 10:30 AM	Workshop Session 1
10:30 AM - 10:45 AM	Refreshment break
10:50 PM - 12:30 PM	Workshop Session 2
12:30 PM - 2:00 PM	Lunch break
2:00 PM - 4:00 PM	Workshop Session 3
4:00 PM - 4:30 PM	Closing and Valedictory ceremony
4:30 PM - 5:00 PM	Refreshment break

The second day of the symposium, SymBiot-2022, was a workshop on “Machine Learning Approaches in Biotechnology: A hands-on exposure” by Dr. Sharad Bhartiya. He started the workshop by explaining the basics of machine learning, followed by a hands-on interactive session in Jupyter Notebook, a web-based computing platform. Learning from such an experienced teacher was indeed a privilege and honour.

A hands-on workshop on "Biologics and Vaccine design" was organized by the department in association with the renowned international scientific software company **Schrodinger** on 27th and 28th July 2022. About seventy two participants registered for the workshop.

The program flagged off with an introductory presentation to Biologics Design by Dr. Prithesh. Various discussions and hands-on sessions were conducted related to the concepts such as Antibody modelling workflow, AutoQSAR, BioQSAR, Protein liability issues, Homology Modeling workflow, Affinity maturation, optimisation, predicting free energy changes, Protein Aggregation Prediction, Protein –protein docking with PIPER, Bioluminate Antibody modelling Protocol, High Value theoretical workflows, various Functionality Groups in Bioluminate and Structure based Protein Biologics Modeling.

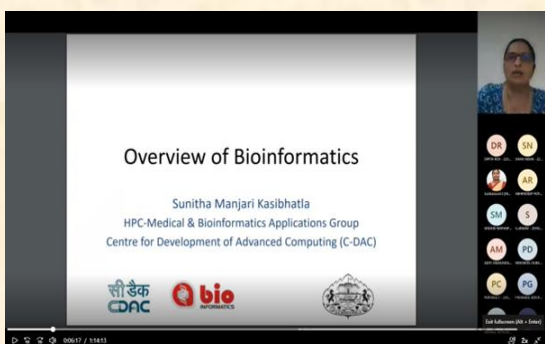
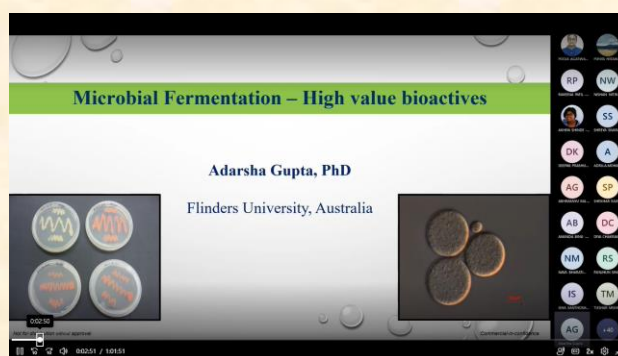


GUEST LECTURES



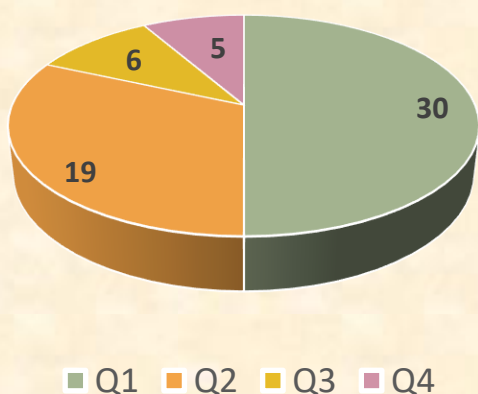
Dr M.P. Rajesh, Professor of Chemical Engineering at SRM Institute of Science and Technology, Chennai visited the Department of Biotechnology, MIT, Manipal on 18th July 2022. Being an Adjunct Professor for our department, he interacted with the HoD and faculty of the department. He delivered a guest lecture on **“Ionic Liquid-Assisted Processing of Microalgae For Biodiesel Production”**. The faculty and research scholars of the department attended the event and clarified on various issues related to the benefits of employing ionic liquids for microalga processing.

Mr. Adarsha Gupta, Research Associate at Flinders University, Australia, gave an insightful talk about microbial fermentation on 10th February 2022. He spoke about the microbial production of lipids and the criteria for selecting the correct microbes. He also informed us about the advantages of choosing microbial production over the plant and fish-based production of these lipids



Mrs. Sunita Manjari Kasibatla, Associate Director of the HPC medical and Bioinformatics application group at the Centre for development and advanced computing delivered a guest lecture on 28th October 2022. She gave a brief overview of bioinformatics and the multidisciplinary aspects of the subject. She then went on to explain the virus evolution and lineages and the tools that are used to study the genetic diversity of viruses. She took up the case study of the measles virus and SARS-CoV-2 to help us understand the concept better.

PUBLICATIONS



In 2022, we have published **60 articles** in the Peer-reviewed indexed International Journals.

RESEARCH GRANT



Dr. Naresh Kumar Mani
Principal Investigator
Funding : 1.03 Crores
2022- 2025

Hygiene products

Self-testing kits

Frugal Diagnostics

Dr. Naresh Kumar Mani received a ₹ 1 Crore industry collaborated research grant.

FACULTY ACHIEVEMENTS

- **Dr. Fayaz** received the **Best Oral Presentation award** in the 9th International Congress of the Society for Ethnopharmacology, India (SFEC-2022) at JSS College of Pharmacy Mysuru during 22nd to 24th April 2022.
- **Dr. Naresh Kumar Mani** has received the **Indian National Science Academy (INSA) Visiting Scientist award** for 2021-2022 to work at IIT Kharagpur for a month starting from December 2021.
- **Dr. Ritu Raval** and **Dr. Divyashree M.S.** were among the team that **won the Trophy** in the Inter-MAHE volley ball tournament held on 22nd December 2022.

STUDENT ACHIEVEMENTS

- **Mr. Rohit Raj** of 8th Semester B.Tech secured an **All India FIFTH Rank** in the **GATE-2022 Exam**.



GATE 2022		GATE 2022 Scorecard			
Graduate Aptitude Test in Engineering (GATE)		Graduate Aptitude Test in Engineering (GATE)			
अभियांत्रिकी पत्रांक अभियन्ता परीक्षा					
Name of Candidate	ROHITRAJ RAY				
Parent's/Guardian's Name	IRANI RAY				
Registration Number	BT22S51230178				
Date of Birth	26-Sep-2000				
Examination Paper	Biotechnology (BT)				
GATE Score:	911	Marks out of 100:	68.67		
All India Rank in this paper:	5	Qualifying Marks*	General	EWS/OBC (NCL)	SC/ST/PwD
Number of Candidates Appeared in this paper:	13994		35.5	31.9	23.6

- The **Manipal Bio-machines Club** won the **Gold medal** at iGEM (International Genetically Engineered Machines) competition held in Paris during 26th to 28th October 2022.

- **Ms. Sona Mariam Thomas** of 8th Semester B.Tech received a **Seed Money Grant** of ₹10,000 from MAHE Manipal to work on “Hybrid Artificial Nanomolecule Based Electrochemical Sensors For Detection of Water Pollutants”,



- **Mr. Chethan Roger Dhanjal** of 8th semester completed research Internship in Canada – MITACS Globalink Research, for a duration of 12 weeks on the Project “The role of beneficial methylobacteria in alleviating stress in crops cultivated under limited water conditions” from Trent University – Peterborough.

STUDENT ACHIEVEMENTS

- **Mr. Punith J Suvarna** of 8th Semester B.Tech secured **Third Place** in the Smash Championship 2021-22 organized by NIT Surathkal during 11th to 13th March 2022.



- **Mr. Adrij A. Mohan** of 3rd year B.Tech won the **First Prize** of ₹25,000 in the Manipal Biotech Hackathon 2022 held between 12th December 2022 – 22nd December 2022, conducted by the Manipal-Government of Karnataka Bioincubator and Manipal School of Life Sciences, MAHE, Manipal.

- **Mr. Tushar Mishra, Mr. Rahil Ummar Faruk Abbu, and Ms. Nava Bharati Manickam** of 3rd year B.Tech won the **Third prize** with a cash prize of ₹10,000 in the Manipal Biotech Hackathon 2022 held between 12th December 2022 – 22nd December 2022, conducted by the Manipal-Government of Karnataka Bioincubator and Manipal School of Life Sciences, MAHE, Manipal.



- **Mr. Ashutosh** of 6th Semester B.Tech represented MAHE, Manipal, Basketball Men tournament in the South Zone Inter University Tournament held at Christ University, Bangalore from December 30th 2021 to January 4th 2022. He also represented MIT Basketball team in the 12th James Naismith Cup-2022 organized by the Mangalore Basketball Club from 25th to 28th August 2022.

- **Mr. Eeshaan A B Koundinya** of 5th Semester and B.Tech won **Second Prize** in the National Level Biotechnology Symposium- SymBiot'22 held on 11th November 2022 at Manipal Institute of Technology, Manipal.

- **Ms. Renuka Basawa Manjunath** of 5th Semester B.Tech, **Mr. Harshil Jain** and **Mr. Rushil Dalal** of 7th Semester B.Tech won **Third Prize** in the National Level Biotechnology Symposium- SymBiot'22 held on 11th November 2022 at Manipal Institute of Technology, Manipal.

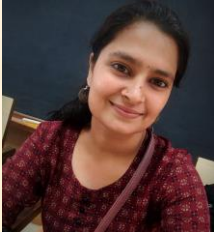
- **Ms. Natasha Joyline Aquinas** (Research Scholar) secured **Third Prize** in the Essay Competition conducted by the Technical Association of Biotechnology during the technical fest Technozion 2022 at NIT Warangal.



- **Mr. Sujesh** (Research Scholar) received the ICMR SRF fellowship for his doctoral studies on “Drop, Dissect and Detect”: Paper -based Microfluidic Point of care Candida Diagnostics for Invasive and Neonatal Pathology.

STUDENT ACHIEVEMENTS

- **Mr. Raghavendra P** (Research Scholar) received **Young Scientist Best Oral Presentation** award at the 3rd International Conference on Environmental, Agricultural, Chemical and Biological sciences held during 22nd to 26th January 2022.



- **Ms. Archana Kumari** (Research Scholar) received **Best Poster Presentation Award** at the Second International Conference on “Mycotechnology: Present Status and Future Perspectives -MTPSFP-2022” during 22nd and 23rd April 2022.

- **Ms. Atheena P.V.** (Research Scholar) was awarded the **Best Paper Presentation** during ICHTR-2022 held at MAHE, Manipal on the paper titled “Evaluation of the Potential Bioethanol Production from Chitin Hydrolysates” during 25th November 2022.



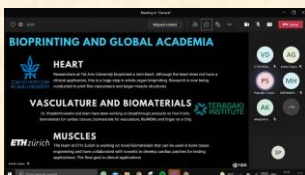
- **Mr. Rajesh K.M.** (Research Scholar) received the **Best Oral Presentation Award** at the International Conference in Recent Advances in Biotechnology (icRAB-2022) held during 2nd to 4th December 2022.

- **Ms. Nayana** (Research Scholar) won the **First Prize in Oral Presentation** under Ph.D. section during the Research Fest of KMC Manipal Research Day on 15th November 2022.



- **Ms. Prapti Behera** (Research Scholar) published a **Patent** “Process of preparing an enzyme composition for reducing stickiness in honeydew-contaminated cotton” on 14th October 2022.

STUDENT WEBINARS



- A webinar on 3D-Bioprinting applications and career prospects was given by **Ms. Ankita Gupta and Ms. Pooja Venkatesh** on 19th March 2022.

- A webinar was given by **Mr. Rohit Raj** on an overview of his journey in preparing for the GATE BT exam on 31st May 2022.



ALUMNI INTERACTIONS

Ms. Rhea Sharma (2014-18 Batch), gave a talk on "Strategies to thrive in the Biotech Industry" on 8th July 2022.




MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
(A constituent unit of MAHE, Manipal)

The Institute of Engineers – Biotechnology, Manipal Chapter (IE-Bt) and
The Department of Biotechnology
Cordially invites you to the

Alumni Talk Series 2022

Talk - 5
Title- "A brief dive into non-research based careers after a grad program abroad"

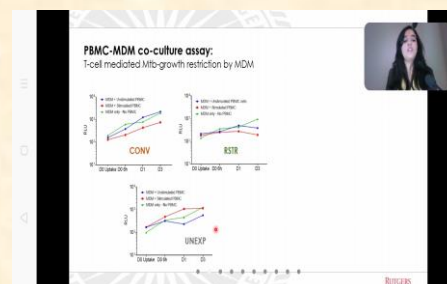
Speaker:

Arun Somasundaram
Master of Engineering Management (MEM)
Student at Dartmouth Biosciences
Boston- MA

Date: 30th August 2022
Time: 7:00 PM

Mr Arun Somasundaram (2016-20 Batch), delivered a talk on "Non-research based careers after a grad program abroad" on 30th August 2022.

Dr. Vaishnavi Kaipilyawar (2010-14 Batch), delivered a talk on the "Development of biomarkers and investigation of host immune responses in Tuberculosis " on 23rd August 2022. She has completed her Ph.D. from the Department of Medicine, Public Health Research Institute, Case Western Reserve University, OH, USA.




ALUMNI TALK Biotech

FROM MANIPAL TO JOHNS HOPKINS

- Currently a biochemistry graduate student at Johns Hopkins University.
- Analysing the binding affinity of SARS-CoV-2 spike protein RBDs of the delta and omicron variants with bat, pangolin and human ACE-2 receptor.
- Research Intern at Serum Institute of India where she worked on the characterization of a therapeutic monoclonal antibody
- Summer Research Intern at Indian Institute of Science (IISc) in the fields of Cell Biology and Microbiology.

Trupti Tripathi

6/3/22 (Sunday)
7:30 - 8:30 PM
MS Teams
<https://teams.microsoft.com/jyrb2zu>

Ms. Trupti Tripathi (2017-21 Batch), delivered a talk on "From Manipal to John Hopkins: My Academic Journey" on 6th March, 2022.



ALUMNI TALK Biotech

FROM MANIPAL TO MUNICH

- Graduated from MIT in 2021 with a Bachelor's degree in Biotechnology. Did his Bachelor's project on "Metal responsive gene regulation by bacterial riboswitches"
- Carried out project at the Nation Center for Biological Sciences (NCBS), Bangalore in the lab of Dr. Arati Ramesh
- Was involved in confirming and evaluating the activity of a putative metal binding riboswitch occurring naturally in *Haemophilus ducreii*
- Currently pursuing MS in Molecular and Cellular Biology in Germany at Ludwig-Maximilians University (LMU) Munich.
- Upcoming projects: In the lab of Dr. Josef Mautner at the Helmholtz Center München on the cell-cell cross talk of T cells and virus infected cells (EBV or SARS-CoV-2)

Akshat Joshipura

1/4/22 (Friday)
6:00 PM IST
MS Teams
<https://teams.microsoft.com/jyrb2zu>

Mr. Akshat Joshipura (2017-21 Batch), delivered a talk on "From Manipal to LMU, My Academic Journey" on 1st April, 2022.

ALUMNI ACHIEVEMENTS



Ms. Sachi Bhalchandra Tengse (2017-21 Batch), received Tuition Scholarship from the University of Minnesota for MS in Molecular Pharmacology and Therapeutics in April 2022.



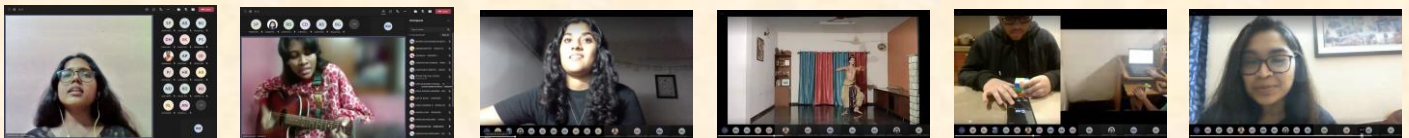
Ms. Rhea Sharma (2014-18 Batch), received the **Dean's Award for Graduate Student Excellence in Leadership** at Northeastern University Boston, MA. She was the only Indian to be Awarded in April, 2022.



Ms. Shristi Debata (2017-21 Batch) (circled in the picture), and her team won 2nd place amongst 45 teams and 415 participants around the globe for developing a solution to monitor Alzheimer's patients 24/7 and got a grant to develop a prototype. The National University of Singapore also published an article written by her on their official website in November 2022.

TALENT NIGHT 2022

A Talent night was organized by IEBt to showcase the talent and hobbies of the students of the Department of Biotechnology on 5th February 2022. The students and faculty of the department actively participated in this event and enjoyed to the fullest.



Thank You!