



AMITY UNIVERSITY MAHARASHTRA

Established vide Maharashtra Act No.13 of 2014, of Government of Maharashtra, and recognized under Section 2 (f) of UGC Act 1956.

Progress on SDG 9



Year 2023

Mumbai - Pune Expressway Bhatan, Somathne, Panvel,
Mumbai, Maharashtra 410206



AMITY UNIVERSITY MAHARASHTRA

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Centre for Computational Biology & Translational Research (CCBTR)

Vision:

To improve human health through the pursuit of academic and research excellence in translational science

Mission:

Create a multi-disciplinary research environment wherein biologists, physicist, chemists, computer scientists, mathematicians, statisticians, work as teams and adopt an integrated approach to find solutions to complex biological challenges

- Impart world class higher education and research in relevant applied areas (Computational Biology & Regenerative Medicine)
- Develop research partnerships with leading Institutes at the National & International level
- Disseminate the knowledge by presenting the work in renowned conferences and publish in high impactor factor journals
- Collaborate with Industry Scientists and Clinicians to promote clinical application of the research

Research Areas:

1. Genomic Data Science:

In this age of “big data”, and with the advent of newer and relatively inexpensive technologies, like Next Generation Sequencing (NGS), the need of the hour is to tackle massive amounts of data to make sense of it all. Realizing that growth in data-driven biology requires developing appropriate computational and statistical tools for data analysis, we will bring together, researchers with experience in cell & molecular biology, genomics, bioinformatics, statistical computation and data analysis, programming, and machine learning, thus providing an interdisciplinary platform to find solutions towards improving human health and disease. The focus would be to apply statistical tools to data generated from high-throughput technologies (microarray/NGS); analysing results using programming languages (R/Python); Development of algorithms for data analysis & visualization. Thus, this would result in obtaining high-quality data driven research, for better understanding of a particular disease condition and in turn will help with better prediction of disease outcomes.

2. Integrated Omics

The advancement of high throughput technologies, like genomics, proteomics, metabolomics, has greatly increased the ease and reduced the costs of collecting multi-omics data. However, a major challenge lies in attempting to integrate the data sets from various omics platforms to create more meaningful biological and clinically relevant knowledge. Machine learning techniques and methodologies that can facilitate the cross talk of the multi-omics platforms would be employed to understand the complexity of heterogenous data sets. A systems biology approach would be undertaken to study the complex interplay of a host of genes/proteins/metabolites, to provide a more comprehensive view on human diseases, which would help in biomarker discovery.

3. Structure-based drug design

Drug discovery and development is an expensive process and is time-consuming. Computer-aided drug designing tools can help shorten the timeline, thus substantially reducing the R & D costs.



Various software will be used for identification and design of small molecules as inhibitors /probes against various drug targets of therapeutic importance. Further, using computer-assisted analysis In silico designing (epitope mapping) for development of vaccine/diagnostic markers for infectious diseases will be undertaken.

4. Biomaterials & Tissue Engineering

Stem Cells have emerged as an attractive alternative source of cells for cell therapy due to its inherent property of multiplication and differentiation into a variety of cell types upon giving proper cues and stimulation with suitable growth factors. Although a lot of research has been able to report efficient differentiation, there has been some concerns regarding the generation of mature cell types and also the low percentage of differentiation efficiency when using a two-dimensional (only culture dishes) approach. Thus, successful generation of mature cell types would depend on a combination of cells, growth factors and a suitable 3-D environment to maintain functionality. Various scaffolds/biomaterials will be synthesised and tested for its potential to support differentiation. The research will include optimization of protocols for stem cell differentiation using organoid cultures/artificial niches to mimic stem cell differentiation, with particular focus on liver diseases.

5. Patient-derived Induced pluripotent stem cells (iPSCs) research

Stem Cell research is a rapidly evolving area, despite being fraught with innumerable challenges and hurdles that have yet to be overcome to realize its ultimate potential and clinical application. The path breaking discovery of induced pluripotent stem cells (iPSCs) in 2006, has revolutionised the field of stem cell research and translational science and has brought in a lot of excitement and optimism in this area. We will be looking at developing model systems for studying human development/disease using normal/patient derived iPSCs. Further, the Centre will also focus on the application of genome editing through CRISPR/Cas9 system in patient derived iPSCs. This research will open up newer avenues for studying human diseases and development.

6. Stem cell tracking and Imaging

Despite the clinical data appearing promising, there are severe limitations to realizing the potential of stem cell-based therapies. One major obstacle has been monitoring the bio-distribution and homing of implanted or injected stem cells in the human body. Hence, an urgent need exists to develop non-invasive and sensitive imaging techniques, which will prove valuable for optimisation of therapeutic delivery for cell therapy. We would focus on synthesising novel biocompatible nanomaterials for molecular imaging and tracking of stem cells. Earlier work carried out in the lab has shown the potential of nanomaterials to be promising agents for tracking/imaging. We would also look at in vivo tracking systems for visualising the nanoparticles. Various animal models for the disease/disorder of interest would be created to study the in vivo tracking of stem cells.

List of members:

- 1) (Chairperson)
- 2) Dr. Sagar Barage (Deputy Chairperson)



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3) Dr. Virupaksha Bastikar (Member Secretary)

4) Dr. Jaya Lakkakula (Member)

Infra structures currently available:

Computer Lab: 1 computer lab with 25 Desktop PC with LAN connection.

1 workstation (128 GB RAM, 2TB HD, 16 cores, GPU: RTX5000)

Animal cell culture facility: we utilize animal cell culture facility available at AIB.





Research Outcome for Jan. 2022-Dec. 2022

A. Publications:

1. Suraj Joshi, Payel Ghosh, **Sagar Barage**, Bhakti Basu, Deepti D Deobagkar, Genome-wide lone strand adenine methylation in *Deinococcus radiodurans* R1: Regulation of gene expression through DR0643-dependent adenine methylation. *Microbiological Research*, 257: 126964
2. Shrutika Sakpal ^{1,2}, Sayyed Zara Abdeen ², Shanker Lal Kothari ¹, **Virupaksha Bastikar** ³. Comparative transcriptomic analysis of the malaria parasites *Plasmodium falciparum* and *Plasmodium vivax* sensitive and resistant strains"; *Drug Development & Registration*; Vol 11, 1, Feb 2022
3. Shrutika Sakpal*, Shanker Lal Kothari and Virupaksha Bastikar, Characterization of human-malarial parasite species based on DHFR and GST targets, resulting in changes in anti-malarial drug binding conformations. *Drug Metabolism Letters* (DOI: [10.2174/1872312815666220225155728](https://doi.org/10.2174/1872312815666220225155728)).
4. Apurva Gole, Diya John, Karan Krishnamoorthy, Nilesh S. Wagh, **Jaya Lakkakula***, Mohd Shahnawaz Khan, Hamza Ahmad Mohammad Odeibat, Mohammad Tarique and Md. Rabiul



- Islam, Role of Phytonanotechnology in the removal of water contamination, *Journal of Nanomaterials* 22 (2022) 7957007.
5. Amara Lakshmi Lasita, Sakshi Pabrekar, Nilesh S. Wagh, and **Jaya Lakkakula***, *Metallic Biomaterials in Biomedical Applications, Functional Biomaterials (Drug Delivery and Biomedical applications)*, 2022, ISBN 978-981-16-7151-7.
 6. Aditya Amrut Pawar, Jyotirmayee Sahoo, Aakash Verma, Abdullah M. Alswieleh, Abhijit Lodh, Rajesh Raut, **Jaya Lakkakula**, Byong-Hun Jeon, Md. Raibul Islam, Azadirachta indica derived silver nanoparticles synthesis and its antimicrobial applications.
 7. Deepika Thilakan,¹ Jaie Patankar,¹ Srushti Khadtare,¹ Nilesh S. Wagh,¹ **Jaya Lakkakula***,^{1,2} Khalid Mohamed El-Hady,³ Saiful Islam,⁴ Md. Rabiul Islam,⁵ Mohd Shahnawaz Khan,⁶ Nouf Omar Alafaleq,⁶ and Mohammad Tarique⁷ Volume 2022 |Article ID 1517849 | <https://doi.org/10.1155/2022/1517849>
 8. Mitra, J., Srilekha, G.K.P., Wagh, N., **Lakkakula, J.** (2022). Application of Nanotechnology in Biofuel Production. In: Chowdhary, P., Khanna, N., Pandit, S., Kumar, R. (eds) *Bio-Clean Energy Technologies: Volume 1. Clean Energy Production Technologies*. Springer, Singapore. https://doi.org/10.1007/978-981-16-8090-8_13.
 9. [Snehal Desai](#), [Manish Singh](#), [Anamika Chavan](#), [Nilesh S.Wagh](#), [Jaya Lakkakula*](#), Micro- and nanoencapsulation techniques in agriculture, [Agricultural Nanobiotechnology](#) (Biogenic Nanoparticles, Nanofertilizers and Nanoscale Biocontrol Agents), 2022, 297-323, ISBN: 9780323919081
 10. Samuel S. Mgiba, Vimbai Mhuka, Nomso C. Hintsho-Mbita, Nilesh S. Wagh, **Jaya Lakkakula***, Nomvano Mketo, Recent Trends in Nanomaterial-Based Advanced Oxidation Processes for Degradation of Dyes in Wastewater Treatment Plants, [Advanced Oxidation Processes for Wastewater Treatment](#), 2022, ISBN :9781003165958.
 11. Sanchita Patwardhan, Rajesh W Raut, Nilesh Wagh, **Jaya Lakkakula**, Membrane based technologies for the removal of toxic pollutant, Removal of refractory pollutants from wastewater treatment plants, 2022, 335-365
 12. Velhal, K.; Barage, S.; Roy, A.; Lakkakula, J*; Yamgar, R.; Alqahtani, M.S.; Yadav, K.K.; Ahn, Y.; Jeon, B.-H. A Promising Review on Cyclodextrin Conjugated Paclitaxel Nanoparticles for Cancer Treatment. *Polymers* 2022, 14, 3162. <https://doi.org/10.3390/polym14153162> (IF: 4.43).



13. Sagar Barage, Jaya Lakkakula, Arushi Sharma, Arpita Roy, Saad Alghamdi, Mazen Almeahmadi, Md. Jamal Hossain, Mamdouh Allahyani, Osama Abdulaziz. Nanomaterial in food packaging: A comprehensive review. *Journal of Nanomaterials*, 2022 (IF: 3.791).
14. **J. Lakkakula**, D. Divakaran, R. Srivastava, P. Ingle, A. Gade and R. Raut, "In situ growth of biocompatible biogenic silver nanoparticles in poly-vinyl alcohol thin film matrix," in *IEEE Transactions on NanoBioscience*, 2022, doi: 10.1109/TNB.2022.3208310. **[IF: 3.557]**.
15. **Jaya Lakkakula**, Arpita Roy, Karan Krishnamoorthy, Saad Alghamdi , Mazen Almeahmadi , Pratik Gujarathi, Prachi Pansare, Mamdouh Allahyani, Osama Abdulaziz, Kamini Velhal, Most. Chand Sultana Khatun, and Md. Jamal Hossain. Alginate based nanosystems for therapeutic applications. *Journal of Nanomaterials*, 2022 **[IF: 3.791]**
16. Narmin Hamaamin Hussen, Aso Hameed Hasan, Joazaizulfazli Jamalis, Sonam Shakya, Subhash Chander, Harsha Kharkwal, Sankaranaryanan Murugesan, **Virupaksha Ajit Bastikar**, Pramodkumar Pyarelal Gupta, Potential inhibitory activity of phytoconstituents against black fungus: In silico ADMET, molecular docking and MD simulation studies" **Computational Toxicology**, Volume 24, 2022, 100247, ISSN 2468-1113, <https://doi.org/10.1016/j.comtox.2022.100247>.
17. GJ Navathe, SR Prasad, AM Mane, **SH Barage**, TD Dongale, Viquar Shaikh, MM Karanjkar, SB Teli, PS Patil, NR Prasad, A Critical Review on Design and Development of New Generation Energy Storage Devices. *ES Energy & Environment*, 2022, 17:11-32.
 - Pooja Salve, Aruna Vinchurkar, Rajesh Raut, Ramesh Chondekar, Jaya Lakkakula, Arpita Roy, Md. Jamal Hossain, Saad Alghamdi, Mazen Almeahmadi, Osama Abdulaziz, Mamdouh Allahyani, Anas S. Dabool, Md. Moklesur Rahman Sarker and Mohd Fahami Nur Azlina, An Evaluation of Antimicrobial, Anticancer, Anti-Inflammatory and Antioxidant Activities of Silver Nanoparticles Synthesized from Leaf Extract of Madhuca longifolia Utilizing Quantitative and Qualitative Methods, *Molecules* 2022, 27, 6404
 - Saurabh Kadam, Sakshi Pabrekar, Santosh Sawardekar, Sagar Barage* High-throughput and molecular interventions for identification and characterization of rice germplasm. *Cereal Research Communications*. <https://doi.org/10.1007/s42976-022-00320-y>
 - Narmin Hamaamin Hussen, Aso Hameed Hasan, Joazaizulfazli Jamalis, Sonam Shakya, Subhash Chander, Harsha Kharkwal, Sankaranaryanan Murugesan, Virupaksha Ajit Bastikar, Pramodkumar Pyarelal Gupta Potential inhibitory activity of phytoconstituents against black fungus: In silico ADMET, molecular docking and MD simulation studies *Computational Toxicology*, Volume 24, November 2022, 100247, ISSN 2468-1113.
18. Waifalkar, P. P., Daegwon Noh, Poorva Derashri, **Sagar Barage**, and Eunsoon Oh. 2022. "Role of Estradiol Hormone in Human Life and Electrochemical Aptasensing of 17 β -Estradiol: A Review" *Biosensors* 12, no. 12: 1117. <https://doi.org/10.3390/bios12121117>



Book Chapter:

1. Yojana Waychal, Shreya Gawas, **Sagar H. Barage**, Bioremediation of Petroleum-Contaminated Soil Pages 157-170 in Book "Advances in Bioremediation and Phytoremediation for Sustainable Soil Management" Volume 1 (ISBN (P): 978-3-030-89983-7).
2. Srilekha GKP, Himja Tiwari, Nomvano Mketi, **Jaya Lakkakula***, Application of Nanomaterials in Dairy Industry in Book "Advances in Dairy Microbial Products" (Elsevier) Jan, 18, 2022, eBook ISBN: 9780323909327

Research Outcome for Jan. 2023- Dec. 2023

B. Publications:

1. Aditya Amrut Pawar, Sanchita Bipin Patwardhan, Sagar Barage, Rajesh Raut, Jaya Lakkakula*, Arpita Roy, Rohit Sharma, Jigisha Anand (2023) Smartphone-based diagnostics for biosensing infectious human pathogens. *Progress in Biophysics and Molecular Biology*, 180:120-130.
2. Vandana Johnson, Caroline Biju Kurian, Diya Menon, Nilesh Wagh & Jaya Lakkakula* (27th June 2023), Nanofiltration Applications for Potable Water, Treatment, and Reuse in Sustainable Industrial Wastewater Treatment and Pollution Control in Book "Sustainable Industrial Wastewater Treatment and Pollution Control" (Springer) pp 149-167 <https://doi.org/10.1007/978-981-99-2560-5>, 978-981-99-2560-5
3. Roshnee Bose, Maharsh Jayawant, Rajesh Raut, Jaya Lakkakula*, Arpita Roy, Saad Alghamdi, Naeem F. Qusty, Rohit Sharma, Devvret Verma, Mayeen Uddin Khandaker, Abdullah Almujaali, Nissren Tamam, Abdelmoneim Sulieman. Cyclodextrin nanoparticles in targeted cancer theranostics. *Frontiers in Pharmacology*, section Experimental Pharmacology and Drug Discovery, 2023.
4. Sachin Bhusari, Parvinder M. Sah, Jaya Lakkakula, Arpita Roy*, Rajesh Raut*, Ramesh Chondekar*, Saad Alghamdi, Mazen Almeahmadi, Mamdouh Allahyani, Ahad Amer Alsaiari, Abdulrahman Aljuaid, and Nabeela Al-Abdullah. Green synthesis of silver nanoparticles *via* *Taxus wallichiana* Zucc. plant-derived Taxol: Novel utilization as anticancer, antioxidation, anti-inflammation, and antiurolithic potential. *Green Processing and Synthesis*, <https://doi.org/10.1515/gps-2023-0051>.
5. Chaitali Dhande, Devanshi Mistry, Anandkrishnan Karthic, Rajshri Singh, Sagar Barage* (2023) Computational approaches to identify novel inhibitors for the drug-resistant Mycobacterium tuberculosis DprE1 enzyme. *Indonesian Journal of Biotechnology*, 28:180-190.
6. Vamika Karn, Varun p. Talati, Shashank Kamble, Virupaksha Bastikar* (2023) Structural variation and transitional analysis of embb receptor with its mutants leading to drug resistance in tuberculosis. *Asian Jr. of Microbiol. Biotech. Env. Sc.* Vol. 25, No. (3) : 2023 : 484-490.

Book Chapter:



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1. Pramodkumar Gupta, Mala Parab, Santosh Chajjed, Virupaksha Bastikar*, Efficacy and Safety of Therapeutic Proteins, Protein-based Therapeutics, ISBN 978-981-19-8248-4, https://doi.org/10.1007/978-981-19-8249-1_10.
2. Virupaksha Ajit Bastikar, Pramodkumar Pyarelal Gupta, Alpana Bastikar, Santosh Subhash Chhajjed, Santosh Ajabrao Bothe, Chapter 11 - Bioinformatics serving oncoviral studies, Editor(s): Moulay Mustapha Ennaji, Oncogenic Viruses, Academic Press, 2023, Pages 253-266, ISBN 9780128241561,
3. Pramodkumar Pyarelal Gupta, Viraj Jitendra Sadrani, Priyanshu Pramodkumar Gupta, Mala Makarand Parab, Virupaksha Ajit Bastikar, Chapter 14 - Hepatitis C virus and hepatocellular carcinoma, Editor(s): Moulay Mustapha Ennaji, Oncogenic Viruses, Academic Press, 2023, Pages 243-262, ISBN 9780128241523, <https://doi.org/10.1016/B978-0-12-824152-3.00003-2>
4. Anwasha Mohapatra, Akhil Nair, Nilesh S. Wagh, Jaya Lakkakula* (24th March 2023) Alginate-based nanosystems for therapeutic use in the edited book Polymeric Nanosystems Theranostic Nanosystems, Volume 1, 2023, Pages 149-171. Elsevier, <https://doi.org/10.1016/B978-0-323-85656-0.00035-8>, ISBN: 978-0-323-85656-0.
5. Sanchita Patwardhan, Sachin Palekar, Nilesh S. Wagh, Jaya Lakkakula* (14th March 2023) Extended Investigation Processes in Advanced Wastewater Treatment for Water Reuse in the edited book Membrane and Membrane-Based Processes for Wastewater Treatment. CRC Press, <https://doi.org/10.1201/9781003165019>, ISBN: 9781003165019.
6. Puja Ghosh, Supriya Ghule, Nilesh S. Wagh, Jaya Lakkakula* (27th April 2023) Systematic Industrial Wastewater Treatment by Biomaterial Fabricated Nanofiltration Membrane in the edited book Bio-Nano Filtration in Industrial Effluent Treatment. CRC Press, <https://doi.org/10.1201/9781003165149>, ISBN: 9781003165149
7. Bhatt, J., Desai, S., Wagh, N.S., Lakkakula, J*. (20th June 2023). New Bioremediation Technologies to Remove Heavy Metals and Radionuclides. In: Shah, M.P. (eds) Industrial Wastewater Reuse. Springer, Singapore. https://doi.org/10.1007/978-981-99-2489-9_14, ISBN: ISBN978-981-99-2489-9
8. Sachin Palekar, Madhuri Dhavale, Nandini Girish, Nilesh Wagh N, Jaya Lakkakula* (30th June 2023) Mutagenesis: A Useful Tool for the Genetic Improvement of the Cultivated Peanut (*Arachis hypogaea* L.). Biotechnologies and Genetics in Plant Mutation Breeding: Volume 3: Mechanisms for Genetic Manipulation of Plants and Plant Mutants. Apple Academic Press, <https://doi.org/10.1201/9781003305101>, ISBN: 9781003305101
9. Vandana Johnson, Caroline Biju Kurian, Diya Menon, Nilesh S. Wagh & Jaya Lakkakula (2023) ,Nanofiltration Applications for Potable Water, Treatment, and Reuse, 149-167, Springer, Singapore, https://doi.org/10.1007/978-981-99-2560-5_8, Print ISBN 978-981-99-2559-9 Online ISBN 978-981-99-2560-5.
10. Amara Lakshmi Lasita, Pallavi Pradhan, Nilesh S. Wagh & Jaya Lakkakula,(2023) Cyclodextrin-Based Material for Industrial Wastewater Treatments, 299-337, Springer Nature Singapore, https://doi.org/10.1007/978-981-99-3292-4_15. Print ISBN 978-981-99-3291-7, ISBN 978-981-99-3292-4.
11. Vani Tiwari, Vedha Sahithya, Nilesh Wagh, and Jaya Lakkakula (2023) Green Synthesis of Nanomaterials from Algae Materials to Remediate Environmental Pollution, ISBN: 9781774916100
12. Njabulo S Mdluli, Nilesh S Wagh, Jaya Lakkakula*, Philiswa N Nomngongo, Nomvano Mketi, Emerging Nanofiber Technology for the Removal of Metal Ions in Wastewater Treatment Plants, 1-13, CRC Press, ISBN 9781003164982.



C. Events Organized: Jan 2022-Dec-2022

1. **Title:** Protein interaction networking and molecular modelling in drug development, 12-13 Jan 2022.

**WORKSHOP ON
PROTEIN INTERACTION
NETWORKING &
MOLECULAR MODELLING
IN DRUG DEVELOPMENT**

12th & 13th January 2022

ORGANISED BY
CENTRE FOR COMPUTATIONAL BIOLOGY & TRANSLATIONAL RESEARCH
AMITY INSTITUTE OF BIOTECHNOLOGY, AUM

2. **Title:** International Webinar on “Emerging Trends in Translational Research”

Date and Time: Thursday, 23rd December 2021, 2.00 PM – 4.30 PM

Speaker:

“Trends and Future in Translational Bioinformatics”

Dr. Dakshinamurthy Sivakumar

R & D center,



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Pharmcadd, Haeundae-gu, Busan, South Korea.

“Biomimetic Nanoconstructs for Cancer Theranostics”

Dr. Arunkumar Pitchaimani

Associate Professor & Ramalingaswami Fellow,
Centre for Biomaterials, Cellular and Molecular Theranostics (CBCMT)
Vellore Institute of Technology (VIT), Vellore, Tamil Nadu, India.

3. **Title:** Two days International seminar on Malaria Prevention: drug to vaccine
Date: 22nd -23rd Feb 2022

The poster is for a two-day international seminar titled "Malaria Prevention: Drug to Vaccine". It is organized by the Centre for Computational Biology and Translational Research (CCBTR), AIR at Amity University Mumbai. The poster features a central image of a vial labeled "Malaria Vaccine Injection only 5 ml Store at 2-8°C". The seminar is divided into two days: Day 1 (22nd February 2022, 9.30-10.30 am) with the topic "ANTIMALARIAL APPROACHES TARGETING HOST CELL INVASION: FROM BENCH TOWARDS BEDSIDE" featuring Dr. Prakash Srinivasan, and Day 2 (23rd February 2022, 9.30-10.30 am) with the topic "SHOULD I STAY OR SHOULD I GO? EGRESS OF MALARIA PARASITES" featuring Dr. Vasant Muralidharan, PhD. The poster also lists patrons, a convener, organizing secretaries, and organizing committee members.

Speaker:

Dr. Prakash Srinivasan

Assistant Professor, Johns Hopkins Malaria Research Institute
Dept. Molecular Microbiology and Immunology, JHBSPH
Baltimore, MD 21205

Dr. Vasant Muralidharan, PhD

Associate Professor
Associate Director, Training Program in Tropical & Emerging Global Diseases Center for
Tropical & Emerging Global Diseases
Department of Cellular Biology
University of Georgia, Athens, GA

4. **Title:** Webinar on Startups in Biosciences



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AMITY UNIVERSITY MUMBAI | INSTITUTION'S INNOVATION COUNCIL (Ministry of HRD Initiative)

CO-ORGANIZED BY

Centre for Computational Biology and Translational Research (CCBTR)

WEBINAR ON

Startups in Biosciences

Thursday, 3rd February 2022 | 11.00 AM – 12.30 PM

SPEAKER

Dr. S. G. Prakash Vincent
BRICS Chairman Associate (India),
Associate Prof. & Coordinator
International Centre for
Nanobiotechnology (ICN)
Manonmaniam Sundaranar University
Kanyakumari, Tamil Nadu

Date: 3rd Feb 2022, 11:00 AM to 12:30 PM

Speaker:

Dr. S. G. Prakash Vincent,
BRICS Chairman Associate (India),
Associate Prof. & Coordinator
International Centre for Nanobiotechnology (ICN)
Manonmaniam Sundaranar University
Kanyakumari, Tamil Nadu, India.

5. Centre for Computational Biology and Translational Research, Amity University, Mumbai Organized Web Conference on Recent Trends of Computational Biology in Basic & Translational Research: on March 10-11, 2022 In association with Sikkim Manipal University, University of Kashmir, Manipur University, ACTREC, Mumbai.



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Azadi Ka Amrit Mahotsav **आजादी का अमृत महोत्सव**

Amity University, Mumbai Sikkim Manipal University University of Kashmir Manipur University ACTREC

Web-Conference : March 10-11, 2022

Recent Trends of Computational Biology in Basic & Translational Research

Amity University, Mumbai
Amity University Maharashtra, Mumbai (AIM) is a part of Amity University, established under the Maharashtra Govt. Act of 2014 of Government of Maharashtra and is recognized as per Section 2(f) of the UGC Act with the rights to confer degrees. AIM is a research and innovation-driven university having 300+ acres of land across the Amity group of universities. The campus facilitates the all-round growth of students. Amity with the benchmarks of the global education with a system that matches the best of practices. Studies, resources and standards all over the world. It is committed to excellence, diversity and an inclusive environment for students, faculty, staff, and all activities. For details please visit <https://www.amity.edu/mumbai/>

Sikkim Manipal University
Sikkim Manipal University (SMU) has been conducting research in the fields of Health Sciences and Technology since 1992. Accredited by NAAC and recognized by UGC. The East PPP University in the Northeast India has been in the forefront for developing research capacity in the Northeast. SMU ranks 110 best health medical university in India. The Directorate of Biotech Center at SMU places particular emphasis on promoting cross-functional research activities, by providing world-class research facilities & expert guidance. <https://www.smu.edu.in/research.html>

University of Kashmir
Kashmir University, founded in the year 1981, is committed to provide intellectually stimulating environment for productive learning to enhance the educational, economic, scientific, business and cultural environment of the region. Over the years, the University has marked towards excellence in its progress and activities. It has been re-accredited as Grade A+ University by the National Assessment and Accreditation Council (NAAC) of India. Kashmir University has been Ranked 40th in the NIRF rankings with a ranking of 56 in QSBRICS. For details, please visit <https://www.kashmiruniversity.ac/>

Manipur University
Manipur University was established on 5th June 1980 under the Manipur University Act, 1980 (Manipur Act 8 of 1980), and it was converted into a Central University w.e.f. 13/09/2005. The Manipur University Act No. 54 of 2005 received the assent of the President on 28/12/2005. The main objective of the University are to disseminate and advance knowledge by providing instructional and research facilities to educate and train manpower for the development of the country in general and North Eastern Region in particular. For details, please visit <http://www.manipuruniv.ac.in/>

Advanced Centre for Treatment, Research & Education in Cancer (ACTREC)
ACTREC is the state-of-art R&D satellite of the Tata Memorial Centre (TMC) which is the autonomous govt-owned institution under the Department of Atomic Energy (DAE), Government of India. ACTREC has two wings Cancer Research Institute (CRI) and Clinical Research Centre (CRC) which focus basic, translational and clinical research are undertaken. Training, Research and Education are distinctive features of CRI. CRC is an exclusive clinical research facility within the ACTREC campus. For details please visit www.actrec.gov.in

Invited Speakers

➤ **Dr. G P S Raghava:**
Department of Computational Biology, Indraprastha Institute of Information Technology-New Delhi

➤ **Dr. D Sundar:**
Biochemical Engineering and Biotechnology, Indian Institute of Technology Delhi

➤ **Dr. K. Sekar :**
Department of Computational and Data Sciences, Indian Institute of Science, Bangalore

➤ **Dr. Pinal Chakraborty:**
Ea-Professor, Bose Institute, Kolkata

➤ **Dr. N. Senthil Kumar:**
Department of Biotechnology, Miarman University, Alwar, Miarman

➤ **Dr. Sangrita Sanyal:**
Bioinformatics Center, Savitribai Phule Pune University, Pune

➤ **Dr. Md. Imtaiyaz Hassan :**
Jawahar Institute, New Delhi

➤ **Dr. Evans C. Coutinho:**
Ea-Professor, Bombay College of Pharmacy, Mumbai

➤ **Dr. Prachant S. Kharakar:**
Pharmaceutical Sciences and Technology, Institute of Chemical Technology, Mumbai

➤ **Dr. Susan Thomas:**
Biomedical Informatics Center, National Institute for Research in Reproductive and Child Health, Mumbai

➤ **Dr. Sanjeev Kumar Singh:**
Department of Biostatistics, Allipet University, Karaikal

➤ **Dr. Probodh Borah :**
Department of Animal Biotechnology, Assam Agricultural University, Khanapara, Goalpara

➤ **Dr. Shubhra Chosh Dastidar:**
Bioinformatics Center, Bose Institute, Kolkata

➤ **Dr. Pankaj Barak:**
Department of Molecular Biology and Biotechnology, Tezpur University, Tezpur

➤ **Dr. Petety V. Balaji :**
Department of Biotechnology and Bioprocessing, Indian Institute of Technology Bombay Powai, Mumbai

➤ **Dr. Pankaj Chetia:**
Department of Life Sciences, Dibrugarh University, Dibrugarh

➤ **Dr. Urmila Kulkarni Kale:**
Bioinformatics Center, Savitribai Phule Pune University, Pune

➤ **Dr. Prasad Wadegonkar:**
Department of Biotechnology, Jeeb Ganga Baba Amravati University, Amravati

➤ **Dr. Anchala Kumari:**
ACTREC, TMC, New-Mumbai

➤ **Dr. Sagar Barage,**
Amity Institute of Biotechnology, Amity University, Mumbai

Patrons

Dr. U. V. Bhanu, ATPE
Vice-Chancellor
Amity University,
Mumbai

Dr. A. V. Anand Kumar, Vice-Chancellor
Amity University,
Mumbai

Dr. S. V. Srinivas Kumar, Head of Dept. Biotech & Chem
Sikkim Manipal
University,
Mangalore

Prof. T. Lakshmi Devi
Vice-Chancellor
Manipur University,
Shillong

Prof. Indrajit Das
Director
ACTREC-TMC
New-Mumbai

Dr. Anurag Kumar
Director
Amity Institute of
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Mumbai

Dr. Mangalika B. Borde
Prof. & Head of
Biochemistry (BMBAS),
Sikkim Manipal
University, Shillong

Dr. Ajay Kumar Patil
Prof. Department of
Biotech,
Srinagar

Dr. S. Rajashankar Dasg
Family, Biotechnology
Department, Manipur
University

Dr. Anand K. Verma
Scientific
Officer "1P"
ACTREC-TMC

Conveners

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Vice-Chancellor
Amity University,
Mumbai

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Registration & General Information

- Registration is free. Please fill out the Registration form using <https://forms.gle/zH1yLWuNryGP8yVA> before March 8, 2022.
- Webinar zoom link and the detailed Programme will be provided to the Registered Participants only.
- All the registered participants will be provided access to all the Invited Talks & Sessions.
- An e-certificate shall be provided to the Participants through their registered e-mail, after they have successfully attended the Webinar.

D. Participated in Seminar/Symposium/workshop/Invited talk/Panelist:

1. Dr. Sagar Barage as a panellist in the Panel Discussion in Omics Research Symposium 2022 on "Academic Panel Discussion" organized by Pine Biotech, LA, USA held on August 30, 2022.



Invited Talk:

1. Delivered talk on "Disrupting AMA1-RON2 interaction with natural compounds: A strategy to prevent erythrocyte invasion by malaria parasites" in Web Conference on Recent Trends of Computational Biology in Basic & Translational Research, March 11, 2022.



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03:40PM 04:20PM	Dr. Pankaj Barah : Department of Molecular Biology and Biotechnology, Tezpur University, Tezpur	Big Data Approach for personalized oncology
PROGRAM SCHEDULE: MARCH 11, 2022		
Chairperson : Dr. Samrat Adhikari, Biotechnology Department - St. Edmund's College, Shillong		
10:00AM 10:40AM	Dr. Susan Thomas -National Institute For Research In Reproductive and Child Health, Mumbai	Genes, Diseases and Pathways
10:40AM 11:20AM	Dr. Prashant Kharkar -Pharmaceutical Sciences and Technology, Institute of Chemical Technology, Mumbai	Computational Approaches to Cancer Genetics: State-of-the-Art and Applications in Translational Research
11:20AM 12:00PM	Dr. Sagar Barage : Amity Institute of Biotechnology, Amity University, Mumbai	Disrupting AMA1-RON2 interaction with natural compounds: A strategy to prevent erythrocyte invasion by malaria parasites
(BREAK) 12.00 AM – 12.10 PM		
Chairperson : Dr. Judith Mary Lamo, St. Anthony's College, Shillong		
12:10PM 12:50PM	Dr. Pankaj Chetia - Dibrugarh University	Identification of plant-based efflux pump inhibitors to combat MDR Shigella species
12:50PM 01:30PM	Dr. Prasad A. Wadegaonkar : Sant Gadge Baba Amravati University,	Integrated approach for validation of traditional and herbal medicine : The need of hour
01:30PM 02:00PM	Ms Lipi Das , TMC-ACTREC, Navi Mumbai	Proteomics and computational Biology for Translational Research
(LUNCH BREAK) 02.00 PM – 03.00 PM		
Chairperson :Dr. L Rupachandra Singh, Faculty, Biochemistry Department, Manipur University		
03:00PM 04:00PM	Dr.Urmila Kulkarni Kale : Bioinformatics Centre, Savitribai Phule Pune University, Pune	Immunoinformatics : Opportunity Landscape for Basic and Translational Research
04:00PM 04:30PM	Panel Discussion: Role of Informatics in Basic and Translational Research	

- Delivered Talk on Natural compounds as erythrocyte invasion inhibitor for malaria in DBT- guest lecture series, Shri Shivaji Mahavidyalaya, Barshi on March 03, 2022.



श्री शिवाजी विद्यालय, बारशी
संचालक: कर्मीर डॅ. पावसाळकर जगदाले

Shri Shivaji Mahavidyalaya, Barshi
DBT STAR College Scheme,
PG Department of Microbiology & Research
center,
Organizes
Guest Lecture Series



श्री शिवाजी महाविद्यालय, बारशी
॥ श्रद्धावान् लभते ज्ञानम् ॥

Topic:- Natural compounds as erythrocyte invasion inhibitors for malaria
Date: 3/3/2022; Time: 2pm



Dr. Sagar H. Barage
Associate Professor
Amity Institute of Biotechnology (AIB),
Amity University, Mumbai



Prof. Dr. Bharati Revadkar
IC Principal
Shri Shivaji Mahavidyalaya, Barshi

Invitation link : <https://us02web.zoom.us/j/83812150528?pwd=YUZlRW50bC9hVlU0MXdPVkdLY1ZlZ0Q09>

Dr. Gurame V.M.
Coordinator
DBT Star College Scheme

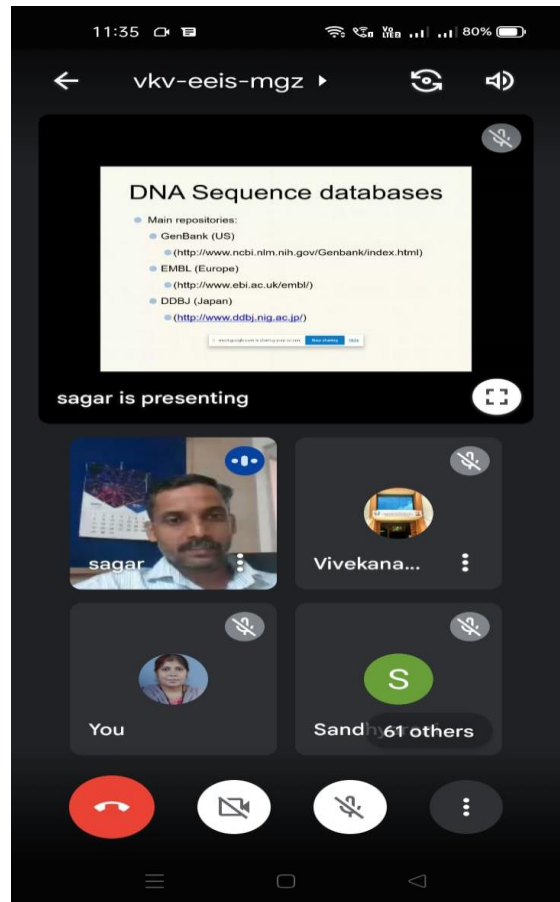
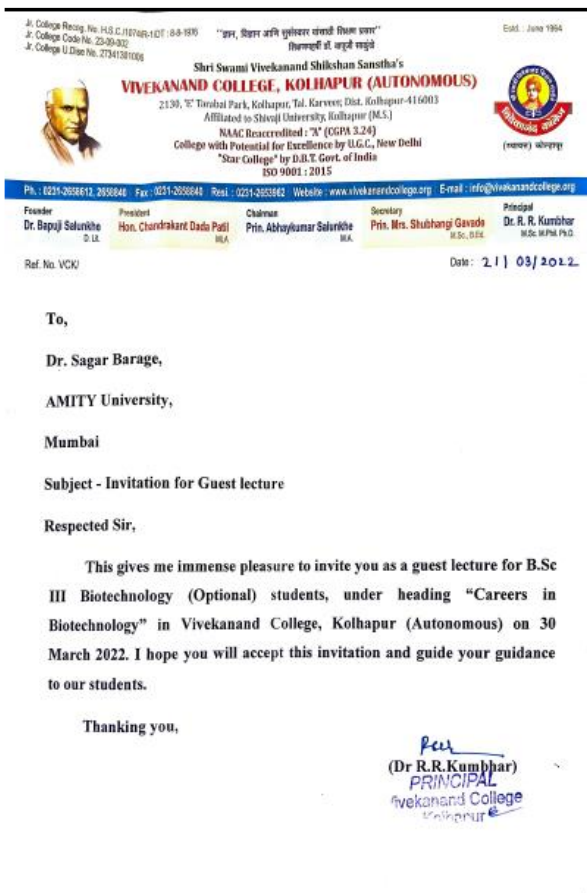
Mrs. Suman Jadhav Lokhande
Head
Department of Microbiology

- Deliver talk on "Careers in Biotechnology" in Vivekanand College, Kolhapur (Autonomous) on 30 March 2022.



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Events Organized: Jan 2023-Dec 2023:

Dr. Jaya Lakkakula, Co-Convenor, National Science Day-Amivigyaaan 2023(Theme-Global Science for Global well-being), Feb 28-March 1, 2023.

Dr. Sagar Barage, Co-Convenor, expert Talk on Why go to Space? by Dr. Nat Gopalswamy on Feb 27, 2023.



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Organized Seminar on the occasion of 'World Alzheimer's Day' in association with Alzheimer's and Related Disorders Society of India (ARDSI), Mumbai Chapter. Date and Time: 21 September 2023 at 11:50 to 01:00 PM.



E. Ongoing collaborations

1. BAIF, Pune:

BAIF Development Research Foundation, Pune, Maharashtra is a NGO working for sustainable livelihood and Quality of life of Tribal and rural communities since 1967, presently working in 16 states of India.

We have signed material transfer agreement with BAIF to spare available rice germplasm for research. The aim of collaboration is to conduct research to study rice diversity and identify unique traits among genotypes which will be helpful in many ways for nutrition, climate change and other issues

F. Doctoral Fellowship:

Mr. Saurabh S. Kadam received Chatrapati Shahu Maharaj National Research Fellowship-2020 for doctoral research on topic "Spectroscopic intervention for identifying important cultivated rice accessions from Konkan region".

The funded projects and research work going on under these centres of Excellence.

Project sanctioned for Dr. Vinothkannan Ravichandran

Title: Evaluation of MexB-specific efflux pump inhibitors against *Pseudomonas aeruginosa* and its reverberations on quorum sensing.



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Budget: Rs. 28,54,000

Funding agency: DST – SERB

Scheme: Start-up Research Grant (SRG)

Project sanctioned for Dr. Shashank Kamble

Title: To unravel the role of Calpain Cleavage Related Mutations (CCRM) in the progression of Uterine Corpus Endometrial Carcinoma (UCEC)

Budget: Rs. 18,30,000

Funding agency: DST – SERB

Scheme: Teachers Associateship for Research Excellence (TARE) Fellowship

Objectives and the Outcomes of the research work carried out under these Centers.

The center for drug discovery and development (CD3) was established in 2022 at the Amity university Maharashtra, Mumbai with the goal to discover novel drugs to fight against life threatening infectious diseases caused by multi drug resistant ESKAPE pathogens and Mycobacterium tuberculosis from natural products. Center will also focus on anticancer drug development aiming novel molecular targets with the help of computational approaches. The center consists of a young group of enthusiastic and experienced scientist actively pursuing collaborative research with external collaborators in academic community as well as with industrial partners both in India and abroad.

Objectives



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1. To be a part of drug discovery process, from basic discovery to applied and translational research, creating cooperative pre-clinical and clinical prospects, and foster an entrepreneurial and innovative culture.
2. To be a state-of-the-art resource for a highly productive and renowned group of faculties with research interests overlapping with drug discovery.
3. To expand of the bandwidth of our members and enable multidisciplinary projects beyond our current capabilities towards drug discovery and development.
4. To focus on the natural products converting into commercial & non-profit libraries and encourage the biological assessment of these entities through internal and external partnerships.

Outcomes:

1. Received two extramural grants from DST SERB
2. Applied 10 research proposals to various funding agencies.
3. Published 3 review articles, 2 research papers, 5 book chapters.
4. Conducted one international seminar on Biofilms.
5. Conducted seminar on National cancer day.



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1. Five Best Photographs of each laboratory / and research equipment's established under these centers.





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The list of researchers, faculty, non-teaching staff working under these centers.

Dr. Vinothkannan Ravichandran (In-charge), AIB

Dr. Nilesh Wagh, AIB

Dr. Shashank Kamble, AIB

Dr. Vinoth Prasanna Gunasekaran , AIB



Startup- Innovation to Reality! 30/11/2022

School of Fashion Design and Technology was requested by IIC AUM to conduct the Callender event for this quarter- “A mentoring event comprising presentation of idea/concept with innovation expert- managing through YUKTI-NIR”. The Idea for this programme ‘Startup-Innovation to Reality’ was to encourage students to come up with their entrepreneurial project prospect through presentation and Idea generation. The basis of Inspiration came from the success and the overwhelming response from the stalls of Diwali Flea Fair that was organised in October 2022

Dr Yogesh Suradkar, VP Research and Innovation, SAPMENA, L'Oreal India Pvt. Ltd. With doctorate in Chemistry from ICT, Mumbai and 17 Years of work experience, he has designed Value added innovative pipeline securing top 3 positions in offline and online channels with Garnier #1 Beauty brand in South Asia. Design-to-cost initiatives helped in saving €4Mn. His area of expertise includes Open Innovation and Open Development Environmental, Budget Planning & Forecasting and Quality Assurance. He is a Founding Member of the Indian Chapter of Leaders Excellence at Harvard Square. He is a leading voice at global forums, industry events, and consumer conferences. The ten presenters were selected from the 22 entries of innovation ideas received through Google forms from AUM. The attendees were mostly students of all semesters of ASFDT. Distinguished Members like the Hon'ble Vice Chancellor, Deputy Pro-Vice Chancellor, Directors HOIs and faculty members from ASFDT as well as other schools were also invited. it gave essential pointers for Innovation and execution in Start-up businesses. The participants went back with valuable inputs to start their start up journey and take the ideas to next level of execution. The other participants, who might also think of becoming entrepreneurs in future got insights on how to start and execute their ideas. 10 Novel ideas were presented by students starting with their Inspiration, Idea generation, Market Survey, SWOT Analysis, Road map and then Budget planning. They all had lots of queries to discuss and get more input in their course of action. Dr Yogesh Suradkar gave insightful and valuable advice to each of them and how they can improvise on their future prospects. Following were the points he emphasized on: To explore the practicality of converting innovation to business. To receive mentoring for the execution of Innovation ideas. Expert advice on improving the business plan.



Specific Administrative Support for Interdisciplinary Research Teams Amongst Science Disciplines

Honourable Vice Chancellor, the statutory bodies and the Management of the Amity University Maharashtra has full support for the interdisciplinary science research. Each project proposal abstracts are reviewed by the honourable Vice Chancellor of the university. Dean Research of the university has the specific actions to review the Research aspects and provides all the inputs for the constructive enhancement of the research proposals, and the outcomes of the research projects. The research project proposals are scrutinized at the office of Dean Research, and the committee approves the proposal with the specific recommendations to win the funding. The research clusters are created for the effective research proposal writing, and knowledge exchange among the faculty members. The team of managers are appointed to identify the research project funding opportunities and disseminating information about the project proposals. Complete support is provided for getting the endorsement letter from the office of Registrar. The financial matters of the receiving of the funds in the bank account of the Amity University Maharashtra is handled by the CFO of the university.

The CFO is coordinating with the Central CFO Ritnand Balved Education Foundation (RBEF). All the transactions are ethically handled, and the smooth administrative support is provided to the Principal Investigator and the co-investigator of the research projects. The approval for the expenditure of the funds is securitized and smoothly processed, as per the guidelines provided by the funding agencies. The ethical committee checks the ethical concerns of the research work. The procurement of any research equipment's is done through the ethical practices and follows the lowest prize quotations in the purchasing in the transparent manner. Similarly, it is the practice to follow the sustainable practices during the material purchase for all kind of research projects. The security team takes care of the material handling coming to the university campus and going outward from the university campus.



Measures of Success of Interdisciplinary Research

Amity University Maharashtra has the system to publish the quality research papers in reputed indexing agencies such as Scopus, and Web of Science for the science and engineering disciplines. It is highly recommended to publish the higher impact factor original research papers in the reputed and peer reviewed journals. The inter-disciplinary research projects including the science, life science and engineering branches is highly expected from the faculty members, post-doctoral fellows, and research fellows. The other disciplines such as social sciences, and related streams are also encouraged. Universities have measures on the various established mechanisms those are accepted worldwide such as H-index calculations by Scopus, Web of Science, and the Google Scholar. The better impact has been observed at the implementation stages of the technology handover and the start-ups created based on the products developed through this interdisciplinary research. The University has shown the significant footprints in the intellectual property rights. The patents, designs and copyrights are filed by the faculty members of the Amity University Maharashtra. It is the planning of the university to encourage the product design for the successful business. The success is also measured in terms of the social impact created on the lives of the citizens, the poor sections, and the general public. Following are the mechanisms for the measurement of the success of the interdisciplinary research.

- The measurement of the methodology of the research funds utilized for the betterment of the society.
- The research success for the improvement in the new knowledge production, that can be the part of the education system and curriculum.
- Conversion of the research outcomes into the well-established research methodologies for the curriculum design and the enrichment outcomes.
 - Outcomes in terms of the high impact factor research paper publications, blogs and social media postings to reach out to the target group.
 - Continuation of the similar research after the tenure of the research project and thinking out-of-the-box concepts as a by-product of the research outcomes.
- Improvement in the h-index, i-10 of the Amity University Maharashtra and the involvement of the faculty individuals and the students in the research work.
- Product development for the further wealth generation for the nation building.
 - Creating ethical system of the research methods and generating the research outcomes of the research.
- Filing of the Intellectual Property Rights in terms of the Patents, Design, and Copyrights. Further extending it to the business and start-up registrations to convert it into tangible outcomes.



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- Successful establishment of the business to the profit generation and providing the significant amount of funds for the social benefits.
- Raising the funds for the interesting product development, and novel ideas generated during the research work.
- Inclusion of the results or the newly applied research methodology in the curriculum of the UG and PG programs, and PhD Programs.
- Use of the research in the design of the new policy documents.
- Appearance of the articles in the newspaper and popular online platforms.
- Portraying the tangible outcomes of the research for all stakeholders of the university.

Promotion System in Place that Recognizes Interdisciplinary Research Amongst Science Disciplines

Human Resource (HR) Policy of Amity University Maharashtra follows the Promotion includes the University Grant Commissions (UGC) guidelines on the Career Advancement Schemes (CAS) for the Promotion from the Assistant Professor-1 to Assistant Professor-2, and Assistant Professor-2 to Assistant Professor 3. Similarly, the promotion from the Associate Professor to Professor Position requires the quality research publications in the reputed peer reviewed and Scopus or WOS indexed Journals. • The original research articles published in the Science, Engineering, Technology are highly recommended. • Incentives is given to the faculty members having the high impact factor publications at which also includes the interdisciplinary research outcomes in terms of the research papers, Intellectual Property Rights, and Policy documents. • The university provides the financial support for the Travel, Accommodation expenses to attend the Conferences, Meetings, and for research collaborations, if the researcher has convinced as high potential outcomes of the proposed research work. • The Promotion and tenure decisions are given based on the collaboration in the field of the Interdisciplinary Science and Engineering research. • The target given to each faculty to publish four high quality Scopus; Web of Science indexed research papers in an academic year. These targets of the research paper publication, IPRs are mapped with the annual appraisal system of the faculty member and the researcher at the university