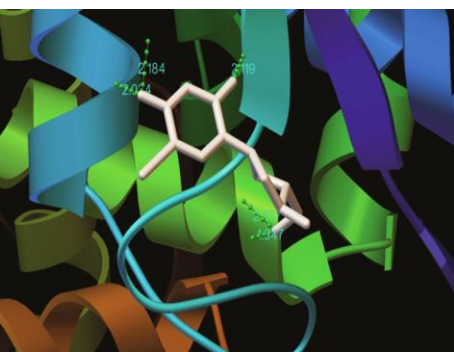
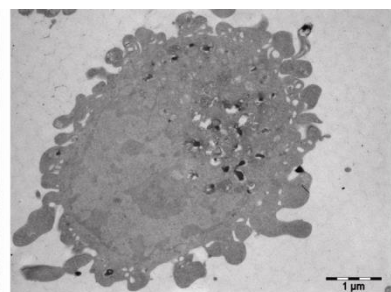
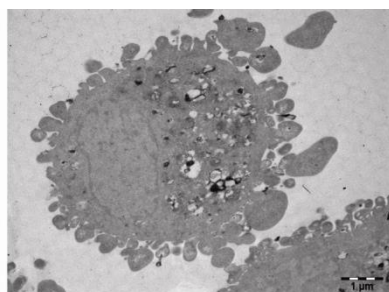
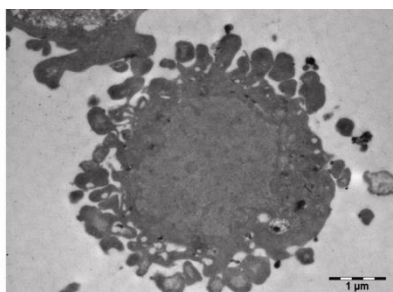
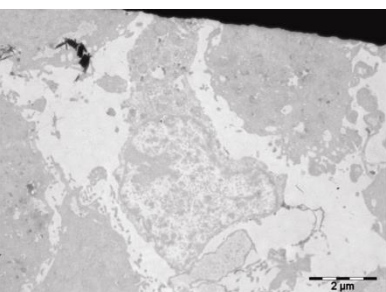


Centre for Biotechnology



Kalasalingam Academy of Research and Education

Krishnankoil-626126, Tamil Nadu, India



Introduction



A research centre at KARE with a focus on developing cutting-edge technology in the field of Biotechnology was established in the academic year 2006-2007. The major focus of the centre, which is the research arm of the Department of Biotechnology, is to understand the mechanism of pathogenesis and develop therapies for infectious and inflammatory diseases. The Centre is housed in an independent, multi-storied Biotechnology building with state-of-the-art equipment and infrastructure to help achieve its mission. The centre has dedicated research laboratories that include Molecular Immunology Laboratory, Computational Biology, Zebra Fish Laboratory and Proteomics Laboratory. KARE management provided Rs. 40 Laks for the establishment this centre.

Objectives

To establish facility for research and training in the field of Biotechnology

To facilitate collaboration and participation with relevant scientists from across the world.

Research Areas

MAJOR FOCUS

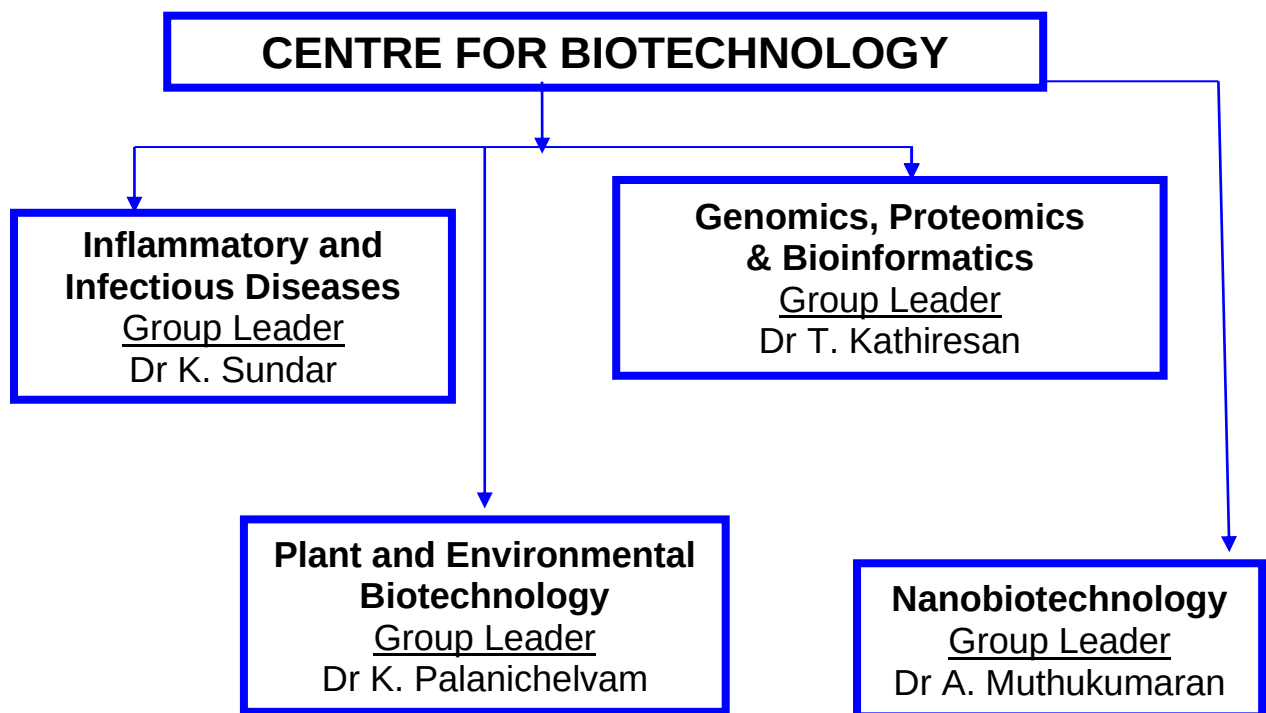
INFLAMMATORY AND INFECTIOUS DISEASES

Sub-AREAS:

- Computational Immunology & Vaccine Design
- Mining of pathogenic Genomes for novel drug targets
- Drug design using *in silico* methods
- Bioactive natural products as anti-inflammatory agents
- Proteomic approaches in understanding the mechanism of hearing loss
- Biosynthesis of nanoparticles and their applications
- Effect of anti-mitotic compounds in regeneration of plants and animals
- Understanding the mechanism of cell invasion and migration

Other Areas of Research

- Plant Biotechnology
- Environmental Biotechnology
- Metagenomics of industrially important enzymes



Research Investigators

The Centre for Biotechnology has well qualified faculty members as Principal Investigators of various laboratories; they all been trained in various institutions in India and abroad. They are often invited for guest lectures by various organizations and are in the Board of Studies of other institutions and serve as reviewer in several international journals and for funding agencies.

Dr K. Sundar

Citations: 1655

H-index: 23

I10-index: 41

Dr Sundar has more than 30 years of post-PhD teaching and research experience including 10 years of experience in Universities in USA. He has established an active and successful research group at KARE, secured grants of more than two crore rupees (as PI and Co-PI) from funding agencies for research. He has also initiated research collaboration with research groups in USA and UK and published more than 100 peer-reviewed research articles and presented many in conferences. His years of experience would help him in offering solutions to any problems associated with biotechnology, particularly in designing newer vaccines and drugs.

Insights of research outcome:

- Marimuthu, S.C.V., Murugesan, J., Babkiewicz, E., Maszczyk, P., Sankaranarayanan, M., Thangamariappan, E., Rosy, J.C., Ram Kumar Pandian, S., Kunjiappan, S., Balakrishnan, V. and Sundar, K., 2023. Pharmacoinformatics-Based Approach for Uncovering the Quorum-Quenching Activity of Phytocompounds against the Oral Pathogen, *Streptococcus mutans*. *Molecules*, 28(14), p.5514.
- Rencilin, C.F., Rosy, J.C., Mohan, M., Coico, R. and Sundar, K., 2021. Identification of SARS-CoV-2 CTL epitopes for development of a multivalent subunit vaccine for COVID-19. *Infection, Genetics and Evolution*, 89, p.104712.
- Rosy, J.C., Babkiewicz, E., Maszczyk, P., Mrówka, P., Kumar, B.K., Murugesan, S., Kunjiappan, S. and Sundar, K., 2022. L-Ornithine-N5-monooxygenase (PvdA) Substrate Analogue Inhibitors for *Pseudomonas aeruginosa* Infections Treatment: Drug Repurposing Computational Studies. *Biomolecules*, 12(7): 887.
- Esakkimuthu, T., Mohan, M., Sundar, K., 2021. Computational Mapping of Cytotoxic T Lymphocyte epitopes of *Mycobacterium Tuberculosis* and their Potential Role in Vaccine Design. *Turkish Journal of Immunology*, 9(1):20-7.

Dr T. Kathiresan

Citations: 1655

H-index: 23

I10-index: 24

For the past ten years, his laboratory is exploring the role of ER stress and mitochondrial mediated apoptosis in sensory epithelium of retina and cochlea, and breast cancer. In breast cancer he used various combinations of plant derived therapeutic molecules which are loaded in hollow mesoporous silica nanoparticles (HMNSAP) and measure its therapeutic efficiency and analyze cell death mechanism. The HNMSNAP are efficient targeted and sustained delivery vehicle of both mitochondria and endoplasmic reticulum. Their mechanism of drug delivery and signalling proteins activated to induce apoptosis was further explored *in vitro* and *in vivo* models.

	Insights of research outcome: • Viswanathan, T.M., Zochedh, A., Chandran, K., Sukumaran, S., Sultan, A.B. and Kathiresan, T., 2023. Investigation of Guanidine-Curcumin Complex Based on Quantum Chemicals, Pharmacokinetics and Molecular Docking Simulation against Breast Cancer: A Theoretical Approach. Asian Journal of Chemistry, 35(5), pp.1189-1198. • Viswanathan, T.M., Chitradevi, K., Zochedh, A., Vijayabhaskar, R., Sukumaran, S., Kunjiappan, S., Kumar, N.S., Sundar, K., Babkiewicz, E., Maszczyk, P. and Kathiresan, T., 2022. Guanidine-curcumin complex-loaded amine-functionalised hollow mesoporous silica nanoparticles for breast cancer therapy. Cancers, 14(14), p.3490. • Mohan Viswanathan, T., Krishnakumar, V., Senthilkumar, D., Chitradevi, K., Vijayabhaskar, R., Rajesh Kannan, V., Senthil Kumar, N., Sundar, K., Kunjiappan, S., Babkiewicz, E. and Maszczyk, P., 2022. Combinatorial delivery of gallium (III) nitrate and curcumin complex-loaded hollow mesoporous silica nanoparticles for breast cancer treatment. Nanomaterials, 12(9), p.1472.
Dr A. Muthukumaran Citations: 488 H-index: 11 I10-index: 12	Dr A. Muthukumaran has expertise in Nanotoxicology, Cardiac Tissue Engineering, and Nanobiomaterials. Presently, he has been handling a major research grant from the Indian Council of Medical Research (ICMR), Government of India and one more research scheme funded by the Science and Engineering Research Board (SERB) was completed. He has well-established research collaborations with various International and National agencies. Insights of research outcome: • Naveenkumar, S., Venkateshan, N., Kaviyarasu, K., Christyraj, J.R.S.S. and Muthukumaran, A., 2023. Optimum performance of a novel biocompatible scaffold comprising alginate-pectin-selenium nanoparticles for cardiac tissue engineering using C2C12 cells. Journal of Molecular Structure, p.136457. • S Jeyabharathi, S Naveenkumar, S Chandramohan, N Venkateshan, Muthukumaran, A. (2022) Biological synthesis of zinc oxide nanoparticles from the plant extract, Wattakaka volubilis showed anti-microbial and anti-hyperglycemic effects. Journal of King Saud University-Science 34 (3), 101881. • Chandramohan, S., Naveenkumar, S., Kaviyarasu, K., Lavakumar, V., Sowmya, C., Santhanakumar, M., & Muthukumaran, A. (2021). Bio-distribution of selenium nanoparticles (SeNPs) to the Wistar rats and its breastfed offspring. Journal of Drug Delivery Science and Technology, 61, 102299. • Jeyabharathi, S., Mahalakshmi, R., Chandramohan, S., Naveenkumar, S., Sundar, K., & Muthukumaran, A. (2020). Self-assembled hollow ZnO nano and micro donut shape by starch and its antimicrobial potentials. Materials Letters, 128128. • Chandramohan, S., Sundar, K., & Muthukumaran, A. (2019). Reducing agents influence the shapes of selenium nanoparticles (SeNPs) and subsequently their antibacterial and antioxidant activity. Materials Research Express, 6(8): 0850i2.

	• Kalishwaralal, K., Jeyabharathi, S., Sundar, K., Selvamani, S., Prasanna, M., & Muthukumaran, A. (2018). A novel biocompatible chitosan–Selenium nanoparticles (SeNPs) film with electrical conductivity for cardiac tissue engineering application. <i>Materials Science and Engineering: C</i>, 92, 151-160.
Dr K. Palanichelvam <i>Citations: 748</i> <i>H-index: 13</i> <i>I10-index: 16</i>	He has gained research experience from Israel and the United States for 11 years in various fields of plant biotechnology after his PhD program. He constructed vir-helper Ti plasmid from <i>Agrobacterium</i> strain to make transgenic soybean plants. He has expertise to silence genes by plant viruses and make transgenic plants. Developed a novel simple method to identify antimitotic or mitogenic compounds from plants by using earthworms. Identified the beneficial factors of coelomic fluid of earthworms in seed germination and induction of disease resistance. Currently involved in resolving the problems in cultivation of Ashwagandha plant in Tamilnadu by metagenomics and artificial microRNA technology. Insights of research outcome: • Nadana, G.R.V., Rajesh, C., Kavitha, A., Sivakumar, P., Sridevi, G. and Palanichelvam, K., 2020. Induction of growth and defense mechanism in rice plants towards fungal pathogen by eco-friendly coelomic fluid of earthworm. <i>Environmental Technology & Innovation</i>, 19, p.101011. • Rajamanikkam, K., RAJA, S.E., Balaji, S.K., RAJAVADIVU, G.N., Sivasubramaniam, S. and Palanichelvam, K., 2019. Earthworm, a novel in vivo system to validate antimitotic compounds. <i>Turkish Journal of Zoology</i>, 43(2), pp.153-163. • Rajesh, C., Palanimuthu, V.R. and Palanichelvam, K., 2021. Fatty acids and its derivatives of <i>Acorus calamus</i> Linn. rhizome induce stem cell-mediated cell division in plants and animals. <i>Biocatalysis and Agricultural Biotechnology</i>, 36, p.102153.
Dr Naresh Kumar Sharma <i>Citations: 338</i> <i>H-index: 8</i> <i>I10-index: 8</i>	Dr. Naresh Kumar Sharma holds a Ph. D degree in Environmental Biotechnology from the prestigious IIT Madras and has received the best green thesis award (2014). He has completed two Research Projects in collaboration with UTP Malaysia and NIT Trichy worth above Rs 20 lakhs. He is an active consultant for PWD Madurai and PWD Tirunelveli to design wastewater treatment plants for pond eco-restoration and water / wastewater sample analysis. He has authored several publications in reputed International Journals. Through his industrial collaborations he currently envisages water management and algae based effluent treatment from Surgical Cotton Processing Industries located near Rajapalayam belts. His team was the first to design and publish a SFD matrix about Faecal Sludge Management in Srivilliputhur Municipality (for SuSanA, Germany). Insights of Research Outcome: • Sayed, K., Baloo, L. and Sharma, N.K., 2021. Bioremediation of total petroleum hydrocarbons (TPH) by bioaugmentation and biostimulation in water with floating oil spill containment booms as bioreactor basin. <i>International Journal of Environmental Research and Public</i>

	<i>Health</i>, 18(5), p.2226. • Sharma, N.K. and Arivalagan, A.R., 2021. Algae or bacteria—the future of biological wastewater treatment. In <i>Handbook of advanced approaches towards pollution prevention and control</i> (pp. 217-247). Elsevier. • Sharma, N.K. and Philip, L., 2016. Combined biological and photocatalytic treatment of real coke oven wastewater. <i>Chemical Engineering Journal</i>, 295, pp.20-28.
Dr. B. Vanavil Citations: 292 H-index: 9 I10-index: 8	Dr. Vanavil received her Ph.D. from the National Institute of Technology, Tiruchirappalli, Tamilnadu, India. She has research expertise in Bioprocess Engineering. She has published her research work in several international journals and published several book chapters. Her research team is currently working on the microbial and seaweed bioprocessing and application of polysaccharides. She has guided several undergraduate and postgraduate projects and the research work was presented in several national and international conferences and has been published in conference proceedings. She was awarded the Young Scientist Fellowship by Tamilnadu State Council for Science and Technology for collaborative research at CSIR-NIIST, Trivandrum. She has also mentored a student funded project sponsored by Tamilnadu State Council for Science and Technology. Insights of research outcome: • Ezhilarasi, P., Vanavil, B. Curdlan Gum Production Using Marine Bacteria Isolated from Red Seaweeds: Screening and Optimization Studies. <i>Microbiology</i> 92, 725–733 (2023). • P. Bazeera Ferdhous, R. Aanandhalakshmi, P.Ramya, B.Vanavil, <i>Scrutiny of metal ion binding sites in alginate lyase through in silico analysis</i>, <i>Applied Biochemistry and Biotechnology</i>, 194, 124-147, 2022. • B. Vanavil, K. Selvaraj, R. Aanandhalakshmi, K. Usha Sri, M. Arumugam, Bioactive and thermostable sulphated polysaccharide from <i>Sargassum swartzii</i> with drug delivery applications, <i>International Journal of Biological Macromolecules</i>, 153, 190-200, 2020. (I.F 8.2) • V. Anitha, K. Abinaya, S. Prakash, A. Seshagiri Rao and B. Vanavil, <i>Bacillus cereus KLUVAA mediated biocement production using hard water and urea</i>, <i>Chemical and Biochemical Engineering Quarterly</i>, 32 (2), 257-266, 2018. • Prakash. S, Rajeswari. K, Divya. P, Ferlin. M and Vanavil. B, <i>Optimization and production of curdlan gum using Bacillus cereus PR3 isolated from rhizosphere of leguminous plant</i>, <i>Preparative Biochemistry & Biotechnology</i>, 48 (5), 408-418, 2018.
Dr. K. Vasumathi Citations: 212 H-index: 4 I10-index: 3	Dr. Vasumathi holds a Ph. D degree in Algal Biotechnology and have vast research experience in discipline of development of photobioreactor for carbon dioxide absorption by microalgae. On her credit, there are several publications in reputed International Journals and Conferences.
Dr J. Kanimozhi Citations: 141 H-index: 7 I10-index: 5	Dr. Kanimozhi Jeyaram holds a Ph.D. degree in Chemical Engineering from the National Institute of Technology, Calicut, and has vast research experience in the disciplines of Microbial Technology and Carbohydrate Polymers. To her credit, there are several publications in reputed international journals, such as Carbohydrate Polymers, and conferences. She also served as

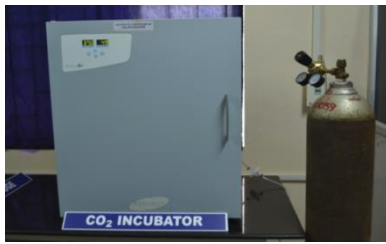
	a junior research officer in the research laboratory of Mediclone Biotech Pvt. Ltd., Chennai, from 2007–2011. She and her team successfully developed the WIDAL kit and the PPD kit for diagnostic purposes and scaled them up to production level. Insights of research outcome: • Kanimozhi, J., I. Ganesh Moorthy, R. Sivashankar, and V. Sivasubramanian. "Optimization of dextran production by <i>Weissella cibaria</i> NITCSK4 using Response Surface Methodology-Genetic Algorithm based technology." <i>Carbohydrate polymers</i> 174 (2017): 103-110.(IF 10.723) • Sivashankar, Raja, Arunachalam Thirunavukkarasu, Rajarathinam Nithya, Jeyaram Kanimozhi, Arunachalam Bose Sathya, and Velmurugan Sivasubramanian. "Sequestration of methylene blue dye from aqueous solution by magnetic biocomposite: three level Box–Behnken experimental design optimization and kinetic studies." <i>Separation Science and Technology</i> 55, no. 10 (2020): 1752-1765.(IF 2.78) • Rahul S, Michael, Sundaramahalingam MA, Shivamthi CS, Varalakshmi P, and Ganesh Moorthy I. "Insights about sustainable biodiesel production from microalgae biomass: a review." <i>International Journal of Energy Research</i> 45, no. 12 (2021): 17028-56.(IF 4.67) • Bose, Sathya A., Satish Babu Rajulapati, Sivasubramanian Velmurugan, Santhiagu Arockiasamy, Kanimozhi Jayaram, Anand Kishore Kola, and Sivashankar Raja. "Process intensification of biopolymer polyhydroxybutyrate production by <i>pseudomonas putida</i> SS9: A statistical approach." <i>Chemosphere</i> 313 (2023): 137350.(IF: 8.94)
Dr. S. Ram Kumar Pandian Citations: 5929 H-index: 24 I10-index: 33	Dr. Pandian's research focus is Innate immunity and Inflammation. His group is exploring the role of inflammation in the development of autoimmune disease. Autoimmune diseases result from innate immune cell infiltration and deregulation of epithelial cell permeability. Our study focuses on the role of alcohol on epithelial cell permeability and understanding their molecular mechanism <i>in vitro</i>. Insights of research outcome: • Vijayalakshmi, M., Dhanapradeeba, V., Selvaraj, K., Sundar, K., Pandian, S.R.K*, 2023. Targeting TLRs with the derivatives of <i>Mimosa pudica</i>: An in-silico approach. <i>Biointerface Research in Applied Chemistry</i>, 13(3), pp. 1–11. • Pandian, S.R.K*, Vijayakumar, K.K., Kunjiappan, S., Babkiewicz, E. and Maszczyk, P., 2022. Emerging role of exosomes in hematological malignancies. <i>Clinical and Experimental Medicine</i>, pp.1–14. (IF:5.05) • Pandian, S.R.K*, Vijayakumar, K.K., Murugesan, S. and Kunjiappan, S., 2022. Liposomes: An emerging carrier for targeting Alzheimer's and Parkinson's Diseases. <i>Heliyon</i>, p.e09575. (IF:3.75) • Pandian, S.R.K*, Kunjiappan, S., Pavadai, P., Sundarapandian, V., Chandramohan, V. and Sundar, K., 2022. Delivery of Ursolic Acid by Polyhydroxybutyrate Nanoparticles for Cancer Therapy: in silico and in vitro Studies. <i>Drug Research</i>, 72(2), pp. 72–81. • Pandian, S.R.K., Pavadai, P., Vellaisamy, S., Ravishankar, V., Palanisamy, P., Sundar, L.M., Chandramohan, V., Sankaranarayanan, M.,

	Panneerselvam, T. and Kunjiappan, S., 2021. Formulation and evaluation of rutin-loaded solid lipid nanoparticles for the treatment of brain tumor. <i>Naunyn-Schmiedeberg's Archives of Pharmacology</i>, 394(4), pp.735–749. • Pandian, S.R.K*, Kunjiappan, S., Ravishankar, V. and Sundarapandian, V., 2021. Synthesis of quercetin-functionalized silver nanoparticles by rapid one-pot approach. <i>BioTechnologia</i>, 102(1), pp.75–84. • Pandian, S.R.K*, Arunachalam, S., Deepak, V., Kunjiappan, S. and Sundar, K., 2020. Targeting complement cascade: an alternative strategy for COVID-19. <i>3 Biotech</i>, 10(11), pp.1–10.
Dr V. Deepak Citations: 6817 H-index: 27 I10-index: 33	Our lab works on preeclampsia, a hypertensive disorder of pregnancy specifically on the upregulation of sflt1 protein. sFlt1 is considered as the pathogenic molecule of preeclampsia and mechanism of upregulation has not been deciphered yet. Both the placental cells and maternal immune cells secrete this protein. At present our lab is working on the role of omentin on decidualization of placental decidual stromal cells and sFlt1 secretion.
Dr. L. Muthulakshmi Citations: 533 H-index: 11 I10-index: 11	Dr.L.Muthulakshmi completed her PhD in Biotechnology, she has also completed national postdoctoral fellowship supported by DST-SERB in the year 2018-2020. Her expertise area biochemistry. She is actively involved in Biopolymer based packaging materials, Nanocomposite, Dye degradation, seri-biotechnology, and bio-corrosion research area. She published many papers in national and international journals. Insights of research outcome • Muthulakshmi, L., Mohan, S. and Tatarchuk, T., 2023. Microplastics in water: Types, detection, and removal strategies. <i>Environmental Science and Pollution Research</i>, pp.1-16. • Muthulakshmi, L., Rajam, R., Mohan, S. and Karthik, P., 2023. Recent Advances in the Development of PHB (Polyhydroxybutyrate)-Based Packaging Materials. <i>Biopolymer-Based Films and Coatings: Trends and Challenges</i>. • Muthulakshmi, L., Suganya, K., Murugan, M., Annaraj, J., Duraipandian, V., Al Farraj, D.A., Elshikh, M.S., Juliet, A., Pasupuleti, M. and Arockiaraj, J., 2022. Antibiofilm efficacy of novel biogenic silver nanoparticles from Terminalia catappa against food-borne <i>Listeria monocytogenes</i> ATCC 15,313 and mechanisms investigation in-vivo and in-vitro. <i>Journal of King Saud University-Science</i>, 34(5), p.102083.
Dr. S. Sheik Asraf Citations: 77 H-index: 3 I10-index: 1	Dr. S. Sheik Asraf holds a Ph. D degree in Microbiology and has research experience in the discipline of Microbial Genomics, Metagenomics, Microbial Enzymology and Bioinformatics. His current research focus is on carbohydrate metabolism in bacteria, metagenomics of inanimate objects like currency note, coin, mobile phone, computer keyboards and food materials and antibiotic resistance in bacteria. At present, he is a Co-principle investigator in 2 of the Department of Biotechnology (Government of India) funded projects. Insights of research outcome • Asraf, S. A. K. S. (2016). Gut microbiome of honey bee-An industrially relevant pollinator. <i>The IIOAB Journal</i>, 7(1), 21. • Asraf, S. S., Sivakkanni, A., Sneha, M., Janani, S., Jashin, P., & Jemimal,

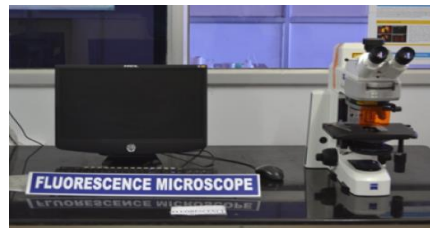
	A. M. (2022). In Silico Based Bioinformatics Project During the COVID-19 Lockdown Period: An Alternative to Wet Lab Study. <i>Journal of Engineering Education Transformations</i>, 35(3), 82-87. • Devi, S. N., Mahalakshmi, G., Rethika, S., & Asraf, S. S. (2017). Metagenome of Indian one rupee coin reveals plethora of microbiota. <i>The IIOAB Journal</i>, 8(1), 69-75. • Asraf, S. S., Rajnish, K. N., & Gunasekaran, P. (2012). Genomics Perspectives of Bioethanol Producing <i>Zymomonas mobilis</i>. In <i>Global Sustainable Development and Renewable Energy Systems</i> (pp. 209-233). IGI Global. • Asraf, S. A. K. S., Rajnish, K. N., & Gunasekaran, P. (2011). Bioinformatics and biosynthesis analysis of cellulose synthase operon in <i>Zymomonas mobilis</i> ZM4. <i>The IIOAB Journal</i>, 2(3), 1-7. • Asraf, S. S., & Gunasekaran, P. (2010). Current trends of β-galactosidase research and application. <i>Current research, technology and education topics in applied microbiology and microbial biotechnology. Microbiology book series Formatex Research Center, Spain</i>, 880-890. • Rajnish, K. N., Asraf, S. A. K. S., Manju, N., & Gunasekaran, P. (2011). Functional characterization of a putative β-lactamase gene in the genome of <i>Zymomonas mobilis</i>. <i>Biotechnology letters</i>, 33, 2425-2430. • Sheik Abdul Kader, S. A., Ayyasamy, M., Narayanan, R. K., Jayavel, S., & Paramasamy, G. (2013). Computational and functional analysis of β-lactam resistance in <i>Zymomonas mobilis</i>. <i>Biologia</i>, 68, 1054-1067.
Dr. K. Selvaraj Citations: 1339 H-index: 22 I10-index: 42	Dr. Selvaraj Kunjiappan holds a Ph. D degree in Chemical Engineering from Jadavpur University, Kolkata, and have vast research experience in the discipline of Biopharmaceutical, chemical processes, drug design and discovery. On his credit, there are several publications in reputed International Journals, like Nature, Elsevier, Springer, Wiley, Tylor and Francis, and international Conferences. He has industrial experience with reputed pharmaceutical industries with Sun Pharmaceuticals, and RPG Life Sciences (Formerly Searle India Ltd), from June 1999 to April 2004. Insights of research outcome: • Glucose-conjugated glutenin nanoparticles for selective targeting and delivery of Camptothecin into breast cancer cells. <i>Naunyn-Schmiedeberg's Archives of Pharmacology</i> 2023. • Drug Delivery Applications of Exopolysaccharides from Endophytic Bacteria <i>Pseudomonas otitidis</i> from <i>Tribulus terrestris</i> L. <i>Journal of Polymers and the Environment</i>. 2023 • Cytotoxic potential of bioactive secondary metabolites from <i>Aspergillus flavus</i>, an endophytic fungus isolated from <i>Cynodon dactylon</i> against breast cancer: in vitro and in silico studies. <i>Molecules</i>, 2022 • Graph theoretical network analysis, in silico exploration, and validation of bioactive compounds from <i>Cynodon dactylon</i> as potential neuroprotective agents against α-synuclein. <i>Bioimpacts</i> 2022 • Aphrodisiac Performance of Bioactive Compounds from <i>Mimosa pudica</i> Linn.: In Silico Molecular Docking and Dynamics Simulation Approach. <i>Molecules</i> 2022, 27, 3799.

Dr. N. Hariram Citations: 599 H-index: 11 I10-index: 12	Dr N. Hariram received his doctoral degree in the year 1998 and has a virtuous experience in Molecular Microbiology. He holds 25+ years of diverse experience gained from the research and academics. On his credit, there are around seventy-two publications in reputed international journals in the field of Microbiology, Nanobiotechnology and Enzyme biotechnology biology. The skill acquired through both his academic and professional experience has enabled him to create innovative solutions for real world problems.
Dr. K. Jyothi Citations: 29 H-index: 2 I10-index: 1	Dr. Jyothi.K holds a Ph. D degree in Biochemistry and has vast research experience in discipline of Lipid Biochemistry, Membrane phospholipid metabolism, enzyme purification, hepatology and toxicology. On her credit, there are several publications in reputed journals. She has also worked as a Project Assistant in Biomembrane laboratory, Department of Biochemistry at Bharathidasan University in the period from 2012 to 2014. Insights of research outcome: - Jyothi Kanagaraj, V, Sivaranjani, U. Pavithra, Sridhar Jayavel, Lakshmanan Muthulakshmi (2022) Computational studies on new Leishmanial drug targets against Quercetin. Indian Journal of Biochemistry & Biophysics.59:909-917. Jyothi Kanagaraj, Ramesh Ghurupreya, Derina J. Pearlin., K. Ponmozhi (2022) Phytocompounds from Withania somnifera against breast cancer: An in-silico study. Biomedicine. 42(4) 720-725. - Jyothi Kanagaraj, Ghurupreya Ramesh (2022) Molecular docking of bio-active compounds from Mimosa pudica against NMDA receptor. International journal for modern trends in science and technology. 8(01)265-268.
Dr R. Seenivasagan Citations: 217 H-index: 8 I10-index: 7	Expertise in the field of environmental microbiology, specifically in the remediation of waste materials to convert them into non-toxic components. Furthermore, I have expertise in nitrate reduction, plastic degradation, and the vermicomposting process. I am also available as a co-author for collaborative work on a project related to "Graphene Quantum Dot Nanocomposite Triggers α -Synuclein Defibrillation." Insights of research outcome: - Seenivasagan, R. Karthika A., and Poonkuzhali K., (2022), In Vitro and In Silico Study of the Efficacy of Fungi in Low-Density Polyethylene Degradation in a Disposal Paper Cup, Water, Air, and Soil Pollution, 233(77), 1-12. IF-2.984. - Seenivasagan R., and Babalola O.O. Utilization of Microbial Consortia as Biofertilizers and Biopesticides for the Production of Feasible Agricultural Product, Biology (MDPI) 2021, 10(11), 1-22, 1111. IF-5.168. - Poonkuzhali K., Seenivasagan, R., Prabhakaran J., and Karthika A. (2023), Synthesis and characterization of chemical engineered PLGA nanosphere: Triggering mechanism of Catechol-O-methyltransferase inhibition on in vivo neurodegeneration. Bioorganic Chemistry, 139, 106673. IF-5.307

Research Facilities



CO₂ incubator



Fluorescence Microscope



Thermocycler



Fluorescence Luminescence Reader



Protein Purification System



Inverted Microscope



Proteomic Facilities



Experiments with Mice & Zebra Fish embryos

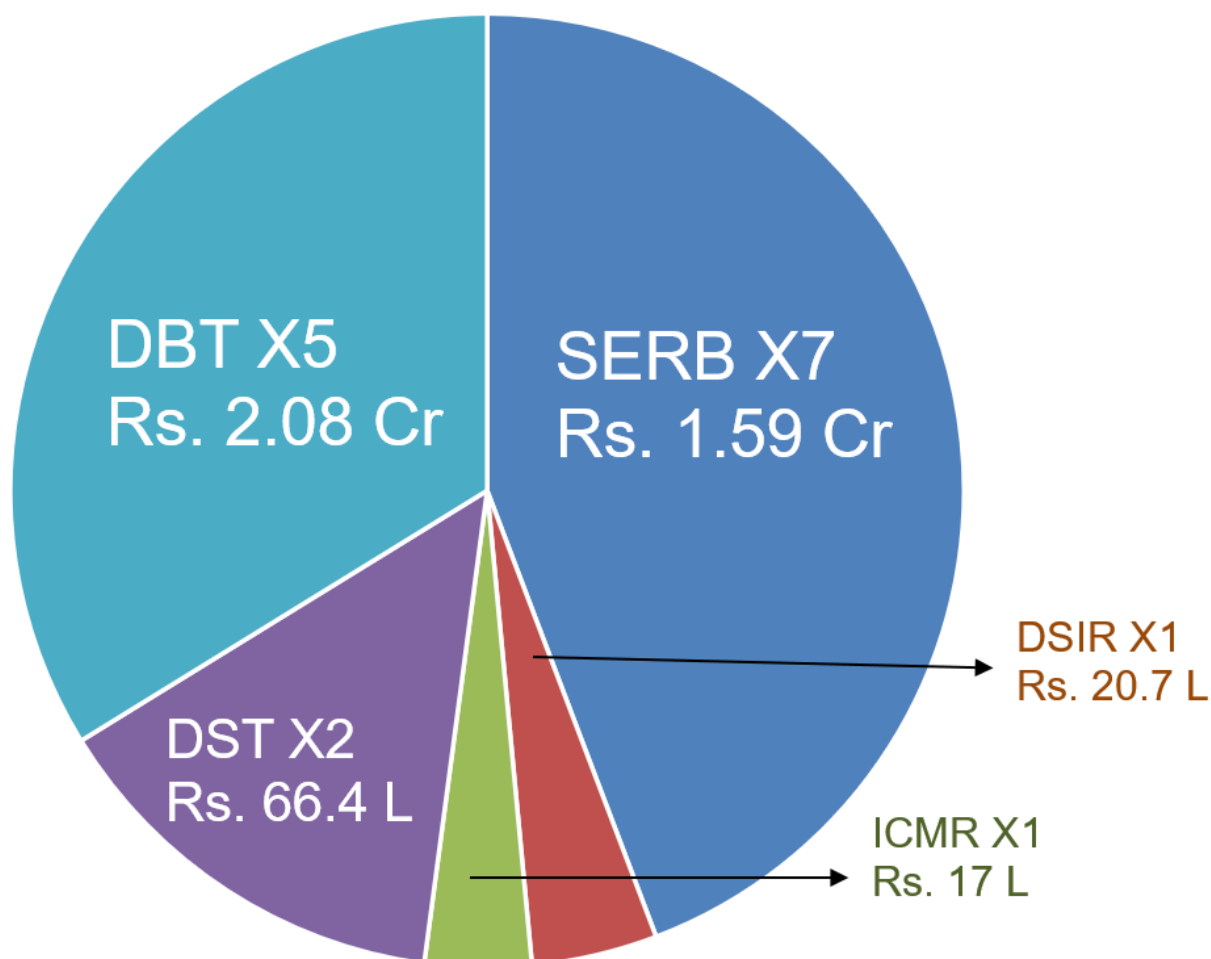


List of Higher-End Equipment

S. No.	Name of the Equipment	Cost (Rs.) (Lakhs)
1.	Bench Top Fermenter + Peristaltic Pumps	12.77
2.	Deep freezer (– 80°C)	6.00
3.	Fluorescence and Luminescence Reader	11.00
4.	Transfection Device	7.25
5.	Fluorescence Microscope	12.00
6.	Chemi-doc Imager	8.80
7.	Gas Chromatograph with accessories	8.85
8.	Real time PCR machine	8.00
9.	Lyophilizer	7.50
10.	Cooling Centrifuge	7.00
11.	Spectrophotometer	6.00
12.	2-D Gel electrophoresis	6.50
13.	Western blot unit	2.00
14.	Thermal cycler (Bio-Rad)	4.00
15.	Incubator Shaker	3.00
16.	Green House	5.00
17.	Biosafety cabinet	4.50
18.	CO ₂ Incubator	4.00
19.	Milli-Q Unit	3.85
20.	Inverted Phase Contrast Microscope	3.59

Funding for Research

The basic support including infrastructure and equipment was provided by the University. Besides Institutional support, research at the Centre for Biotechnology is continuously supported by several grants from government funding agencies like ICMR, DBT, DST, CSIR, DSIR and DRDO. Currently there are two on-going research projects awarded by various funding agency, Government of India.



Funded Projects

S. No	Principal Investigator	Title of Project	Funding agency	Amount (Rs.) (Lakhs)	Period	
					From	To
1.	Dr K. Palanichelvam	Troubleshooting the problems in expanding the cultivation of <i>Withania somnifera</i> in Tamil Nadu: Improving the size of roots in planta by soil with microbiomes, elicitors, and precursors	DBT-Ayush	49.25	Sep, 2023	Till date

2.	Dr L. Muthulakshmi	Development of women entrepreneurs in different sericulture sectors: Available technological strategies to develop a cluster-scale sustainable training for women empowerment in and around Virudhunagar District	DSIR	20.07	Dec, 2022	Till date
3.	Dr T. Kathiresan	Mechanistic Investigation of EMT Targeted Nanotherapeutics for drug-resistant triple negative breast cancer cells	DBT	58.30	Mar, 2022	Till date
4.	Dr N. Hariram	Value addition and Product Diversification in Tea	DBT	46.33	Mar, 2022	Till date
5.	Dr A. Muthukumaran	Evaluation of biocompatible Collagen-Chitosan-Selenium Nanoparticles (SeNPs) scaffold for cardiac tissue engineering applications in wistar rats	ICMR	17	Apr, 2021	Till date
6.	Dr K. Sundar	Developing an extract of <i>Sida cordifolia</i> as a therapy for epilepsy	DBT	24.32	Jun, 2020	May, 2022
7.	Dr B. Vanavil	Unraveling the role of carbon sources on biological activity of curdlan produced by novel marine bacteria	DST-WOS	26.4	Jun, 2019	May, 2022
8.	Dr Naresh Kumar Sharma	Self-sustaining photo biocatalytic reactors with concomitant biofuel harvesting from crepe cotton wastewater	DST-SERB	15	Nov, 2018	Oct, 2021
9.	Dr K. Sundar	Use of recombinant bacteriophage as a novel delivery vehicle for viral CTL epitopes	DST-SERB	45	Jun, 2018	May, 2021
10.	Dr Sankarganesh Arunachalam	Elucidating the role of PPAR alpha in the development of doxorubicin-induced cardiomyopathy	DST-SERB	13	Jun, 2018	May, 2021
11.	Dr A. Muthukumaran	A smart alginate-pectin-selenium nanoparticle scaffold and its	DST-SERB	19	Jun, 2018	May, 2021

		applications in cardiac tissue engineering				
12.	Dr Sankarganesh Arunachalam	Unravelling the physiological mechanism of meditation mediated (PRANAHUTI) benefits on cardiovascular risk	DST–Sathyam	40	Jun, 2018	May, 2021
13.	Dr Sankarganesh Arunachalam	Elucidation of Mechanism of Adriamycin mediated male reproductive toxicity and recovery by restoration of of epididymal adipose tissue	DST–SERB	17	Dec, 2013	Mar, 2017
14.	Dr K. Sundar	Genome-wide Mapping of Murine Specific Dengue T-cell epitopes: Computational Prediction, Identification and use as Candidate Vaccines	DST–SERB	25	November, 2013	November, 2016
15.	Dr T. Kathiresan	Molecular functional characterization of mitochondrial BK channel in mouse cochlear hair cell	DST–SERB	25	April, 2013	March, 2016

Research Collaborations

The centre has an active academic and R&D collaborations with several national and international laboratories that include Nottingham Trent University, Nottingham, UK; SUNY Downstate Medical Center, New York, USA.

International Collaborations

S. No.	Title of the collaborative activity	Name of the collaborating agency with contact details	Name of the participant	Year of Collaboration	Duration
1.	Evaluation of bioactive metabolites from microorganisms	Dr. Shiva D. Sivasubramanian, Nottingham Trent University	Dr. K. Sundar	2013-2015	3 Years
2.	Drug target identification and vaccine design using in silico tools	Prof. Richard Coico, SUNY Downstate Medical Centre, Brooklyn, NY, USA	Dr. K. Sundar	2013-2023	10 Years
3.	Vermi composting	Prof. Olabukola, North-West	Dr. Naresh Kumar Sharma	2015-2017	2 years

		University, Mafikeng Campus, South Africa			
4.	Screening of Biofloculants	Dr. Fenila Christopher, University of West Hungary, Szombathely, Hungary	Dr. T. Kathiresan & Dr. L. Muthulakshmi	2016-2017	1 year
5.	Studies on cellulose nanocomposite films	Prof. Mohammad Jawid, Universiti Putra Malaysia, Malaysia	Dr. T. Kathiresan & Dr. L. Muthulakshmi	2016-2017	1 year
6.	Studies on cellulose/silver nanocomposites	Prof. Suchart Siengchin, King Mongkut's University of Technology, Thailand	Dr. T. Kathiresan & Dr. L. Muthulakshmi	2016-2017	1 year
7.	Receptor targeted Myricetin -loaded bovine serum albumin nanoparticle formulation for cancer treatment	Dr. Piotr Maszczyk, University of Warsaw, Poland	Dr. K. Selvaraj	2018-2019	1 year
8.	Guineapig antibody generation for human growth factor genes	Dr.Lin Cheng Yang, E-DA Hospital, Kaoshiung, Taiwan	Dr.N.Hariram	2002-2020	18 years
9.	Fabrication and characterization of electrospun cellulose-PVP-TiO ₂	Dr Suchart Sienghchin, ThailandKing Mongkut's University of Technology North Bangkok, 1518 Wongsawang Road, Bangsue, Bangkok 10800, Thailand	Dr.N.Hariram	2018-2020	2 Years
10.	Modification of agricultural waste-filler making	Jun Zhanga, Center for Excellence in Molecular Sciences, Institute of Chemistry, Chinese Academy of Sciences (CAS), Beijing, China	Dr.N.Hariram	2018-2020	2 Years

11.	Nanofiber composites	S. Siengchin, King Mongkut's University of Technology North Bangkok, Bangkok, Thailand	Dr.N.Hariram	2018-2020	2 Years
12.	Bioinformatics approach for toxicity assessments of food preservatives & colorants	Prof. Hans- Uwe Dahms, Kaohsiung Medical University, Taiwan	Dr. S. Shantkriti	2018-2021	3 Years
13.	Biodegradation of Petroleum sludge	Dr Lavnaia Baloo, UTP Malaysia	Dr Naresh Kumar Sharma	2019-2020	1 Year
14.	Biomaterial Applications	Catalin I. Pruncu ,University of Strathclyde,Scotland, UK	Dr.L.Muthulakshmi	2018-2021	3 years
15.	Nanobiotechnology	Shivendu Ranjan,University of Johannesburg,South Africa	Dr.L.Muthulakshmi	2019-2021	2 years

Collaborations within India

S. No	Area	Collaborator	Faculty	Year	Duration
1.	Bioinformatics	Dr. K. N. Rajnish, SRM University	Dr. S. Sheik Asraf	2014-2015	1 year
2.	Evaluation of microorganism associated with earthworm	Dr. S. Sudhakar, Manonmanium Sundaranar University, Tirunelveli	Dr. K. Sundar	2014-2016	2 years
3.	Drug Design and Development	Dr. Shenbagarathai, Lady Doak College, Madurai	Dr. K. Sundar	2014-2016	2 years
4.	Studies on gold nanoparticles and their activity against cancer	Dr. R. Rajaram, Bharathidasan University, Tiruchirapalli	Dr. L. Muthulakshmi	2015-2016	1 year
5.	ER stress-mediated apoptosis in age-related macular degeneration	Dr. Vaithilingam Krishnakumar, Bharathidasan University, Tiruchirappalli, India	Dr. T. Kathiresan	2015-2017	2 years
6.	Mesoporus silica nanoparticles as carrier for breast	Dr. Sweta Srivastava, Department of Translation Medicine,	Dr. T. Kathiresan	2015-2017	2 years

	cancer	St. Johns National Academy of Health Sciences, Bangalore			
7.	Mesoporus silica nanoparticles characterization	Dr. Srinivasan Rajagopal, Department of Physical Chemistry, Madurai Kamaraj University, Madurai – 620 021	Dr. T. Kathiresan	2015-2017	2 years
8.	Waste water treatment	Dr. Ligy Philip, IIT-Madras	Dr. Naresh Kumar Sharma	2015-2017	2 years
9.	Biocement production	Dr. A. Seshagiri Rao, Department of Chemical Engineering, NIT-Warangal	Dr. B. Vanavil	2016-2018	2 years
10.	Biocompatible Selenium nanoparticles (SeNPs) for cardiac tissue engineering application	Dr. Sethuraman Selvamani, Meenakshi Mission Hospital, Madurai	Dr. A. Muthukumaran	2016-2019	3 years
11.	Adverse drug reactions of doxorubicin	Dr. Swaminathan Sethu, Narayana Nethralaya, Bengaluru	Dr. Sankarganesh Arunachalam	2016-2019	3 years
12.	Optimization and bioactive compounds extraction from plants and algae	Prof. Chiranjib Bhattacharje, Jadavpur University, Kolkata	Dr. K. Selvaraj	2016-2020	4 years
13.	Nanomaterial based therapy for Age related Macular Degeneration	Prof. K. Dharmalingam, Aravind Medical Research Foundation, Madurai	Dr. T. Kathiresan & Dr. K. Sundar	2017-2020	3 years
14.	Design and in silico modeling of Indoloquinoline for modulation of glucose metabolism	Dr. S. Murugesan, Birla Institute of Technology, Pilani	Dr. K. Selvaraj	2017-2020	3 years
15.	Formulation of pyrimidine nanoparticles as p38 α MAP kinases inhibitors:	Dr. T. Panneerselvam, Saraswathi Institute of Medical Sciences, New Delhi	Dr. K. Selvaraj	2017-2020	3 years
16.	Modeling a	Dr. P. Parasuraman,	Dr. K. Selvaraj	2017-2020	3 years

	pH-sensitive hydrogels for enhanced anticancer efficacy by oral delivery	MS Ramaiah Institute of Applied Sciences, Bengaluru			
17.	Synthesis of novel Phenyl quinazolin as NMDA receptor inhibitor	Dr. G. Saravanan, NMR College of Pharmacy, Gundur	Dr. K. Selvaraj	2017-2020	3 years
18.	Synthesis and Antimicrobial Activities of New Isoxazole Substituted Mannich and Schiff Bases	Dr. G. Saravanan, Department of Pharmaceutical Chemistry, M.N.R. College of Pharmacy, Fasalwadi, Sangareddy-502294, India	Dr. K. Selvaraj	2018-2019	1 year
19.	Adverse drug reactions of doxorubicin	Dr. Sudhakaran Raja, VIT University	Dr. Sankarganesh Arunachalam	2018-2019	1 year
20.	Bioactive and thermostable sulphated polysaccharide for drug delivery applications	Dr. Muthu Arumugam, CSIR-NIIST, Thiruvananthapuram.	Dr. B.Vanavil	2018-2019	1 year
21.	Alzheimer's disease biology	Dr. S. Achiraman, Bharathidasan University, Trichy, India	Dr. D. Sankarganesh	2018-2019	1 year
22.	Genetic Programming Modeling for Pollutant Removal	Dr M Matheswaran, NIT Trichy	Dr. Naresh Kumar Sharma	2018-2019	1 year
23.	Optimization of Nutrients for The Growth Of Scenedesmus Sp.	Dr.M.Premalatha, NIT Trichy	Dr. K. K. Vasumathi	2018-2019	1 year
24.	Folate receptor targeted liposome encapsulating bioactive compounds	Prof.P.Ponnusamy, Vellore Institute of Technology, Vellore	Dr. K. Selvaraj	2019-2020	1 year
25.	Develop products to improve the yield of crop plants as well as to control insects.	Dr. Chandran - Seabios-I Inc, Chennai	Dr. K. Palanichelvam	2017-2019	2 Year
26.	Developing a method to improve the	Aravindh Herbals Pvt. Ltd, Rajapalayam	Dr. K. Palanichelvam	2019-2020	1 Year

	propagation of Hybanthus enneaspermus				
27.	Earthworm as a model system to validate antimetabolic compounds	Dr. Sudhakar from M.S University, Tirunelveli	Dr. K. Palanichelvam	2015-2017	2 Years
28.	To purify the compounds from Acorus calamus.	Dr. S. Lakshmi Subramanian, Dalmia Center for Research and Development, Coimbatore	Dr. K. Palanichelvam	2017	1 Year
29.	Biosynthesis and study of bimetallic copper and silver nanoparticles	Uma mahesh Mallavarapu, Rajeev Gandhi Memorial College of Engineering & Technology, Nandyal, India	Dr.N.Hariram	2018-2020	2 years
30.	Nanocomposite polyester fabrics	B. Ashok, Department of Physics, Osmania University College of Engineering, Hyderabad, India	Dr.N.Hariram	2018-2020	2 Years
31.	Waste Management and biofertilizer production	Mr. Senthil Kumar, Biogen fertilizer P Ltd.,	Dr.N.Hariram	2010-2020	10 Years
32.	Bioinformatics and computational biology	Dr. K. Gagan, University of Madras, Chennai	Dr. S. Shantkriti	2018-2020	2 Years
33.	Microbial conversion of waste to value	Dr. A. Murugan, Periyar University, Salem, India	Dr. S. Shantkriti	2019-2021	2 Years
34.	Design of Sewage Treatment Plants for Tirumangalam township	PWD, Madurai	Dr Naresh Kumar Sharma	2020-2021	1 year
35.	Biopolymer Applications	Sabu Thomas, Mahatma Gandhi University, Kottayam, India	Dr.L.Muthulakshmi	2020-2021	1 year
36.	Biocorrosion	B.Anand Kumar, Indira Gandhi Center for Atomic Research, Kalpakkam.	Dr.L.Muthulakshmi	2016-2021	5 years
37.	Materials science	J.Annaraj, Madurai	Dr.L.Muthulakshmi	2018-2021	3 years

		Kamaraj University, Madurai			
38.	Environmental applications of biopolymers	Helen Kalavathy, Anna University, Chennai.	Dr.L.Muthulakshmi	2019-2020	1 year
39.	Genome sequencing, Analysis and Characterization of Baculovirus	Dr.S.Sudhakar, Manonmaniam Sundaranar University, Department of Biotechnology, Thirunelveli	Dr.A.Muthukumaran	2019-2021	2 years
40.	Pollutant Removal and Transport Modeling	Dr. M. Berlin, Professor, NIT Arunachal Pradesh, India	Dr Naresh Kumar Sharma	2019-2021	2 years
41.	Bioinformatics	Dr. K. N. Rajnish, SRM University	Dr. S. Sheik Asraf	2021-2022	1 Year

Collaborations within the Institute

S. No	Area	Collaborator	Faculty	Year	Duration
1.	Waste from composite making	Dr. Varathrajulu, KARE	Dr.N.Hariram	2018-2020	2 years
2.	Composite film making and its application	Dr.N.Rajini, KARE	Dr.N.Hariram	2018-2020	2 Years
3.	Effect of CB(n) on zebrafish	Dr. N. Selvapalam, Department of Chemistry, KARE	Dr.A.Muthukumaran	2016-2019	3 years

Research Fellows

Individual Research fellowships

The research work done by the doctoral students at the centre of biotechnology are recognized by various funding agencies for the award of individual research fellowships; four candidates were awarded Senior Research Fellowship (SRF) from CSIR and two candidates were awarded SRF by ICMR. The fellowships secured by the research scholars of the centre demonstrate the capability of the centre and the institution in performing research. Besides this one doctoral candidate and a post-doctoral candidate are supported by the institution.

Post-doctoral Fellowships awarded

Name of the scholar	Award
Dr R. Seenivasagan	University Post-doctoral Fellowship

Research Fellowships awarded

Name of the scholar	Award
R. Haribalaganesh	ICMR-SRF
M. Manikandan	ICMR-SRF
B. Karthikeyan	CSIR-SRF
V. Deepak	CSIR-SRF
S. Ram Kumar Pandian	CSIR-SRF
K. Kalishwaralal	CSIR-SRF
M. Manikandan	ICMR-SRF
M. Shalini	DBT-BET

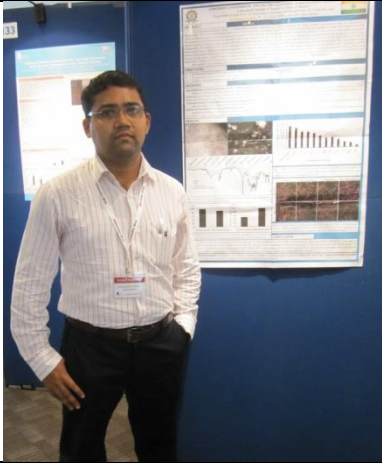
Training of Research Fellows in Laboratories Abroad

Our research scholars in the centre of biotechnology had an opportunity to work at various laboratories in countries like UK, France and Germany as part of various International fellowships.

They are also encouraged to participate in conferences conducted globally and present their findings. This also facilitate their interaction with their peers all over the world.

Abroad visit by research scholars

Name of the Research scholar	Program	International University
V. Deepak	Invitation by NTU (2013)	Nottingham Trent University, Nottingham, UK
K.Kalishwaralal	Indo–French Exchange program (2010)	University of Montpellier, France

	
Mr V. Deepak, our Research Scholar (far right) with Dr. Shiva Sivasubramaniam (middle), our research collaborator in Dr Shiva's laboratory at Nottingham Trent University, UK.	Mr B. Karthikeyan, our Research Scholar (left) with delegates (right), at ASIA ARVO, Japan
	
Mr V. Deepak, our Research working in our collaborator Dr Shiva's laboratory at Nottingham Trent University, UK.	Mr R. Haribalaganesh our Research Scholar (left) with delegates at the 37th Annual Conference of IEEE-Engineering in Medicine and Biology Society, Milano, Italy
	
Mr S. Ramkumar Pandian our Research Scholar at the NanoToday 2013 Conference, Singapore	Our faculty and students at IMMUNOCON 2014 - Annual Conference of Indian Immunology Society held at Madurai

Published Patents

S. No	Name of the Faculty	Application Number	Title
1.	Dr N. Hariram	202241003861 A	Method for Isolation of Immunoglobulin-Y Antibody from Immunized Egg Laying Animal
2.	Dr B. Vanavil	202141058381 A	Bacteria Encapsulated Alginate Beads for Plant Growth Enhancement
3.	Dr T. Kathiresan	202141059778 A	Mosquito Repellant Incense and Method of Preparing the Same
4.	Dr L. Muthulakshmi	202141058753 A	Low-Cost Protein Rich Animal Feed from Silkworm Pupae Waste
5.	Dr Sankarganesh Arunachalam	202241000952 A	Method For Ripening Fruits
6.	Dr Shantkriti Srinivasan	202141061312 A	Method For Preparing Phyco-Vermicompost for Double Fertilizer Treatment Of Chili Plants

Scholars Awarded Ph.D.

S. No	Name of the PhD scholar	Name of the guide/s	Title of the thesis	Year of award of PhD
1.	Mr. A.S. William Arputha Sundar	Dr. H. Nellaiah	Isolation of methioninase producers optimization of enzyme production and purification of L-methioninase	2015
2.	Mr. V. Deepak	Dr. H. Nellaiah Dr. K. Sundar	Extraction, optimization, purification and evaluation of anti-cancer activity of exopolysaccharides from <i>Lactobacillus acidophilus</i>	2016
3.	Mr. K. Kalishwaralal	Dr. A. Muthukumaran	Biosynthesis and characterization of selenium nanoparticles (Se NPs) and their applications in alcohol-induced cardiomyopathy	2016
4.	Mr. S. Ram Kumar Pandian	Dr. H. Nellaiah Dr. K. Sundar	Extracellular production and purification bacterial L-Glutaminase and evaluation of its anti-cancer potential	2016
5.	Mr. B. Karthikeyan	Dr. T. Kathiresan	Molecular mechanism of endoplasmic reticulum stress mediated age related macular degeneration	2016
6.	Mrs. L. Muthulakshmi	Dr. T. Kathiresan	Development and characterization of in situ generated metal bio nano composite films	2017
7.	Mr. R. Kasimani	Dr. K. Sundar	Biological reduction of hexavalent chromium by microorganisms	2017
8.	Mr. R. Haribalaganesh	Dr. K. Sundar	Therapeutic strategies for candidal infections; drug design for selected targets and evaluation of effect of bacteriocin from <i>Lactobacillus delbrueckii</i>	2017
9.	Mrs. L. Harini	Dr. T. Kathiresan	Theranostic applications of curcumin loaded mesoporous silica nanoparticles on breast adenocarcinoma (MCF-7) cells	2017
10.	Ms. M. Ajitha	Dr. K. Sundar Dr. S. Arumugam	Novel algorithms to predict the structure and functions of uncharacterized proteins	2017
11.	Ms. M. Indhumathy	Dr. S. Arumugam Dr. Veeky Baths	Computational analysis of biological networks using centrality measures and data mining techniques for identification of drug targets	2017
12.	Mr. N. R. Livingston Raja	Dr. K. Sundar	Pharmacological evaluation of Indian medicinal plants, <i>Psidium quajava</i> and <i>Sesbania aegyptiaca</i>	2017
13.	Mr. S. Chandramohan	Dr. A. Muthukumaran	Studies on selenium nanoparticles (Se NPs) distribution in wistar rats and its breastfed offsprings	2020
14.	Mr. M. Manikandan	Dr. K. Sundar	Genome wide mapping of dengue T and B cell epitopes towards the development of a potential multivalent candidate vaccine	2020
15.	Mrs. V. Aruna Janani	Dr. S. Saravanan	Process Optimization and Modeling studies for Textile Dye Removal using	2020

			Natural and Modified biosorbent of <i>Acalypha indica</i>	
16.	Mrs. Rajeswari Uppala	Dr. A. Muthukumaran	Degradation and decolorization of textile azo dye	2020
17.	Ms. G. Nadana Raja Vadivu	Dr. K. Palanichelvam	Analysis of coelomic fluid from earthworm and assessment of its potential in plant growth of <i>Vigna radiata</i> (L.) R. Wilczek and <i>Oryza sativa</i> L.	2021
18.	Mrs. S. Jeya Bharathi	Dr. A. Muthukumaran	Biological synthesis of Zinc oxide nanoparticles from various sources and their therapeutic effects in hyperglycemia induced zebrafish (<i>Danio rerio</i>)	2022
19.	Ms. M. Uma Priya	Dr. Sankarganesh Arunachalam	Metabolic chaos induced by adriamycin is Triggered by dysregulation of <i>klf4</i> which Upsets cellular energy homeostasis: possible Clues for adriamycin-mediated Cardiomyopathy	2022
20.	Mrs. J. Christina Rosy	Dr K. Sundar	Targeting iron sequestration; a novel strategy to inhibit bacterial pathogenesis	2023
21.	Mr. K. Arjun Kumar	Dr K. Selvaraj	Isolation, characterization and biological applications of bioactive compounds from endophytic microbes.	2023
22.	Mr. T. M. Viswanathan	Dr T. Kathiresan	Mechanistic Investigation on Theragnostic Application of Combination of Drugs-Loaded Hollow Mesoporous Silica Nanoparticles in Breast Cancer Cell Line	Thesis Submitted

Scholars Pursuing Ph.D.

S. No	Register Number	Name	Supervisor's Name
1.	201601145	Mr. C. Rajesh	Dr. K. Palanichelvam
2.	201601245	Ms. P. Priya	Dr. K. Sundar
3.	201601246	Ms. P. Ramya	Dr. B. Vanavil
4.	201701148	Ms. Shakti Chandra Vadhana	Dr. K. Sundar
5.	201701250	Ms. K. Chitradevi	Dr. T. Kathiresan
6.	201801154	Mr. T Esakkimuthu	Dr. K. Sundar
7.	201801256	Mr. S. J. Kabilan	Dr. K. Sundar
8.	201801155	Mrs. P. Ezhilarasi	Dr. B. Vanavil

9.	201901158	Mrs. Rajanandini Meher	Dr. Naresh Kumar Sharma
10.	201901159	Mr. S. Naveenkumar	Dr. A. Muthukumaran
11.	201901160	Ms. Sumathi	Dr. J. Kanimozhi
12.	201903203	Mrs. M. Elakkiya	Dr. V. Arunajanani
13.	9200001001	Mr. K. Arjun Kumar	Dr. K. Selvaraj
14.	9202001001	Mr. A.S. Azar Zochedh	Dr. T. Kathiresan
15.	9210011002	Mrs. Lekshmi R Babu	Dr. A. Muthukumaran
16.	9210001001	Mr. M. Cibe Chakaravarthi	Dr. K. Sundar
17.	9210001002	Ms. V. Dhivya	Dr. R. Kannan
18.	9921601007	Ms. S. Sureba	Dr. T. Kathiresan
19.	9921601008	Mr. V. Vikram	Dr. N. Hariram
20.	9921601009	Ms. M. Vijayalakshmi	Dr. S. Ram Kumar Pandian
21.	9922101001	Mr. K. Ajay Kallapiran	Dr. R. Kannan
22.	9922101002	Mr. P. Chandrasekar	Dr. K. Selvaraj
23.	9922101005	Mr. V. Senthilkumar	Dr. K. Selvaraj
24.	9922101006	Ms. P. Chithamparam	Dr. A. Muthukumaran
25.	9922101007	Mrs. M. Dhanalakshmi	Dr. V. Arunajanani
26.	9922101008	Mr. C. Kaliraj	Dr. T. Kathiresan
27.	9922101009	Ms. R. Raja rajeswari	Dr. K. Selvaraj
28.	9922101010	Mr. T. Seenivasa moorthy	Dr. R. Kannan
29.	9922101011	Mrs. K. Sithikabanu	Dr. V. Arunajanani
30.	9922101012	Mrs. Vaishnavi	Dr. L. Muthulakshmi
31.	9923101001	Mr. T. Augustin Jacob	Dr N. Hariram
32.	9923101002	Mrs. S. Meera Bai	Dr B. Vanavil

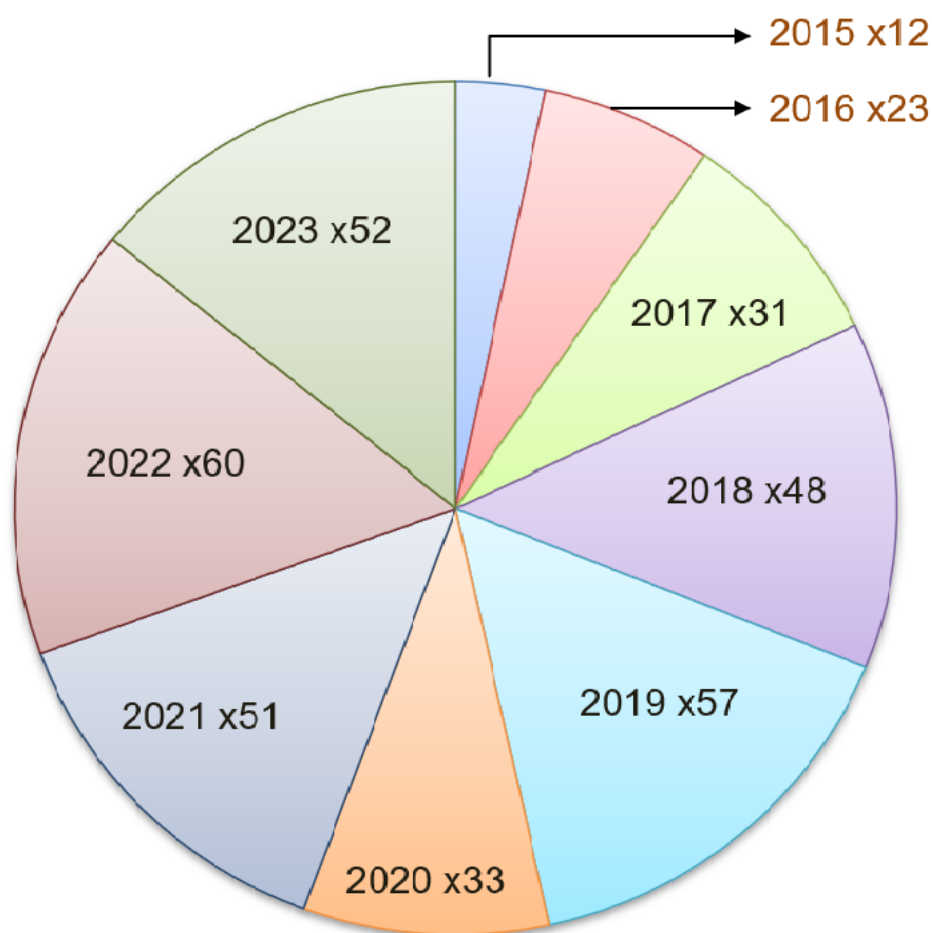
33.	9923101003	Mrs. Muthumariammal	Dr Naresh Kumar Sharma
34.	9923101004	Ms A. Nivedidha	Dr N. Hariram
35.	9923101005	Ms M. Shalini	Dr L. Muthulakshmi
36.	9923101007	Mr. A. Muthu Karthikeyan	Dr R. Rajam
37.	9923101008	Ms. S. Hari Priya	Dr S. Ram Kumar Pandian
38.	9923101009	Ms. M. Swetha	Dr T. Kathiresan
39.	9923101010	Mr. Nishanth (DBT-JRF)	Dr N. Hariram
40.	9923101011	Ms. Shiny Nirmala	Dr N. Hariram
41.	9623101001	Ms. R. Annandhalakshmi	Dr B. Vanavil
42.	9623101002	Mr. N. Aathimoolam	Dr J. Kanimozhi
43.	9623101004	Mr. A. Karthick	Dr T. Kathiresan
44.	9623101005	Ms. A. Kavitha	Dr K. Palanichelvam
45.	9623101006	Ms. A. Pritha Raji	Dr K. Jyothi

Publications

Faculty members of the centre regularly publish their research out in peer-reviewed journals. The Centre has published more than 350 research papers in peer-reviewed journals with high impact factor.

Number of Publications in 2023 56

Number of Publications in 2022 60



Few High-Impact publications

S. No	Details of Publications	IF
	2023	
1.	Bose, S.A., Rajulapati, S.B., Velmurugan, S., Arockiasamy, S., Jayaram, K. , Kola, A.K. and Raja, S., 2023. Process intensification of biopolymer polyhydroxybutyrate production by pseudomonas putida SS9: A statistical approach. Chemosphere, 313, p.137350.	8.8
2.	Arumugam, B., Muthulakshmi, L. and Ramaraj, S.K., 2023. Enhanced selective detection of insecticide Profenofos with aid of a novel CeO ₂ NPs/rGO nanocomposite using bacterial derived bioflocculant polymer as reducing agent.	7.7

	Journal of Environmental Chemical Engineering, 11(1), p.109149.	
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Dissemination of Knowledge

S. NO.	NAME OF THE PROGRAMME	DATE
1	Workshop on Industrial Bioprocess	21.09.23-22.09.23
2	International Conference on "Innovations in Biotechnology for Sustainable Life"	23.04.2022
3	One Day Workshop on "Lab Safety and Management"	20.04.2022
4	Industry Expert Guest Lecture on What are the expectations of a hiring manager and how to prepare a candidate: Interactions on the industry perspective	05.04.2022
5	One Day Workshop on "Nurturing and Transforming Research"	11.03.2022