

DEPARTMENT OF BIOTECHNOLOGY

MAIN CAMPUS & TARAMANI CAMPUS

CENTRE FOR BIOTECHNOLOGY



CENTRE FOR FOOD TECHNOLOGY

VISION

The Department of Biotechnology is committed to evolve as a world class Science and Technology Centre by integrating quality and ethics in teaching and research.

MISSION

- To provide students an unique and multidisciplinary learning experience that will foster young minds to develop as a researcher, entrepreneur etc.
- To enhance academic and industrial collaborative research initiatives for the development of Biotechnological, Food and Therapeutic products.
- To emphasize and equip the students towards innovative industrial and research updates.
- To serve the society with utmost commitment, integrity, enthusiasm, and dedication.

Programs Offered

Undergraduate Programs

*B.Tech. Industrial Biotechnology
B.Tech. Food Technology
B.Tech. Pharmaceutical Technology

Postgraduate Programs

M.Tech. Biotechnology
M.Tech. Food Technology
M.Tech. Biopharmaceutical Technology
M.Tech. Computational Biology
M.Tech. Nano science & Technology

Doctoral & Post Doctoral Programs

* First UG programme in Biotechnology to be started in India in 1992

MAJOR SUPPORT

DBT Supported PG
Teaching Programme

DBT BTIS - Distributed
Informatics

DST TBI

DBT BUILDER
Sponsored

UGC DSA Sponsored

MHRD - Centre of
Excellence in Biomedical
Applications

BIRAC - UNIVERSITY
INNOVATION CLUSTER

DST FIST Sponsored

UGC - University with
potential for Excellence

ABOUT THE CENTRES

The **Centre for Biotechnology (CBT)** was established in 1985 in Anna University with financial support from the Department of Biotechnology, Government of India with the objectives of providing excellent state-of-art educational and research facilities in frontier areas of Biotechnology.

The Centre has an unique commitment to educate broad spectrum of students including undergraduate, post-graduate, and research scholars. The **M.Tech Biotechnology was started in 1985 with a strength of 12 students, and the undergraduate programme in 1992 (B.Tech in Industrial Biotechnology)**. Currently, the Centre has expanded into a large Department offering B.Tech, M.Tech and Ph.D. programmes in Industrial Biotechnology, Pharmaceutical Technology and Food Technology for 800 students and more than 100 research scholars respectively. The Department had received generous funding support from DST-FIST, UGC-SAP, DST, DBT & UGC to establish state-of-the-art Research Laboratories. The UG & PG programmes offered by the Department have been accredited by AICTE.

The Centre for Biotechnology has two campuses, one at Guindy which houses the teaching and administrative blocks and an R&D campus at Taramani of about 1,50,000 sq.ft which houses state-of-art laboratories and research facilities. Many national and international collaborations drive the multidisciplinary nature of its research.

The **Centre for Food Technology (CFT)** was established in 2004 to cater to the rising demand of skilled manpower in food processing sector. A degree programme in B.Tech (Food Technology), Post Graduate programmes in M.Tech and Ph.D (Food Technology) was initiated.

CFT has implemented numerous Research and Extension Development projects funded by the various Ministries under Government of India and State Government. The centre also takes up consultancy works from various industries creating a symbiotic relationship between the industries and academia. The centre has established mutual collaborations with various industries and National statutory bodies which funds for its fundamental research in addition to international collaborations.

FACULTY



RESEARCH PUBLICATIONS (2015-2020)

Number of Papers published - 231

Number of Books with ISBN - 19

Number of Citation Index (average) - 251

Number of h-index - 53

FACULTY AWARDS (2015-2020)

| S.No | Name of the Faculty | Details of the award |
|------|------------------------|--|
| 1 | Dr.S.Meenakshisundaram | <ul style="list-style-type: none"> Technology Transfer Award, Anna University, 2015 |
| 2 | Dr.S.Renganathan | <ul style="list-style-type: none"> Active Researcher Award, CTD, Anna University, 2015 Outstanding Scientist Award, Centre for Advanced Research and Design, VIF, Chennai, 2015 Best Faculty -Science and Technology Awards, EET Research Wing, Bengaluru, 2015 |
| 3 | Dr.C.D.Anuradha | <ul style="list-style-type: none"> Active Researcher Award, CTD, Anna University, 2015 Prof.M.Vishwanathan Honour Award for Outstanding Research, 2017 Tamilnadu State Award (TANSA) in Medical Sciences, 2018 |
| 4 | Dr.M.Sukumar | <ul style="list-style-type: none"> Distinguished Researcher Award, CTD, Anna University, 2017 |
| 5 | Dr.B.S.Lakshmi | <ul style="list-style-type: none"> Mid-Career Award, UGC, Government of India, 2018 |
| 6 | Dr.Suvro Chatterjee | <ul style="list-style-type: none"> Fulbright-Nehru Academic and Professional Excellence Fellowship, 2018 |

RESEARCH COLLABORATIONS (2015-2020)

| S.No | Name of the Faculty | Name of the Partnering Institution |
|------|---------------------------|--|
| 1 | Dr.C.D.Anuradha | <ul style="list-style-type: none"> Aston University,UK Medical College of Wisconsin, USA Kansas State University,USA Harbin University, China IIT Madras, IIT Bombay, |
| 2 | Dr. S. Ramalingam | <ul style="list-style-type: none"> Jawaharlal Nehru University, Delhi University, Indian Oil Corporation |
| 3 | Dr. Suvro Chatterjee | <ul style="list-style-type: none"> DST-SNSF (University of Bern) University Pasteur Institute of Tunisia IIT-Guwahati, |
| 4 | Dr. M. Sukumar | <ul style="list-style-type: none"> TANUVAS, TNAU, CLRI (Chennai), EIA (Chennai), CIT (Assam) |
| 5 | Dr.S.Renganathan | <ul style="list-style-type: none"> Muradel Pty Ld, Whyalla, South Australia University of Malaysia, Kuala Lumpur, Malaysia Korea Institute of Energy Research, Korea |
| 6 | Dr.Adaikkalam Vellaichamy | <ul style="list-style-type: none"> Sree Balaji Dental College and Hospital, Pallikaranai, Chennai |

DEPARTMENT PROJECTS (2015-2020)

| Name of the Scheme | funding agency | Funds provided (lakhs) | Duration of award |
|---|----------------|------------------------|----------------------|
| Distributed Information Centre (DIC) of Biotechnology Information System (BTIS) | DBT | 10.82 | 2014-15 |
| Distributed Information Centre (DIC) of Biotechnology Information System (BTIS) | DBT | 13.52 | 2015-16 |
| M.Tech Teaching Programme | DBT | 71.83831 | Continuous Programme |
| UGC -SAP II-DSA-I | UGC | 28.41 | 5years |
| M.Tech Teaching Programme | DBT | 51.205 | Continuous Programme |
| DST Fist Programme | DST | 81.5 | Continuous Programme |
| M.Tech Teaching Programme | DBT | 80.67 | Continuous Programme |
| Distributed Information Centre (DIC) of Biotechnology Information System (BTIS) | DBT | 17.09 | Continuous Programme |
| M.Sc/M.Tech Computational Biology | DBT | 19.488 | Continuous Programme |
| Distributed Information Centre (DIC) of Biotechnology Information System (BTIS) | DBT | 29.66 | 2018-19 |
| Distributed Information Centre (DIC) of Biotechnology Information System (BTIS) | DBT | 44.11 | 2018-19 |
| M.Tech Teaching Programme | DBT | 74.1 | Continuous Programme |
| Distributed Information Centre (DIC) of Biotechnology Information System (BTIS) | DBT | 14.94 | Continuous Programme |
| M.Sc/M.Tech Computational Biology | DBT | 19.49 | Continuous Programme |
| M.Sc/M.Tech Computational Biology | DBT | 13.48 | Continuous Programme |

PI PROJECTS (2015-2020)

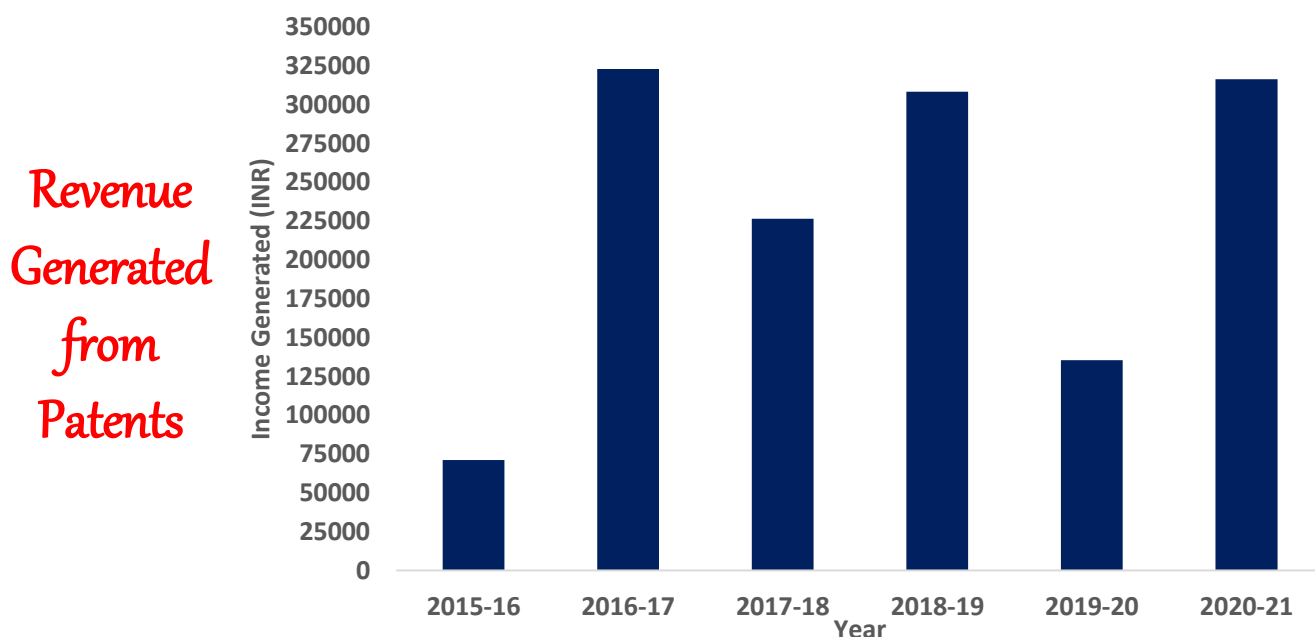
| Name of the Project | Name of the Principal Investigator | Funding agency | Year of Award | Funds provided (INR in lakhs) |
|---|------------------------------------|----------------|---------------|-------------------------------|
| Industrial Process Development for Meat Preservation by Natural Extracts. | Dr. M. Sukumar | MOFPI | 2015 | 31.7 |
| Nitric oxide in hepatocellular carcinoma: mechanisms and therapeutic implications | Dr. Suvro Chatterjee | DST | 2015 | 38 |
| Exploring and targeting cross-talk between interleukin-18 (IL-18) and hydrogen sulfide (H ₂ S) as a potential treatment strategy for the atherosclerosis | Dr.S.Ashok Kumar | SERB | 2016 | 5.5 |
| Differential anaplerotic flux of amino acids influences insulin sensitivity: Role of biotin on biosynthetic capacity of the cell | Dr.Tamilselvan J | SERB | 2016 | 25.85 |
| Regulation of Gene expression levels in P.pastoris by manipulation of transcription terminators. | Dr.S. Meenakshisundaram | CSIR | 2016 | 11.1 |
| Metabolic Engineering of Bcillus Megaterium for enhanced production of D-Pantothenic acid and its application for the development of Functional Foods | Dr. M. Sukumar | DBT | 2016 | 61.6 |
| Design and Development of Microbial Biopolymer Production. | Dr. M. Sukumar | UGC | 2016 | 9.64 |
| Indian National Science Academy | Dr.G.Krishnamoorthy | INSA | 2016 | 13.8 |

PI PROJECTS (2015-2020)

| Name of the Project | Name of the Principal Investigator | Funding agency | Year of Award | Funds provided (INR in lakhs) |
|---|------------------------------------|----------------|---------------|-------------------------------|
| Identification of novel small molecule inhibitors for Protein Tyrosine Phosphatase 1B | Dr.B.S.Lakshmi | CSIR | 2017 | 24.88 |
| Metabolic engineering <i>Pichia pastoris</i> for the production of Glucaric acid | Dr.S. Meenakshisundaram | SERB | 2017 | 45.22 |
| Studying the first leading cell of angiogenesis using eNOS GFP transgenic Zebrafish | Dr. Suvro Chatterjee | SERB | 2017 | 61.73 |
| Studying vascular implications of scorpion venom by using whole human kinome testing platform | Dr. Suvro Chatterjee | DST | 2017 | 22.92 |
| Probiotic enriched Vitamin B12 fortified food products | Dr.G.Nandhini Devi | MOFPI | 2018 | 48.02 |
| Foldscope scheme- A Study of Glass Containers for Solar Disinfection Using Foldscope | P Gautam | DBT | 2018 | 8 |
| Production of L- 2-aminobutyric acid from citraconate by biotransformation and cell free system | Dr. S. Ramalingam | BIRAC | 2018 | 36.55 |
| A comprehensive analysis of the changing diversity of <i>Shigella</i> interms of its virulence, resistance and serotype. | Dr. Adaikkalam Vellaichamy | SERB | 2019 | 7.01 |
| Biochemical Co ₂ fixation by microbial electrosynthesis; process intensification and subsequent production of biofeuls | Ms.Bhargavi Gunturu | DST | 2019 | 23.1384 |
| Comparitive proteomics of exosomes of androgen-dependent cell lines and biofluids of prostate cancer patients | Dr.Adaikalam Vellaichamy | SERB | 2020 | 55.03696 |
| Understanding the association between mitochondrial dynamics and tamoxifen resistance in Breast cancer cells" | Dr.B.S.Lakshmi | SERB | 2020 | 45.98756 |

PATENTS (2015-2020)

| S.No | Name of the Patenter | Patent Number & Year | Title of the Patent |
|------|---|-------------------------------|--|
| 1 | Dr.P.Kaliraj | 278637 & 2016 | Immunogenic composition for lymphatic Filarial vaccine |
| 2 | Dr.P.Kaliraj, Dr.K.Sankaran, Christiana, Sharmila | 276679 & 2016 | A bacterial lipid modification of filarial protein to enhance the immune prophylactic efficacy in animals and humans |
| 3 | Dr.P.Kaliraj, Dr.Prince R Prabhu, Madhumathi | 275504 & 2016 | Chimeric peptide vaccine for filariasis |
| 4 | Dr.Suvro Chatterjee | Filed (2015) | Interplanetary Travel G stimulator (IPTGS) |
| 5 | Dr.M.Sukumar, Maria Jenita, Lalitha Priya U, Renuka V | 201941043744 (Filed) | Formulation of stable edible oil by incorporating microencapsulated natural polyphenols |
| 6 | Dr.S.Ramalingam | 201941000814 (Filed) | Production of 2-oxobutanoate using alternative isoleucine biosynthetic pathway |
| 7 | Dr.S.Ramalingam | PCT/IB2019/05846 1 (Filed) | Production of L-2-aminobutyrate from Pyruvate/ citramalate/ citraconate by biotransformation and cell free system |
| 8 | Dr.S.Ramalingam | 201941000814 (Filed) | Production of 2-oxobutanoate using alternative isoleucine biosynthetic pathway |
| 9 | Dr.S.Ramalingam | 201941021876 (Filed) | Process of producing amino acids from its keto acid by enzyme amino acid dehydrogenase |



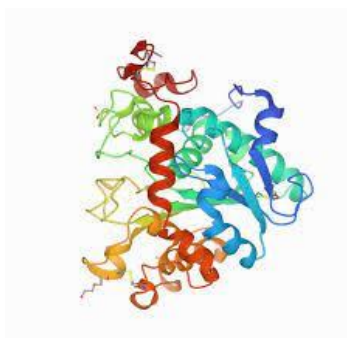
INCOME FROM CONSULTANCY (2015-2020)

| S.No | Name of the Faculty | Name of the funding agency | Grants received (INR in Lakhs) | Year |
|------|------------------------|--------------------------------------|--------------------------------|------|
| 1 | Dr.S.Meenakshisundaram | Sudhin Biopharma Inc | 9 | 2015 |
| 2 | Dr.S.Meenakshisundaram | Sudhin Biopharma Inc | 10 | 2018 |
| 3 | Dr.S.Ramalingam | Allianz Bioscience Private Limited | 2.46 | 2018 |
| 4 | Dr.G.Nandhini Devi | Kaleesuwari Refinery Private Limited | 3.29 | 2018 |
| 5 | Dr.S.Meenakshisundaram | Sudhin Biopharma Inc | 10 | 2019 |
| 6 | Dr.S.Meenakshisundaram | Sudhin Biopharma Inc | 11.8 | 2021 |

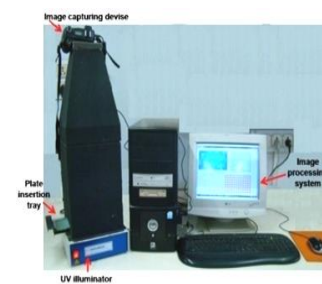
Product Development and Commercialization at Centre



2-min Rapid Flow Diagnostic Kit for Filariasis, Sold in India and Africa



CAL B Enzyme



AntibioGram Instrumentation



Synthetic Milk Testing Meter



AU sanitizer

TECHNOLOGY TRANSFER

Filarial antigen/clones for preparing diagnostics

- M/s. Span Diagnostics Ltd, Surat
- Dr.P.Kaliraj, Professor, CBT (2007)

Recombinant Production of *Candida antartica* Lipase B

- M/s.Fermenta Biotech Ltd, Mumbai
- Dr.S.Meenakshisundaram, Professor, CBT

The Electro mechanical design, along with data acquisition software and other accessories necessary for output of CMC daq

- M/s.TMI systems, Bangalore
- Dr.K.SankaranProfessor & Coordinator, NHHID (2014)

Leptospira kit developed using multi epitope antigen

- M/s.Genomix Healthcare India Pvt Ltd, Hyderabad
- Dr.K.Sankaran, Professor & Coordinator, NHHID (2013)

Synthetic Milk Testing Meter

- M/s. Shree Kamadhenu Electronics Pvt.Ltd
- Dr.K.Sankaran, Professor & Coordinator, NHHID (2016)

Production of CAL B enzyme using recombinant *Pichia pastoris* (Methanol free system)

- M/s.Fermenta Biotech Ltd, Mumbai
- Dr.S.Meenakshisundaram, Professor, CBT ()

AU Sanitizer

- M/s. Jet Inks Pvt.Ltd
- Dr.K.Sankaran,Coordinator, NHHID (2020)

Fluorescence quenching based antibiotic sensitivity kit

- M/s. Microbiological Laboratory Research & Service Pvt.Ltd, Coimbatore
- Dr.K.Sankaran, Coordinator, NHHID (2020)

| MAJOR EQUIPMENT AT CBT | MAJOR EQUIPMENT AT CFT |
|--------------------------------------|-------------------------------------|
| Aber Online Biomass Analyzer | Mansingh survismeter |
| AKTA- purifier chromatography system | Kjeldhal Analyser |
| Atomic Force Microscope | Jaw crusher |
| Bioreactors (2 L to 250 L) | Packing tower |
| Cell Culture facilities | Fluidized bed column |
| Cell disrupting homogenizer | Cyclone separator |
| Confocal Microscope | Digital refractometer |
| Extracellular Flux Analyzer | Rotary evaporator |
| Flow Cytometer | Hunter colourimeter |
| Freezers (-20°C and -80°C) | Texture analyser |
| Gas Analyzer | Canning unit |
| Gel-documentation systems | UV-C conveyor sterilizer |
| GC-MS | Pneumatic conveyor |
| High-throughput fluorescence imager | Gas permeability tester |
| HPLC (Analytical & Preparative) | Burst strength analyser |
| Inverted phase-contrast microscope | Universal testing machine |
| Lyophilizer | Water activity meter |
| Multimode Microplate readers | Falling number apparatus |
| MALDI-TOF-MS | Amylograph |
| MATLAB software | Food fermenter |
| Nano Drop spectrophotometer | Environmental chamber |
| Nano-LC | Food 3D printer |
| Phosphor imager | Lovibond colour comparator |
| Real-Time PCR machines | Cream separator |
| Scintillation counter | Spray dryer |
| Spectrophotometers | Digital polarimeter |
| Two-D Gel Electrophoresis | Pasteurizer |
| Ultracentrifuge | Invitro digester |
| YSI Biochemistry Analyser | Nephelometer |
| Cluster computer for Drug design | Modified Atmospheric packaging Unit |

ACADEMIC/RESEARCH COLLABORATORS



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UNIVERSITÄT
BERN



WAGENINGEN
UNIVERSITY & RESEARCH



INDUSTRY COLLABORATIONS



Global Calcium
Adding life to life



... your home of quality foods.

Faculty



Dr.B.S.Lakshmi
Director & HOD

Dr. B.S. Lakshmi's research interest lies in Target based Drug Discovery & Computational Studies, Structure Activity Relationship Studies and Metabolic Disease & Signal Transduction Studies. She is a recipient of Tamil Nadu Young Women Scientist Award - 2007 (Life Sciences), Science city, Department of Higher Education, Govt. of Tamil Nadu, National Women Bio-scientist Award - 2011 (Young category), Department of Biotechnology, Ministry of Science and Technology, Govt. of India and National Women Bio-scientist Award - 2011 (Young category), Department of Biotechnology, Ministry of Science and Technology, Govt. of India and Mid-Career Award - 2017 University Grants Commission, Department of Higher Education, Govt. of India, and She has various research grants sanctioned by central government funding agencies and is also an author of reputed international and national research articles.



Dr.S.Meenakshisundaram
Professor & Dean,
A.C Tech Anna university
Coordinator: BIRAC - UIC
Coordinator: MHRD CEMA

Dr.S.Meenakshisundaram's research interest lies in Bioprocess Engineering, Recombinant Protein Production and Metabolic Engineering. He is the lead investigator in numerous centre governed research projects and has successfully guided many M.Tech and PhD students. He has multiple research publications in reputed international and national journals. He is a recipient of "Technology Transfer Award", Anna University in the year 2015. He has held various important positions in Anna University



Dr.M.Sukumar
Professor & Director
Centre for Food
Technology

Dr.M.Sukumar's research interest lies in Food Processing and Preservation, Food Packaging, Functional Foods and Waste Management. He is a recipient of Prestigious "**Distinguished researcher award**" from Centre for Technology Development and Transfer, Anna University, in the year 2017. He has various research grants sanctioned by the central government funding agencies and is also an author of reputed international and national research articles. He is an active member of Science Advisory Board and International Society of Food Engineering. He has held various important positions in Anna University .



Dr.C.D.Anuradha
Director, Educational
Multimedia Research
Centre

Dr.C.D.Anuradha's research interests encompass Stem cell Technology, Tissue Engineering, Angiogenesis and Cancer Biology. She is a recipient of **Tamilnadu State Scientist Award (TANSA) 2018** in Medical Sciences, **Prof M.Viswanathan Honor Award** for the year 2017 in recognition of outstanding research and **Active Researcher Award** for outstanding contributions awarded by CTDT, Anna University, India in 2015 among various other awards. She has guided several PhD and M.Tech Students. She has multiple International collaborations for research and has given various invited talks all over the world. She has conducted six GIAN programs, an MHRD initiative which is the highest number in Tamilnadu. Her research publications are published in reputed journals including Nature publications and JBC which are of high impact factor and boasts of h-index of 25. She has served as Director of Center for Biotechnology and is currently serving as Director of Educational Multimedia Research Centre (UGC & CEC initiative) and serves as the Channel Coordinator for DTH Swayam Channel addressing the needs of higher education with use of emerging information Technology producing E-TV, E-Learning, moocs and DTH courses and documentaries to enrich and take high quality education to the masses.



Dr.S.Renganathan
Professor

Dr. S. Renganathan's scientific research work is especially on Biofuels, Bio-Nanomaterials and Environmental Biotechnology. He has received "Young Scientist Award" from DST, Science and Engineering Research Board, New Delhi, "Active Researcher Award" from Centre for Technology and Development Transfer, Anna University Chennai for his valuable contribution through the research to the field of Biofuels, "Lifetime Achievement Award" for "International Research Awards on New Science Inventions" from Science Father, NESIN 2021 Awards, Approved and Registered by Ministry of Corporate Affairs (MCA), Govt. of India, Received "Outstanding Scientist Award" from Centre for Advanced Research and Design, VIF, Chennai for his valuable contribution and achievement in the field of Bio-Chemical Engineering, Received "The Best Faculty Award" from Science & Technology awards-15 from EET Research wing for Excellence in Professional Education & Industry, Bangalore on and "Thiru T.M. Narayanaswamy Pillai Chemical Engineering Prize" from The Governor of Tamil Nadu. He is a life member of Indian Society for Technical Education, Indian Institute of Chemical Engineers and Biotechnology Research Society-India. He has guided many postdoctoral students and doctoral degree scholars. He also holds additional responsibilities as Executive warden in A.C.Tech., Hostels and Distance education coordinator in A.C.Tech., Anna University,



Dr.S.Ramalingam
Professor

Dr.S.Ramalingam is a chemical engineer turned biotechnologist specialized in fermentation of genetically manipulated systems in bacteria. The investigator has a well-structured industrial career spanning five years in three giant pharmaceutical companies. Earlier, he has worked in fermentation and purification of recombinant proteins in *E. coli*. The current focus of research pertains to cell free metabolic engineering involving multi enzyme one pot process. He is developing products such as L-2-Aminobutyrate, citramalate/methacrylate, oxobutanoate and Beta-alanine by a novel chemo-enzymatic processes. He is handling Bioprocess and Metabolic Engineering course for B.Tech, M.Tech and PhD students. He has filed for 4 patents and has publications in both national and international journals.



Dr.Suvro Chatterjee
UGC-FRP Associate
Professor

Dr.Suvro Chatterjee is the Principal Investigator of Vascular Biology lab at AU-KBC Research Centre, MIT, Anna University. He is a recipient of RUBICON European Union International project, Unilever Limited Industrial Project and many DST, DBT, CSIR and DRDO funded research projects. He has successfully guided 11 PhD students apart from many MS (By Research), M.Tech and B.Tech students. He has three patents and numerous publications in reputed international and national journals. He served till May 2021.



Dr.V.Adaikkalam
Associate Professor

Dr.Adaikkalam Vellaichamy's research interest lies in Proteomics, Genomics, Metabolomics and Biomarker Discovery of human diseases including Non-alcoholic fatty liver disease and Prostate Cancer. He is a recipient of DST and DBT sponsored research grants and has publications in reputed national and international journals. He is an active member of American Society for Mass-spectrometry, Human Proteome Organization and Proteomics Society of India. He is currently serving as Additional Director, Centre for Faculty Development, Anna University.



Dr.G.Nandhini Devi
Associate Professor

Dr.G.Nandhini Devi's research interest lies in Environmental Biotechnology, Biochemical Engineering and Food Processing & Technology. She is a recipient of "**Best NSS Program Officer**", Anna University in 2016. She has guided many Post Graduate and Under Graduate students in their research projects and currently guiding 7 PhD students. She has held various important positions in Anna University and is currently serving as Deputy Controller of Examination, AC Tech.



Dr. Sharmila Anishetty
Assistant Professor

Dr. Sharmila Anishetty's research interest lies in Protein structure studies, System Biology, Molecular Dynamics simulations of Enzymes and Comparative Genomics. She has guided many PhD, M.S. by Research and M.Tech students. She has research publications in many reputed national and international journals and has also published 1 book chapter. She has also delivered many invited lectures in Chennai. She served till April 2021.



Dr. Radha Ramachandran
Assistant Professor

Dr. Radha Ramachandran's research interest lies in Biochemistry. She has successfully guided 10 M.Tech research project students. She is an active member of Society for Biological Chemists.



Dr. S. Ashok Kumar
Assistant Professor

Dr. S. Ashok Kumar obtained his Ph.D. in Biochemistry from University of Madras. Following this, he worked on targeting lipid signaling for the treatment of chronic lymphocytic leukemia during his Post-doctoral research at Canada. He is having expertise in cancer biology and clinical research. At present, his research focused on lipid signaling in cancer, especially targeting the ceramide pathway for the treatment of breast cancer. For the first of its kind, the mechanisms of action of the drug ceranib-2 in breast cancer cells were elucidated by his research team. He has mentored 2 Ph.D. Scholars, 2 MS (By Research) and several M.Tech. and B.Tech. final year projects. As a Principal Investigator he has successfully completed three funded projects and as a Co-Investigator he has successfully completed one funded Project. He is currently involved in unearthing, designing and synthesizing unique molecules to target the creamide pathway towards breast cancer treatment.



Dr.R.Palpandi Raja
Assistant Professor

Dr.Ramachandran Palpandi Raja's research interests are Drug Delivery Engineering and Sustainable Bioprocessing. He is a co-investigator for DBT and DST-SERB funded projects on metabolic engineering of microorganisms. He has research publications in reputed journals



Dr.J.Tamilselvan
Assistant Professor

Dr.Tamilselvan Jayavelu's research interest lies in Understanding the evolution of organ specific metabolism and signaling as well as their status under pathology with special reference to nutrient sensing/homeostasis and organelle turnover. He has successfully completed various DBT, DST, SERB, UGC and ICMR sponsored projects and has publications in reputed journals. He has also delivered many invited lectures.



Dr.J.Jayamuthunagai
Assistant Professor

Dr.J.Jayamuthunagai's area of specialisation is Biochemical Engineering. She has successfully completed a DBT sponsored project on " Engineering Microorganisms for production of Metabolites used in Food Industries". She has guided B.Tech and M.Tech students for dissertation. She has numerous publications in reputed international and national journals.



Dr.Sangita.V
UGC - FRP
Assistant Professor,

Dr. Sangita Venkataraman's research interest lies in Macromolecular Crystallography, Structural Virology, Integrative Sciences & Omics Technologies. She was a recipient of Early Career Award of 35 lakh from DST-SERB. She has numerous research publications in international journals and two book chapters to her credit. She is an active member of Indian Crystallographic Association.



Dr.T.Kothai
Member Research Staff

Dr.T.Kothai's research interest lies in Bioinformatics and Computational Biology - In silico studies of Proteins. Apart from various academic activities, she is working under BTIS Programme and is involved in the purchasing activities and establishment of the BTIS. She has guided M.Tech and B.Tech students for dissertation. She has research publications in various journals. She is an active member of Computer Society of India.



Dr.G.Vimalraj
DST-Inspire Faculty

Dr. S. Vimalraj obtained DBT-RA and SERB-nPDF fellowships to continue my postdoctoral research at Anna University in Chennai, India, after completing his Ph.D. at SRM University in Chennai, India. He received a DST-INSPIRE Faculty award to begin his independent research career after completing postdoctoral research in tumor angiogenesis and noncoding RNA mechanisms. He has over 45 articles published including in the nature group journals, with an aggregate impact factor of 228, an average impact factor of 5.06, an h-index of 18 and an i10 index of 24. He has received several national and international awards. Recently, his research work was highlighted and press released in DST-Ministry of science and technology, and it was also re-published on the Anna University website. His lab is currently working on developing transgenic Zebrafish using CRISPR/Cas9 techniques and studying tumor angiogenesis mechanisms.



Dr.Swathi Alagesan
DST-Inspire Faculty

Dr. Swathi Alagesan completed Bachelors in Engineering from Delhi College of Engineering. Subsequently, she joined the Department of Chemical Engineering at IIT Bombay for a PhD. In 2017, she joined Anna University as a DST-INSPIRE Faculty. Her Research Interest lies in Synthetic biology, Flux Analysis and Metabolic Engineering



Dr.Satya N Pradhan
Visiting Faculty

Dr.Satya Narayan Pradhan's research interest lies in Pharmaceutical Biotechnology, Immunotechnology and Pharmacogenomics. He has successfully guided many M.Tech and B.Tech students for their dissertations. He has research publications in reputed international journals. He has technical proficiency in protein biochemistry, cell culture and vaccine development.



Dr.Prince R Prabhu
Visiting Faculty

Dr.Prince R.Prabhu's research interest lies in Immunotechnology and Immunopharmacology. He is a recipient of **Science Grand Slam Award** by German House of Research in 2013. He has guided M.Tech and B.Tech students for dissertation. He has research publications in reputed international journals and also filed for two patents. He is an active member of Indian Immunology Society and a Registered Pharmacist, State Pharmacy Council of India. He served till April 2021.



Dr.Mathangi.G
Visiting Faculty

Dr.Mathangi Ganapathy's core area of expertise is plant biology, plant physiology and Recombinant protein expression in plants. She has various publications in international and national journals. She has successfully guided many M.Tech and B.Tech students for their dissertations. She has also written a book chapter Advances in Biotechnology Vol II. She is an active member of American Society for Plant Biologists and Society for Plant Biochemistry.



Dr.Kavitha Ravichandran
Visiting Faculty

Dr.Kavitha Ravichandran's area of expertise is Food Science and Technology, Food Safety and Product Development. She has publications in various research publications and has delivered lectures related to food safety and food processing. She is a reviewer for food based journals and is an active member of Association of Food Scientist and Technologist India and National Institute of Nutrition.



Ms.N.Sri Durga Devi
Teaching Fellow

Ms.N.Sri Durga Devi's research interest lies in Pharmacokinetics and Natural polymer based drug delivery systems. She has guided many B.Tech students in their research activities. She has research publications in reputed journals of Pharmaceutical Sciences.



Dr.J.Renuka Devi
Teaching Fellow

Dr.J.Renuka Devi's research interest lies in Natural product based drug discovery. She has guided many B.Tech and M.Tech students in their research activities. She has research publications in various International and National journals.



Ms.Harini.K
Teaching Fellow

Ms.Harini.K's research interest lies in Food process engineering and Advances in Food engineering and Food Preservation. She has guided M.Tech and B.Tech students in their dissertation. She has various publications in international and national journals. She has also written a book Chapter on 'Packaging Design and Equipment' in "A Textbook of Food Packaging Techniques". She is an active member of Association of Food Scientists and Technologies and International Association of Engineers.



**Ms. Padma Thanga
Parameswari**
Teaching Fellow

Ms. Padma Thanga Parameswari's area of specialization is Pharmaceutical Sciences. She has research publications in reputed journals of Pharmaceutical Sciences.



Dr. P. Thamilselvi
Teaching Fellow

Dr. P. Thamilselvi's area of specialization Nano Biotechnology and microbiology. She has research publications in various International and National journals. She also has a patent for 'Corncob Adsorbent for wastewater treatment'.



Dr. Revathy. S
Teaching Fellow

Dr. Revathy Sekaran's area of interest is Cancer chemotherapy and Biotechnology. She has research publications in various International and National journals. She has organized various conferences.



Ms. Naveena. K
Teaching Fellow

Ms. K. Naveena's area of interest is Insilico drug designing, Molecular Modeling and Simulations. She is well versed in Drug Design Softwares and Tools. She served till December 2020.



Dr. Jaisy Samuel
Teaching Fellow

Dr. Jaisy Samuel's area of interest is Cancer Biology and Therapy. She has research publications in reputed International journal



Ms.Chindumathi.B
Teaching Fellow

Ms.Chindumathi's area of interest is Food analysis and techniques, Safety and Quality control. She served till December 2020.



Dr.Priyadharshini.P
Teaching Fellow

Dr.P.Priyadharshini's area of interest is Biochemistry and Plant Biotechnology. She has research publications in reputed National & International journals. She has also co-authored chapters in two books and has filed a patent



Ms.Mohanapriya.S
Teaching Fellow

Ms.Mohanapriya's area of interest is Food processing and Bioplastics.



Ms.Kanimozhi.N V
Teaching Fellow

Ms.Kanimozhi N V's area of interest is Food processing and Fortification. She has research publications in reputed International journals

Retired Faculty



Dr. P. Kaliraj

Professor.P.Kaliraj, current Vice-Chancellor of Bharathiar University, Coimbatore, has been the Head and Director for Centre for Biotechnology for three tenures (1996-2003; 2008-2010) and served the Department as professor of eminence till 2019. Lymphatic Filariasis (LF) has been the research theme of Prof.Kaliraj, who has done a cumulative work in all facets of LF research covering from diagnosis, prophylaxis and drug target characterization for over a period of four decades (since 1976). His application-oriented research in combating filariasis has resulted in two commercial products (Signal Mf-Rapid-Flow diagnostic kit) along with three awards of Indian patents. He is a recipient of various awards including the prestigious ones from ICMR, Parasitology Society, Microbiology Society of India and Indian Immunology Society. He has been elected as Fellow by Biotechnology Research Society of India and National Academy of Biological Sciences.



Dr. R. B. Narayanan

Dr.R.B.Narayanan, was Director centre for Biotechnology during the period 2005-2008. He was the first Director of Centre for Food Technology, Anna University, Chennai during the period 2010 - 2015. He worked as a Professor of Eminence, Centre for Food Technology, Anna University, Chennai during July 2015 - May 2016. After his doctorate from University of London, UK, Dr.Narayanan worked as a Research Officer in the Division of Immunology at Central JALMA Institute for Leprosy (ICMR), Agra. He also had a brief stint as a Senior Research Associate at Department of Cellular Immunology, Walter Reed Army Institute of Research, Washington DC during October 1989 - September 1991 and as a Senior Research Associate at Department of Respiratory and Mucosal Immunology, US Army Research Institute of Infectious Diseases, Fort Detrick. He joined Centre for Biotechnology, Anna University, Chennai as visiting faculty during July 1993. In addition to various publications in national and international journals, he has been the recipient of the prestigious MOT Iyengar award in 2009, sponsored by ICMR ,New Delhi, for his research work involving the immunopathogenesis of human lymphatic filariasis.



Dr. P. Gautam

Dr.P.Gautam, Currently Emeritus Professor in Chemical Biology & Computational Biology, AU-KBC Anna University, Chennai. He was the Director, Centre for Biotechnology during 2013-2016. He also served as Chairman Faculty of Technology, A C Technology campus during the period 2008-2013 and later as Director, AU-KBC Research Centre , Anna University from 2016 till 2019. In addition to innumerable publications, and 6 patents which were filed, he has been awarded the **Best Teacher award constituted by Indian National Science Academy Teachers** in 2012.



Dr. Usha Antony

Dr.Usha Antony served as Professor at department till 2018. She has immensely helped to improve the B.Tech and M.Tech programs by grants supported by DBT, Govt of India. In addition to her publications, she has filed three patents.. She has been involved in Teaching and Evaluation at UG and PG levels for the last 3 decades. She has served as Research guide for M. Sc, B. Tech, M. Tech, M. Sc. MS (By Research) and Ph. D. Students. She has executed many Research and Consultancy projects with funding from national and international agencies as well as industry.



Dr. K. Sankaran

Dr.K. Sankaran served as DIRECTOR, Centre for Biotechnology (2010-2013) & Centre with potential for Excellence in Environmental Science (CPEES) (2008), Anna University, Chennai. He has also been the Coordinator , National Hub for Healthcare Instrumentation Development, Anna University, Chennai. Currently, he is the mentor for the "antibiogramascope" development as part of the University with Potential for excellence programme at Anna University. His areas of expertise include Protein Biotechnology, Protein Engineering, Molecular Pathogenesis, Medical Instrumentation. He started his career in Anna University as Visiting Faculty, Centre for Biotechnology in 1995. During his career he has developed three new products and prototypes : **A rapid enzymatic colorimetric kit** for detection of Shigella and enteroinvasive E.coli from food and stool samples, **Fluoropath** - An immuno biosensor based portable fluorescence meter for bacterial pathogen detection developed under DST's Instrumentation Development Programme, **Antibiogram** Device - Fluorescence Imager based device for determining bacterial sensitivity to commonly prescribed antibiotics. In addition to innumerable publications, he has also filed 6 national and 3 international patents .

Student Association Events/Activities

- **BIOTECHCELLENCE**, a National level technical symposium is conducted annually by the under graduate students of Department of Biotechnology



Biotechcellence, 2020

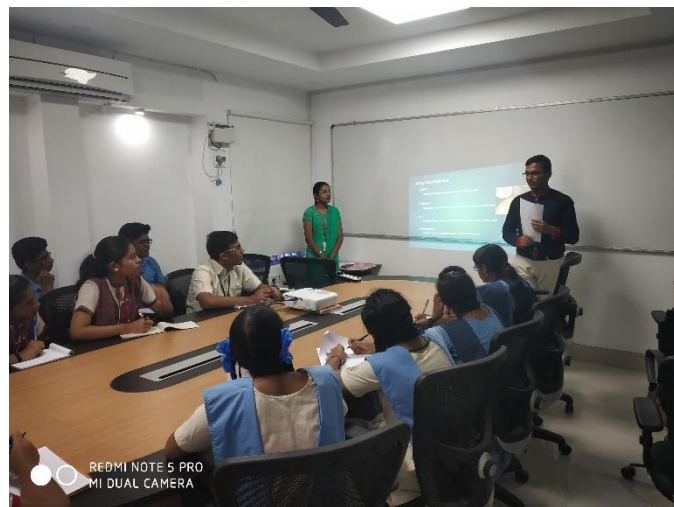


Biotechcellence, 2019

- **IGNITE**, a preclusive to the hallmark symposium of CBT, BIOTECHCELLENCE. The philosophy behind IGNITE is to create a conducive environment as a catalyst for school students to be groomed, trained and tutored in areas of relevance in biotechnology



IGNITE 2020



IGNITE 2019

AVIDADHAM, International conference conducted annually by the post graduate students of Centre for Biotechnology and Centre for Food Technology



Avidadham, 2019



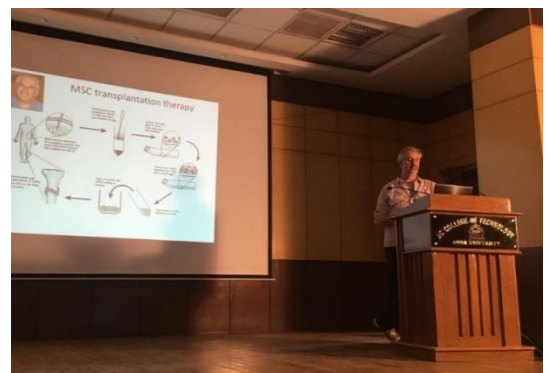
Food Safety Continuum, 2018

A National seminar on " Food Safety Continuum - Challenges & Opportunities" was conducted by the Centre for Food Technology

GIAN (Global Initiative for Academic Networks-initiative of MHRD) workshop covering various biomedical topics were conducted and coordinated .



**Dr. MEETHA Medhora Professor
Radiation Oncology Mcw USA**



**Eustace W Johnson, Professor
University of Chester, UK**

Schrodinger Workshop, 2021



2DE Training/Workshop, 2020



MALDI-TOF Training/Workshop, 2020



Industry visit to GeNei 2019



Molecular Simulation and Sequence Analysis, 2019



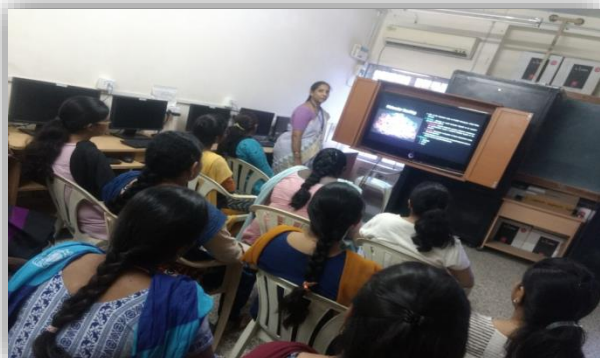
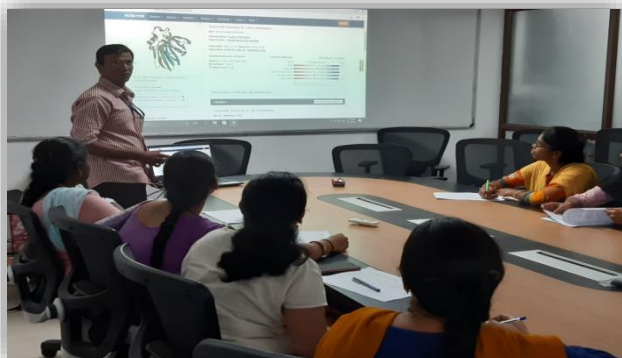
DEPARTMENTAL LIBRARY

The Departmental Library at the Centre has an automated library service system for students and faculty. The Centre subscribes to forty journals both National and International. It has a collection of more than 7000 volumes of latest books on Biotechnology, Food Technology and Pharmaceutical Technology. Students are provided with adequate computer facilities to access journals through the National Knowledge Network (NKN).



ICT CLASSROOMS (TEACHING LEARNING PROCESS)

Lectures are given by demonstration method supplemented by ICT. Students are encouraged to study using NPTEL videos and web-based lectures. For the conceptual understanding of topics and for exploratory learning, virtual lab facilities are provided. Seminar/Guest lecture interactive sessions with eminent scientists and industry experts are also encouraged



Student Laboratories at DBT



KJ AUDITORIUM

The auditorium is equipped with state of art video conferencing equipment and research seminars by eminent scientists, students and faculty are organized



Conferences/Workshops/Symposia Conducted

| Year | Faculty incharge | Name of the Seminars/Conferences/Workshops/Symposia | National / International | Duration |
|---------|---------------------------------|--|--------------------------|--------------------------------------|
| 2019-20 | Dr.C.D.Anuradha | GIAN -Experimental models in stem cells & tissue regeneration | International | 16.09.2019 to 27.09.2019 |
| | Dr.C.D.Anuradha | GIAN -Advances in Radiation Biology | International | 14.10.2019 to 18.10.2019 |
| | Dr.T.Kothai | Biotechnology Information System - Workshop on Molecular Docking, Simulations and Chemoinformatics | National | 11.12.2019 to 14.12.2019 |
| | Dr.B.S.Lakshmi | Biotechcellence -2020 | National | 02.03.2020 to 04.03.2020 |
| 2018-19 | Dr.C.D.Anuradha & Dr.Kothai | Workshop on sequence Analysis and Molecular Simulation | National | 13-16 March 2019 - 4 days |
| | Dr.P.Gautam, Dr.G.Nandhini Devi | workshop on "Use of Foldscope" | National | 22nd March (1 Day) |
| | Dr.C.D.Anuradha | GIAN - Advances in Radiation Biology | National | October 14th - 18th, 2019 |
| | Dr.C.D.Anuradha | GIAN- Experimental models in stem cells and tissue regeneration | National | September 16th - 27th, 2019 |
| | Dr.C.D.Anuradha | Avidadham- 19 International conference on metamorphosis from academia to Bioindustrialisation | International | Feb -25,26, 27 2019 |
| | Dr.C.D.Anuradha | BIOTECHCELLENCE '19 Anna University, Biotechnology Symposium | National | 4th -6th March 2019 |
| | Dr.C.D.Anuradha | GIAN- Biomedical imaging Advanced FLIM Microscopy Techniques for Cancer Cellular Imaging | National | 17th December to 22nd December, 2018 |

| Year | Faculty incharge | Name of the Seminars/Conferences/Workshops/Symposia | National / International | Duration |
|---------|-----------------------------|--|--------------------------|----------------------------------|
| 2017-18 | Dr.C.D.Anuradha & Dr.Kothai | Workshop and Training on sequence Analysis and Molecular Simulation | National | 12-15 December 2017 - 4 days |
| | Dr.G.Nandhini Devi | National Conference on "Current & Future Trends in Food waste Management and its valorization" - VALORIZE 2K18 | National | 24-25 January 2018 - 2 days |
| | Dr.C.D.Anuradha | GIAN- CELL REDOX BIOLOGY AND THERAPEUTICS | National | July 16TH to 20TH, 2018 |
| | Dr.C.D.Anuradha | Avidadham- 18 6th international conference on current trends in diagnostic and therapeutics for life style diseases | International | Feb 27-28 2018 |
| | Dr.C.D.Anuradha | BIOTECHCELLENCE 18 Anna University, Biotechnology Symposium | National | March 13-15 2018 |
| | Dr.C.D.Anuradha | GIAN-An Insight into Human Infectious Diseases(Anti-Parasite Drug Discovery - Aminoacyl-tRNA Synthetases as a model) | National | Feb 6 to Feb 10 2017 |
| 2016-17 | Dr.C.D.Anuradha & Dr.Kothai | Workshop and Training on sequence Analysis and Molecular Simulation | National | 20-23 December 2016 - 4 days |
| | Dr.Ramalingam | Symposium Titled Synthetic Biology and Pathway Engineering | National | 1 day |
| | Dr.C.D.Anuradha | BIOTECHCELLENCE 2k17, Anna University, Biotechnology Symposium | National | 9 March - 11 March 2017 |
| | Dr.C.D.Anuradha | Avidadham '17 Advances in Gene Editing | International | March 1-2 ,2017 |
| | Dr.C.D.Anuradha | GIAN - Targeting Cancer Metabolism | National | Dec 5 2016 - Dec 9 2016 |
| | Dr.C.D.Anuradha | BIOTECHCELLENCE 2k16, Anna University, Biotechnology Symposium | National | 1st April 2016 3rd April 2016 |
| | Dr.C.D.Anuradha | Avidadham'16 International Conference on Recent Advances in Diagnosis and Treatment of Metabolic Disorders | International | 18th and 19th March 2016 |
| | Dr.K.Sankaran | GIAN - RNA world | National | 15th to 23rd December 2016 |

Start-up (2015-20)

| S.NO | NAME OF THE COMPANY | YEAR OF INCORPORATION | FOUNDER/DIRECTOR |
|------|-----------------------------|-----------------------|--------------------------------|
| 1 | RELICUS BIO PVT LTD | 2020 | Dr.PRIYANKA POTHEN/Dr.VIPIN |
| 2 | PRIMAS BIOSCIENCE PVT LTD | 2019 | Dr.KABILAN |
| 3 | MICHA LIFESCIENCES PVT LTD | 2019 | Dr.DURAIRAAJ |
| 4 | XACT DIAGNOTEK PVT LTD | 2019 | Dr.NIKHIL |
| 5 | GENPROTIC BIOPHARMA PVT LTD | 2020 | Dr.SUTHAKARAN |

MAJOR EQUIPMENT AT CBT



DYNAMIC LIGHT SCATTERING



FLUX ANALYSER



FLOW CYTOMETER



SCINTILLATION COUNTER



BIOREACTOR



HPLC



MALDI-TOF



CONFOCAL MICROSCOPE



FTIR



SPECTROPHOTOMETER



ATOMIC FORCE MICROSCOPE



INVERTED FLUORESCENT MICROSCOPE

MAJOR EQUIPMENT AT CFT



DIGITAL NEPHELOMETER



SPRAY DRYER



VISCOMETER



WATER ACTIVITY METER



UNIVERSAL TESTING MACHINE



MAP UNIT



PILOT RETORT



GCMS



GTR ANALYSER



DIGITAL POLARIMETER



FOOD 3D PRINTER



BOD PHOTO REACTOR



FLUIDISED BED DRYER



FOOD FERMENTER



VACUUM OVEN



KJELDHAL APARATUS



FTIR



HPLC



TEXTURE ANALYSER



UV-C CONVEYOR/STERILIZER



WVTR ANALYSER



FREEZE DRYER