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Summary Experienced faculty and researcher with a demonstrated history of working in the higher education industry and Research organizations. Skilled in Bio/Cheminformatics, translational science, Recombinant systems, Superhydrophobic materials and Auditing.

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| Education | PhD in Biotechnology / Bioinformatics <i>VIT University</i> | 2011 – 2017 |
| | PG Diploma in Industrial safety <i>Annamalai University</i> | 2007 – 2008 |
| | MTech in Industrial Biotechnology <i>Annamalai University – College of Technology</i> | 2006 – 2008 |
| | BTech in Biotechnology <i>Vellore Institute of Technology</i> | 2001 – 2005 |

Experience Research Experience

Post-Doctoral Researcher-April 2018-September 2018.

Penn State Health Milton S. Hershey Medical Center, Hershey, Pennsylvania, USA.

[Cell and tissue culture, cytotoxicity assay, RNA and Protein analysis, Lab management, documentation and maintenance of files]

Research Scholar (EPT) - 2011 - 2017.

SBST, Vellore Institute of Technology, Vellore, INDIA

Thesis title: *In silico* screening and lead identification from *Curcuma caesia* Roxb

[Therapeutic lead molecule isolation, identification & characterization, cell culture, cheminformatics, molecular modeling & docking]

- Employed *In vitro*, *In vivo* and *In silico* techniques to screen and identify leads from black turmeric (*Curcuma caesia* Roxb) in a timely and cost effective way.
- Described first report on mechanistic insights on molecular mechanisms of *C.caesia* hexane extract toxicity in cancer cells.
- Understood hexane extracts dose dependent development toxicity in *Zebra fish* embryos.
- Used *in silico* high-throughput ADMET and molecular docking approach with metabolic chemical reaction insight to screen 309 exclusive compounds from *C.caesia* to discover leads against cancer.
- Identified the chemical descriptors required for ADMET from diverse *C.caesia* phytochemicals using statistical approach.
- Developed and promoted small molecule database.

Graduate Research Internship December 2007-May 2008

PTC Division, M. S. Swaminathan Research Foundation, Chennai, INDIA

[Abiotic stress, Nucleic acid manipulation, Cloning & gene expression]

Thesis Title: Studies on isolation and characterization of *phosphoenolpyruvate carboxylase* (PEPC) from sodium chloride treated halophyte, *Sesuvium portulacastrum* L.

- Investigated saline stress induced proteins from halophyte *S.portulacastrum*.
- Described possible role of C4 photosynthetic enzyme (PEPC) in salinity tolerance to *S.portulacastrum*.
- Bioinformatics approach to analyze structural alignment of conserved PEPC amino acid residues identified from nucleic acid isoforms sequences.

Research intern July 2005 – July 2006

M. S. Swaminathan Research Foundation, Chennai, INDIA

[Plant Tissue culture, Bioprospecting & bio purification]

- Part of team that involved in micropropagation of rare and endangered mangrove plants in southern India.
- Extracted and partial purification of secondary chemicals from callus and suspension cultures of herbs for various biomedical application
- Experienced in isolation, identification and development of *mycorrhiza* formulation and its assessment in crops.

Teaching & Mentoring Experience

Associate Professor – April 2019 – Till date.

Department of Biotechnology, Manipal Institute of Technology, Manipal, INDIA

- Significant experience in teaching Biotechnology/Bioprocess engineering (lectures, practical coursework, tutorials, assessments, and related administrative duties) to undergraduate and postgraduate students.
- Trained and guided undergraduate, postgraduate and PhD students in research projects.
- Establishment of working protocols and SOPs for new laboratory.
- Lab maintenance and procurement of lab consumables for every academic year.

Subject taught: Introduction to bioprocess, Industrial microbiology, Entrepreneurship, Genetic Engineering, Genomics and Proteomics, Plant biotechnology, Animal biotechnology, Biomaterials, Protein Engineering, Environmental science.

Lab instructor: Microbiology, Bioinformatics and Cell and Molecular biology.

Assistant Professor - July 2008 – March 2019.

Department of Biotechnology, Manipal Institute of Technology, Manipal, INDIA

Faculty Advisor – August 2013- March 2018.

Institute Engineers Biotechnology, Manipal Institute of Technology, Manipal, INDIA

- Assisted students in goal setting, event planning and strategies to develop activities and workshops for students with a major focus on biotechnology awareness in campus.
- Obtained grants from Defence Research and Development Organization (DRDO) and Zydus Cadila to organized two-days symposium for 100 students annually.

Deputy Quality Manager ISO14001/9001- July 2012 – June 2013

International Center for Applied Science, Manipal, INDIA

- Audited and maintained all controlled documents and forms.
- Updated and created new procedures in compliance with ISO14000/9001.
- Executed follow-up assessments to ensure effective implementation.

Publications

- Aranab M, Akshitha S, Preeti A, **Mukunthan KS**. "Identification of therapeutic miRNAs from the arsenic induced gene expression profile of hepatocellular carcinoma" *Chemical Biology & Drug Design*.
- Shanmugasundar S, Kannan N, Sundaravadivel E, Zsolt S, **Mukunthan KS**, Manokaran J. "Study on the inflammatory response of PMMA/polystyrene/silica nanocomposite membranes for drug delivery and dental applications". *PLoS ONE* 2019, 14(3): e0209948.
- Rangappa S, Ashwini P, **Mukunthan KS**, Panchangam MK, Gundibasappa KN, Punchappady DR. "Design, synthesis, and pharmacology of some oxadiazole and hydroxypyrazoline hybrids bearing thiazoyl scaffold: antiproliferative activity, molecular docking and DNA binding studies". *Heliyon*, 2019, 5(2), e01255
- Rangappa S, Priyodip P, **Mukunthan KS**, Chenthattil R, Panchangam MK, Jamballi GM, Gundibasappa KN. "One-Pot Synthesis of Pyrimido[4,5-d]pyrimidine Derivatives and Investigation of Their Antibacterial, Antioxidant, DNA-Binding and Voltammetric Characteristics". *Chemistryselect* 2019, 4(3):990-996.
- Santosh R, **Mukunthan KS**, Kanekar SU, Nagaraja GK. "Synthesis, Characterization, Antibacterial and Antioxidant Studies of Some Heterocyclic Compounds from Triazole-Linked Chalcone Derivatives". *ChemistrySelect* 2018, 3(23): 6338-6343.
- Santosh R, **Mukunthan KS**, Kanekar SU, Nagaraja GK, Kumar M. "Design, Synthesis, DNA Binding, and Docking Studies of Thiazoles and Thiazole-Containing Triazoles as Antibacterials". *ChemistrySelect* 2018, 3(14): 3892-3898.
- **Mukunthan KS**, Balaji B, Patel TN. "Black Turmeric Database: A Database of natural compounds from *Curcuma caesia* Roxb". *Asian Journal of Pharmaceutical and Clinical Research* 2018, 11(3): 406-408.
- **Mukunthan KS**, Satyan RS and Patel TN. "Pharmacological evaluation of phytochemicals from South Indian Black Turmeric (*Curcuma caesia* Roxb.) to target cancer apoptosis. *Journal of Ethnopharmacology* 2017, 209: 82-90.
- **Mukunthan KS**, Amritendu B, Trupti NCP. "Regression Analysis: Identifying Molecular Descriptors for HIA, MDCK and Caco-2" *International Journal of Pharmaceutical Sciences Review and Research*, 2016, 37(1): 205-209.
- **Mukunthan KS**, Anil Kumar NV, Balaji S and Trupti NP. "Analysis of Essential Oil Constituents in Rhizome of *Curcuma caesia* Roxb. from South India" *Journal of Essential Oil Bearing Plants* 2014, 7(14): 647- 651.
- Saranya AR, **Mukunthan KS**, Dinesh P, Ramanathan T. "Molecular docking and binding studies of bioactive compounds from elite coastal flora on their interaction with cyclooxygenase-2 and 5-lipoxygenase protein: a search for novel anti inflammatory drug" *World Journal of Pharmaceutical Sciences*, 2014 2(9): 1129-1133.
- Balaji S, **Mukunthan KS**, Kannan N." Bio-Nanomaterials: Structure and Assembly" *Reviews in Advanced Sciences and Engineering*, 2014, 3(3): 250-260.
- **Mukunthan KS**, Balaji S."Cashew apple juice (*Anacardium occidentale* L.) speeds up the synthesis of silver nanoparticles" *International Journal of Green Nanotechnology: Physics and Chemistry* 2012, 4(2): 71-79.

- **Mukunthan KS**, Balaji S.”Silver nanoparticles shoot up from the root of *Daucus carrota* (L.)” International Journal of Green Nanotechnology: Physics and Chemistry 2012, 4(1): 54-61.
- Kannan N, **Mukunthan KS**, Balaji S. “A comparative study of morphology, reactivity and stability of synthesized silver nanoparticles using *Bacillus subtilis* and *Catharanthus roseus* (L.) G. Don” Colloids and Surfaces B: Biointerfaces Colloids Surf B Biointerfaces 2011, 86(2): 378-383.
- **Mukunthan KS**, Elumalai EK, Trupti N Patel, Ramachandra Murty V.” *Catharanthus roseus*: a natural source for the synthesis of silver nanoparticles” Asian Pacific Journal of Tropical Biomedicine 2011, 1(4): 270–274.

Grants

- “Development and characterization of a novel superhydrophobic material” Seed Money grant ₹50,000, MAHE (2021-2023).
- “Finding fresh antimicrobial targets using biochemical pathway analysis and inhibition studies using volatile compounds” Seed Money grant ₹25,000, MAHE(2021-2023).

Conference Presentations

- **Mukunthan KS**, Patel TN, “Black Turmeric Database (BTdb): A database of natural compounds from *Curcuma caesia* Roxb” in International Conference on Advances in Science and Engineering, January 2017 at Regent’s International college, Bangkok, Thailand.
- **Mukunthan KS**, Nikita Joy, “*In silico* approach: Pattern prediction and geometry analysis from silver-binding proteins” in International Conference on Recent Trends in Engineering and Material Sciences, March 2016 at Jaipur National University, Jaipur, India.
- **Mukunthan KS**, Patel TN, “*In vitro* Antiproliferative Activities of Hexane Extract From Black Herb *Curcuma Caesia* Roxb” in International Conference Program International Conference on Chemical, Environmental and Biological Sciences, March 2015 at Dubai (UAE).
- **Mukunthan KS**, “Identification of lead molecules of natural origin: *In silico* screening and activity prediction” in 2nd IITM- Tokyo Tech Joint Symposium on Techniques and applications of bioinformatics, September 2013 at IIT Madras.
- **Mukunthan KS**, Sanovar B, Shefali N “Studies on biochemical and phytochemical investigation of cashew apple juice (*Anacardium occidentale* L.)” in International Conference on Bioenergy, Environment and Sustainable Technologies, January 2013 at Arunai Engineering College, Thiruannamalai.
- **Mukunthan KS** “Synthesis and characterization of silver nanoparticles by the tap root of *Daucus carrota* (L.)” in International Conference on Recent Advances in Materials and Processing, December 2011 at PSG College of Technology, Coimbatore, India
- **Mukunthan KS**, “Synthesis, characterization and antibacterial activity of silver nanoparticles from selected plants of *Apiaceae*, *Anacardiaceae* and *Apocynaceae* family” in Medicinal chemistry conference, September 2011 at Indian Institute of Technology, Madras.

- **Mukunthan KS**, Shankar HMS, “Protein level characterization of *phosphoenolpyruvate carboxylase* from *Sesuvium portulacastrum* L.” in International Conference on Emerging Trends in Biotechnology, December 2009 at BHU, Varanasi.
- **Mukunthan KS**, Shankar HMS, “Isolation and characterization of *phosphoenolpyruvate carboxylase* from sodium chloride treated halophyte, *Sesuvium portulacastrum* L.” in International Conference on Biotechnological Solution for Environmental Sustainability, September 2009 at Vellore Institute of Technology, Vellore, India

Book Contribution

- Dhanasekaran S, Muralikandhan K, **Mukunthan KS**, ”*Engineering Economics*” Scitech Publications, August 2010 ISBN: 9788183713443.

Membership

- Lifetime member in Indian Society for Technical Education.
- Lifetime member in Material Research Society of India.

Language Fluent in English, Tamil and Kannada

Personal Drawing, Photography and Theater

Interests Reading management literature, Investment, Innovation and Leadership