

Dr. M.K.Kalaivani

Scientist

Research Centre for Cellular Genomics
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Personal Summary

- Technically astute, dynamic and highly focused person with extensive exposure to modern scientific technologies and broad set of scientific analytic skills.
- Consistently strive to create a motivational and engaging learning environment for students which help students to achieve their own passion.

Education

Name and address of Institution/College	University/ Board	Degree	Specialization	Year of Passing
Faculty of Biomedical Sciences technology and Research	Sri Ramachandra Institute of Higher Education and Research	Ph.D.	Medicinal plant and Nephrology	2019
School of Biotechnology and Genetic Engineering	Bharathiyar University	M.Sc.	Industrial Biotechnology	2010
Prince Shri venkateshwara Arts and Science College	Madras University	B.Sc.	Biotechnology	2008

Ph.D Thesis title: “Ameliorative effect of *Boerhavia diffusa* against Calcineurin Inhibitors induced Nephrotoxicity”

Research Experience

May 2020 to till date working as a Junior Scientist in Sree Balaji Medical College and Hospital, Chennai, India.

- Technical team coordinator in Molecular Diagnostics Laboratory
- Operational faculty for conducting project works as consultancy services
- Editor for two in-house journal
- Resource person for PanBiocon conference and RESNATCON conference.
- Handling classes for AHS students.

December 2018 to March 2020 working as Research Executive in CisGEN Biotech Discoveries Pvt Ltd, Chennai, India.

- Adaptation of virus in insect and canine cell lines
 - Expression, isolation and purification of recombinant protein from Baculovirus infected in SF-9 insect line.
 - Antigenic preparation from the isolated viral protein and Immunizing the chicken
 - Isolation and purification of IgY from immunized chicken
 - Isolation, identification and molecular characterization of probiotic organisms and large scale production for commercial purpose.
 - Cloning
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From June 2010 to November 2018 worked as Doctoral Research Scholar in the Department of Biomedical Sciences at Sri Ramachandra Institute of Higher Education and Research, Chennai, India.

Cell culture Experience: Expertise in the field of cell culture and development of primary cell culture system from human and rabbit. Maintenance of various mammalian cell lines including MDCK, U373MG, 3T3-L1, LLCPK1, MCF-7, A459, MDA-MB-231, HT-29.

Molecular Biology: Isolation of DNA, RNA and proteins from various tissues; PCR and western blotting.

Flow cytometry: Analysis and interpretation of flow cytometry for cell cycle analysis, studying the different levels of apoptosis, ROS measurement and detection of mitochondrial membrane potential.

Biochemistry: Estimation of various antioxidant enzymes (Conventional method) such as total protein, SOD, Catalase, Glutathione reduced (GSH), Glutathione peroxidase (GPx).

Phytochemistry: Isolation of phyto compounds from plant extracts using column chromatography. Thin layer chromatography.

SOP procedure preparation for the cell culture laboratory, Molecular biology and Microbiology labs.

Teaching experiences

- Experience in teaching field for the following subjects medical physiology, endocrinology, microbiology, tissue engineering and biochemistry.

- Experience in research assistance for various projects including summer research fellowship, value added courses and UG/PG final year projects.
- Experience in **NEET coaching** for past three years.
- **Mentored Undergraduate and Post graduate students in Department of Biomedical Sciences for the following projects**

Anticancer activity of *Pedaliium murex* against lung cancer cell line A549 (UG Summer research fellowship)

Anticancer activity of *Croton bonplandianum* against lung cancer cell line A549 (M.Sc., Project Dissertation)

Alpha amylase activity of ethanolic extract of *Croton bonplandianum* (UG Summer research fellowship).

Anti-hyperglycemic and antioxidant potential of *Croton bonplandianus*. Bail fractions(UG Summer research fellowship).

Nephroprotective activity of ferulic acid against cyclosporine induced nephrotoxicity in MDCK cell lines (PG Internship).

Computer Skills

MsOffice suite, Graph pad prism, Mendeley, Chems sketch, Endnote.

Research Guidance

S.No	Degree	No. of Students
1	UG	1
2	Ph.D	3

Ongoing Projects

S.No	Project Title	Funding Agency	Amount
Principal Investigator			
1	Human Ace-2 Receptor polymorphism based predictions on SARS-Cov2 susceptiblity in Chennai population – An in-vitro approach	BIHER	2,00,000/-
Co-Investigator			
2	A study on the association of transluminal diameter of coronary	BIHER	2,00,000/-

	arteries and cardiovascular risk factors with the Single Nucleotide Polymorphism of FTO gene.		
3	Role of Gut microbiota on the Pathophysiology of Type II diabetes in obese patients	BIHER	2,00,000/-

Seminars and Publications

PAPER PUBLICATION

1. Sumathy.Arockiasamy, Vinu.Ramachandran, **Kalaivani.M.Kuppuswamy**. Antiproliferative activity of methanolic fruit extract of *Pedaliium murex* Linn against Lung Cancer Cell Line A549. Journal of Pharmacy Research 2012, 5(5), 2861-2866. **Cited by: 8**
2. **Kalaivani.M.Kuppuswamy**, Bhavana jonnalagadda and Sumathy Arockiasamy. GC-MS analysis of chloroform extract of *croton bonplandianum*. Int J Pharm Bio Sci 2013 Oct; (4): (P) 613-617. **Cited by: 50**
3. G.Keerthana, **M.K. Kalaivani**, A.Sumathy. *In-Vitro* alpha amylase inhibitory and anti-oxidant activities of ethanolic leaf extract of *Croton bonplandianum*. Asian J Pharm Clin Res, Vol 6, Suppl 4, 2013, 32-36 (IF-0.655). **Cited by: 76**
4. **M.K.Kalaivani**, P.Soundararajan, Hannah. R. Vasanthi, A. Sumathy. In-Vitro nephroprotective role of ethanolic root extract of *B.diffusa* against cisplatin-induced nephrotoxicity. International journal of phytomedicine 7 (2015), 388-395. **Cited by: 5**
5. Bhavana J, **Kalaivani M.K** and Sumathy A. Cytotoxic and pro-apoptotic activities of leaf extract of *Croton bonplandianus* Bail. Against lung cancer cell line A549. Indian Journal of Experimental Biology. Vol. 54, June 2016, pp. 379-385 (IF-0.934). **Cited by: 25**
6. Uma Dharshini Karuppiah Vijayamuthuramalingam, Rajeswari Rajaram, **Kalaivani Madhavaram Kuppusamy**, Bhavana Jonnalagadda, Sumathy Arokiasamy. Anti-hyperglycemic and antioxidant potential of *Croton bonplandianus*. *Bail* fractions in correlation with polyphenol content. Iranian journal of basic medical sciences. Vol.20 (12), 2017, 1390 (IF-2.532). **Cited by: 10**
7. **M. K. Kalaivani**, Sumathy Arockiasamy, Cordelia John, Hannah Rachel Vasanthi1, P. Soundararajan. Therapeutic Potential of *Boerhaviadiffusa* L. against Cyclosporine A-Induced Mitochondrial Dysfunction and Apoptosis in Madin–Darby Canine Kidney Cells. Pharmacognosy magazine. Vol. 14 (55), 2018, 132-140 (IF-1.31). **Cited by: 4**
8. **MK, Kalaivani.**, John, C., Jonnalagadda, B., Kesavan, A., & Arockiasamy, S. (2021). Attenuation of tacrolimus induced oxidative stress, mitochondrial damage, and cell cycle

arrest by Boerhavia diffusa root fraction in mdck cell lines. *Iranian Journal of Basic Medical Sciences*, 24(8), 1087-1097. (IF-2.532)

9. **Kalaivani MK**, Dinakar S. Association between D-dimer levels and post-acute sequelae of SARS-CoV-2 in patients from a tertiary care center. *Biomarkers in Medicine*. 2022 Aug;16(11):833-8. (IF-2.05) **Cited by: 4**
10. Elumalai P, Muninathan N, Megalatha ST, Suresh A, Kumar KS, Jhansi N, **Kalaivani MK**, Krishnamoorthy G. An Insight into anticancer effect of propolis and its constituents: A review of molecular mechanisms. *Evidence-Based Complementary and Alternative Medicine*. 2022 Jun 17;2022. **Cited by: 24**
11. Aizel sherief. P Mymoonah Risha, Chitralkha saikumar, **Kalaivani MK**. Prevalence of ESBL resistant genes in the Proteus samples isolated from tertiary care center. *NeuroQuantology*. 2022; 20(10) 6982-6987.
12. Senthilnathan Govindaraj, Kilivelu Ganesan,* Mahendiran Dharmasivam, Lakshmisundaram Raman, **Kalaivani M. Kuppusamy**, Viswanathan Pandiappan, Mohammed Mujahid Alam, and Amanullah Mohammed. Discovery of Novel Dimeric Pyridinium Bromide Analogues Inhibits Cancer Cell Growth by Activating Caspases and Downregulating Bcl-2 Protein. *ACS Omega*.

Total no. of papers	Cumulative IF	Total citations	H index	I 10 index
12	16.404	208	6	5

<https://scholar.google.com/citations?user=Qsx1qhoAAAAJ&hl=en>

Books/Chapters:

Book Name	Chapter title	Publisher	Year
Algae materials Applications Benefitting Health	Genetic engineering of Algae materials	Elsevier	2023
Haematococcus: Cultivation, Biochemistry and Biomedical applications	Lipids, Lipidomics, and Biosurfactants of Haematococcus	Springer Nature	

Editorial Board Member

Editor in 2 two in-house journals: Sree Balaji Journal of Biomedical Sciences and Sree Balaji Journal of medical Sciences.

ORAL PRESENTATION

- **M.K.Kalaivani**, Dr. J. Angayarkanni. “Production optimization and characterization of pterindeaminase from *Micrococcus luteus*” in the National level seminar “Biogalaxia 11” held on 14th October 2011 in Bharathiar University, Coimbatore.
- **M.K.Kalaivani**, J. Bhavana, Dr. A. Sumathy. “Anticancer activity of *Croton bonplandianum* against lung cancer cell line A549” in the national seminar on “Phytochemical as Therapeutics” held on 24th and 25th February 2012 organized by the Department of Medical Biochemistry, University of Madras.
- **M.K.Kalaivani**, Dr. A. Sumathy. “Attenuation of intrinsic apoptotic pathway in tacrolimus induced nephrotoxicity by *Boerhaaviadiffusain* MDCK cell line” in the national seminar BRCP-2017 held at Meenakshi College for Women in 30th & 31st January, 2017.
- **M.K.Kalaivani**, Dr. A. Sumathy. “Therapeutic effect of *B.diffusa* against Calcineurin inhibitors induced nephrotoxicity” in the 160th year post-centenary Diamond Jubilee celebrations on The international conference on Nutraceuticals- Concepts & Applications in Diseases on 16th February 2018 held at Department of Biochemistry, Madras University. **(Best Paper Presentation Award)**.
- **Kalaivani M.K1***, Rachel.K, Kezia Ann Varghese, Pujithaa. S. “Antimicrobial activity of ethylacetate extract of *Rosa chinensis* against the ESBL resistant Gram negative Enterobacteriaceae” in the 4th National-Evidence Based Medicine & Clinical Research Conference held on 3rd and 4th February, 2023 organized by the Department of Clinical Pharmacology, SRM Medical College Hospital & Research Centre, Chennai, Tamilnadu.

POSTER PRESENTATION

- **M.K.Kalaivani**, Dr. A. Sumathy, Dr. Hannah R Vasanthi, Dr. P. Soundararajan. “*In-vitro* antioxidant and nephroprotective role of *Boerhaaviadiffusa* against cisplatin induced nephrotoxicity” in the Third International Seminar on Sustainable Utilization of Tropical Plant Biomass Through Biotechnology (SUPBT 2012), organized by K.V.M. college of Engineering & Information Technology. (Impact factor:
- **M.K.Kalaivani**, Dr. A. Sumathy, Dr. Hannah R Vasanthi, Dr. P. Soundararajan. “Protective Effect of *Boerhaavia diffusa* ethanolic Root Extract Against Cisplatin & Tacrolimus Induced Nephrotoxicity” in the 9th National Research Scholars Meet- 2013 held at Advanced Centre for Treatment, Research and Education in Cancer (ACTREC).

- **M.K.Kalaivani**, Dr. A. Sumathy, Dr. Hannah R Vasanthi, Dr. P. Soundararajan. “Nephroprotective role of *Boerhaavia diffusa* root against FK506 induced Nephrotoxicity” in the 34th annual conference of IABMS and National symposium on “Role of Natural Resource in Health care”, held at Dr. ALM Post Graduate Institute of Basic Medical Sciences, University of Madras, Taramani campus (**Best poster presentation award**).
- **M.K.Kalaivani**, Dr. A. Sumathy, Dr. Hannah R Vasanthi, Dr. P. Soundararajan. “Protective effect of *Boerhaavia diffusa* against Cyclosporine induced nephrotoxicity” in the 4th Indian Academy of Biomedical Sciences Conference-2015 (IABS-2015) held at CSIR-IICT auditorium ,Tarnaka, Hyderabad.
- **Kalaivani MK**, Pujithaa Singaravelu , Kamali V, Zioni Sangeetha. Prevalence of ESBL resistance genes bla TEM , bla SHV and bla CTX-M in the clinical isolates of K.pneumonia in the “Indo-USA International Conference on Applications of Nanotechnology in Biology, Biotechnology and Biopharmaceuticals (ICNB3)” held on 11th and 12th August, 2022 organized by School of Life Sciences, B.S. Abdur Rahman Crescent Institute of Science & Technology in association with University of Missouri, USA,

WORKSHOP ATTENDED

- Participated in ‘Advanced GCP workshop’ conducted by SRU-Pfizer organized by Sri Ramachandra University from November 26th& 27th , 2011.
- Participated in National level workshop on ‘Techniques in Bioactive Metabolites from Marine and other Bioresources’ organized by AMET university from December 12th – 16th, 2011.
- Participated in National level workshop on ‘Quality sustenance in Research Publications’ organized by IQAC, Sri Ramachandra University on June 4th&5th , 2012.
- Participated in ‘14thIndo-US flow cytometry workshop’ conducted by Sri Ramachandra University from October 28th to 30th, 2013.

WORKSHOP CONDUCTED

- Organizing committee member for “RESNATCON 2021 A National Conference on Research in Various Domains” conducted by School of Allied Health Sciences, Sree Balaji Medical College and Hospital
- Delivered a guest lecture and resource person in the preconference workshop on the Essentials of Molecular Biology Techniques for Clinicians organized by Department of Anatomy, Physiology and Biochemistry, Sree Balaji Medical College and Hospital, on 25th and 26th June 2021.
- Organized an Online workshop on “Virtual summer internship in microbiology by Department of Research & Development Wing on 7th to 11th June 2021.

References:

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Personal details

Husband's Name : Selvaraj Siva kumar
Date of Birth : 03-12-1986
Nationality : Indian
Address : No.10, Durairaj street, Gandhi Nagar, Nagelkeni, Chennai 44.

I hereby declare that the above-mentioned details are true to the best of my knowledge.


(M.K.Kalaivani)