



Dr. S.KANNAN, *Ph.D.(Zool.), Ph.D.(Biotechnol.)*

Professor and Head
Department of Zoology
PERIYAR UNIVERSITY
SALEM -636011, Tamil Nadu, INDIA

GROUP LEADER

PROTEOMICS AND MOLECULAR CELL PHYSIOLOGY GROUP

The Proteomics and Molecular Cell Physiology Group has a wealth of experience in animal cell culture, protein expression and characterization in prokaryotic (E. coli bacteria and eukaryotic (cancer cell line) cells. Further our group conduct research to synthesize and manipulate biocompatibility of nanoparticles like silver, ORMOSIL and mesoporous silica nanoparticles towards the development of gene delivery as well as anticancer drug delivery systems. Our activity leads to the development of novel anticancer agents and proteomic characterization of lung, colorectal and breast cancer in collaboration with Industries and Hospitals.

Study of Zoology with specialization in Biotechnology and Microbiology in 1992 (B.Sc.) **M.Sc., Zoology** (1994–Distinction with II Rank). **PhD (Zoology)** - Chemistry of mammalian pheromone) in 1998, one more **Ph.D in Biotechnology** (Cloning and Characterization of Vomero-nasal receptor type 2x of mouse) in 2012. Post Doctoral Fellow/ Visiting Researcher in the Molecular Microbiology/ Institute of Membrane Biology Divisions of **University of Birmingham, University of Leeds, University of Hertfordshire, Indian Institute of Science** (MRDG). Prof. Kannan discharged his duty as Head of the Department of Microbiology/ Biotechnology and Bioinformatics at ANJA College, Sivakasi

(2002 -2008) and Group Leader of Proteomics and Molecular Cell Physiology Lab at Bharathiar University, Coimbatore (2009-Till July 2013). Currently, Kannan is the **Professor and Head** in the Department of Zoology at Periyar University, Salem. His research interests concern the Proteomes of cell cycle check points and molecular analysis of tumour suppressor and onco-proteins /genes with special attention on breast, colorectal and lung carcinomas. The research presently focuses on the establishment of RNAi Technology against COX2, E2F3 factor and cPLA2alpha expression in cancer cell lines namely, MCF7, HepG2, A549, ZR751 and also showing keen interest on development of nanoparticle dependent gene/onco- drug delivery system and development of gene therapy against cancer in vitro as well as in vivo. For the Identification of proteins from exogenous sources that regulate cell cycle in animal cells. He has received a number of awards and Fellowships, such as, CSIR-SRF (1996-1998), SLET (1997), DST-Young Scientist Scheme (2000-2003), the DBT Overseas Associateship Award (2005-2006).

MEMBERSHIPS

Academic Council Member – Periyar University
Chairman – Board of Studies in Zoology Periyar University
Member – Board of Studies in Environmental Sciences, Madurai Kamaraj University, Madurai
Member – Board of Studies in Zoology, Bharathiar University, Coimbatore
Member Board of Studies in Biotechnology, Sri Kaliswari College, Sivakasi
Member Board of Studies in Zoology, Saradha College, Salem
Main Nominee – CPCSEA Sangaralingam Boovaneswari College, Sivakasi
Life member in the Society for Biological Chemists, India, Society for Experimental Zoology, India,
Life member in Society for Cell Biology, India,
Life member in Ethnological Society of India,
Life member in Society for Comparative Endocrinology and Reproductive Biology and
Life member in Association of Microbiology India (AMI).
Academic Council of Vivekanadha College of Arts and Science, Thiruchengode
Reviewer in **Elsevier Journals**: Nanomedicine, J of Nutrition and Process Biochem. Reviewer in **Springer Journals**: Cancer Nano., Nanoscale Research lett., and Journal of Nanoparticle Research.
J of Mol. Biol Reports
Reviewer in British Journal of Pharmaceutical Research; British J of Cancer
Reviewer in PLoS One.

ON GOING PROJECTS

1. DST- NANOMISSION PROJECT : Studies on Development of ORMOSIL nanoparticles based gene transfer system: An innovative approach in Breast Cancer gene therapy (2011 -2015) (Rs. 60.76 Lakhs)

2. **Completed Projects:** DST-YS: 1; DBT-OA : 1; UGC MRP-2; UGC Minor Project: 1

3. **Seminar / workshop/ Conferences Organized :** National Level : 9; International Level : 5

EXPERIENCE IN

- (a) **Teaching: 17 years**
- (b) **Research: 18 Years (15 years research in Biochemistry Of mammalian Pheromones; 12 years in Cancer Proteomics)**
- (c) **No. of Ph.D Produced: 6 (Awarded) 4 (Submitted) in Progress : 5**
- (d) **No. of M.Phil Guided: 27 (Awarded)**

SELECTED RESEARCH PUBLICATIONS

1. Vivek,R., Thangam, R., NipunBabu, V., Rejeeth, C., Sivasubramanian, S., Gunasekaran, P., Muthuchelian, K., **Kannan, S.**, 2014. Multifunctional HER2-Antibody Conjugated Polymeric Nanocarrier Based Drug Delivery System for Multidrug-Resistant Breast Cancer Therapy. *ACS Applied Materials & Interfaces*. (Accepted: **I.F. 5.008**)
2. Thangam, R, Suresh, V, Poongodi, A, Sathuvan, M, Vignesh Karthick, S, Sri Ragavi, A, Pazhanichamy, K, Sivasubramanian, S, Ganesan, N, Rengasamy, R, **Kannan, S.** 2014. Activation of intrinsic apoptotic signaling pathway in cancer cells by *Cymbopogon citratus* polysaccharide fractions. *Carbohydrate Polymers*, 138-150. (**I. F. 3.479**).
3. Sundarraj, S, Thangam, R, Sujitha, M.V, **Kannan, S.** 2014 Ligand-conjugated mesoporous silica nanorattles based enzyme targeted prodrug delivery system for effective lung cancer therapy. *Toxicology and Applied Pharmacology*, 275, 232-243 (**I. F. 3.975**).
4. R. Vivek, V. Nipun Babu, R. Thangam, K.S. Subramanian, **S. Kannan.** 2013. pH-responsive drug delivery of chitosan nanoparticles as Tamoxifen carriers for effective anti-tumor activity in breast cancer cells. *Colloids and Surfaces B: Biointerfaces* 111: 117–123. (**Impact Factor: 3.417**).
5. M. V.Suresh, C. Anbazhagan, R. Thangam, D. Senthilkumar, N. Senthilkumar, **S. Kannan,** R.Rengasamy, P.Palani. 2013. Stabilization of mitochondrial and microsomal function of fucoidan from *Sargassum plagiophyllum* in diethylnitrosamine induced hepato carcinogenesis. *Carbohydrate Polymers*. 92:1377-1385. (**Impact Factor: 3.63**).
6. R. Thangam, V. Suresh, W.A. Princy, M. Rajkumar, N. SenthilKumar, P. Gunasekaran, R. Rengasamy, C. Anbazhagan, K. Kaveri, **S. Kannan.** 2013. C-Phycocyanin from *Oscillatoria tenuis* exhibited an antioxidant and in vitro antiproliferative activity through induction of apoptosis and G0/G1 cell cycle arrest. *Food Chem.*, 140: 262-272. (Impact Factor: 3.67).
7. M.V.Sujitha and **S.Kannan.** 2013. Green synthesis of gold nanoparticles using Citrus fruits aqueous extract and its characterization. *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*. 102:15-23. (**Impact Factor: 2.09**).
8. V.Nipun Babu and **S.Kannan,** 2012. Enhanced delivery of baicalein using cinnamaldehyde cross-linked chitosan nanoparticle inducing apoptosis. *Intl. J.Biol. Macromol.*, **51**: 1103-1108. (**Impact factor 2.54**)

9. **S. Kannan**, M.V.Sujitha, S.Sundarraaj and R.Thirumurugan, 2012. Two Dimensional Electrophoresis in Cancer Proteomics In: *Gel Electrophoresis- Advanced Techniques*. Edited By S. Magdeldin, Intech-Publisher, Croatia, Germany (ISBN No. 978-953-51-0457-5).
10. S. Sundarraaj, V.Sreevani, R.Thangam, P.Gunasekaran and **S. Kannan** 2012. γ -Sitosterol from *Acacia nilotica* induces G2/M cell cycle arrest and apoptosis through c-Myc suppression in MCF-7 and A549 cells. *J. Ethnopharmacol.* 141: 803-809 (**Impact factor 3.014**)
11. S.Sundarraaj, S.Kannan, R. Thangam, P.Gunasekaran, 2012. Effect of the inhibition of cPLA2 α in Non-Small Cell Lung Cancer cells. *J.Cancer Res.Clin.Oncol.*, 138:827-835 (**Impact factor: 2.558**).
12. M.Paulpandi, S.Kannan, R.Thankgam, K.Kavery, P.Gunasekaran and C.Rejeeth, 2012 In vitro anti-viral effect of β -santalol against influenza viral replication. *Phytomedicine* 19:231-235 (**Impact factor: 3.268**).
13. R. Thangam, P.Gunasekaran, K.Kaveri, G.Sridevi, S.Sundarraaj, M.Paulpandi and S.Kannan. 2012. A novel disintegrin protein from *Naja naja* venom induces cytotoxicity and apoptosis in human cancer cell lines *in vitro*. *Proc. Biochem.*, 47: 1243-1249. (**Impact factor: 2.45**).
14. **S. Kannan**, P. Mareeswaran, M.Krishnan, S. Achiraman, Neil Spencer, B. Florence Nitingel 2011, Properties of mouse vomeronasal receptor and assessment of its role in pheromone signaling. *Rapid Communication in Mass Spectrometry* 25: 1-9. (**Impact Factor: 2.73**).
15. S.Achiraman, G.Archunan, P.Ponmanickam, K.Rameshkumar, **S.Kannan** and G.John, 2010. 1-Iodo-2Methylundecane [1I2MU]: An estrogen dependent urinary sex pheromone of female mice. *Theriogenology* 74: 345-353. (**Impact Factor: 2.19**).
16. Tarvinder K. Taneja, Jamel Mankouri, Karnick Rucha, **Soundarapandian Kannan**, Andrew J. Smith, Tim Munsey, Henrik B.T. Christesen, David J. Beech and Asipu Sivaprasadarao. 2009, A genetic mutation in KCNJ11 causes congenital hyperinsulinism by blocking Sar1-GTPase dependent ER excit of KATP channels. *Human Molecular Genetics* 18: 2400-2413 (**Impact Factor : 7.85**).

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