

**Prof. Dr. DURAIRAJ SEKAR**

**Ph.D (University of Camerino, Italy)**



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Dr.Durairaj Sekar Ph.D

Professor (Research)

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Project Investigator (DST, ICMR).

### **Educational Qualification**

1. **PhD (Doctorate) in Ageing and Nutrition** (DNA damage and Repair) qualified in the year 2011 at University of Camerino, Italy.
2. **Master of Science in Genomics** qualified in the year 2004 at Centre for Excellence in Genomic Sciences, Madurai Kamaraj University, Madurai, India.
3. **Bachelor Degree in Agricultural Sciences** qualified in the Year 2002 at Tamilnadu Agricultural University, Coimbatore, India.

### **Previous Positions and Responsibility**

1. **Associate Professor:** Research Cell, Saveetha Institute of Medical and Technical Sciences, Chennai, India. 2018-2020.
2. **Assistant Professor:** PG studies and Research, Kristu Jayanti College, Bengaluru, India. 2017-2018.

3. **Assistant Professor cum Research Convener:** Department of Biotechnology, REVA University, Bengaluru, India. 2016-2017.
4. **Scientist:** Narayana Medical College and Hospitals, Nellore, India. 2014-2015
5. **Post-Doctoral Researcher:** International Centre for Genetic Engineering and Biotechnology (UN Institute), Cape Town. South Africa. 2011-2014.
6. **Lecturer:** Department of Biotechnology, Indira Gandhi College of Arts and Sciences, Pondicherry University, Pondicherry, India. 2004-2007

### **On-going Research**

1. Role of miRNAs in the treatment of Hypertension
2. Theragnostic role of miRNAs in Preeclampsia
3. Diagnostic/prognostic role of miRNAs in non-communicable diseases

MicroRNAs or circulatory microRNAs (miRNAs) are short non-coding RNAs, considered to be trivial markers for many non-communicable diseases. It is easily detectable in all kinds of body fluids including saliva and it has been proven that miRNAs are upregulated in many disease situations and are believed to be involved in the pathogenesis and progression. Interestingly, much literature summarized that miRNAs may be useful as prognostic, diagnostic biomarkers and therapeutic targets for hypertension and various types of cancer. Our lab is focusing on miRNAs biology and its signaling pathways in the treatment of hypertension and other non-communicable diseases. We developed a hypertensive animal model to test various small RNAs and used Anti-miRs as miRNAs inhibitors to suppress the elevated miRNAs and reduce the disease progression.

### **Funded Research**

Name of the funding Agency	Title of the work	Amount Received (Rupees)	Status of the Project
DST-ICPS (2017-2019)	Cancer classification using gene expression data	40 Lakhs	Completed

ICMR-EMR (2019-2022)	Anti-miR Technology in the treatment of Hypertension	30 Lakhs	On-going
ICMR- Non-communicable diseases (NCD) (2022- 2025)	Anti-miR Technology in the treatment of Preeclampsia	50 Lakhs	On-going

### **Key Nature Group and High impact Publications**

1. Preethi, K. A., Selvakumar, S. C., Ross, K., Jayaraman, S., Tusubira, D., & Sekar, D. (2022). Liquid biopsy: Exosomal microRNAs as novel diagnostic and prognostic biomarkers in cancer. *Molecular cancer*, 21(1), 54. <https://doi.org/10.1186/s12943-022-01525-9>. IF: 27.4
2. Sekar D, K AP. Letter to the Editor: H19 Promotes HCC Bone Metastasis by Reducing Osteoprotegerin Expression in a PPP1CA/p38MAPK-Dependent Manner and Sponging miR-200b-3p. *Hepatology*. 2021 Sep; 74(3):1713. doi: 10.1002/hep.31719. Epub 2021 Jun 15. PMID: 33459398. IF: 17.42.
3. Pაცეც, J. D., Duncan, K., Sekar, D., Correa, R. G., Wang, Y., Gu, X., Bashin, M., Chibale, K., Libermann, T. A., & Zerbini, L. F. (2019). Dihydroartemisinin inhibits prostate cancer via JARID2/miR-7/miR-34a-dependent downregulation of Axl. *Oncogenesis*, 8(3), 14. <https://doi.org/10.1038/s41389-019-0122-6>. IF: 7.4
4. Sekar, D., Lakshmanan, G., Mani, P., & Biruntha, M. (2019). Methylation-dependent circulating microRNA 510 in preeclampsia patients. *Hypertension research: official journal of the Japanese Society of Hypertension*, 42(10), 1647–1648. <https://doi.org/10.1038/s41440-019-0269-8>. IF: 3.87
5. Krishnan, R., Mani, P., Sivakumar, P., Gopinath, V., & Sekar, D. (2017). Expression and methylation of circulating microRNA-510 in essential hypertension. *Hypertension research: official journal of the Japanese Society of Hypertension*, 40(4), 361–363. <https://doi.org/10.1038/hr.2016.147>. IF: 3.87.
6. Bai, L., Li, J., Panagal, M., M, B., & Sekar, D. (2019). Methylation dependent microRNA 1285-5p and sterol carrier proteins 2 in type 2 diabetes mellitus. *Artificial cells, nanomedicine, and biotechnology*, 47(1), 3417–3422. <https://doi.org/10.1080/21691401.2019.1652625>. IF: 5.6
7. Sekar D. (2022). Circulatory microRNAs inhibition and its signaling pathways in the treatment of oral squamous cell carcinoma (OSCC). *Oral oncology*, 126, 105763. Advance online publication. <https://doi.org/10.1016/j.oraloncology.2022.105763>. IF: 5.3
8. Saravanan, S., Thiruganasambantham, K., Hanieh, H., Karikalan, K., Sekar, D., Rajagopalan, R., & Hairul Islam, V. I. (2015). miRNA-24 and miRNA-466i-5p controls

- inflammation in rat hepatocytes. *Cellular & molecular immunology*, 12(1), 113–115. <https://doi.org/10.1038/cmi.2014.67>. IF: 10.1.
9. Bibby, G., Krasniqi, B., Reddy, I., Sekar, D., & Ross, K. (2021). Capturing the RNA castle: Exploiting MicroRNA inhibition for wound healing. *The FEBS journal*, 10.1111/febs.16160. Advance online publication. <https://doi.org/10.1111/febs.16160>. IF:5.5
  10. Preethi, K. A., Lakshmanan, G., & Sekar, D. (2021). Antagomir technology in the treatment of different types of cancer. *Epigenomics*, 13(7), 481–484. <https://doi.org/10.2217/epi-2020-0439>. IF: 4.9.
  11. Johnson, J., Lakshmanan, G., M, B., R M, V., Kalimuthu, K., & Sekar, D. (2020). Computational identification of MiRNA-7110 from pulmonary arterial hypertension (PAH) ESTs: a new microRNA that links diabetes and PAH. *Hypertension research : official journal of the Japanese Society of Hypertension*, 43(4), 360–362. <https://doi.org/10.1038/s41440-019-0369-5>. IF: 3.87.
  12. Sekar, D., Mani, P., Biruntha, M., Sivagurunathan, P., & Karthigeyan, M. (2019). Dissecting the functional role of microRNA 21 in osteosarcoma. *Cancer gene therapy*, 26(7-8), 179–182. <https://doi.org/10.1038/s41417-019-0092-z>. IF: 5.9.
  13. Sekar, D., Shilpa, B. R., & Das, A. J. (2017). Relevance of microRNA 21 in Different Types of Hypertension. *Current hypertension reports*, 19(7), 57. <https://doi.org/10.1007/s11906-017-0752-z>. IF: 5.3.
  14. Rajkumar, K. V., Lakshmanan, G., & Sekar, D. (2020). Identification of miR-802-5p and its involvement in type 2 diabetes mellitus. *World journal of diabetes*, 11(12), 567–571. <https://doi.org/10.4239/wjd.v11.i12.567>. IF: 3.76.
  15. Krishnan, R., Sekar, D., Karunanithy, S., & Subramaniam, S. (2016). Association of angiotensin converting enzyme gene insertion/deletion polymorphism with essential hypertension in south Indian population. *Genes & diseases*, 3(2), 159–163. <https://doi.org/10.1016/j.gendis.2016.03.001>. IF: 7.1

## **Book Publication**

### **1. Methylation Dependant microRNA-663 in prostate cancer Progression.**

Durairaj sekar, Geetha Subramanian, Karthikeyan Ravichandran and Srinivasan Devanathan – **Chemical biochemical and Microbial world** (Neoperspective), TNBH publishers, 2014- ISBN 978-81-7511-051-9.

### **2. The role of diverse nanoparticles in oxidative stress: In vitro and in vivo studies.**

Rajeshkumar, S., Sekar, D., Ezhilarasan, D., Lakshmi, T. Role of Oxidative Stress in Pathophysiology of Diseases, 2020, pp. 27-48.

## **Fellowships and Awards**

1. Paul Dudley white International scholar award for best abstract from India 2021 AHA Hypertension conference.
2. International Center for genetic Engineering and Biotechnology (ICGEB) grants for Post-Doctoral fellow 2011 -2013 (Completed).
3. International doctoral grants from Ministry of Italy and University of Camerino 2008-2011 (Completed).
4. International Center for genetic Engineering and Biotechnology (ICGEB) alumni project grants for young scientist 2015-2016 (Completed).
5. Best faculty award (2019) from Saveetha University, Chennai, India.
6. Best Research Grant (2019) from Saveetha University, Chennai, India.
7. Young Scientist award given by Narayana Medical College and Hospital, Nellore, Andhra Pradesh, India (2015).

## **Professional Activity**

1. Associate Editor in the Journal of Biochemistry and Molecular Biology (JSM)
2. Associate Editor in the Journal of International journal of Cell science and Molecular Biology.
3. Editorial Board Member in the journal world journal of Gastrointestinal Oncology.
4. Reviewer in the journal of Cellular and Molecular Immunology (Nature Publication).
5. Visiting Scientist at Narayana Medical College and Hospital, Nellore, India.
6. Reviewer in the Journal of Gene Report (Elsevier)
7. Reviewer in the Journal of Human Hypertension (Nature Group)

## **References**

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