



Mahendra Seervi

Assistant Professor (DBT-IPLS program)

*PhD Biotechnology - Rajiv Gandhi Centre for Biotechnology,
Thiruvananthapuram, India*

Post doc - University of Chicago, IL, USA

University of Colorado, Boulder, CO, USA

mseervi12@gmail.com

Area of expertise/ research interest:

My research has been focused on exploring cell death mechanisms in the context of cancer and cardiac diseases and developing drug screening platforms for multidrug resistant cancers. My research interest stems out from the conviction that a comprehensive knowledge of complex cell death machinery will promote advances for new therapeutic strategies.

Cross-talk among cell death subroutines such as apoptosis, necroptosis and autophagy plays a key role in cellular homeostasis. I have a long standing interest in exploring the molecular mechanisms by which components of apoptotic, necroptotic and autophagic pathways interact and how disruptions of their interactions affect disease pathogenesis. Mapping out principal cell death signalling events activated by organelles such as mitochondria and endoplasmic reticulum will further contribute to our knowledge base and improvement in treatment modalities.

I also have a keen interest in understanding the mechanisms of drug action and resistance with the goal of improving clinical outcomes for cancer patients. My major focus will be on developing innovative high throughput compound library screening approaches to identify novel, efficient drugs with minimum toxicity to vital organ systems. Another major research aim will be to identify/validate medicinal plant extracts and bioactive molecules as anti cancer drug candidates by utilizing cell culture, preclinical animal models and to study their mechanism of action.

Publications:

1. ERO1 α dependent endoplasmic reticulum - mitochondrial calcium flux contributes for ER stress and mitochondrial permeabilisation by procaspase-activating compound (PAC-1).

Mahendra Seervi, Praveen K. Sobhan, Jeena Joseph, Krupa Ann Mathew, Santhosh Kumar T.R. – *Cell Death and Disease* 2013; 4, e968. (IF. 6.044)

2. A high-throughput image-based screen for the identification of Bax/Bak-independent caspase activators against drug-resistant cancer cells. **Mahendra Seervi**, Praveen K. Sobhan, Krupa Ann Mathew, Jeena Joseph, Prakash R. Pillai, Santhoshkumar T. R.- *Apoptosis* 2013; Nov 13. **(IF. 3.949)**
3. Essential requirement of cytochrome c release for caspase activation by procaspase activating compound defined by cellular models. **Mahendra Seervi**, Jeena Joseph, Praveen K. Sobhan, Bhavya B.C., Santhosh Kumar T.R. – *Cell Death and Disease* 2011; 2, e207. **(IF. 6.044)**
4. Calpain and Reactive Oxygen Species targets Bax for mitochondrial permeabilisation and caspase activation in Zerumbone induced apoptosis. Praveen K. Sobhan, **Mahendra Seervi**, Lokesh Deb, Saneesh Varghese, Anjana Soman, Jeena Joseph, Krupa Ann Mathew, Godi Raghu, George Thomas, Sreekumar E, Manjula, Santhoshkumar T.R. –*PLoS ONE* 2013 8(4): e59350. **(IF. 3.73)**
5. Identification of Heat Shock Protein 90 inhibitors to sensitize drug resistant side population tumor cells using a cell based assay platform. Praveen K. Sobhan, **Mahendra Seervi**, Jeena Joseph, Bhavya B.C., Saneesh Varghese, Santhosh Kumar T.R. – *Cancer Letters* 2012; 317(1):78-88. **(IF. 4.258)**
6. Immortalized functional endothelial progenitor cell lines from umbilical cord blood for vascular tissue engineering. Praveen K. Sobhan, **Mahendra Seervi**, Jeena Joseph, Saneesh Varghese, Prakash R Pillai, Divya Sivaraman, Jackson James, Roshin George, K.E. Elizabeth, Santhoshkumar T.R., M. Radhakrishna Pillai – *Tissue engineering* 2012; 18(11):890-902. **(IF. 4.065)**
7. High throughput ratio imaging to profile caspase activity: Potential application in multiparameter high content apoptosis analysis and drug screening. Jeena Joseph, **Mahendra Seervi**, Praveen K. Sobhan, Santhosh Kumar T.R.- *PLoS ONE* 2011;6(5):e20114. **(IF. 3.73)**
8. Endoplasmic reticulum targeted Bcl-2 inhibitable mitochondrial fragmentation initiates ER stress induced cell death. Bhavya B.C., Deepa I, **Mahendra Seervi**, Jeena J, Praveen K.S., Krupa A.M., Saneesh Varghese, Santhoshkumar T.R. *Adv Exp Med Biol*, 2012;749:83-95. **(IF. 1.825)**
9. Bax deficiency mediated drug resistance can be reversed by endoplasmic reticulum stress induced death signaling. Bhavya balan chandrika, Sathish Kumar Maney, Swathi U. Lekshmi, Jeena Joseph, **Mahendra Seervi**, Praveen K.S and Santhosh Kumar T.R. – *Biochemical Pharmacology*, 2010;79(11):1589-99. **(IF. 4.576)**

10. Lysosomal destabilization and cathepsin B contributes for cytochrome c release and caspase activation in embelin-induced apoptosis. Beena Joy, Rajeeve Sivadasan, Abraham T. Emilia, Mohan John, Praveen K. Sobhan, **Mahendra Seervi**, Santhosh Kumar T.R. – *Molecular carcinogenesis*, 2010;49(4):324-36. (IF.4.269)
11. Cell death signaling of aging cells: a live cell approach to visualize senescent cell fate. Praveen K Sobhan, **Mahendra Seervi**, Sathish Kumar Maney, Santhoshkumar T.R. - *J of The Indian Academy of Geriatrics*, 2010; 6, issue 4.