

VIJAYAKUMAR GOVINDARAJ

Research Associate
Dept of Inorganic and Physical Chemistry (IPC)
Indian Institute of Science (IISc)
Bengaluru - 560012 India

vijaygovindaraj@gmail.com
gvijayakumar@iisc.ac.in
Mobile: +91-9880324548

ABOUT

Experienced postdoctoral researcher with a demonstrated history of working in the areas of Cell and Molecular Biology, Ovarian aging, Neuro-endocrinology, Proteomics and Genomics.

EDUCATION

2006 - 2009	PhD in Biology, Julius Maximilian University of Würzburg, Würzburg, Germany
1999 - 2001	M. Sc. Biochemistry, University of Madras, India
1995 - 1998	B. Sc. Biochemistry, University of Madras, India

PROFESSIONAL EXPERIENCE

2016 - Present	Research Associate, Dept of IPC, Indian Institute of Science, Bengaluru, India
2010 - 2016	Research Associate, Dept of Biochemistry, Indian Institute of Science, Bengaluru, India
2006 - 2009	Research Student, Internal Medicine I, University Hospital of Würzburg, Germany
2004 - 2005	Wiss. Mitarbeiter (Researcher), IMMZ, Albert-Ludwigs-Universität, Freiburg, Germany
2002 - 2004	Project Assistant, Dept of Biochemistry, Indian Institute of Science, Bengaluru, India

PUBLICATIONS

1. **Govindaraj V**, Ungati H, Jakka SR, Bose S, Mugesh G. Directing Traffic: Halogen-Bond-Mediated Membrane Transport. **Chem Eur J**, **2019**, 25, 11180-11192.
2. Ungati H, **Govindaraj V**, Narayanan M, Mugesh G. Probing the Formation of a Seleninic Acid in Living Cells by the Fluorescence Switching of a Glutathione Peroxidase Mimetic. **Angew Chem Int Ed Engl**, **2019**, 58, 8156-8160.
3. Jakka SR, **Govindaraj V**, Mugesh G. A Single Atom Change Facilitates the Membrane Transport of Green Fluorescent Proteins in Mammalian Cells. **Angew Chem Int Ed Engl**, **2019**, 58, 7713-7717.
4. Ungati H, **Govindaraj V**, Nair CR, Mugesh G. Halogen-mediated Membrane Transport—An Efficient Strategy for the Enhancement of Cellular Uptake of Synthetic Molecules. **Chem Eur J**, **2019**, 25, 3391-3399.
5. Ungati H, **Govindaraj V**, Mugesh G. Remarkable Effect of Halogen Substitution on the Membrane Transport of Fluorescent Molecules in Living Cells. **Angew Chem Int Ed Engl**, **2018**, 57, 8989-8993.
6. **Govindaraj V**, Shridharan RN, Rao AJ. Proteomic changes during adult stage in pre-optic, hypothalamus, hippocampus and pituitary regions of female rat brain following neonatal exposure to estradiol-17 β . **Gen Comp Endocrinol**, **2018**, 266, 126-134.
7. **Govindaraj V**, Krishnagiri H, Chakraborty P, Vasudevan M, Rao A.J. Age-related changes in gene expression patterns of immature and aged rat primordial follicles. **Syst Biol Reprod Med**, **2017**, 63, 37-48.

8. **Govindaraj V**, Krishnagiri H, Chauhan MS, Rao AJ. BRCA-1 gene expression and comparative proteomic profile of primordial follicles from young and adult water buffalo (*Bubalus bubalis*) ovaries. **Anim Biotechnol**, 2016, 28, 94-103.
9. **Govindaraj V*** Rao AJ. Identification of SPTAN1 as a differentially expressed protein in the pre-optic area of neonatally estradiol-17 β treated female adult rat. **Horm Mol Biol Clin Investig**, 2016, 26, 165-172.
*Corresponding author
10. Radhika NS, Krishnagiri H, **Govindaraj V***, Sarangi SK, Rao AJ. Neonatal exposure to estradiol-17 β modulates tumour necrosis factor alpha and cyclooxygenase-2 expression in brain and also in ovaries of adult female rats. **Horm Mol Biol Clin Investig**, 2016, 25, 149-156. *Corresponding author
11. **Govindaraj V**, Rao AJ. Ovarian Aging: Possible Molecular Mechanisms with Special Emphasis on DNA Repair Gene BRCA1. **Women Health International**, 2016, 2(1), 112-115.
12. **Govindaraj V**, Rao AJ. Comparative proteomic analysis of rat primordial follicles from ovaries of immature and aged rats. **Syst Biol Reprod Med**, 2015, 61, 367-375.
13. Radhika NS, **Govindaraj V**, Sarangi SK, Rao AJ. Neonatal exposure to 17 β -estradiol down-regulates the expression of synaptogenesis related genes in selected brain regions of adult female rats. **Life Sci**, 2015, 141, 1-7.
14. **Govindaraj V**, Rajani KB, Rao AJ. Changes in the expression of DNA double strand break repair genes in primordial follicles from immature and aged rats. **Reprod BioMed Online**, 2015, 30, 303-310.
15. **Govindaraj V**, Arya SV, Rao AJ. Differential Action of Glycoprotein Hormones: Significance in Cancer Progression. **Horm Cancer**, 2014, 5(1):1-10.
16. Sidarthan NP, **Govindaraj V**, Sarkar MN, Rao AJ. Effect of silencing SLPI gene expression on differentiation of BeWo cells. **Cell Biology**, 2013, 1, 1-8.
17. **Govindaraj V**, Yaduvanshi NS, Krishnamachar H, Rao AJ. Expression of thyroid-stimulating hormone receptor, octamer-binding transcription factor 4, and intracisternal A particle-promoted polypeptide in human breast cancer tissues. **Horm Mol Biol Clin Investig**, 2012, 9, 173-178.
18. Deshpande SN, **Govindaraj V**, Rao AJ. Oestrogenic regulation and differential expression of WNT4 in the bonnet monkey and rodent epididymis. **Reprod BioMed Online**, 2009, 18, 555-561.
19. Jazbutyte V, Arias-Loza PA, Hu K, Widder J, **Govindaraj V**, von Poser-Klein C, Bauersachs J, Fritzemeier, KH, Hegele-Hartung C, Neyses L. Ligand-dependent activation of ER β lowers blood pressure and attenuates cardiac hypertrophy in ovariectomized spontaneously hypertensive rats. **Cardiovasc Res**, 2008, 77, 774-781.

BOOK/BOOK CHAPTER

Yaduvanshi NS, Deshpande SN, **Govindaraj V**, Rao AJ. **Regulation of growth and function of epididymides** (Chapter: 7). In: Mammalian Endocrinology and Male Reproductive Biology. CRC Press, Taylor & Francis group, Florida. Published on 4th September 2015. ISBN 9781498727358.

Govindaraj V, Rao AJ. **Androgens: Biosynthesis and its Regulation, Source and Blood Levels, Metabolism, Biological Actions and Clinical Aspects**. Textbook of Biochemistry, Biotechnology, Allied

And Molecular Medicine, Editors: G. P. Talwar, L. M. (4th Edition, Prentice Hall of India, Published on 01st -January-2015 ISBN: 978-81-203-5125-7).

Govindaraj V. Estrogen on impaired cardiac glucose uptake in cardiac hypertrophy. Scholars' Press, VDM Publishing, Germany. Published on 30th April 2014. ISBN-10:639714679, ISBN-13:9783639714678

TECHNICAL SKILLS

Handling and care of laboratory animals (Rats and mice) • Animal injections, Trans-cardial perfusion, brain perfusion and surgical removal of ovary (ovariectomy) • Primary cell isolation and culture: Isolation and culture of Cardio-myocytes (rat and mice), Human Umbilical Vein Endothelial Cells (HUVEC) and Human Aortic Smooth Muscle Cells (HAoSMC)) • Isolation and culture of rat, sheep and buffalo ovarian follicles • Culture and maintenance of mammalian cells lines (HepG2, HeLa, HEK293T, SHSY-5Y and HAP1 cells • In-vitro cell assay (Cytotoxicity) • Cryo embedding and sectioning of tissue samples • Immuno-histo and cytochemistry • Confocal, fluorescence, phase-contrast and bright-field microscopy • DNA and RNA Isolation, Semi-quantitative RT-PCR and Real-time quantitative PCR (qPCR) • Methylation studies based on sodium bisulfite treatment of DNA using Bisulfite-Sequencing PCR (BSP) and Methylation Specific PCR (MSP) • Two dimensional gel electrophoresis • 2D-DIGE (Differential Gel Electrophoresis), Hands on experience in data acquisition, analysis and interpretation using MALDI-TOF MS (Ultra flex III) • Peptide mass fingerprinting, Peptide protein categorization such as protein interactions and pathway analysis based on Gene Ontology (GO) using several bioinformatics tools including PANTHER, STRING and Pathway Studio®(Ariadne Genomics) etc. • Western Blotting • Radioimmunoassay (RIA) • ELISA • Plasmid preparation, ligation and transformation • Next Generation Sequencing (NGS) Data Analysis and Microarray Data Analysis.

PROFESSIONAL MEMBERSHIPS / AFFILIATIONS

Proteomic Society of India (Life Member)
Laboratory Animal Science Association of India (Life Member)
Indian Society for Cell Biology (Life Member)
Society of Biological Scientists-India (Life Member)

PROFESSIONAL SERVICES

Invited reviewer for the journal “Proteomics” (Wiley)
Invited reviewer for the journal “Hormone Molecular Biology and Clinical Investigation” (HMBCI) (De Gruyter)
Invited reviewer for the journal “Reproductive Biology” (Elsevier)

REFERENCES

References available upon request