



## Adhiraj Roy

Associate Professor and Ramalingaswami Fellow

**Specialization: Molecular Genetics, Nutrient Sensing & Signaling, Oncogenic Protein Kinases & Signaling, Exosomal miRNA, Nucleoporins & Cancer Therapeutics**

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After completing his Ph.D. degree from the George Washington University (GWU), Washington DC, USA in 2014 in biochemistry and molecular genetics, Dr. Adhiraj Roy continued his research direction as postdoctoral scientist at GWU towards understanding the molecular roles of glucose sensing and signaling pathways in solid tumors using budding yeast and prostate cancer cell lines PC3/LNCaP as model systems. He showed that methylglyoxal, a by-product of glycolysis could serve as novel therapeutic intervention against cancer in combination with glyoxalase I inhibitors. As a postdoctoral associate at University of Pittsburgh Medical Centre (UPMC), USA, Dr. Roy dedicated his research interest in deciphering the role of oncogenic protein kinase D (PKD) in castration-resistant neuroendocrine prostate cancer (NEPC). His research, for the first time, identified molecular crosstalk between PKD and oncogenic aurora A kinase as a positive driver of G2/M transition of mammalian cell cycle and cell proliferation in NEPC. He was also actively involved in other research projects such as identifying the roles of PKD/CaMKII in cerebral ischemia and dermal fibrosis. Dr. Roy published his research works in several reputed international journals such as Molecular Cancer Research, MBoC, JBC and BBA. He returned to India in 2018 and joined TCG Life Sciences Pvt. Ltd. (Chembiotek), Kolkata as senior research associate. Shortly, after receiving prestigious Ramalingaswami Re-entry Fellowship from Department of Biotechnology, Govt. of India, Dr. Roy joined AIMMSCR in 2019. His main area of research focuses on elucidating the molecular role of protein kinases, especially PKD/Protein kinase C $\alpha$  in high grade serous ovarian cancer (HGSOC) and identify novel therapeutic intervention against this deadly disease. Besides, he is also interested in dissecting the roles of nucleoporins (Nups), Phospholipase C-gamma (Plc- $\gamma$ ) and signalling pathways contributing to metabolic reprogramming in human carcinogenesis, especially neuroendocrine prostate cancer and head & neck cancer.

### Current research project:

- Research project funded by DBT-Ramalingaswami fellowship entitled “*Elucidation of the role of Protein kinase D (PKD) and PI3 kinase-Protein kinase C iota (PKCi) signaling axes in refractory ovarian cancer*”
- Research project approved by ICMR entitled “*Elucidation of the role of autophagy in regulation of exosomal miRNA in triple negative breast cancer*”

### Professional affiliation:

- Indian Association for Cancer Research (ID: LM-1046), Life Member
- Indian Society of Human Genetics (ISHG ID: L/1973/2019), Life Member
- Indian society of Cell Biology (ISCB ID: 2019014), Life Member

### Selected important publications:

1. Oncogenic potential of nucleoporins in non-hematological cancers: recent update beyond chromosome translocation and gene fusion. **Roy A\***, Narayan G. *J Cancer Res Clin Oncol.* 2019 Oct 25. 145(12), 2901-2910. Review. (IF: 3.332. **\*Corresponding author**)
2. Protein Kinase D2 Modulates Cell Cycle by Stabilizing Aurora A Kinase at Centrosomes. **Roy A**, Veroli MV, Prasad S, Wang QJ. *Mol Cancer Res.* 2018 Nov;16(11):1785-1797. doi: 10.1158/1541-7786.MCR-18-0641. Epub 2018 Jul 17. (IF: 4.484)
3. Ischemic Injury-Induced CaMKII $\delta$  and CaMKII $\gamma$  Confer Neuroprotection Through the NF- $\kappa$ B Signaling Pathway. Ye J, Das S, **Roy A**, Wei W, Huang H, Lorenz-Guertin JM, Xu Q, Jacob TC, Wang B, Sun D, Wang QJ. *Mol Neurobiol.* 2019 Mar;56(3):2123-2136. doi: 10.1007/s12035-018-1198-2. Epub 2018 Jul 11. (IF: 5.076)
4. Protein kinase D signaling in cancer: A friend or foe? **Roy A**, Ye J, Deng F, Wang QJ. *Biochim Biophys Acta Rev Cancer.* 2017 Aug;1868(1):283-294. doi: 10.1016/j.bbcan.2017.05.008. Epub 2017 May 31. Review. (IF: 6.887)
5. The glucose metabolite methylglyoxal inhibits expression of the glucose transporter genes by inactivating the cell surface glucose sensors Rgt2 and Snf3 in yeast. **Roy A**, Hashmi S, Li Z, Dement AD, Cho KH, Kim JH. *Mol Biol Cell.* 2016 Mar 1;27(5):862-71. doi: 10.1091/mbc.E15-11-0789. Epub 2016 Jan 13. (IF: 3.905)
6. The Role of the Pleckstrin Homology Domain-containing Protein CKIP-1 in Activation of p21-activated Kinase 1 (PAK1). Kim YB, Shin YJ, **Roy A**, Kim JH. *J Biol Chem.* 2015 Aug 21;290(34):21076-85. doi: 10.1074/jbc.M115.675124. Epub 2015 Jul 9. (IF: 4.106)