

Anirban Kundu, Ph.D.

Researcher V, University of Alabama at Birmingham USA

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EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE	Completion Date MM/YYYY	FIELD OF STUDY
West Bengal University of Technology, India	B.Tech	07/2006	Biotechnology
Indian Institute of Technology Kharagpur, India	M.Tech	07/2009	Biotechnology
Indian Institute of Technology Kharagpur, India	Ph.D.	11/2016	Molecular biology & Virology
University of Alabama at Birmingham, USA	Post-doctoral	08/2016 to 07-31-2021	Kidney cancer, Cancer epigenetics, Metabolomics, Signal Transduction

A. Personal Statement

Kidney cancer is among the top ten malignancies in both men and women. Despite several approved therapies, patients with advanced disease rarely have durable responses and, therefore, face a poor prognosis (median survival 2-3 years). While the average onset age of the malignancy is ~60 years in the USA, Indian population is being diagnosed at their early ages (<50 years) and surprisingly, ages <39 years have demonstrated poor survival rates (*Indian J Med Res.* 2014 Nov; 140(5): 624–629; PMID: 25579143). Despite a morbid impact of the malignancy on human life, India lacks any substantial contribution in the research on kidney cancer. Technically, no research labs in India is dedicated to Kidney cancer research.

I have been studying tumor metabolism and signaling linked to epigenetics and epitranscriptomics in kidney cancer. I am well versed to use various bioinformatics tools, and *in vitro* and *in vivo* (mouse xenograft and PDX) model systems. My long-term research goal is to find metabolic and signaling liabilities in kidney cancer that can be targeted with utmost potency using mono-or-combination therapies.

B. Positions and Honors

Professional membership

2018-2020: Associate member, American Association of Cancer Research

2019-2021: Postdoc Trainee Member, American Society for Biochemistry and Molecular Biology

2020: Research Scientist Member, American Urological Association

Awards

2021: Grant incentive award from University of Alabama at Birmingham

2020: Travel Award from the American Society for Biochemistry and Molecular Biology

2020: Research Scholar Award from the American Urological Association

2014: Teaching Assistantship Award, Indian Institute of Technology Kharagpur, India

2012: Travel Award from Bill and Melinda Gates Foundation

2012: Travel Award from Department of Biotechnology (Govt. of India)
2010: Institute Research Fellowship Award, Indian Institute of Technology Kharagpur, India
2009: Research Fellowship Award, National University of Singapore.
2007: Ministry of Human Resource and Development (MHRD, Govt. of India) Fellowship Award

Academic Achievements

2012: **All India Rank-35** in National Eligibility Test (NET) (Lectureship) in Life Science
2009: Graduate Aptitude Test in Engineering (GATE) with **All India Rank 17** (Life Science Category)
2007: Graduate Aptitude Test in Engineering (GATE) with **All India Rank 12** (Life Science Category)

C. Publications

Publication from **National University of Singapore** (Pre-Ph.D.)

1. Foo, S.E., **Kundu, A.**, Lim, H.Y., Wong, K.P. & Roy, P. (2010). Directed transport in renal proximal tubule cells. **IFMBE Proceedings**. 31, 744-747.

Publication from **Indian Institute of Technology Kharagpur** (Ph.D.)

2. **Kundu, A.**, Roychowdhury, A., Bose, M., Das, A.K. & Ghosh, A.K. (2016). Reconstitution of the RNA-dependent RNA polymerase activity of *Antheraea mylitta* cytovirus in vitro using separately expressed different functional domains of the enzyme. **J Gen Virol**. 97, 1709-1719.
3. **Kundu, A.**, Bose, M., Roy, M., Dutta, S., Biswas, P., Gautam, P., Das, A.K. & Ghosh, A.K. (2017). Molecular insights into RNA-binding properties of the Escherichia coli-expressed RNA-dependent RNA polymerase of *Antheraea mylitta* cytoplasmic polyhedrosis virus. **Arch virol**. 162, 2727-2736.
4. **Kundu, A.**, Dutta, A., Biswas, P., Das, A.K. & Ghosh, A.K (2015). Functional insights from molecular modeling, docking and dynamics study of a cytoviral RNA-dependent RNA polymerase. **J Mol Graph Mod**. 61, 160-174.
5. Biswas, P., **Kundu, A.** & Ghosh, A.K. (2015). Genome segment 4 of *Antheraea mylitta* cytoplasmic polyhedrosis virus encodes RNA triphosphatase and methyltransferases. **J Gen Virol**. 96, 95-105.
6. Biswas, P., **Kundu, A.** & Ghosh, A.K. (2014). Genome segment 5 of *Antheraea mylitta* cytoplasmic polyhedrosis virus encodes a bona fide guanylyltransferase. **Virol J**. 11, 1-13.
7. Roychowdhury, A., **Kundu, A.**, Bose, M., Gujar, A., Mukherjee, S. & Das, A.K (2015). Complete catalytic cycle of cofactor-independent phosphoglycerate mutase involves a spring-loaded mechanism. **FEBS J**. 282, 1097-1110. PDB IDs: 4MY4, 4NWJ, 4NWX.
8. Roychowdhury, A., **Kundu, A.**, Bose, M., Gujar, A. & Das, A.K. (2014). Expression, purification, crystallization and preliminary X-ray diffraction studies of phosphoglycerate mutase from *Staphylococcus aureus* NCTC8325. **Acta Crystallographica Section F**. 70, 53-56.
9. Dutta, A., Btattacharyya, S., **Kundu, A.**, Dutta, D. & Das, A.K. (2016). Macroscopic amyloid fiber formation by Staphylococcal biofilm associated SuhB protein. **Biophysical Chem**. 217, 32-41.
10. Roy, M, **Kundu, A.**, Bhunia, A., Das Gupta, S., De, S. & Das, A.K. (2019). Structural characterization of VapB46 antitoxin from *Mycobacterium tuberculosis*: insights into VapB46-DNA binding. **FEBS J**. 286, 1174-1190.
11. Roy, M., Bose, M., Bankoti, K., **Kundu, A.**, Dhara, S. & Das, A.K. (2020). Biochemical characterization of VapC46 toxin from *Mycobacterium tuberculosis*. **Mol Biotechnol**. PMID: 32236842.

Publications from **University of Alabama at Birmingham** (Postdoc)

12. **Kundu, A.**, Nam, H., Shelar, S., Chandrashekar, D.S., Brinkley, G.B., Karki, S., Mitchell, T., Carolina, L., Buckhaults, P., Kirkman, R., Tang, Y., Rowe, G., Wei, S., Varambally, S. & Sudarshan, S. (2020).

- PRDM16 suppresses HIF-targeted gene expression in kidney cancer. **J Exp Med.** 217 (6). PMID: 32251515.
13. **Kundu, A.**, Shelar, S., Ghosh, A.P., Ballestas, M., Kirkman, R., Nam, HY., Brinkley, G.B., Karki, S., Varambally, S. & Sudarshan, S. (2020). 14-3-3 proteins protect AMPK-phosphorylated ten-eleven translocation-2 (TET2) from PP2A-mediated dephosphorylation. **J Biol Chem.** 295(6), 1754-1766.
 14. Nam, HY., **Kundu, A.**, Chandrashekar, D.S., Chakravarthi, B.V.S.K., Kirkman, Orlandella, R.M., Norian, L.A., Sonpavde, G., Ghatalia, P., Fei, F., Wei, S., Varambally, S. & Sudarshan, S. (2020). PGC1 α suppresses kidney cancer progression by inhibiting collagen-induced SNAIL expression. **Matrix Biol.** 89, 43-58.
 15. Nam, HY., Chandrashekar, D.S., **Kundu, A.**, Shelar, SB., Kho, EY, Sonpavde, G., Naik, G., Ghatalia, P., Livi, C. Varambally, S. & Sudarshan, S. (2019). Integrative Epigenetic and Gene Expression Analysis of Renal Tumor Progression to Metastasis. **Molecular Cancer Research.** 17, 84-96.
 16. Shelar, S.B., Shim, EH., Brinkley, G., **Kundu, A.**, Carobbio, F., Poston, T., Tan, J., Parekh, V., Benson, D., Crossman, D., Buckhaults, P., Rakheja, D., Kirkman, R., Sato, Y., Ogawa, S., Dutta, S., Velu, S., Emberley, E., Pan, A., Chen, J., Huang, T., Absher, D., Becker, A., Kunick, C. & Sudarshan, S. (2018). Biochemical and Epigenetic Insights into L-2-Hydroxyglutarate, a Potential Therapeutic Target in Renal Cancer. **Clinical Cancer Research.** 15, 6433-6446.
 17. Brinkley, G., Nam, HY., Shim, EH., Kirkman, R., **Kundu, A.**, Karki, S., Heidarian, Y., Tennessen, JM., Liu J., Locasale, J.W., Guo, T., Wei, S., Gordetsky, J., Johnson-Pais, T.L., Absher, D., Rakheja, D., Challa, A.K. & Sudarshan, S. (2020). Teleological Role of L-2-Hydroxyglutarate Dehydrogenase in the Kidney. **Dis Model Mech.** PMID: 32928875.
 18. Nam, HY., **Kundu, A.**, Karki, S., Brinkley, G., Chandrashekar, D.S., Kirkman, R.L., Liu, J., Liberti, M.V., Locasale, J.W., Mitchell, T., Varambally, S. & Sudarshan, S. (2021). TGF- β signaling suppresses TCA cycle metabolism in renal cancer. *bioRxiv*. doi: <https://doi.org/10.1101/2021.02.19.429599> [Under last phase of review in the **Journal of Clinical Investigation-insight**]
 19. **Kundu, A.**, Shelar, S.B., Ghosh, A.P., Ballestas, M.P. Kirkman, R., Nam, HY., Brinkley, G., Karki, S., Mobley, J.A., Varambally, S. & Sudarshan, S. (2020). Dynamic regulation of TET2 by phosphorylation and dephosphorylation at Ser99. <https://doi.org/10.1096/fasebj.2020.34.s1.02033>. **ASBMB Annual Meeting San Diego, USA (2020).**
 20. **Kundu, A.**, Kho, EY., Shelar, S.B., Nam, HY., Brinkley, G., Chandrashekar, D.S., Tang, Y., Kirkman, R., Crossman, D.K., Varambally, S., Rowe, G.C., Wei, S., Buckhaults, P. & Sudarshan, S. (2018). Functional implications of PRDM16 loss in kidney cancer. Abstract 4483. Doi 10.1158/1538-7445.AM2018-4483. **AACR Annual Meeting Chicago, USA (2018).**

Full list of publications

<https://scholar.google.com/citations?user=Tcyt8z0AAAAJ&hl=en>

D. Research Support

American Urological Association (AUA)

07/01/2020 – 06/31/2022

AUA Research Scholar Award: Characterization of SEMA5B mediated oncogenic signaling in renal cell carcinoma.

Role: Principal Investigator

Cost: \$152,915.00