Resume

Dr. Tapas Patra, Ph.D

Scientist, Principal Investigator
Sri Shankara Cancer Hospital & Research Center Bangalore, Karnataka, India
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Research Interest

Understand the role of immune system in cancer initiation & progression; modulate the immune environment favorable to anticancer therapy; advancement of therapeutic strategies in cancer.

Education

Ph.D.	Jadavpur University (Molecular Immunology)	2012
M.Sc.	University of Kalyani (Microbiology)	2004
B.Sc.	University of Calcutta (Physiology)	2002

Awards/Honors

Bharat Gaurav Award (KTK Foundation), 2024
NIH Research Leadership Award, 2022
SLU Young Investigator Award, 2020
American Society of Virology Travel Award, 2019
Post-doctoral Fellowship (NIH) of Saint Louis University, 2018
ICMR Research Associateship, 2016
Post-Doctoral Fellowship (MHRD) of IISER Mohali, 2014
ICMR Centenary Post-Doctoral Fellowship, 2012
ICMR Senior Research Fellowship, 2009

Area of expertise

1. Mechanism of Platinum resistance in ovarian cancer
2. Immunological role in GI cancer progression
3. Therapeutic development of hepatocellular carcinoma
4. Hepatitis C virus infection and vaccine development
5. Microbial metabolites influence in colorectal cancer
6. Involvement of heavy metals in testicular cancer development
7. SARS-CoV-2 associated pathogenic mechanism
8. Long chain fatty acid utilization of *Escherichia coli*
9. Carbohydrate metabolism of *Vibrio cholerae* and ORS advancement
10. Molecular biology in host pathogen interaction of *Vibrio cholerae*

Professional Experience

Principal Investigator	:	Currently working as Scientist on therapeutic advancement of gastrointestinal cancer at Sri Shankara Cancer Hospital & Research Center in Bangalore, India from January 2023.
Research Scientist	:	Worked as Senior Research Associate on hepatitis C virus infection and progression of hepatocellular carcinoma in Department of Internal Medicine, Saint Louis University, USA from November 2017 to July 2022.
Senior Research Associate	:	Worked as Research Associate to study the role of microbial metabolites in the pathogenesis of colorectal cancer at Chittaranjan National Cancer Institute, Kolkata from October 2015 to November 2017.
Postdoctoral Research Fellow	:	Worked as Post-doctoral Research Associate to study different metabolic responses on bacterial physiology special reference to system biology at IISER, Mohali from April 2014 to August 2015.
Postdoctoral Research Fellow	:	Worked as post-doctoral research fellow on the project entitled "Studies on the advancement of Oral Rehydration Solution for treatment of diarrhea" at National Institute of Pathology, New Delhi from August 2011 to April 2014.
Senior Research Fellow	:	Worked in senior research fellow on the project entitled "Carbohydrate utilization pathways of *Vibrio cholerae* and their relevance in regulation of expression of genes including virulence determinants" at NICED, Kolkata from January 2009 to August 2011.
Senior Research Fellow	:	Worked in Comparative Analysis of *luxO*, the Quorum sensing master regulator among O1, O139, NonO1, nonO139 *V. cholerae* strains at NICED, Kolkata from July 2007 to January 2009.
Junior Research Fellow	:	Worked in the Pulse net project entitled "Phenotypic and genotypic characterization of common enteric pathogens isolated from diarrheal patients" at NICED, Kolkata from May 2005 to May 2007.

Teaching Experience

Worked for six months as guest lecturer in Immunology for post-graduate student at West Bengal State University, Kolkata.

In IISER Mohali, conducted theoretical and practical classes on regular basis in Biological Sciences for BS and MS students for more than one year.

Professional Membership

Indian Immunology Society (IIS); Onco-immunological Society of India; Indian Association of Biomedical Science (IABS); Indian Science Congress Association (ISCA); Indian Physiological Society (IPS)

Editorial Board Member:

Journal of Translational Medicine, Mediators of Inflammation, Discover Oncology, Heliyon, Biomedical Reports, Molecular & Clinical Oncology, Frontier's in Oncology, Frontier's in Immunology, World Journal of Gastroenterology

Adhoc-Reviewer for Scientific Journals

Cellular & Molecular Life Sciences, Biochem J, Scientific Reports, World Journal of Surgical Oncology, Liver Cancer Journal, Journal of Hepatocellular Carcinoma, Clinical Science, Cancer Cell International, Cancer Management & Research, FEMS Microbiology Letters, Research in Microbiology, Cell Biology, The International Journal of Biochemistry & Cell Biology, Clinics and Research in Hepatology and Gastroenterology, Virology, Intervirology.

Research funding

• 2025-2027: RGUHS Research Funding (Co-PI), India • 2020-2022: NIH-Innovative Young Investigator Supportive Research Grant (PI), USA • 2018-2021: Lottie Caroline Hardy Charitable Trust Research Grant (PI), USA, • 2016-2018: Short-term Small Extramural Research Grant (PI), ICMR, India • 2016-2018: Extramural Investigator Research Grant (Co-PI), SERB, India • 2012-2014: ICMR-Centenary Postdoctoral Research Grant (PI), India.

Patents

1. **US18/160.926**. Ranjit Ray, Keith Meyer and **Tapas Patra**. "HEPATITIS C VIRUS MODIFIED E2 GLYCOPROTEIN AND USES THEREOF AS VACCINES,"

Publications

1. Chi Z, **Patra T#** and Namani A. Editorial: Mechanisms and complexities underlying the cancer cell immune evasion and its therapeutic implications. **Frontier's in Immunology** (2025) 16:1747904. #Corresponding author.
2. Sivakumar G, **Patra T**, Veeraiyan D, Namani A. Sex-based molecular and

prognostic disparities in pan-cancer: an analysis across the global cohorts. **Clinical Translational Oncology** (2025). doi.org/10.1007/s12094-025-04104-8

3. Veeraiyan D, Kurpad V, Munirathnam V, Chaitra V, Asthana S, Namani A and **T. Patra#.** Immune infiltration in TP53 missense mutant contributes to poor prognosis in hepatocellular carcinoma, unlike CTNNB1 mutations. **Malignancy Spectrum** (2025) Vol 2 (3), 117-127. #Corresponding author. Cited in cover page.

4. Saumya, Durgadevi V, P. N Sahu, **T. Patra**, P. Joshi, M. Sillanpää, B. P. N. Nenavathu, A.Namani, A. Sen. Temoporfin loaded g-C3N4/CuO nanocarrier for treatment of hypoxic tumors by synergistic chemo-photodynamic therapy. **Diamond and Related Materials** (2025). Vol 158, 112607.

5. Murmu N., P. Ghosh, A. Namani, and **T. Patra#**. Glyoxylate supplementation ameliorates colitis associated colon cancer progression. **Journal of Cellular Physiology** (2024). 239 (11), e31394. #Corresponding author.

6. Ramisetti S.V., **T. Patra**, V. Munirathnam, J.V. Sainath, Durgadevi V., A. Namani, NRF2 Signaling Pathway in Chemo/Radio/Immuno-Therapy Resistance of Lung Cancer: Looking Beyond the Tip of the Iceberg. **Archivos de Bronconeumología** (2024). Vol 60, S59-S66.

7. Namani A., Durgadevi V., and **T. Patra#**. Contrasting prognostic role of KEAP1-NFE2L2-CUL3 mutation in human Uterine Corpus Endometrial Carcinoma. **Free Radical Biology & Medicine** (2024), Vol 222, p. 223-228. #Corresponding author

8. **Patra T#.,** D.M. Cunningham, K. Meyer, K. Toth, R.B. Ray, A. Heczey and R. Ray. Targeting Lin28 axis enhances glypican-3-CAR T cell efficacy against tumor initiating hepatic stem cell population. **Molecular Therapy**. (2023). Vol 31, no.3, p. 715-728. #Corresponding author.

9. **Patra T.,** K. Meyer, E.K. Reagan, D. Weissman, and R. Ray. Hepatitis C virus E1 and modified E2 delivered from an mRNA vaccine induces protective immunity. **npj Vaccines** (2023) Vol 8, no.1, p. 42. Collection: Nobel Prize in Physiology or Medicine

2023.

10. **Patra T#.** and R. Ray. Bystander effect of SARS-CoV-2 spike protein on human monocytic THP-1 cell activation and initiation of prothrombogenic stimulus representing severe COVID-19. **Journal of Inflammation**. (2022). 19: 28. doi.org/10.1186/s12950-022- 00325-8. #Corresponding author. Top highlighted publication.

11. Vijayamahantesh V.*, **T. Patra*,** K. Meyer*, M.A. Gabriel, E.K. Reagan, D. Weissman, and R. Ray. Modified E2 glycoprotein of Hepatitis C Virus enhances proinflammatory cytokines and protective immune response. ***Journal of Virology.*** (2022) doi.org/10.1128/jvi.00523-22. *Co-first authors. Collection: Nobel Prize in Physiology or Medicine 2023.

12. Mitra S., **T. Patra**, D. Saha, P. Ghosh, S.M. Mustafi, A.C. Varghese, and N. Murmu. Sub-chronic Cadmium and Lead compound exposure induces reproductive toxicity and development of testicular germ cell neoplasia *in situ* in murine model: Attenuative effects of Resveratrol. ***Journal Biochemistry & Molecular Toxicology.*** (2022). p. e23058.

13. **Patra T#,** K. Meyer, R.B. Ray, T. Kanda, and R. Ray. Akt inhibitor augments anti-proliferative efficacy of a dual mTORC1/2 inhibitor by FOXO3a activation in p53 mutated hepatocarcinoma cells. ***Cell Death & Diseases.*** (2021). Vol.12, p. 1073. #Corresponding author.

14. Meyer K*., **T. Patra*,** Vijayamahantesh and R. Ray. SARS-CoV-2 spike protein induces paracrine senescence and leukocyte adhesion in endothelial cells. ***Journal of Virology.*** (2021) Vol.95, no.17, p. e00794-21 *Co-first authors. Top highlighted publication.

15. **Patra T#.** and R. Ray. IL-6 Induction and Signaling: Horizons of COVID-19- related pathogenesis. ***DNA & Cell Biology.*** (2021) Vol.40, no.5, p. 639-642. #Corresponding author.

16. **Patra T#.,** S.K. Bose, Y.C. Kwon, K. Meyer, and R. Ray. Inhibition of p70 isoforms of S6K1 induces anoikis to prevent transformed human hepatocyte growth. ***Life Sciences.*** (2021) Vol.265, p.118764. #Co-corresponding author.

17. **Patra T#.,** K. Meyer, L. Geerling, T.S. Isabell, D.F. Hoft, J. Brien, A.K. Pinto,R.B. Ray, and R. Ray. SARS-CoV-2 spike protein promotes IL-6 trans- signaling by activation of angiotensin II receptor signaling in epithelial cells. ***PLOS***

Pathogen. (2020) Vol.16, no.12, p. e1009128. #Corresponding author. Referred in NIH-COVID treatment protocol.

18. **Patra T#.**, K. Meyer, R.B. Ray, and R. Ray. A combination of AZD5363 and FH535 induces lethal autophagy in transformed hepatocytes. ***Cell Death & Diseases.*** (2020) Vol.11, p.540. #Corresponding author.

19. Nazzal M., S. Sur, R. Steele, M. Khatun, **T. Patra,** N. Phillips, J. Long, R. Ray and R.B. Ray. Establishment of a PDX tumor from hepatitis C associated liver cancer and evaluation of Imatinib treatment efficacy. ***Hepatology.*** (2020) Vol.72, no. 2, p. 379-388.

20. **Patra T.**, K. Meyer, R.B. Ray, and R. Ray. Hepatitis C virus mediated inhibition of miR-181c activates ATM signaling and promotes hepatocyte growth. ***Hepatology.*** (2019) Vol.71, no. 3, p. 780-793.

21. **Patra T.,** Sasaki R., K. Meyer, R.B. Ray, and R. Ray. TGF-β acts as a regulatory molecule for lipogenic pathway among hepatitis C virus genotype specific infection. ***Journal of Virology.*** (2019) Vol. 93, no. 18, p. e00811-19.

22. **Patra T.,** R.B. Ray, and R. Ray. Strategies to circumvent host innate immune response by hepatitis C virus. ***Cells.*** (2019), Vol. 8, no. 274, P. 1-14.

23. **Patra T.,** P. Ghosh, N. Alam and N. Murmu. Supra-physiological concentration of glyoxylate inhibits the proliferation of human colon cancer cells through oxidative stress. ***Life Sciences.*** (2018) Vol. 207, p. 80-89.

24. **Patra T.**, S. Mandal, N. Alam and N. Murmu. Clinicopathological trends of colorectal carcinoma patients in a tertiary cancer centre in Eastern India. ***Clinical Epidemiology Global Health.*** (2018), Vol. 6, no.1, p. 39-43.

25. Agarwal S., K. Jaswal, A. Shiver, H. Balecha, **T. Patra** and R. Chaba. Ubiquinone is a key antioxidant during long chain fatty acid metabolism in *Escherichia coli*. ***FASEB Journal*** (2018), Vol. 32, p. e538.3.

26. Agarwal S., K. Jaswal, A. Shiver, H. Balecha, **T. Patra** and R. Chaba. A genome-wide screen in *Escherichia coli* reveals that

ubiquinone is a key antioxidant for metabolism of long chain fatty acids. ***Journal of Biological Chemistry.*** (2017), Vol. 292, no.49, p. 20086-20099.

27. Roy S., **T. Patra**, T. Golder, S. Chatterjee, H. Koley and R. K. Nandy. Characterization of gluconate (Gnt) utilization system of *Vibrio cholerae* with special reference to virulence modulation. ***FEMS Pathogen Diseases.*** (2016), Vol. 74, no. 8, p. 1-10.

28. **Patra T.,** H. Koley, T. Ramamurthy, A.C. Ghose and R.K. Nandy. Entner- Doudoroff pathway is obligatory for gluconate utilization and contributes towards the pathogenicity of *Vibrio cholerae*. ***Journal of Bacteriology.*** (2012), Vol. 194, no.13, p. 3377-3385.

29. **Patra T.,** S. Chatterjee, A. Roychowdhuri, A.K. Mukhopadhyay, T. Ramamurthy and R.K. Nandy. Emergence and progression of *Vibrio cholerae* O1 El Tor variants and progenitor strains of Mozambique variants in Kolkata, India. ***International Journal of Medical Microbiology.*** (2011), Vol. 301, no.4, p. 310-317.Collection: WHO TDR Report 2012.

30. Raychoudhuri, A., **T. Patra**, K. Ghosh, R. K. Nandy, Y. Takeda, T. Rammamurthy, G. B. Nair, A. K. Mukhopadhyay. Classical ctxB in *Vibrio cholerae* O1, Kolkata, India. ***Emerging Infectious Diseases.*** (2009), Vol. 15, no.1, P. 131-132.

31. Chatterjee, S*., **T. Patra***, K. Ghosh, A. Raychoudhuri, G. P. Pahzani, M. Das, B. L. Sarkar, R. K. Bhadra, A. K. Mukhopadhyay, Y. Takeda, G. B. Nair, T. Ramamurthy, and R. K. Nandy. *Vibrio cholerae* O1 clinical strains of 1992 at Kolkata with progenitor traits of 2004 Mozambique variant. ***Journal of Medical Microbiology.*** (2009), Vol. 58, P. 239-247. *Co-first authors.

Oral/Poster Presentation

38th ASV Annual Meeting: held in University of Minnesota, Minneapolis USA, July 20-24, 2019. "Hepatitis C virus mediated activation of ribosomal protein S6 kinase1 promotes hepatocyte growth by regulating anoikis".

8th Zonal Oncology Symposium: held in Saroj Gupta Cancer Centre & Research Institute, Kolkata, January 31, 2017. "*Klebsiella pneumoniae* quorum sensing signal molecules

facilitating immunomodulatory activity on colon cancer cells."

Bacterial Expression II: held in National Center for Biological Sciences India, December 1-5, 2015. "Understanding the connection between Long Chain Fatty Acid (LCFA) utilization and oxidative stress response in *Escherichiacoli*."

Molecular Genetics of Bacteria and Phages Meeting: held in University of Wisconsin Madison USA, August 4-8, 2015. "Ubiquinone combats oxidative stress generated by Long Chain Fatty Acid utilization in *Escherichia coli*."

Proceedings of the Centenary Session of the Indian Science Congress: section of medical sciences held in Kolkata, January 3-7, 2013. "Organization and function of gluconate utilization system in *Vibrio cholerae*: relevance to pathogenesis."

US-Japan Cooperative Medical Science Program: Cholera & Other bacterial enteric infections held in Chiba Japan, December 12-14, 2012. "Gluconate utilization system of *Vibrio cholerae* and its role in pathogenesis."

International Symposium on Fifty Years of Discovery of Cholera Toxin held in Kolkata, October 25-27, 2009. "An *in silico* approach to understand the role of gluconate utilization system of *Vibrio cholerae* in association to its pathogenesis."

US-Japan Cooperative Medical Science Program: Cholera & Other bacterial enteric infections held in University of Texas, USA, December 5-7, 2007. "Mozambique variant of *Vibrio cholerae* O1: Emergence or resurgence?"

National Symposium on 21st Century Research in Biochemistry and Biophysics held in University of Kalyani, February 1-5, 2007. "Molecular tracking of reemerged *Vibrio cholerae* O1 biotype El Tor, serotype Inaba".

Signature