

CURRICULUM VITAE

PERSONAL INFORMATION

Name: Sanmoy Pathak

Date of Birth (dob): 5th February 1992

Mailing address: A-12 Rabindrapally, Brahmapur Garia, Kolkata, India- 700096

Email address: sanmoy92@gmail.com

Phone number: +919007629078

RESEARCH INTERESTS

Immunologist with research interests in CD4⁺ T cell signaling, T cell development, Thymic atrophy, host pathogen interaction, vaccine research, cancer immunotherapy, Treg ontogeny and biology in cancer.

ACADEMIC BACKGROUND

- Sep 2021- Dec 2023: Postdoctoral research fellow in Institute of Immunity and Transplantation, University college London, UK
Project: Understanding the importance of ontogeny, FoxP3 dependent fate and function of Tregs in tumours.
- Aug 2020- Aug 2021: Research Associate in Indian Institute of Science Bangalore
- Jul 2015- Aug2020: PhD, Department of Biochemistry, Indian Institute of Science Bangalore.
 - a. Title of thesis: Immunomodulatory effects of 7-hydroxy frullanolide, a plant-based sesquiterpene lactone, in inhibiting immune cell responses and roles of disease and vaccination outcomes on Covid-19 mortality
 - b. Thesis defense date: 25th January 2021
- 2013-2015: Master of Science (M.Sc.) in Biotechnology from Jadavpur University, Kolkata: 77.5%
- 2010-2013: Bachelor of Science (B.Sc.) in Zoology from Calcutta University, Kolkata: 71%

TECHNICAL EXPERTISE

Animal cell culture, primary mouse cell culture, mice handling and experiments, CD4⁺ T cell isolation, Treg isolation, Bone marrow transplantation, adherent peritoneal macrophage isolation, BMDM isolation, T cell activation assays, multicolor flowcytometry, Flow Jo and Graph Pad analysis ELISA, RNA isolation, Real time PCR, Western Blots, Invasive procedures in mice which includes: i.v., i.p., oral and subcutaneous injections.

TEACHING EXPERIENCE AND CONFERENCES

- Graduate teaching assistant for three years: 2017, 2018 and 2020 in Immunology (Theory and Practical sessions) for IISc. Summer students trained in IISc: 3
- Postdoctoral teaching experience: Trained 2 M.Sc. students and guided M.Sc. projects
- Attended the “Virtual Centenary Conference” organized by Biochemistry Department, IISc Bangalore (2021).
- Poster presentation for “Immunocon 2019” organized by BARC, Mumbai (2019).
- Poster presentation for BSI Congress 2023.
- Attended the 17th Indo-US Cytometry Workshop on “Applications of Laser Flow Cytometry in Biomedical Research” at IISc, Bangalore (2016).
- Attended British Society of Immunology Congress hosted in Edinburgh in UK 2021
- Poster presentation in UCL IIT Symposium 2023

ACHIEVEMENTS AND EXTRACURRICULAR ACTIVITIES

- All India Rank (AIR): 18 in the Graduate Aptitude Test in Engineering (GATE) in Life Sciences for PhD.
- Selected for the Indian Academy of Sciences (IAS) summer school program in National Centre for Cell Science (NCCS), Pune and was awarded a scholarship of Rs. 16000
- Worked as Treasurer for Biochemical Society, IISc Bangalore (2017-2018)
- Diploma holder in Hindustani Classical Music.

PUBLICATIONS

1. **Pathak S**, Hogan T, RaneS, Huang Y, AZ TEAM, Yates A & SeddonB (2024) Maintenance of Regulatory T cell homeostasis over the life course in health and malignant disease (to be submitted)
2. **Pathak S**, Nandi D (2023) Lower Incidences and Deaths Due to COVID-19 in Countries with high Deaths Due to Tuberculosis and Flu: a 2021-2022 Update. *J Vaccines Immunol* 8: 196. <https://doi.org/10.29011/2575-789X.000196>
3. Sahoo, S., **Pathak, S.**, Kumar, A., Nandi, D., & Chakravarty, A. R. (2023). Lysosome directed red light photodynamic therapy using glycosylated iron-(III) conjugates of boron-dipyrromethene. *Journal of inorganic biochemistry*, 244, 112226. <https://doi.org/10.1016/j.jinorgbio.2023.112226>
4. Rananaware, S. R., **Pathak, S.**, Majumdar, S., Joseph, J. P., Ramteke, N. S., Adiga, V., & Nandi, D. (2023). Dynamic changes in thymic sub-populations during acute and long-term infections with virulent and virulence-attenuated *Salmonella Typhimurium* strains in C57BL/6 and autoimmune-prone *lpr* mice. *Microbial pathogenesis*, 177, 106034. <https://doi.org/10.1016/j.micpath.2023.106034>
5. **Pathak S**, Fialho J, Nandi D. (2022) Plant-based Immunomodulators and Their Potential Therapeutic Actions. *J Explor Res Pharmacol*, 7(4):243-256. doi: 10.14218/JERP.2022.00033.
6. Paul, S., **Pathak, S.**, Sahoo, S., Maji, R. C., Bhattacharyya, U., Nandi, D., & Chakravarty, A. R. (2022). Bichromophoric ruthenium(II) bis-terpyridine-BODIPY based photosensitizers for cellular imaging and photodynamic therapy. *Dalton transactions (Cambridge, England : 2003)*, 51(27), 10392–10405. <https://doi.org/10.1039/d2dt01137a>
7. **Pathak, S.**, Gokhroo, A., Kumar Dubey, A., Majumdar, S., Gupta, S., Almeida, A., Mahajan, G. B., Kate, A., Mishra, P., Sharma, R., Kumar, S., Vishwakarma, R., Balakrishnan, A., Atreya, H., & Nandi, D. (2021). 7-Hydroxy Frullanolide, a sesquiterpene lactone, increases intracellular calcium amounts, lowers CD4⁺ T cell and macrophage responses, and ameliorates DSS-induced colitis. *International immunopharmacology*, 97, 107655. <https://doi.org/10.1016/j.intimp.2021.107655>
8. **Pathak, S.**, Jolly, M. K., & Nandi, D. (2021). Countries with high deaths due to flu and tuberculosis demonstrate lower COVID-19 mortality: roles of vaccinations. *Human vaccines & immunotherapeutics*, 17(9), 2851–2862. <https://doi.org/10.1080/21645515.2021.1908058>
9. Rananaware, S. R., **Pathak, S.**, Chakraborty, S., Bisen, R. Y., Chattopadhyay, A., & Nandi, D. (2021). Autoimmune-prone *lpr* mice exhibit a prolonged but lethal infection with an attenuated *Salmonella Typhimurium* strain. *Microbial pathogenesis*, 150, 104684. <https://doi.org/10.1016/j.micpath.2020.104684>

10. Nandi, D., **Pathak, S.**, Verma, T., Singh, M., Chattopadhyay, A., Thakur, S., Raghavan, A., Gokhroo, A., & Vijayamahantesh (2020). T cell costimulation, checkpoint inhibitors and anti-tumor therapy. *Journal of biosciences*, 45, 50.
11. Jayaprakash, N. G., Singh, A., Vivek, R., Yadav, S., **Pathak, S.**, Trivedi, J., Jayaraman, N., Nandi, D., Mitra, D., & Surolia, A. (2020). The barley lectin, horcolin, binds high-mannose glycans in a multivalent fashion, enabling high-affinity, specific inhibition of cellular HIV infection. *The Journal of biological chemistry*, 295(34), 12111–12129.
12. Yadav, S., Verma, T., **Pathak, S.**, & Nandi, D. (2019). Chapter 13 - Understanding the Roles of Nitric Oxide During Sepsis, an Inflammatory Disorder. *Therapeutic Application of Nitric Oxide in Cancer and Inflammatory Disorders*, 243-276. ISBN 9780128165454. <https://doi.org/10.1016/B978-0-12-816545-4.00013-X>.
13. Majumdar, S., **Pathak, S.**, & Nandi, D. (2018). Thymus: The Site for Development of Cellular Immunity. *Resonance*, 23, 197-217.
14. Yadav, S., **Pathak, S.**, Sarikhani, M., Majumdar, S., Ray, S., Chandrasekar, B. S., Adiga, V., Sundaresan, N. R., & Nandi, D. (2018). Nitric oxide synthase 2 enhances the survival of mice during Salmonella Typhimurium infection-induced sepsis by increasing reactive oxygen species, inflammatory cytokines and recruitment of neutrophils to the peritoneal cavity. *Free radical biology & medicine*, 116, 73–87. <https://doi.org/10.1016/j.freeradbiomed.2017.12.032>

REFERENCES

Professor Dipankar Nandi

Department of Biochemistry Biological Sciences Building Indian Institute of Science
Bangalore- 560012, India. Email: nandi@iisc.ac.in

Professor Benedict Seddon

Institute of Immunity and Transplantation, Division of Infection and Immunity, UCL, London
UK. Post code: NW32PP. Email: benedict.seddon@ucl.ac.uk

Professor Sandeep Eswarappa

Department of Biochemistry Biological Sciences Building Indian Institute of Science
Bangalore- 560012, India. Email: sandeep@iisc.ac.in