



VIDYASAGAR COLLEGE

39 SANKAR GHOSH LANE
KOLKATA



Name **Dr. Debolina Sinha Bandyopadhyay**

1	Name	Dr. Debolina Sinha Bandyopadhyay		
2	Designation	Assistant Professor		
3	Mail ID	debolinaworkvc@gmail.com		
4	Contact No	9681798118		
5	Date of Joining	1.03.2017		
Academic qualifications				
6	Degree	Subject	University	Year
	Ph.D	Biotechnology	Jadavpur University	2016
	M.Phil	NA	NA	NA
	MA/M.sc	Zoology	University of Calcutta	2010
	BA/B.Sc	Zoology	University of Calcutta	2008
PH.D. DETAILS				
7	Title of the Thesis	Porin Differentially Regulates Cytokine Expression of Follicular Zone and Marginal Zone B Cells		
	Field of specialization under subject/ discipline	Immunology, Cell Biology, Genetics		
8	PREVIOUS POSITIONS/Engagement	Post-doctoral fellow at National Centre for Cell Science (NCCS), Pune		
9	Google scholar page:	https://scholar.google.com/citations?view_op=list_works&hl=id&user=oNdvy0sAAAAJ		
10	ORCID ID	https://orcid.org/my-orcid?orcid=0000-0001-6005-8106		
11	HONOURS AND AWARDS	➤ Recipient of SERB National Post-doctoral fellowship and functioned as Principal Investigator of the project ➤ Qualified CSIR/UGC NET December 2010 examination as JRF ➤ GATE 2011 qualified with 98 percentile. ➤ 10th in M.Sc (Zoology) University of Calcutta. ➤ Chhaya Ghosh Memorial Scholarship for scoring highest marks in Bachelors ➤ Recipient of 1st Prize for Best Poster Presented by Faculty at International Seminar organised by Gurudas College, 2023 ➤ Editorial Review Board Member of Therapeutic Advances in Vaccines and Immunotherapy (SAGE Journal) ➤ Invited for interactive lecture organised by JBNSTS (Department of Higher Education, GOWB) & Vigyan Prasar (Department of Science and Technology, GOI) on Science and Technology Communication in Bengali ➤ Invited as Guest-teacher to teach Immunology to the Post-graduate students (Botany) of Scottish Church College, Kolkata		

12	CURRENT RESEARCH PROJECT/Field of Research	My research focuses on unraveling the molecular and immunological mechanisms that underpin immune regulation and response. Central to my work are regulatory T cells and their pivotal role in maintaining immune homeostasis, alongside a keen interest in the functions of toll-like receptors (TLRs) and their potential as therapeutic targets. I am particularly intrigued by the synergistic role of TLRs and adjuvants in modulating immune responses, with applications in vaccine development and immunotherapy. Additionally, my work investigates the impact of environmental stressors, such as heavy metal toxicity, on immune regulation. By understanding how heavy metals influence TLR signaling and immune pathways, I aim to identify strategies to counteract their adverse effects. Through my research, I seek to bridge molecular biology, immunology, and environmental science, contributing to advancements in therapeutic interventions and environmental health.
13	TECHNICAL UNDERSTANDING AND EXPERIENCE	➤ Well proficient in SMART CLASSROOM TEACHING and NEW PEDAGOGIES OF BLENDED LEARNING in academia ➤ Total six years of experience in handling and operation of BD FACSaria II and Magnetic Cell Sorter Operation (Auto MACS) ➤ Purification of bacterial outer membrane protein (porin) ➤ Experimental animal treatment (mouse) ➤ Murine B, T cell and MΦ purification and culture and maintenance of mammalian cell lines ➤ ELISA, Western Blotting, RT-PCR and Real-Time PCR technique ➤ RNA-interference (siRNA knockdown of proteins in murine cell)
14	SUMMARY OF RESEARCH EXPERIENCE	During my Ph.D. at the National Institute of Cholera and Enteric Diseases (NICED), Kolkata, I explored the immunological roles of B and T cells in response to microbial antigens, particularly bacterial porins. I demonstrated how marginal zone (MZ) and follicular zone (FO) B cells exhibit distinct responses, with FO B cells skewing towards TLR-dependent type-1 cytokine responses and MZ B cells upregulating NLRC5 and IL-10, highlighting their regulatory B10 activity (Cytokine, 2015). Additionally, I investigated innate memory CD8+ T cells, their response to PAMPs and DAMPs, and antigenic relatedness of TLR2 with porins (Cytokine, 2015; Immunobiology, 2014). My work extended to the role of IL-15 and porin in modulating B-1a cells for mucosal immunity (Cellular and Molecular Immunology, 2016; Immunobiology, 2016), epithelial cell responses to porins, and thymocyte differentiation into CD8+ T cells (Immunol. Cell Biol., 2014). Post-doctorally, I investigated the role of NK cells in controlling HIV-1 infection, focusing on their mechanisms in antiviral defense. Currently, as a faculty member, my research includes studying the immunomodulatory effects of heavy metals, exploring their impact on immune cell functionality, and employing the DSS colitis model to investigate the regulatory roles of Breg cells in intestinal inflammation. My work provides a comprehensive understanding of immune regulation in both infectious and non-infectious diseases, aligning with my interests in immune modulation and viral immunology.
15	EXPERIENCE OF PROJECT MANAGEMENT	Managed as Principal Investigator of the project SERB National Post-doctoral grant titled “Analysis Of Toll-Like Receptor Expression And Responsiveness In Natural Killer Cells During HIV-1 Infection” at NCCS, Pune under mentorship of Dr. Debashish Mitra.

16	COMPLETE LIST OF PUBLICATIONS (Maintain Harvard Format)	- Ghosh, A.K., Sinha, D., Mukherjee, S., Biswas, R. and Biswas, T., 2015. LPS stimulates and Hsp70 down-regulates TLR4 to orchestrate differential cytokine response of culture-differentiated innate memory CD8+ T cells. <i>Cytokine</i>, 73(1), pp.44-52. [ELSEVIER] - Ghosh, A.K., Sinha, D., Biswas, R. and Biswas, T., 2017. IL-15 stimulates NKG2D while promoting IgM expression of B-1a cells. <i>Cytokine</i>, 95, pp.43-50. [ELSEVIER] - HALDER, S., AMBIYA, M.G. and SINHA, D., 2023. ROLE OF IMMUNE CHECKPOINTS IN CANCER THERAPY. <i>SCIENCE AND CULTURE</i>. - Kanti Ghosh, A., Sinha, D., Mukherjee, S., Biswas, R. and Biswas, T., 2016. IL-15 temporally reorients IL-10 biased B-1a cells toward IL-12 expression. <i>Cellular & Molecular Immunology</i>, 13(2), pp.229-239.[ELSEVIER] - Sinha, D., Ghosh, A.K., Mukherjee, S., Biswas, R. and Biswas, T., 2015. Porin differentiates TLR mediated proinflammatory response of follicular zone B cell from TLR-unresponsive IL-10 expressing marginal zone B cell. <i>Cytokine</i>, 76(2), pp.193-205. - Ghosh, A.K., Sinha, D., Biswas, R. and Biswas, T., 2016. Pathogen-associated porin turns IL-10 competent B-1a cells toward proinflammatory cytokine response. <i>Immunobiology</i>, 221(12), pp.1369-1373. - Mukherjee, S., Sinha, D., Ghosh, A.K. and Biswas, T., 2014. Bacterial ligand stimulates TLR2-dependent chemokines of colon cell. <i>Immunobiology</i>, 219(5), pp.350-356. - Biswas, R., Mukherjee, S., Sinha, D., Ghosh, A.K. and Biswas, T., 2014. Culture-differentiated CD8+ T cells acquire innate memory-like traits and respond to a pathogen-associated molecule. <i>Immunology and Cell Biology</i>, 92(4), pp.368-376. - Sinha, D., Ghosh, A.K., Mukherjee, S., Biswas, R. and Biswas, T., 2014. Antigenic relatedness defines Toll-like receptor 2 is crafted on ligand blueprint. <i>Immunobiology</i>, 219(10), pp.798-801. - Sinha, D. 2021. Impact of Lockdown Mediated Anthro-Pause on Man-Animal Conflict. <i>Indian Journal of Pure & Applied Biosciences</i>. DOI: 10.18782/2582-2845.8773 (2021) 9(4), 173-179. - Sinha, D. 2020. Multifaceted Function of B Cells in Immunity and Inflammation: A Review. <i>International Journal of Zoological Investigations</i>. Vol. 6, No. 2, 383-392 (2020) - Sarkar A and Sinha D. Atopic Dermatitis and its Pathophysiology- A Critical Review. <i>International Journal of Zoological Investigations</i>. Vol. 10, No. 1, 18-28 (2024) - Mukherjee K and Sinha D. Role of Effector T-cell Subsets in Multiple Sclerosis: A Comprehensive Review. <i>International Journal of Zoological Investigations</i>. <i>International Journal of Zoological Investigations</i>. Vol. 10, No. 2, 1184-1193 (2024)
17	Extracurricular Activities	Painting, Music, Reading, Traveling
18	Link to personal website (if any)	