

RITOBRATA GOSWAMI

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Academic Qualification:

Sl.No.	Degree	University	Year	Subjects
1	B. Tech	West Bengal University of Technology, India	2005	Biotechnology
2	M.E	Birla Institute of Technology & Science, Pilani, India	2007	Biotechnology
3	Ph.D	Indiana University, Indianapolis, USA	2012	Immunology

Work experience (in chronological order)

Sl.No.	Positions held	Name of the Institute	From	To
1.	Postdoctoral fellow	Icahn School of Medicine at Mount Sinai, New York, USA	Nov 2012	Apr 2014
2.	Assistant Professor	Division of Biological & Life Sciences, Ahmedabad University, India	June 2014	November 2016
3.	Assistant Professor	School of Bioscience, IIT Kharagpur, India	December 2016	Present

Professional Recognition

Sl.No.	Name of Award	Awarding Agency	Year
1.	Indiana University Graduate School Translational Fellowship	Indiana University, Indianapolis, USA	2008
2.	American Association of Immunologists Abstract Trainee Award	American Association of Immunologists	2011
3.	National Graduate Student Research Conference Award	National Institutes of Health, USA	2011
4.	Best Thesis Award-Department of Microbiology and Immunology, Indiana University	Indiana University	2012
5.	American Academy of Allergy, Asthma & Immunology Travel Scholarship	American Academy of Allergy, Asthma & Immunology	2014
6.	Associate Fellow	West Bengal Academy of Science and Technology	2020
7.	Runner-up	Merck Young Scientist Award	2021

Publications**Bold and Underline indicate publications as corresponding author**

1. Hansda, AK., Biswas, B., and **Goswami, R.** 17- β Estradiol (E2) distinctly regulates the expression of IL-4 and IL-13 in Th2 cells via modulating the interplay between GATA3 and PU.1. 2024. *Cytokine*. 173, 156440.
2. Rajasekaran, R., Ojha, AK., Seesala, VS., Hansda, AK., Dogra, N., Parimi, JL., Roy, S., **Goswami, R.**, Banerjee, M., and Dhara, S. Polyaniline doped Silk fibroin-PCL Electrospunfiber: An electroactive fibrous sheet for full-thickness wound healing study. 2023. *Chemical Engineering Journal*. 475:146245.

3. Ojha, AK., Rajasekaran, R., Hansda, AK., Singh, A., Dutta, A., Seesala, VS., Das, S., Dogra, N., Sharma, S., **Goswami, R.**, Chaudhury, K., and Dhara, S. Biodegradable Multi-layered Silk-PCL stent for the management of cervical atresia: In-vitro cytocompatibility and extracellular matrix remodelling in-vivo. 2023. *ACS Applied Materials & Interfaces*. 15(33):39099-39116.
4. Biswas, B., Roy, S., Banerjee, I., Jana, S., Bhattacharjee, B., Chakraborty, S., Mondal, A., and **Goswami, R.** Interleukin-10 to Interleukin-6 Ratio in Swab Samples act as Decisive Hyper-Inflammatory Indicators for all Patients potentially infected with the SARS-CoV-2 Delta Variant. 2023. *Heliyon*. 9(6):e16985.
5. Bhanja, A., Roy Chaudhuri, S., Canaj, AB., Vyas, SP., Ortu, F., Smythe, L., Murrie, M., **Goswami, R.**, Dasgupta, S., and Ray, D. Synthesis and characterization of nuclearity modulated [Cu₆Gd₃] and [Cu₅Dy₂] complexes: Magnetocaloric behaviour, slow relaxation of magnetization and biological propensity. 2023. *Dalton Transactions*. 52(12):3795-3806
6. Raj, S., Singh, H., Hansda, AK., **Goswami, R.**, and Bhattacharya, J. Performance and cell toxicity studies for the use of GO-bimetallic oxide hybrids in the absorptive removal of Pb(II) from wastewater : Fixed-bed column study with regeneration. 2023. *Environmental Science and Pollution Research*. 10.1007/s11356-023-25825-9.
7. Biswas, B., Chattopadhyay, S., Hazra, S., Hansda, AK., and **Goswami, R.** COVID-19 pandemic: The Delta variant, T-cell responses and the efficacy of developing vaccines. 2022. *Inflamm. Res*. 71(4):377-396.
8. Banerjee, S., Biswas, SK., Kedia, N., Sarkar, R., Mitra, S., Roy, S., Chowdhury, R., Samaddar, S., Bandopadhyay, A., Banerjee, I., Jana, S., **Goswami, R.**, Dutta, S., Chawla-Sarkar, M., Chakraborty, S., and Mondal, A. Piecewise Isothermal Nucleic Acid Testing (PINAT) for Infectious Disease Detection with Sample-to-Result Integration at the Point-of-Care. 2021. *ACS Sens*. 6(10):3753-3764.
9. Hansda, AK., and **Goswami, R.** 17- β Estradiol signalling affects cardiovascular and cancer pathogenesis by regulating the crosstalk between transcription factors and EC-miRNAs. 2021. *Gene Reports*. 24: 101295.
10. Vyas, SP., and **Goswami, R.** Calcitriol and Retinoic acid antagonize each other to suppress the production of IL-9 by Th9 cells. 2021. *J. Nutr. Biochem*. 96:108788.
11. Pal, A., **Goswami, R.**, and Roy DN. A critical assessment on biochemical and molecular mechanisms of toxicity developed by emerging nanomaterials on important microbes. 2021. *Env. Nanotech. Monit. Man*. 16: 100485.
12. Biswas, B., and **Goswami, R.** Differential Gene Expression Analysis in 1,25(OH)₂D₃ treated Human Monocytes establishes link between AIDS Progression, Neurodegenerative disorders, and Aging. 2021. *Meta Gene*. 28:100886.
13. Vyas, SP., Srivastava, RN., and **Goswami, R.** Calcitriol attenuates TLR2/IL-33 signaling pathway to repress Th9 cell differentiation and potentially limits the pathophysiology of Rheumatoid Arthritis. 2021. *Mol. Cell Biochem*. 476(1):369-384.
14. Majumdar, M., Dubey, A., **Goswami, R.**, Misra, T., and Roy DN. In vitro and in silico studies on the structural and biochemical insight of anti-biofilm activity of andrograpanin from *Andrographis paniculata* against *Pseudomonas aeruginosa*. 2020. *World J Microbiol Biotechnol*. 36:143.
15. **Goswami, R** and Awasthi, A. T cell differentiation and function in Tissue Inflammation: Recent Advances. 2020. *Front Immunol*. 11:289.
16. Vyas, SP., Hansda, AK., Kaplan, MH., and **Goswami, R.** Calcitriol regulates the differentiation of IL-9-secreting Th9 cells by modulating the transcription factor PU.1. 2020. *J Immunol*. 204(5):1201-1213.
17. Vyas, SP.,* Hansda, AK.,* and **Goswami, R.** Rheumatoid Arthritis: ‘melting pot’ of T helper subsets. 2019. *Int Rev Immunol*. 38(5):212-231. * Contributed equally.
18. Vyas, SP., and **Goswami, R.** Size-dependent cellular uptake and TLR4 attenuation by gold nanoparticles in lung adenocarcinoma cells. 2019. *Nanomedicine*. 14(3):229-253.
19. Vyas, SP., and **Goswami, R.** A decade of Th9 cells: Role of Th9 cells in inflammatory bowel disease. 2018. *Front Immunol*. 9:1139.

20. Vyas, SP., and **Goswami, R.** Striking the right immunological balance prevents progression of Tuberculosis. 2017. *Infamm Res.* 66(12):1031-1056.
21. Yogi, M., and **Goswami, R.** Cytotoxicity and intracellular uptake of fluorescent BSA-AuNCs from human monocyte-derived immature dendritic cells. 2017. *J. Bionanosci.* 11:160–167.
22. **Goswami, R.**, Blazquez, AB., Kosoy, R., Rahman, A., Nowak-Wegrzyn, A and Berin, MC. Systemic innate immune activation in food protein induced enterocolitis syndrome. 2017. *J. Allergy Clin. Immunol.* 139(6):1885-1896.e9.
23. **Goswami, R.**, and Kaplan, MH. STAT transcription factors in T cell control of health and disease. 2017. *Int. Rev. Cell Mol. Biol.* 331:123-180.
24. Roy, DN., **Goswami, R.**, and Pal, A. Nanomaterial and Toxicity: what can proteomics tell us about the nanotoxicology? 2017. *Xenobiotica.* 47(7):632-643.
25. Roy, DN*., **Goswami, R*.**, and Pal, A. The insect repellents: A silent environmental chemical toxicant to the health. 2017. *Environ. Toxicol. Pharmacol.* 50:91-102. * Contributed equally.
26. **Goswami, R.**, and Kaplan, MH. Essential vitamins for an effective T cell response. 2016. *World J. Immunol.* 6(1): 39-59.
27. Roy, DN., and **Goswami, R.** Drugs of abuse and addiction: a slippery slope toward liver injury. 2016. *Chem-Biol Interactions.* 255:92-105.
28. Richard, AC*., Tan, C*., Hawley, ET., Gomez-Rodriguez, J., **Goswami, R.**, Yang, XP., Cruz, AC., Penumetcha, P., Hayes, ET., Pelletier, M., Gabay, O., Walsh, M., Ferdinand, JR., Keane-Myers, A., Choi, Y., O’Shea, JJ., Al-Shamkhani, A., Kaplan, MH., Gery, I*., Siegel, RM.,* and Meylan, F*. The TNF-family ligand TL1A and its receptor DR3 promote T-cell mediated allergic immunopathology by enhancing differentiation and pathogenicity of IL-9 producing T cells. 2015. *J. Immunol.* 194(8): 3567-3582. * Contributed equally.
29. Tordesillas, L*., **Goswami, R*.**, Benedé, S., Grishina, G., Dunkin, D., Järvinen, KM., Maleki, SJ., Sampson, HA., and Berin, MC. Skin exposure promotes a Th2-dependent sensitization to peanut allergens. 2014. *J. Clin. Invest.* 124(11):4965-75. * Contributed equally.
30. Jabeen, R., **Goswami, R.**, Awe, O., Kulkarni, A., Nguyen, ET., Attenasio, A., Walsh, D., Olson, MR., Kim, MH., Tepper, RS., Sun, J., Kim, C., Taparowsky, EJ., Zhou, B., and Kaplan, MH. Th9 cell development requires a BATF-regulated transcriptional network. 2013. *J Clin Invest.* 123(11):4641-53.
31. **Goswami, R.**, and Kaplan, MH. Yoking OX40 to regulation of IL-9. 2012. *Nat. Immunol.* 13(10): 942-943.
32. **Goswami, R.**, and Kaplan, MH. Gcn5 is required for PU.1-dependent IL-9 induction in Th9 cells. 2012. *J. Immunol.* 189(6): 3026-3033.
33. **Goswami, R*.**, Jabeen, R*., Yagi, R., Pham, D., Zhu, J., Goenka, S., and Kaplan, MH. STAT6-dependent regulation of Th9 development. 2012. *J. Immunol.* 188(3): 968-975.*Contributed equally.
34. Jabeen, R., Chang, HC., **Goswami, R.**, Nutt, SL., and Kaplan, MH. The Transcription Factor PU.1 Regulates $\gamma\delta$ T Cell Homeostasis. 2011. *PLoS One.* 6(7):e22189.
35. Kaplan, MH., Glosson., NL., Stritesky, GL., Yeh, N., Kinzfogel, J., Rohrabough, SL., **Goswami, R.**, Pham, D., Levy, DE., Brutkiewicz, RR., Blum, JS., Cooper, S., Hangoc, G., and Broxmeyer, HE. STAT3-dependent IL-21 production from T helper cells regulates hematopoietic progenitor cell homeostasis. 2011. *Blood.* 117(23):6198-6201.
36. **Goswami, R.**, and Kaplan, MH. 2011. A Brief History of IL-9. *J. Immunol.* 186(6):3283-3288.
37. Stritesky, GL., Muthukrishnan, R., Sehra, S., **Goswami, R.**, Pham, D., Travers J., Nguyen ET., Levy, DE., and Kaplan, MH. The transcription factor STAT3 is required for T helper 2 cell development. 2011. *Immunity.* 34(1):39-49.
38. Chang, HC*., Sehra, S*., **Goswami, R.**, Yao, W., Yu, Q., Stritesky, GL., Jabeen, R., Han, L., Nguyen, ET., McKinley, CD., Tepper, RS., Robertson, MJ., Perumal, NB., Nutt, SL., and Kaplan, MH. The transcription factor PU.1 is required for the development of IL-9-secreting T cells and allergic inflammation. 2010. *Nat. Immunol.* 11(6):527-534. * Contributed equally.

39. Chang, HC., Han, L., **Goswami, R.**, Nguyen, ET., Pelloso, D., Robertson, MJ., and Kaplan, MH. Impaired development of human Th1 cells in patients with deficient expression of STAT4. 2009. *Blood*. 113(23):5887-5890.

Book Chapters

1. Hazra, S., Chattopadhyay, S., and **Goswami, R.** Immunomodulation of Bone Remodeling in Osteoporosis. 2023. *Osteoporosis - Pathophysiology, Diagnosis, Management and Therapy*.
2. Boosani, CS., and **Goswami, R.** Epigenetics regulations in organ specific disorders. 2022. *Epigenetics in Organ-specific Disorders*. 1-6.
3. Biswas, B., and **Goswami, R.** Epigenetics of T-cell mediated immune responses. 2022. *Epigenetics in Organ-specific Disorders*. 149-180.
4. **Goswami, R.** The structure-function bonhomie of JAK-STAT molecules. 2020. *JAK-STAT Signaling in Diseases*. 9-34.
5. **Goswami, R.**, and Roy, DN. Toxicity of Terpenoids in Human Health. 2019. *Terpenoids Against Human Diseases*. 233-245.
6. Roy, DN., and **Goswami, R.** IL-9 Signaling Pathway: An Update. 2017. *Methods. Mol. Biol.* 1585:37-50.
7. **Goswami, R.** Th9 Cells: New Member of T Helper Cell Family. 2017. *Methods. Mol. Biol.* 1585:1-19.

Conferences

1. Biswas, B and **Goswami, R.** Calcitriol downregulates the differentiation of Th2 cells via regulation of Th2-specific transcription factors. Annual Conference of Scandinavian Society of Immunology. Turku, Finland, June 4-7, 2023.
2. Vyas, SP., Hansda, AK., and **Goswami, R.** Vitamin D-vitamin D receptor regulates the differentiation of IL-9-secreting Th9 cells by modulating the transcription factor PU.1. Annual Conference of British Society for Immunology. Liverpool, UK, December 2-5, 2019.
3. Vyas, SP., and **Goswami, R.** Nutrient-mediated regulation of Th9 cell differentiation. Frontiers in development and molecular medicine: models to insights on the topic. IICB-TRUE, March 1-3, 2019.
4. Vyas, SP., and **Goswami, R.** Gold nanoparticles downregulate inflammation by attenuating Toll-like receptor 4 signaling pathway in lung adenocarcinoma cells. International Conference on Nanotechnology: Ideas, Innovations and Initiatives (ICN:3I-2017). IIT Roorkee, December 6-8, 2017.
5. Richard, A., Tan, C., Hawley, E., Gomez-Rodriguez, J., **Goswami, R.**, et al. The TNF family member TL1A promotes Th9 differentiation and Th9-mediated immunopathology. 101st Annual Meeting of American Association of Immunologists. Pittsburgh, PA, May 2-6, 2014.
6. **Goswami, R.**, Tordesillas, L., and Berin, MC. Epicutaneous Sensitization To Food Allergens Induce IL-4-Producing Cells and T Follicular Helper (Tfh) Cells In An IL-6 and IL-1-Dependent Manner. American Academy of Allergy, Asthma & Immunology Annual Meeting, San Diego, CA, Feb 28-March 4, 2014.
7. Jabeen, R., **Goswami, R.**, Awe, O., and Kaplan, MH. A transcription factor network in Th9 cells. 100th Annual Meeting of American Association of Immunologists. Honolulu, HI, May 3-7, 2013.
8. **Goswami, R.**, and Kaplan, MH. PU.1 regulates chromatin modification of the *IL9* gene in Th9 cells. Keystone Conference for the Biology of Cytokines, Keystone, CO, Feb 5-10, 2012.
9. **Goswami, R.**, and Kaplan, MH. PU.1 regulates chromatin modification of the *IL9* gene in Th9 cells. 6th National Graduate Student Research Conference. National Institutes of Health, Bethesda, MD Oct 16-18, 2011.
10. **Goswami, R.**, and Kaplan, MH. PU.1 regulates chromatin modification of the *IL9* gene in Th9 cells. 98th Annual Meeting of American Association of Immunologists. San Francisco, CA, May 13-17, 2011.
11. Sehra, S., Chang, HC., **Goswami, R.**, Han, L., Nguyen, E., Nutt, SL., and Kaplan, MH. PU.1 expression in T cells is required for the development of IL-9-producing T cells in allergic inflammation. 97th Annual Meeting of American Association of Immunologists. Baltimore, MD, May 7-11, 2010.

Undergoing Projects

1. Macrophage polarization in colorectal inflammation: A study of intervention by vitamin D and short chain fatty acids. As **Co- Principal Investigator**. 2023-2025. Department of Science & Technology, Gol.
2. Integration of metabolome, transcriptome and microbiome data to differentiate between chronic hypersensitivity pneumonitis and idiopathic pulmonary fibrosis. SERB-Core Research Grant. As **Co-Principal Investigator**. 2023-2026. Department of Science & Technology, Gol.

Completed Projects

1. SERB-Young Scientist Award. As Principal Investigator. 2017-2021. Department of Science & Technology, Gol.
2. INNO Indigo Research Award. Project coordinator from India. 2017-2021. Department of Science & Technology, Gol.
3. Institute Scheme for Innovative Research and Development (ISIRD). IIT Kharagpur. Principal Investigator. 2017-2020.
4. The Transcription Factor Hox required for animal development, elucidates a novel mechanism of regulating Th17 and Th9 cell differentiation. SERB-Core Research Grant. As Principal Investigator. 2020-2023. Department of Science & Technology, Gol.

Professional Membership

Life Member: Indian Immunology Society (Membership# 394/11/14).

Editorial responsibility

1. Editor of 'Th9 cells-Methods and Protocols' of the book series Methods in Molecular Biology, Springer. 2017.
2. Topic Editor of 'T Cell Differentiation and Function in Tissue Inflammation' in Frontiers in Immunology. 2020.
3. Editor of book entitled 'Jak-STAT signaling in diseases' in CRC Press, Taylor & Francis. 2020.
4. Joint editor of book 'Epigenetics in Organ Specific Disorders' by Elsevier. 2022.
5. Review Editor: Frontiers in Immunology (Cancer Immunity and Immunotherapy). 2022

Professional Service:

Journals: Ad-hoc reviewer

Journal of Immunology

Immunology

Cytokine

Cell Communication and Signaling

Laboratory Investigation

Mediators of Inflammation

Helicobacter

Biological Chemistry

Atherosclerosis

Human Immunology

DNA and Cell Biology

Tuberculosis

Digestive Diseases and Sciences

Journal of Molecular Medicine

International Reviews in Immunology

Frontiers in Molecular Neuroscience

Frontiers Cellular and Infection Microbiology

Molecular Medicine

Journal of Biosciences

Pigment Cell and Melanoma Research
Biomarkers
Clinical and Experimental Medicine
Environmental Science: Nano
Meta Gene
Cellular Immunology
Respiratory Research
Gut Microbes
Heliyon

Invited talks

1. 49th Annual Meeting of Scandinavian Society of Immunology on June 4-7, 2023 organized by University of Turku.
2. 48th Annual Meeting of Indian Immunology Society on July 8-9, 2022 organized by IIT-BHU.
3. 47th Annual Meeting of Indian Immunology Society on December 18-19, 2021 organized by CSIR-IICB.
4. Invited talk in Society of Inflammation Research. August 1, 2021.
5. Seminar Series in Molecular Medicine. AIIMS, Department of Biotechnology, New Delhi. April 20, 2021.
6. Recent Developments from Molecular Pathogenesis to Theranostics: RDMT-2020. Webinar Organized by IIIT Allahabad on 7-8 Nov, 2020.
7. New Horizons in Biotechnology 2019: NHBT 2019 on September 21, 2019 at Haldia Institute of Technology, West Bengal.
8. 45th Annual Meeting of Indian Immunology Society on November 1-3, 2018 at THSTI, Faridabad.
9. World Immunology Day under the aegis of Indian Immunology Society on April 28, 2016 at Indian Institute of Advanced Research, Gandhinagar.
10. CME:IMMUNOLOGY under the aegis of Indian Immunology Society on August 8-9, 2014 at Nirma University, Ahmedabad.