

## **Dr. Prabhanshu Tripathi**

Senior Scientist

Food, Drug and Chemical Toxicology Division  
**CSIR-Indian Institute of Toxicology Research**  
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### **Research Interests**

- To explore the role of microbiome in human health.
- Toxicant mediated modulation of microbiome and their health consequences.
- Inflammation & Immunology – Mechanisms involved in immune regulation and autoimmunity.

### **Research Experience**

**CSIR-Indian Institute of Toxicology Research (CSIR-IITR) Lucknow, INDIA**

**Senior Scientist**, Jan. 2020- Continuing

- Working on ‘Toxicant mediated modulation of microbiome and their health consequences’.

**Translational Health Science and Technology Institute (THSTI) Faridabad, DELHI-NCR**

**Ramalingaswami Fellow**, Jan. 2016- Jan. 2020

- Working on ‘Role of gut microbiome in metabolic and immunological diseases.’

**University of Gothenburg**

**Gothenburg, SWEDEN**

**Research Scientist**, Jan. 2013- Dec. 2015

- Worked on ‘Role of NKT cells in immune mediated disorders’

**University of Chicago**

**Chicago, USA**

**Post-doctoral Fellow**, April 2011- Dec. 2012

- Worked on ‘microbiome mediated regulation of allergic responses to food antigens’.

**CSIR-Institute of Genomics and Integrative Biology (CSIR-IGIB) Delhi, INDIA**

**Ph.D.**, Sep. 2004 – Feb. 2011

- Identification of genes for allergenic enzymes by screening cDNA library using immunoscreening and RT-PCR
- Cloning, expression and purification of allergenic genes and their derivatives (mutated to reduce allergenicity) followed by *in vitro* and *in vivo* studies to evaluate their efficacy for clinical use.

## Projects

1	Effect of environmental factors (diet & artificial sweetener) on gut microbiome and their consequences on type 2 diabetes.	PI	DBT, India	97.152 Lakhs	2016-20
2	Effect of probiotics on whole gut microbiota and clinical course in patients with critical care illnesses	Co-PI	ICMR, India	42.348 lakhs	2019-22
3	Effects of non-steroidal anti-inflammatory drugs (NSAIDs) on the gut microbiome and host immune responses.	PI	SERB, India	32.00 lakhs	2020-22
4	Detection of SARS-CoV2 in human nasal and pharyngeal samples by RT-PCR method	Co-PI	CSIR, India	195.00 lakhs	2020-21

## Publications

1. Rastogi S, Mohanty S and **Tripathi P (2022)**. Interplay between gut microbiota and autophagy in human health. In: Kumar D and Asthana S (editors), *Autophagy and Metabolism* (pp. 281-300). Chennai: **Elsevier**. ISBN: 978-0-323-99879-6
2. Rastogi S, Mohanty S, Sharma S, **Tripathi P**. Possible role of gut microbes and host's immune response in gut-lung homeostasis. **Front Immunol.** **2022** Oct 4;13:954339.
3. Singh P, et al. A machine learning-based approach to determine infection status in recipients of BBV152 (Covaxin) whole-virion inactivated SARS-CoV-2 vaccine for serological surveys. **Comput Biol Med.** **2022** Jul;146:105419.
4. Panwar S, Kumari, Hitesh Kumar A, Tiwari AK, **Tripathi P** and Asthana S. Structure-based virtual screening, molecular dynamics simulation and in vitro evaluation to identify inhibitors against NAMPT. **Journal of Biomolecular Structure and Dynamics.** **2021**:Jul 6;1-13.
5. S Panwar, S Sharma, **P Tripathi**. Role of Barrier Integrity and Dysfunctions in Maintaining the Healthy Gut and Their Health Outcomes. **Frontiers in Physiology (2021), 1573**
6. Sharma S, **Tripathi P**, Sharma J, Dixit A. Flavonoids modulate tight junction barrier functions in hyperglycemic human intestinal Caco-2 cells. **Nutrition.** **2020; 78:110792.**
7. Singh AK, Tamrakar A, Jaiswal A, Kanayama N, Agarwal A, **Tripathi P**, Kodgire P. Splicing regulator SRSF1-3 that controls somatic hypermutation of IgV genes interacts with Topoisomerase 1 and AID. **Molecular Immunol.** **2019; 116: 63-72**
8. **Tripathi P**, Sedimbi S, Singh AK, Löfbom L, Issazadeh-Navikas S, Weiss S, Förster I, Karlsson M, Yrlid U, Kadri N and Cardell SL. Innate and adaptive stimulation of murine diverse murine NKT cells result in distinct cellular responses. **Eur. J of Immunol.** **2019;49:443-453.**
9. Sharma S, **Tripathi P**. Gut microbiome and type 2 diabetes: where we are and where to go? **J Nutr. Biochem.** **2019; 63: 101-108.**
10. Singh AK, **Tripathi P**, Cardell SL. Type II NKT cells: an elusive population with immunoregulatory properties. **Front Immunol.** **2018; 9: 1969.**
11. Das B, Ghosh T, Kedia S, Rampal R, Saxena S, BAG S, Mitra R, Dayal M, Mehta O, Surendranath A, Travis SPL, **Tripathi P**, Nair GB, and Ahuja V. Analysis of the Gut Microbiome of Rural and Urban Healthy Indians Living in Sea Level and High Altitude Areas. **Scientific Reports.** **2018; 8(1): 10104.**
12. Wilhelmson AS, Stubelius, Fogelstrand AP, Rodriguez ML, Johansson ME, Fagman JB, Duhlin A, **Tripathi P**, Camponeschi A, Rolink AG, Giwercman A, Nissbrandt H, Carlsten H, Mårtensson IL, Karlsson MCI,<sup>6</sup> and Tivesten Å. Testosterone is an

- endogenous regulator of BAFF and splenic B-cell number. *Nature Commun.* 2018; **9(1): 2067**
13. **Tripathi P** and Sharma S (2017). Immunology and Immunotechnology. In: Singh R and Trivedi M (Editors.), Biotechnology: Trends and Applications (pp 1-25). Houston, TX, USA: Studium Press LLC. ISBN: 1-62699-049-2
  14. **Tripathi P**, Sedimbi S, Karlsson M, Yrlid U, Kadri N and Cardell S. TLR stimulation of type II NKT cells requires cell to cell contact with DCs with involvement of CD40-CD40L and IL-12p40. *J Immunol.* 2015; **194:192.20**
  15. Stefka AT, Feehley T, **Tripathi P**, Qiu J, McCoy KD, Mazmanian SK, Tjota MY, Seo GY, Cao S, Theriault BR, Antonopoulos D, Zhou L, Chang EB, Fu YX, and Nagler CR. Commensal bacteria protect against food allergen sensitization. **Proceedings of the National Academy of Sciences: 2014;111(36):13145-50**
  16. **Tripathi P**, Nair S, Singh BP, Arora N. Supplementation of Antioxidants Glutathione and Alpha Lipoic Acid Attenuates Oxidative Stress and Th2 Response in Allergic Airway Inflammation. **Indian journal of allergy, asthma and immunology: 2013;27(1):19-26**
  17. Feehley T, Stefka A, **Tripathi P**, McCoy K, Mazmanian S, Seo GY, Theriault B, Antonopoulos D, Chang E, and Nagler C. Commensal bacteria induce a barrier protective response to prevent sensitization to food allergens. *J Immunol* :2013; **190:120.19**
  18. **Tripathi P**, Stefka A, Feehley T, Patton T, Chang E, Antonopoulos D, Pei Z and Nagler C. Antibiotic induced alterations in the commensal microbiome reduce CD4+Foxp3+ Tregs in the colonic lamina propria and increase allergic responses to food. *J Immunol* :2012;188:175.14
  19. **Tripathi P**, Stefka A, Feehley T, Pei Z and Nagler C. Tlr4-/- mice have reduced proportions of CD4+Foxp3+ Tregs in the colonic lamina propria and increased susceptibility to allergic responses to food. *J Immunol* :2012;188:175.20
  20. Feehley T, Stefka A, **Tripathi P**, Antonopoulos D, Chang E, Theriault B, and Nagler C. Commensal bacteria regulate Treg abundance in a gnotobiotic model of food allergy. *J Immunol* :2012;188:120.
  21. **Tripathi P**, Nair S, Singh BP, Arora N. Molecular and immunological characterization of subtilisin like serine protease, a major allergen of *Curvularia lunata*. *Immunobiology: 2011; 216(3):402-8.*
  22. **Tripathi P**, Nair S, Singh BP, Arora N. Mutated glutathione S-transferase in combination with reduced glutathione shows a synergistic effect in ameliorating oxidative stress and airway inflammation. *Free Radic Biol Med: 2010; 48(6):839-44.*
  23. Nair S., **Tripathi P.**, Singh B.P., and Arora N. Glutathione with mutated glutathione-S-transferase shows synergistic effect in reducing oxidative stress and airway inflammation. *Allergy :2010;65 (Suppl. 92): 90.*
  24. Arora N., **Tripathi P.**, Nair S. and Singh B.P. Molecular cloning and characterization of subtilisin like serine protease allergen from *Curvularia lunata*. *Allergy:2010;65 (Suppl. 92);183.*
  25. **Tripathi P**, Kukreja N, Singh BP, Arora N. Serine protease activity of Cur l 1 from *Curvularia lunata* augments Th2 response in mice. *J Clin Immunol: 2009; 29(3):292-302.*
  26. **Tripathi P.**, Singh B.P., and Arora N. Mutated Glutathione-S-Transferase Reduced Airway Inflammation In Murine Model. *J of Allergy and Clin Immunol :2008;117 (Suppl. 2): S186.*
  27. **Tripathi P**, Singh BP, Arora N. Mutated Glutathione-s-transferase reduced airway inflammation by limiting oxidative stress and Th2 response. *Free Radic Biol Med: 2008; 45:1413-1419.*

28. **Tripathi P**, Singh BP, and Arora N. Bioinformatic analysis of Glutathione-s-transferase from *Curvularia lunata* and *Epicoccum purpurascens*. *Indian journal of allergy, asthma and immunology: 2006;20(2):125*.
29. **Tripathi P**, Singh BP, Arora N. Recombinant allergens–gateway to efficient diagnosis and therapy for atopic asthma and rhinitis. *Indian journal of allergy, asthma and immunology: 2006; 20 (1):41-51*.
30. Identified four allergenic genes and submitted their nucleotide sequences to NCBI (Accession No. - **DQ361009, DQ094186, DQ094187, EU622631**).

### **Honors and Awards**

- 1) Awarded with Ramalingaswami re-entry fellowship from Dept. of Biotechnology, India in 2015-16
- 2) Wenner Gren Foundation (Sweden) ‘Travel Award’ for presenting in annual meeting (May 8<sup>th</sup> to 12<sup>th</sup> 2015) of ‘American Association of Immunology’ New Orleans, USA.
- 3) Selected for ‘Travel Award’ for oral presentation in annual meeting (May 4<sup>th</sup> to 8<sup>th</sup> 2012) of ‘American Association of Immunology’ Boston, USA.
- 4) Selected for **Fellow in Training International Scholarship** to attend ‘**2008 Annual meeting of American Academy of Allergy Asthma and Immunology (AAAAI)**’ at Philadelphia, Pennsylvania, U.S.A (14th-18th March **2008**).
- 5) Selected for **International Travel Scholarship** from European Academy of Allergy Asthma and Immunology to attend **GA2LEN/EAACI Allergy School in Bischoffen – Bischoffsheim (near Strasbourg), France, 21st-24th September 2007** on the topic “Recombinant Allergens: From Fundamental Aspects To Clinical Applications”.
- 6) **UCB-ICAAI Young Scientist Award** by Indian College of Allergy, Asthma and Applied Immunology in Dec **2006**.
- 7) Merit certificate by council of Scientific and Industrial research for securing position in top 20% in CSIR-JRF Exam 2003.

### **Professional Affiliations**

- ✓ Associate Editor **\*Frontiers in Physiology\*** from Frontiers Media SA, Switzerland
- ✓ Member of Editorial Board in **\*Reproductive Immunology\*** from Insight Medical Publishing, USA
- ✓ Member of Editorial Board in **\*Immunology & Immunotherapy\*** from Henry Publication Group, Auckland, NZ
- ✓ Joint Secretary and life member of “Indian Society for Translational Research”, India
- ✓ Life member of “Indian Immunology Society”, India
- ✓ Trainee Member of **American Association of Immunologists**, BETHESDA, USA
- ✓ Fellow In-Training Member of **American Academy of Allergy Asthma and Immunology**, MILWAUKEE, USA.
- ✓ Fellow In-Training Member of **American College of Allergy Asthma and Immunology**, ILLINOIS, USA.
- ✓ Junior Affiliate Member of **European Academy of Allergology and Clinical Immunology**, STOCKHOLM, SWEDEN.

## Academic Progression

### 🚩 Ph.D Biotechnology (2009)

University of Pune, Pune, India

Place of Research- Institute of Genomics and Integrative Biology, Delhi, India.

### 🚩 M. Sc. Biotechnology (2003)

University of Allahabad, Allahabad, India.

### 🚩 B. Sc. (1999)

T.D. College, Jaunpur, V.B.S. Purvanchal University, Jaunpur (U.P.), India

## Teaching Experience

**Institution:** Dolphin (P.G.) Institute of Bio-medical and Natural Sciences Dehradun, India

**Designation:** Assistant professor

**Tenure of teaching:** 2003 - 2004

## Personal Details

Date of Birth:	July 23 <sup>rd</sup> , 1979
Father's Name:	Vashisth Muni Tripathi
Nationality:	Indian
Gender:	Male
Marital Status:	Married