



DR. SEEMA BHARATIYA

Young Professional, Hyderabad

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Summary-

Ph.D. in Biotechnology with over 5 years of experience in molecular biology, immunology, and human genetics. Proficient in gene regulation studies, protein expression/purification, and SNP functional analysis. Skilled in managing lab operations, training personnel, and maintaining documentation aligned with GCP/GLP. Adept at bridging experimental work with biological insight, and now seeking to apply scientific and organizational expertise in industry-focused roles including R&D, clinical research, or regulatory operations.

Experience -

NIAB, Hyderabad

October 2024 – July 2025

Young Professional

Led research on interferon lambda isoforms and SNP-based gene regulation. Executed promoter assays, qPCR, and gene expression profiling. Managed reagents, trained new personnel, and ensured lab compliance. Maintained project timelines and supported cross-functional coordination.

Education-

National Institute of Biomedical Genomics

August 2018 – April 2025

Ph. D in Biotechnology

My doctoral research focused on understanding the biology of **Interferon Lambda 4 (IFNL4)**, a newly discovered type III interferon associated with multiple diseases. I investigated the expression and function of *IFNL4* in human PBMCs, identifying a novel protein isoform (p179+TT) expressed from the TT allele at rs368234815, previously believed to be non-coding. This isoform was shown to be glycosylated and secreted more efficiently than canonical IFN- λ 4, although it lacked classic interferon signaling activity.

Additionally, I expressed and purified *IFNL4* and its mutants (K154E and Δ T) in *E. coli* through a complex multistep refolding protocol. Functional studies revealed that the **K154E variant** strongly induced interferon-stimulated genes (ISGs) and significantly reduced *Leishmania donovani* infection in macrophages via enhanced ROS production. This work uncovered new insights into *IFNL4* isoforms and their immunomodulatory potential, bridging molecular genetics with host–pathogen interaction.

Babasaheb Bhimrao Ambedkar University Lucknow

May 2013 - May 2015

M.Sc. in Biotechnology

Bundelkhand University

May 2010 - May 2013

B.Sc. Hons in Biotechnology

Skills -

Technical:

- **Molecular Biology & Gene Editing:** PCR, qPCR, mutagenesis, CRISPR familiarity, plasmid design, cloning
- **Immunology & Cell Culture:** PBMCs, HEK293T, THP-1, A549; immune stimulation assays

- **Protein Studies:** Recombinant expression (E. coli, mammalian), Western blot, Ni-NTA purification
- **Assays & Analysis:** ELISA, EMSA, reporter assays, ROS quantification, infection models
- **Documentation & Compliance:** Protocol writing, lab notebooks, QC checks, GCP/GLP familiarity
- **Software:** GraphPad Prism, Excel, BLAST, GenBank, UniProt

Soft Skills:

- Self-motivated, collaborative, detail-oriented, innovative problem-solver
- Effective science communicator with mentoring experience

Awards -

DBT JRF, 2017

GATE BT, 2016

GATE BT, 2017

Publications -

- **JICR** **2023**
Bharatiya, S., Agarwal, A., & Chinnaswamy, S. (2023). A novel inactive isoform with a restored reading frame is expressed from the human interferon lambda 4 TT allele at rs368234815. Journal of Interferon & Cytokine Research, 43(9), 370-378.
- **Infection and Immunity** **2024**
De, M., Sukla, S., Bharatiya, S., Keshri, S., Roy, D. G., Roy, S., ... & Chinnaswamy, S. (2024). IFN-λ3 is induced by Leishmania donovani and can inhibit parasite growth in cell line models but not in the mouse model, while it shows a significant association with leishmaniasis in humans. Infection and Immunity, e00504-23.
- **Cytokine** **2021**
Roy, S., Roy, D. G., Bhushan, A., Bharatiya, S., & Chinnaswamy, S. (2021). Functional genetic variants of the IFN-λ3 (IL28B) gene and transcription factor interactions on its promoter. Cytokine, 142, 155491
- **Cytokine** **2024**
Roy, D. G., De, M., Bharatiya, S., Khedekar, D. A., Datta, K., Bhattacharjee, S., & Chinnaswamy, S. (2024). Evidence for a sex-dependent effect modification in the association between IFN-λ DNA polymorphisms and expression of IFN-λ and interferon-stimulated genes in human PBMCs. Cytokine, 184, 156779.

Certifications -

Poster presentation-

- A Novel Inactive Isoform with a Restored Reading Frame Is Expressed from the Human Interferon Lambda 4 TT Allele at rs368234815, **Seema Bharatiya**, Aditya Agarwal, Sreedhar Chinnaswamy- 7th Molecular Virology Meeting held in Faculty Hall, Indian Institute of Science, Bengaluru from 22nd to 23rd September 2023.
- Poster presentation-Functional Characterization of Interferon Lambda 4 in Human Primary Cells (PBMCs) **Seema Bharatiya**, Aditya Agarwal, Sreedhar Chinnaswamy-Frontiers in Modern Biology (FIMB) organized by the Department of Biological Sciences, IISER Kolkata. JANUARY 20-22, 2023.
- Poster presentation-Functional Characterization of Interferon Lambda 4 in Human Primary Cells (PBMCs), **Seema Bharatiya** and Sreedhar Chinnaswamy -91st Annual Meeting of the Society of Biological Chemists (India). Biswa Bangla Convention Center, Kolkata 8-11 December, 2022.

Conference-

- Attended 44th Annual Conference of the Indian Society of Human Genetics, organized by National Institute of Biomedical Genomics, January 2019
- Attended hands-on training on NGS library preparation during course work.
- Attended 2 days national conference on bio. engg and biotechnology: an industrial prospective organized by Amity university, Lucknow held on 16-17 October 2014
- Attended a 2nd Lucknow science congress organized by BBAU Lucknow held on 27-28 march 2014
- Attended 2 days national conference on emerging trends in biotechnology and pharmaceutical research organized by Mangalaytan University held on 18-19 February 2012.

Trainings -

- GCP & Clinical Research Fundamentals – Internal (NIAB/NIBMG)
- Biosafety & Lab Compliance
- Hands-on: NGS Library Prep

Languages - English, Hindi

References - Upon request

Declaration-

I hereby confirm that the information given above is true to the best of my knowledge. I would be very much obliged if I am given an opportunity for a personal interview so that I can prove myself.

Place: **Hyderabad**

Dr. Seema Bharatiya