

MOHD KHUBAIB, PhD

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Education

- **Ph.D. Biochemistry** 2016
Work place: **Dr. Reddy's Institute of Life Sciences**, University of Hyderabad campus.
PhD awarded by **University of Hyderabad**, Hyderabad, Telangana, India.
Thesis Title: Role of *PE/PPE* genes from region of differences of *Mycobacterium tuberculosis* in antigenicity and immune modulation.
Supervisor(s): **Dr. Nasreen Z Ehtesham and Prof. Seyed Ehtesham Hasnain.**
- **Master of Science (Biosciences)** 2008
Jamia Millia Islamia,
New Delhi, India.
- **Bachelor of Science (Biosciences)** 2006.
Jamia Millia Islamia,
New Delhi, India.

Research Interest

- Pathophysiology of infectious diseases
- Immunology
- Cell & Molecular Biology

Research summary

My Recent research focusses on importance of Toxin-Antitoxin (TA) systems in *M. tb* which includes:

- To study the role TA family in survival of Mycobacterium and their role in development of Antibiotic resistance.
- Unraveling the Functional Cooperation between Ubiquitin-Proteasome Pathway and Xenophagy (Selective autophagy): Role of Toxin-Antitoxin (TA) family proteins of Mycobacterium tuberculosis.

I am interested in application-based research that includes development of diagnostic tools for various infectious diseases. I am also open for collaborative research.

For my PhD, I worked at **Dr Reddy's Institute of Life Sciences** (a Joint venture of **Dr Reddy's Laboratories and University of Hyderabad**), University of Hyderabad Campus, Hyderabad. My doctoral research focused on the role of unique families of proteins (PE/PPE) present exclusively in *Mycobacterium* species localised to important regions in the genome of *M. tb* known as Region of Differences (RDs).

Research and Professional Experience

- **Assistant Professor** (October 2020-present)
Department of Biosciences, Integral University, Lucknow, India
- **Silver Jubilee Postdoctoral fellow** (March 2018-October 2020)
Institute of Molecular Medicine, Jamia Hamdard, New Delhi, India
- **Research Associate** (July 2016-February 2018)
Department of Biotechnology, Jamia Millia Islamia, New Delhi, India

Subject Taught at UG/PG level:

- Cell Biology/Cytology (UG and PG classes)
- Genetics/Molecular genetics (UG and PG classes)
- Immunology (UG classes)
- Cell Biology & Genetics (UG classes)

Awards & Scholarships

- Awarded **Silver Jubilee Post-Doctoral Fellowship by Jamia Hamdard**, New Delhi in 2018.
- Awarded **Research Associateship by the Department of Biotechnology, Government of India** in 2016.
- Qualified Junior Research Fellowship (JRF) and National Eligibility test (NET) for Assistant Professorship program, conducted by Council of Scientific & Industrial Research (CSIR) with **All India Rank 220** in 2009.
- Qualified Indian Council for Medical Research (ICMR) JRF in 2009.

Research Grants and Fundings

- **Seed Grant, Integral University Lucknow**
 - **Title:** To study the role Toxin- Antitoxin family in survival of Mycobacterium and their role in development of Antibiotic resistance.
 - **Sanction ID:** IUL/IIRC/SMP/2002/005,
 - **Sanctioned amount:** 1.5 lacs
- **Research Grant, From Council for Science and Technology, UP**
 - **Title:** Unraveling the Functional Cooperation between Ubiquitin-Proteasome Pathway and Xenophagy (Selective autophagy): Role of Toxin-Antitoxin (TA) family proteins of *Mycobacterium tuberculosis*"
 - **Project ID:** 1510
 - **Sanctioned amount:** 13.44 Lacs

Publications

First Author/Corresponding Author

1. Saima khan, Firoz Ahmad, Mohd Ikram Ansari, Mohammad Ashfaq, Mohammad Hayatul Islam, **Mohd Khubaib**, Toxin-Antitoxin system of Mycobacterium tuberculosis: Roles beyond stress sensor and growth regulator, Tuberculosis, Volume 143, 2023, 102395, ISSN 1472-9792, <https://doi.org/10.1016/j.tube.2023.102395>. (**Impact factor: 3.2**)
2. Iqra Bashir Nehvi*, Neha Quadir*, **Mohd Khubaib***, Javaid Ahmad Sheikh, Mohd Shariq, Krishnaveni Mohareer, Sharmistha Banerjee, Syed Asad Rahman, Nasreen Z. Ehtesham and

- Sayed E. Hasnain, ArgD of *Mycobacterium tuberculosis* is a functional N-acetylmethionine aminotransferase with moonlighting function as an effective immune modulator, *International Journal of Medical Microbiology*, (2021) doi: <https://doi.org/10.1016/j.ijmm.2021.151544> (***Contributed equally**) (**Impact factor: 4.1**)
3. Ahmad, J., **Khubaib, M***, Sheikh, J.A., Pancsa, R., Kumar, S., Srinivasan, A., Babu, M.M., Hasnain, S.E. and Ehtesham, N.Z. (2020), Disorder-to-order transition in PE–PPE proteins of *Mycobacterium tuberculosis* augments the pro-pathogen immune response. *FEBS Open Bio*, 10: 70-85. doi:10.1002/2211-5463.12749. (***Equal Contribution**) (**Impact factor: 2.792**)
 4. Pandey, S*, Tripathi, D*, **Khubaib, M***, Kumar, A., Sheikh, J. A., Sumanlatha, G., Ehtesham, N. Z., & Hasnain, S. E. (2017). *Mycobacterium tuberculosis* Peptidyl-Prolyl Isomerases Are Immunogenic, Alter Cytokine Profile and Aid in Intracellular Survival. *Frontiers in cellular and infection microbiology*, 7, 38. <https://doi.org/10.3389/fcimb.2017.00038> (***Equal Contribution**) (**Impact factor: 5.7**)
 5. **Khubaib, M.**, Sheikh, J. A., Pandey, S., Srikanth, B., Bhuwan, M., Khan, N., Hasnain, S. E., & Ehtesham, N. Z. (2016). *Mycobacterium tuberculosis* Co-operonic PE32/PPE65 Proteins Alter Host Immune Responses by Hampering Th1 Response. *Frontiers in microbiology*, 7, 719. <https://doi.org/10.3389/fmicb.2016.00719> (**Impact factor: 6.064**)

Coauthor:

6. Firoz Ahmad, Shad Ahmad, Tarun Kumar Upadhyay, Deepak Sharma, Sanjay Singh, **Mohd Khubaib**, Jyotsna Singh, Mohd Saeed, Irfan Ahmad, Rolee Sharma. Rifabutin loaded inhalable β -glucan microparticle based drug delivery system for pulmonary TB. *Sci Rep* **14**, 16437 (2024). <https://doi.org/10.1038/s41598-024-66634-5> (**Impact factor: 3.8**)
7. Firoz Ahmad, Shad Ahmad, Tarun Kumar Upadhyay, Deepak Sharma, Sanjay Singh, **Mohd Khubaib**, Jyotsna Singh, Mohd Saeed, Irfan Ahmad, Rolee Sharma. β -glucan primed and DYDGP microparticles treatment induces trained immunity against mycobacterium tuberculosis infected human macrophage: an in vitro study. *BMC Infectious Diseases* (**under review**).
8. Firoz Ahmad, Shad Ahmad, Adil Husain, Niharika Pandey, **Mohd Khubaib**, Rolee Sharma. Role of inflammatory cytokine burst in neuro-invasion of Japanese Encephalitis virus infection: an immunotherapeutic approach. *J. Neurovirol.* (2024). <https://doi.org/10.1007/s13365-024-01212-z> (**Impact factor: 3.2**)
9. Firoz Ahmad, Niharika Pandey, Shad Ahmad, Kratika Singh, **Mohd Khubaib**, Rolee Sharma (2023) Recent advances in Nano-carrier based therapeutic and diagnostic approaches in Tuberculosis. *Precis. Nanomed.*6(4):1134-1156, <https://doi.org/10.33218/001c.98699> (**Impact factor:1.2**)
10. P M, Ahmad J, Samal J, Sheikh JA, Arora SK, **Khubaib M**, Aggarwal H, Kumari I, Luthra K, Rahman SA, Hasnain SE and Ehtesham NZ (2021) *Mycobacterium tuberculosis* Specific Protein Rv1509 Evokes Efficient Innate and Adaptive Immune Response Indicative of Protective Th1 Immune Signature. *Front. Immunol.* 12:706081. doi: 10.3389/fimmu.2021.706081 (**Impact factor: 8.787**)
11. Shariq M, Quadir N, Sharma N, Singh J, Sheikh JA, **Khubaib M**, Hasnain SE and Ehtesham NZ (2021) *Mycobacterium tuberculosis* RipA Dampens TLR4-Mediated Host Protective Response Using a Multi-Pronged Approach Involving Autophagy, Apoptosis, Metabolic Repurposing, and Immune Modulation. *Front. Immunol.* 12:636644. doi: 10.3389/fimmu.2021.636644 (**Impact factor: 8.787**)
12. Hina Singh, Jasdeep Singh, **Mohd Khubaib**, Salma Jamal, Javaid Ahmed Sheikh, Sunil Kohli, Sayed Ehtesham Hasnain & Syed Asad Rahman (2020). Mapping the genomic landscape & diversity of COVID-19 based on >3950 clinical isolates of SARS-CoV-2:

- Likely origin & transmission dynamics of isolates sequenced in India. **Indian J Med Res.** DOI: 10.4103/ijmr.IJMR_1253_20 (**Impact factor: 5.274**)
13. Sheikh, J. A., Singh, J., Singh, H., Jamal, S., **Khubaib, M.**, Kohli, S., Dobrindt, U., Rahman, S. A., Ehtesham, N. Z., & Hasnain, S. E. (2020). Emerging genetic diversity among clinical isolates of SARS-CoV-2: Lessons for today. *Infection, genetics and evolution : journal of molecular epidemiology and evolutionary genetics in infectious diseases*, 104330. Advance online publication. <https://doi.org/10.1016/j.meegid.2020.104330> (**Impact factor: 4.393**)
 14. Jamal, S., **Khubaib, M.**, Gangwar, R. et al. Artificial Intelligence and Machine learning based prediction of resistant and susceptible mutations in Mycobacterium tuberculosis. **Sci Rep** 10, 5487 (2020). <https://doi.org/10.1038/s41598-020-62368-2> (**Impact factor: 5.133**)
 15. Pandey, S., Sharma, A., Tripathi, D., Kumar, A., **Khubaib, M.**, Bhuwan, M., Chaudhuri, T. K., Hasnain, S. E., & Ehtesham, N. Z. (2016). Mycobacterium tuberculosis Peptidyl-Prolyl Isomerases Also Exhibit Chaperone like Activity In-Vitro and In-Vivo. **PloS one**, 11(3), e0150288. <https://doi.org/10.1371/journal.pone.0150288> (**Impact factor: 3.752**)
 16. Bhuwan, M., Arora, N., Sharma, A., **Khubaib, M.**, Pandey, S., Chaudhuri, T. K., Hasnain, S. E., & Ehtesham, N. Z. (2016). Interaction of Mycobacterium tuberculosis Virulence Factor RipA with Chaperone MoxR1 Is Required for Transport through the TAT Secretion System. **mBio**, 7(2), e02259. <https://doi.org/10.1128/mBio.02259-15> (**Impact factor: 7.786**)

PhD supervision

- Mr. Firoz Ahmad, “Investigating the role of LAP Inactivation by nano Rifabutin loaded glucan particles in mycobacterial killing within human macrophage”, **thesis submitted**.
- Ms. Saima Khan, “Role of Toxin-Antitoxin family genes in Pathophysiology of *Mycobacterium tuberculosis*”, ongoing.
- Ms. Ishrat Jahan “The protective and therapeutic anti-Alzheimer potential of *Glycorrhiza Glabra*: An in silico and in vitro Study”, ongoing.
- Mr. Mohd Zakir “Therapeutic efficacy of secondary metabolites from *Allium sativum* (Garlic) in protection against *Mycobacterium Tuberculosis* infection”, ongoing.

B.Sc./M.Sc. Dissertation: 15

Conferences/Workshops Organization/Presentation

- Organised one day International Seminar on “**Application of Microbes in Synthetic Biology and Allied Sciences**” on 18th September 2023, in the Department of Biosciences, Integral University, Lucknow.
- Organised DST-STUTI Sponsored Seven Days Hands on Training Programme On “**Advanced Molecular Biology Techniques**” held from 1st December to 7th December, 2022 in the Department of Biosciences (DST-FIST) and Integral Information & Research Centre (IIRC), Integral University, Lucknow

- Organised two weeks online Professional development programme on “**Future Prospects of Molecular Technologies in Biological Research**” From 23 November to 8 December-2021, in the Department of Biosciences, Integral University, Lucknow.
- **Organiser and technical expert** in training program on “**Modern biology with focus on Infectious diseases**” from 18th November to 14th December 2019 at Jamia Hamdard.
- Poster presentation at **Global-Bio India, 2019**, New Delhi, India.
- **Oral Presentation in Post-Doctoral Research Conclave 2018 in Jamia Hamdard**, New Delhi, India.
- Poster presentation in the conference organized by **Association of Microbiologists of India at Jawaharlal Nehru University**, New Delhi, India in 2015.
- Poster presentation at **Bio World-2014**, organized by Indian Institute of Technology-Delhi, India.
- Participated as a **faculty in hands on workshop organized at National Institute of Pathology**, Safdarjung hospital campus, New Delhi, India in 2015.

References

- **Prof. Seyed Ehtesham Hasnain**,
Former Member (2004-14),
Scientific Advisory Council to the Prime Minister of India (SAC-PM)
National Science Chair
Indian Institute of Technology, Delhi (IIT-D)
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- **Prof. Nasreen Zafar Ehtesham**
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- **Dr. Mir Snober Shabnam**
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Declaration:

I hereby declare that the above furnished details are true to the best of my belief and knowledge.



Mohd Khubaib

