



SAMEENA KHAN, PhD

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Academic Qualifications:

- Aug 2019-till date: Technical Research Expert, Premas Biotech, Manesar, India.
- Oct 2014-July 2019: INSPIRE Faculty, Translational Health Science and Technology Institute (THSTI), Faridabad, India.
- April 2013-Sep 2014: Research Associate, International Centre for Genetic Engineering and Biotechnology, New Delhi, India.
- July 2008-March 2013: PhD student- Characterization of aminoacyl-tRNA synthetases from malaria parasite *Plasmodium falciparum*, International Centre for Genetic Engineering and Biotechnology, New Delhi, India.
- Oct 2007- June 2008: Junior research fellow- Identification and characterization of MicroRNAs from *Oryza sativa indica* under different physiological conditions. Plant Molecular Biology Department, ICGEB, New Delhi, India.
- 2004-2006: Master of Science (Biotechnology), Banasthali Vidyapith, Banasthali, Rajasthan (India) 72.58% marks, First Class.
- 2001-2004: Bachelor of Science (Chemistry, Zoology, Botany and English), M.D.S. University, Ajmer, Rajasthan (India), 72.68% marks, First Class.

Positions and Research activities:

- **Oct 2014-July 2019:** INSPIRE faculty at the Translational Health Sciences and Technology Institute, Faridabad

Project Title: Deciphering the role of human protein degradation machinery in cardiovascular diseases.

Description: My group has interested in decrypting the fine balance between ubiquitination and deubiquitination processes, and probes how this fine-tuning regulates the cardiovascular diseases.

- **April 2013- Sep 2014:** Research Associate in Structural Parasitology Group, ICGEB, New Delhi

Project Title: Pathogen protein translation machinery for drug discovery.

Description: I have worked on the cellular, functional, and structural characterization of *Plasmodium falciparum* multi-synthetase complex. I had specifically worked on the co-crystallization, protein-protein and protein-drug interaction studies, and cell biology of the multi- synthetase complex in *P.falciparum*.

July, 2008-March, 2013: Ph.D student in Structural Parasitology Group, ICGB, New Delhi.

Registration: Banasthali Vidyapith

Thesis Title: Characterization of aminoacyl-tRNA synthetases from malaria parasite *Plasmodium falciparum*.

Description: My PhD work was focused on the structural, functional and cellular characterization of malaria parasite proteins, aminoacyl-tRNA synthetases (aaRSs), which constitute parasite's translation machinery. aaRSs are the linchpin of protein translation machinery as they establish genetic code by transferring the correct amino acid to cognate tRNA molecule.

Awards and Achievements:

1. SERB Women Excellence Award, 2017
2. NASI Young Scientist Platinum Jubilee Award, 2016
3. Associate of the Indian Academy of Sciences, 2016
4. INSA Medal for Young Scientist Award, 2015
5. INSPIRE faculty fellowship, 2014
6. Biocare DBT young scientist fellowship, 2014
7. Best Poster Award at International Symposium-cum-workshop New Advances in X-Ray Diffraction and Cryo-Electron Microscopy, 2014
8. Global travel Award Winner (Bill and Melinda Gates foundation)- Keystone, Malaria, 2013
9. Abstract selected for XXIV tRNA conference, 2012
10. Qualified CSIR-UGC SRF Fellowship (June, 2011)
11. Merit Scholarship holder during M.Sc (Biotechnology)

Publications:

1. Gupta I & **Khan S**: Structural characterization of the Ubiquitin-like domain of the shuttle proteins from *Plasmodium falciparum*. **Proteins**, (In review)
2. Singh K, Gupta A, Sarkar A, Rana S, Gupta I, Sarkar S & **Khan S**: Arginyltransferase knockdown attenuates cardiac hypertrophy and fibrosis through TAK1-JNK1/2 pathway. **Scientific Reports**, (In review)
3. Gupta I & **Khan S**: Characterization of TRIM72 E3 ligase activity and its interaction with the IRS1 protein. **Biochemical and Biophysical Research Communications**, (In review)
4. Gupta I*, Varshney NK* & **Khan S**: Emergence of members of TRAF and DUB of Ubiquitin Proteasome System in the regulation of hypertrophic cardiomyopathy. **Frontiers in Genetics**, 2018
5. Gupta I, Aggarwal S, Singh K, Yadav A, **Khan S**: Ubiquitin Proteasome pathway as potential drug target in parasite *Trypanosoma cruzi*. **Scientific Reports**, 2018
6. Gupta I*, Singh K*, Varshney NK* & **Khan S**: Delineating Crosstalk Mechanisms of the Ubiquitin Proteasome System that Regulate Apoptosis. **Frontiers in Cell and Developmental Biology**, 2018 (* these authors have contributed equally)
7. **Khan S***: Recent advances in our understanding of the biology and drug targeting of malaria parasite aminoacyl-tRNA synthetases. **Malaria Journal**, 2016 (* first and the corresponding author).
8. Shandilya A, Hoda N, **Khan S**, Jameel E, Kumar J, Jayaram B: De novo lead optimization of triazine derivatives identifies potent antimalarials. **Journal of Molecular Graphics and Modelling**, 2016
9. **Khan S**, Sharma A, Belrhali H, Yogavel M & Sharma A: Structural basis of malaria parasite lysyl-tRNA synthetase inhibition by cladosporin. **J Struct Funct Genomics**, 2014

10. Manhas R, Tripathi P, **Khan S**, Sethu Lakshmi B, Lal SK, Gowri VS, Sharma A, Madhubala R. Identification and functional characterization of a novel bacterial type asparagine synthetase A: atRNA synthetase paralog from Leishmania donovani. **J Biol Chem**, 2014
11. **Khan S**, Garg A, Sharma S, Camacho N, Picchioni D, Saint-Léger A, Ribas de Pouplana L, Yogavel M & Sharma A: An appended domain results in an unusual architecture for malaria parasite tryptophanyl-tRNA synthetase. **Plos One**, 2013
12. **Khan S**, Garg A, Camacho N, Van Rooyen J, Pole AK, Belrhali H, Ribas de Pouplana L, Sharma V & Sharma A: Structural analysis of malaria parasite lysyl-tRNA synthetase provides platform for drug development. **Acta Crystallogr D Biol Crystallogr**, 2013
13. Bhatt TK,* **Khan S**,* Dwivedi VP, Banday MM, Sharma A, Chandele A, Camacho N, Ribas de Pouplana L, Wu Y, Craig AG, Mikkonen AT, Maier AG, Yogavel M & Sharma A: Malaria parasite tyrosyl-tRNA synthetase secretion triggers pro-inflammatory responses. **Nature Communications**, 2011 (* these authors have contributed equally)
14. **Khan S***, Sharma A*, Jamwal A*, Sharma V, Pole AK, Thakur KK & Sharma A: Uneven spread of cis- and trans-editing aminoacyl-tRNA synthetase domains within translational compartments of P. falciparum. **Scientific Reports**, 2011 (* these authors have contributed equally).
15. Jackson KE*, Habib S*, Frugier M, Hoen R, **Khan S**, Pham JS, Ribas de Pouplana L, Royo M, Santos MA, Sharma A & Ralph SA: Protein translation in Plasmodium parasites. **Trends Parasitol**, 2011. Review
16. Yogavel M, **Khan S**, Bhatt TK & Sharma A: Structure of D-tyrosyl-tRNATyr deacylase using home-source Cu Kalpha and moderate-quality iodide-SAD data: structural polymorphism and HEPES-bound enzyme. **Acta Crystallogr D Biol Crystallogr**, 2010.
17. Bhatt TK, Kapil C, **Khan S**, Jairajpuri MA, Sharma V, Santoni D, Silvestrini F, Pizzi E & Sharma A: A genomic glimpse of aminoacyl-tRNA synthetases in malaria parasite Plasmodium falciparum. **BMC Genomics**, 2009

Patents:

S.NO	Patent Title	Name of Applicant(s)	Patent No.	Filing date	Country of filing	Status
1.	Novel molecules and their HIV inhibitory activity	Kanury Rao, Dinesh Mahajan, Shailendra Asthana, Shilpa Jamwal, Sameena Khan & Debashish Mitra	Indian Patent Application No. 2017110 09180	16 March 2017	INDIA	Provisional

Grants:

S. No	Title	Cost in Lakh	Month of submission	Role as PI/Co- PI	Agency	Status
1.	Deciphering the role of human protein degradation machinery in metabolic syndrome	3500000	9 oct 2014-8 oct 2019	PI	DST	Ongoing
2.	Molecular dissection of the functioning of ubiquitin proteasome modules; Mulan and USP 18 and their implications in metabolic disorder	1500000	1 Dec 2016-30 Nov 2019	PI	INSA	Ongoing
3.	Illuminating the structural aspect of Trim72 E3 ligase in metabolic syndrome	1800000	1 Mar 2017-28 Feb 2020	PI	SERB	Ongoing
4.	Development and PoC Validation of A Novel Approach to Treat HIV Infection by Integrating Anti-viral Activity With Stimulation of Host Cell Innate Immunity	16000000	15 Oct 2016	Key Investigator (Drs. Kanury Rao, Dinesh Mahajan, Shailendra Asthana, Shilpa Jamwal, Sameena Khan & Debashish Mitra)	CRS-BIRAC	Ongoing
5.	Secreted virulence proteins of <i>Mycobacterium tuberculosis</i> – Targets for therapeutic application	1000000	1 Oct 2017-30 Sep 2018	Investigator (Drs Krishnamohan Atmakuri, Sameena Khan , Dinesh Mahajan, Shailendra Asthana)	THSTI-Intramural Grant	Ongoing

Conferences and workshops attended:

- Participated in the International Conference on Structure Assisted development of Novel Therapeutics, Reginal Centre for Biotechnology, India, 2019
- Presented Poster at 10th Young Investigator Meeting, Kerala, 2018
- Attended and Presented Poster at Indian International Science Festival, Anna University, Chennai, 2017
- Genomeet, 14th Annual Meeting of International Society for Heart Research, New Delhi, 2017
- IUCr Crystallography Conference, Hyderabad, 2017
- Rapidata, at SSRL synchrotron, Stanford University, USA, 2017
- Presented Poster at Young Investigator Meeting, Srinagar, 2015
- Presented Poster at International Symposium-cum-workshop New Advances in X-Ray Diffraction and Cryo-Electron Microscopy, 2014
- Presented Poster at Keystone malaria conference, USA, Jan. 2013
- Presented Poster at XXIV tRNA conference Chile, 2012
- Presented Poster at National symposium on Fight against malaria, Rohtak, 2013
- MEPHITIS annual meeting, Delhi, 2010
- MEPHITIS annual meeting, Barcelona, 2009
- International conference on crystallography, Delhi, 2009
- National parasitology congress meeting, Nehu Shilong, 2008

Exchange faculty visit programme Indo-US Science and Technology Forum (IUSSTF): Stanford University, California, USA, November 15-24, 2016: To carry out discussions regarding the collaborative work on metabolic diseases and cancer networking with Prof. Sanjay Malhotra, Stanford University, as a part of Joint Centre award.

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Supervised Dissertation and Summer Training:

Master Dissertation	Vidhi Kaushik	Jan-June 2019
Summer Training	Sanjeev Kumar Sharma	May-July 2019
Summer Training	Saurabh Singh Dhakar	June-July 2019

References:

- **Prof Gagandeep Kang**, Executive Director
Translational Health Science and Technology Institute,
Faridabad, Haryana
Phone: 01292876400. **E.mail:** gkang@thsti.res.in
- **Dr. Amit Sharma**, Ph.D, Group Leader
Structural Parasitology Group, International Centre for Genetic Engineering & Biotechnology

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