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Prof. Janendra K. Batra joined Jamia Hamdard in February 2017.

Education

MSc Biochemistry, Allahabad University

PhD Medical Biochemistry, V. P. Chest Institute, University of Delhi

Post-doctoral research

- Laboratory of Molecular Biology, National Cancer Institute, NIH, USA
- Manitoba Institute of Cell Biology, Winnipeg, Canada
- Laboratory of Pharmacology and Experimental Therapeutics, National Cancer Institute, NIH, USA

Awards/Fellowships

- Elected Fellow, The National Academy of Sciences, India
- Elected Fellow, The Indian Academy of Sciences, India
- Sreenivasaya Memorial Award of Society of Biological Chemists (India) for outstanding contributions to Biological Sciences.
- Elected Fellow, Guha Research Conference

Research interests

Prof. Batra's research is focused on the following two major themes.

1. Investigation of the role of human ribonucleases, particularly eosinophil ribonucleases, eosinophil cationic protein (ECP) and eosinophil-derived neurotoxin (EDN) in host defense. Human ribonucleases, and naturally occurring protein toxins are being explored to design knowledge-based recombinant toxins.

2. Investigation of crucial housekeeping proteins of *M. tuberculosis* for their role in survival and virulence of the pathogen. The functioning of caseinolytic protease (Clp) machinery and RNase P-mediated tRNA maturation is being investigated in *M. tuberculosis*.

Selected publications

1. Attery, A. and Batra, J. K. (2017) Mouse eosinophil associated ribonucleases: Mechanism of cytotoxic, antibacterial and antiparasitic activities. *Int. J. Biol. Macromol.* 94:445-450.
2. Singh, A., Shah, U., and Batra, J. K. (2016) Functional role of putative critical residues in *Mycobacterium tuberculosis* RNase P protein. *Int. J. Biochem. Cell Biol.* 78:141-148.
3. Singh, A., Shah, U., Ramteke, A.K. and Batra, J.K. (2016) Influence of conformation of *M. tuberculosis*

- RNase P protein subunit on its function. *Plos One* 11(4):e0153798.
4. Singh, A, Ramteke, A. K., Afroz, T and Batra, J. K. (2016) Insight into the role of histidine in RNR motif of protein component of RNase P of *M. tuberculosis* in catalysis. *IUBMB Life* 68: 178-189.
 5. Parijat, P. and Batra, J. K. (2015) Role of DnaK in HspR-HAIR interaction of *Mycobacterium tuberculosis*. *IUBMB Life*, 67:816-827.
 6. Yadav, S. K. and Batra, J. K. (2015) Ribotoxin restrictocin manifests anti-HIV-1 activity through its specific ribonuclease activity. *Int. J. Biol. Macromol.* 76: 58-62.
 7. Chopra, A. and Batra, J. K. (2014) Antimicrobial activity of human eosinophil granule proteins. *Meth. Mol. Biol.* 1178: 267-281.
 8. Bajaj, D. and Batra, J. K. (2012) The C-terminus of ClpC1 of *Mycobacterium tuberculosis* is crucial for its oligomerization and function. *Plos One* 7 (12): e51261.
 9. Sikriwal, D., Seth, D., Parveen, S, Malik, A., Broor, S. and Batra, J. K. (2012) An insertion in loop L7 of human eosinophil derived neurotoxin is crucial for its antiviral activity. *J. Cell. Biochem.* 113: 3104-3112.
 10. Rehman, M.T., Dey, P., Hassan, M.I., Ahmad, F. and Batra, J.K. (2011) Functional role of glutamine 28 and arginine 39 in double stranded RNA cleavage by human pancreatic ribonuclease. *PloS One* 6(3): e17159.
 11. Kar, N. P., Sikriwal, D., Rath, P., Choudhary, R.K. and Batra, J.K. (2008) *Mycobacterium tuberculosis* ClpC1: characterization and role of the N-terminal domain in its function. *FEBS J.*, 275: 6149–6158.
 12. Sikriwal, D., Ghosh, P. and Batra, J.K. (2008) Ribosome inactivating protein saporin induces apoptosis through mitochondrial cascade, independent of translation inhibition. *Int. J. Biochem. Cell Biol.* 40: 2880-2888.
 13. Dey, P., Islam, A., Ahmad, F and Batra, J.K. (2007) Role of unique basic residues of human pancreatic ribonuclease in its catalysis and structural stability. *Biochem. Biophys. Res. Commun.* 360: 809-814.
 14. Ghosh, P. and Batra, J.K. (2006) The differential catalytic activity of ribosome inactivating protein saporin 5 and 6 is due to a single substitution at position 162. *Biochem. J.* 400: 99-104.
 15. Bagga, S., Seth, D. and Batra, J.K. (2003) The cytotoxic activity of ribosome-inactivating protein saporin-6 is attributed to its rRNA N-glycosidase and internucleosomal DNA fragmentation activities. *J. Biol. Chem.* 278:4813-4820.
 16. Bagga, S., Hosur, M.V. and Batra, J.K. (2003) Cytotoxicity of ribosome-inactivating protein saporin is not mediated through α_2 -macroglobulin receptor. *FEBS Lett.* 541:16-20.
 17. Gaur, D., Swaminathan, S., and Batra, J.K. (2001) Interaction of human pancreatic ribonuclease with human ribonuclease inhibitor: Generation of inhibitor-resistant cytotoxic variants. *J. Biol. Chem.* 276:24978-24984.
 18. Nayak, S.K., Bagga, S., Gaur, D., Nair, D.T., Salunke, D.M., and Batra, J.K. (2001) Mechanism of specific target recognition and RNA hydrolysis by ribonucleolytic toxin restrictocin. *Biochemistry* 40:9115-9124.
 19. Nayak, S.K., Shveta, and Batra, J.K. (2000) Localization of the catalytic activity in restrictocin molecule by deletion mutagenesis. *Eur. J. Biochem.* 267:1777-1783.
 20. Goyal, A. and Batra, J.K. (2000) Inclusion of a furin-sensitive spacer enhances the cytotoxicity of ribotoxin restrictocin containing recombinant single chain immunotoxins. *Biochem. J.* 345:247-254.
 21. Nayak, S.K., Rathore, D., and Batra, J.K. (1999) Role of individual cysteine residues and disulfide bonds in the structure and function of *Aspergillus* ribonucleolytic toxin restrictocin. *Biochemistry* 38:10052-10058.
 22. Nayak, S.K., and Batra, J.K. (1997) A single amino acid substitution in ribonucleolytic toxin restrictocin abolishes its specific substrate recognition activity. *Biochemistry* 36:13693-13699.
 23. Rathore, D., Nayak, S.K., and Batra, J.K. (1997) Overproduction of fungal ribotoxin α -sarcin in *E. coli*: generation of an active immunotoxin. *Gene* 190:31-35.
 24. Rathore, D., and Batra, J.K. (1997) Construction, expression and characterization of chimaeric toxins containing ribonucleolytic toxin restrictocin: intracellular mechanism of action. *Biochem. J.* 324:815-822.
 25. Rathore, D., and Batra, J.K. (1997) Cytotoxic activity of ribonucleolytic toxin restrictocin-based chimeric toxin targeted to epidermal growth factor receptor. *FEBS Lett.* 407:275-279.