


## CURRICULUM VITAE

<b>Dr Manpreet Kaur Rawal</b>		
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### ACADEMIC QUALIFICATIONS

Degree	University	Year
Ph.D.	School of Life Sciences, Jawaharlal Nehru University, New Delhi	2013
M. Phil. Microbiology	Ch. Charan Singh Univ., Meerut	2005
M.Sc. Applied Microbiology	Ch. Charan Singh Univ., Meerut	2004
B.Sc. Chemistry (Hon's.)	Aligarh Muslim Univ., Aligarh, UP	2002

### CAREER PROFILE

- Assistant Professor, Department of Microbiology, Gargi College
- Assistant Professor, Department of Microbiology, Bhaskaracharya College, University of Delhi, Jan 2015-May 2015
- UGC Dr. DS Kothari Postdoctoral Fellow, School of Biotechnology, Jawaharlal Nehru University, New Delhi, Nov 2013 to Dec 2015
- Senior Research Fellow, Membrane Biology lab, School of Life Sciences, Jawaharlal Nehru University, New Delhi, Feb 2013 to Oct 2013

### ADMINISTRATIVE ASSIGNMENTS

- Member, Pathfinder Committee, Gargi College
- Member, Placement Cell, Gargi College
- Member, IQAC team, Dept of Microbiology
- Member, Social Awareness Committee, Dept of Microbiology

### AREA OF INTEREST/SPECIALIZATION

- Molecular Biology
- Environmental Microbiology

### PUBLICATIONS

1. Rawal MK, Hora J, Upadhyay P, Tanweer A, Ankita, Evaluation of Vaccine Hesitancy and the Influence of Side Effects on Vaccination Drive amidst Covid-19 Pandemic in India, Open Access J Microbiol Biotechnol Medwin publishers, **2023**, 8(1): 248-258 DOI: [10.23880/oajmb-16000248](https://doi.org/10.23880/oajmb-16000248)
2. Rawal MK, Khan MF, Kapoor K, Goyal N, Sen S, Saxena AK, Lynn AM, Tyndall JD, Monk BC, Cannon RD, Komath SS, Prasad R. Insight into pleiotropic drug resistance ATP-binding cassette pump drug transport through mutagenesis of Cdr1p transmembrane domains. J Biol Chem. 2013 Aug 23;288(34):24480-93. doi: [10.1074/jbc.M113.488353](https://doi.org/10.1074/jbc.M113.488353)
3. Maurya IK, Thota CK, Verma SD, Sharma J, Rawal MK, Ravikumar B, Sen S, Chauhan N, Lynn AM, Chauhan VS, Prasad R. Rationally designed transmembrane peptide mimics of the multidrug transporter protein Cdr1 act as antagonists to selectively block drug efflux and chemosensitize azole-resistant clinical isolates of *Candida albicans*. J Biol Chem. 2013 Jun 7;288(23):16775-87. doi: [10.1074/jbc.M113.467159](https://doi.org/10.1074/jbc.M113.467159) [**Publication Recognized as Paper of the Week**]
4. Nim S, Rawal MK, Prasad R. FK520 interacts with the discrete intrahelical amino acids of multidrug transporter Cdr1 protein and acts as antagonist to selectively chemosensitize azole-resistant clinical

isolates of *Candida albicans*. *FEMS Yeast Res.* 2014 Jun;14(4):624-32. doi: 10.1111/1567-1364.12149 [Publication Recognized as Editor's Choice]

5. Prasad R, Rawal MK. Efflux pump proteins in antifungal resistance. *Front Pharmacol.* 2014 Aug 29;5:202. doi: 10.3389/fphar.2014.00202
6. Rawal MK, Shokohinia Y, Chianese G, Zolfaghari B, Appendino G, Tagliatela-Scafati O, Prasad R, Di Pietro A. Jatrophanes from *Euphorbia squamosa* as potent inhibitors of *Candida albicans* multidrug transporter. *J Nat Prod.* 2014 Dec 26;77(12):2700-6. doi: 10.1021/np500756z
7. Shah, Abdul Haseeb, Manpreet Kaur Rawal, Sanjiveeni Dhamgaye, Sneha Sudha Komath, Ajay Kumar Saxena, and Rajendra Prasad. "Mutational Analysis of Intracellular Loops Identify Cross Talk with Nucleotide Binding Domains of Yeast ABC Transporter Cdr1p." *Scientific Reports* 5, no. 1 (September 2015): 11211. ISSN No. 2045-2322. doi: 10.1038/srep11211
8. Shah AH, Banerjee A, Rawal MK, Saxena AK, Mondal AK, Prasad R. ABC transporter Cdr1p harbors charged residues in the intracellular loop and nucleotide-binding domain critical for protein trafficking and drug resistance. *FEMS Yeast Res.* (Aug 2015). ISSN: 1567-1356. doi: 10.1093/femsyr/fov036
9. Prasad R, Shah AH, Rawal MK. Antifungals: Mechanism of Action and Drug Resistance. *Adv Exp Med Biol.* 2016;892:327-349. doi: 10.1007/978-3-319-25304-6\_14
10. Prasad R, Rawal MK, Shah AH. *Candida* Efflux ATPases and Antiporters in Clinical Drug Resistance. *Adv Exp Med Biol.* 2016;892:351-376. doi: 10.1007/978-3-319-25304-6\_15
11. Nim, Shweta, Luc.ia Gonzalez Lobato, Alexis Moreno, Vincent Chaptal, Manpreet Kaur Rawal, Pierre Falson, and Rajendra Prasad. "Atomic Modelling and Systematic Mutagenesis Identify Residues in Multiple Drug Binding Sites That Are Essential for Drug Resistance in the Major *Candida* Transporter Cdr1." *Biochimica et Biophysica Acta (BBA) - Biomembranes* 1858, no. 11 (November 2016): 2858–2870. ISSN No. 0005-2736. doi: 10.1016/j.bbamem.2016.08.011
12. Nim, Shweta, Andreia Mónico, Manpreet Kaur Rawal, Noélia Duarte, Rajendra Prasad, Attilio Di Pietro, and Maria-José Ferreira. "Overcoming Multidrug Resistance in *Candida Albicans*: Macrocyclic Diterpenes from *Euphorbia* Species as Potent Inhibitors of Drug Efflux Pumps." *Planta Medica* 82, no. 13 (May 4, 2016): 1180–1185. ISSN No. 0032-0943. doi: 10.1055/s-0042-106169
13. Rawal, Manpreet Kaur, Atanu Banerjee, Abdul Haseeb Shah, Mohammad FirozKhan, SobhanSen, Ajay Kumar Saxena, Brian C. Monk, et al. "Newly Identified Motifs in *Candida Albicans* Cdr1 Protein Nucleotide Binding Domains Are Pleiotropic Drug Resistance Subfamily-Specific and Functionally Asymmetric." *Scientific Reports* 6, no. 1 (June 29, 2016): 27132. ISSN No. 2045-2322. doi: 10.1038/srep27132
14. Baghel, Pratima, Manpreet Kaur Rawal, Mohammad Firoz Khan, SobhanSen, Mohammed Haris Siddiqui, Vincent Chaptal, Pierre Falson, and Rajendra Prasad. "Multidrug ABC Transporter Cdr1 of *Candida Albicans* Harbors Specific and Overlapping Binding Sites for Human Steroid Hormones Transport." *Biochimica et Biophysica Acta (BBA) - Biomembranes* 1859, no. 10 (October 2017): 1778–1789. ISSN No. 0005-2736.
15. Esposito, Mélissa, Shweta Nim, Louis-Félix Nothias, Jean-François Gallard, Manpreet Kaur Rawal, Jean Costa, Fanny Roussi, et al. "Evaluation of Jatropane Esters from *Euphorbia* Spp. as Modulators of *Candida Albicans* Multidrug Transporters." *Journal of Natural Products* 80, no. 2 (February 24, 2017): 479–487. ISSN No. 0163-3864 doi: 10.1021/acs.jnatprod.6b00990
16. Mónico, Andreia, Shweta Nim, Noélia Duarte, Manpreet Kaur Rawal, Rajendra Prasad, Attilio Di Pietro, and Maria-José U. Ferreira. "Lathyrol and Epoxyathyrol Derivatives: Modulation of Cdr1p and Mdr1p Drug-Efflux Transporters of *Candida Albicans* in *Saccharomyces cerevisiae* Model." *Bioorganic & Medicinal Chemistry* 25, no. 13 (July 2017): 3278–3284. ISSN No. 0968-0896. doi: 10.1016/j.bmc.2017.04.01
17. Redhu, Archana Kumari, Atanu Banerjee, Abdul Haseeb Shah, Alexis Moreno, Manpreet Kaur Rawal, Remya Nair, Pierre Falson, and Rajendra Prasad. "Molecular Basis of Substrate Polyspecificity of the *Candida Albicans* Mdr1p Multidrug/H<sup>+</sup> Antiporter." *Journal of Molecular Biology* 430, no. 5 (March 2018): 682–694. ISSN No. 0022-2836. doi: 10.1016/j.jmb.2018.01.005
18. Prasad R, Sharma M, Rawal MK. Functionally Relevant Residues of Cdr1p: A Multidrug ABC Transporter of Human Pathogenic *Candida albicans*. *J Amino Acids.* 2011;2011:531412. doi: 10.4061/2011/531412

## **BOOKS AUTHORED**

1. M.Sc [Microbiology] 36423 Food and Dairy Microbiology II-Semester (Text Book)  
ISBN: 978-93-5338-732-7
2. M.Sc [Microbiology] 36424 Lab II – Microbiology, Genetics, Molecular Biology & rDNA Technology, Food and Dairy Microbiology, II-Semester  
ISBN: 978-93-5338-720-4

## **CHAPTERS IN EDITED BOOKS**

1. Antifungals: Mechanism of Action and Drug Resistance, Yeast Membrane Transport, Advances in Experimental Medicine and Biology, 2016 Springer International Publishing Switzerland ISBN:978-3--319-25302-2
2. Candida Efflux ATPases and Antiporters in clinical Drug Resistance, Yeast Membrane Transport, Advances in Experimental Medicine and Biology, Springer International Publishing Switzerland, ISBN: 978-3--319-25302-2
3. An Introduction to Microbial Genomic Islands for Evolutionary Adaptation and Pathogenicity, Microbial Genomic Islands in adaptation and pathogenicity, Springer Nature Singapore, ISBN; 978-981-19934-11

## **AWARDS/FELLOWSHIPS/FUND/GRANTS**

1. Best Senior Teacher Award, 2023 awarded by the Microbiologist Society of India
2. InSc Research Excellence Award 2020 awarded by Institute of Scholars, Bengaluru
3. Junior Research Fellowship awarded by CSIR
4. UGC Dr. D.S. Kothari Post Doctoral Fellowship by MHRD- Empowered Committee, UGC
5. Carl Storm International Diversity Fellowship (CSID) by Gordon Research Conference, USA
6. International Youth Travel Fund by Federation of European Biochemical Societies, France
7. CSIR Foreign Travel Grant by CSIR
8. Joint CSIR-UGC JRF
9. Joint CSIR-UGC NET

## **MEMBERSHIP/FELLOWSHIP OF ACADEMIES/INSTITUTIONS/PROFESSIONAL SOCIETIES**

1. Life Member, Microbiologists Society, India (LM-549)
2. Member, Society of Biological Chemists, India
3. Professional Member, Institute of Scholars
4. Life member, Indian Network for Soil Contamination Research, (INSCR)
5. Member of Pathfinder Committee working in research, Gargi College, University of Delhi
6. Member of Placement and Career Counselling Committee, Gargi College, University of Delhi
7. Member, American Society for Microbiology, USA

## **REVIEWER OF UGC-LISTED SCIENCE JOURNALS**

1. International Journal of Neuroscience (SCIE, Taylor & Francis)
2. Scientific reports
3. International Journal of Basic and Applied Sciences
4. PROTEINS: Structure, Function, and Bioinformatics (SCIE, John Wiley & Sons)
5. Experimental Results