




Faculty Details proforma for Gargi College

(PLEASE FILL THIS IN AND Email it to
gargi.college.website@gmail.com)

Title	Dr	First Name	Manpreet Kaur	Last Name	Rawal	Photograph
Designation		Assistant Professor (adhoc)				
Address		Department of Microbiology Gargi College University of Delhi Siri Fort Institutional Area New Delhi -110049, India				
Phone No Office						
Residence*		Sai Apartment, RZ-48/49, Flat-105, Shani Bazar Market Street, Jain Colony, Part III, Uttam Nagar, New Delhi-110059				
Mobile*		9717740515				
Email		manpreet.rawal@gmail.com				
Web-Page		https://publons.com/researcher/3098827/manpreet-kaur-rawal/ https://scholar.google.com/citations?user=CgYTOk0AAAAJ&hl=en https://www.researchgate.net/profile/Manpreet_Rawal				
Educational Qualifications						
Degree		Institution			Year	
B.Sc. Chemistry (Hon's.)		Aligarh Muslim Univ., Aligarh, UP			2002	
M.Sc. Applied Microbiology		Ch. Charan Singh Univ., Meerut			2004	
M. Phil. Microbiology		Ch. Charan Singh Univ., Meerut			2005	
PhD in Life Sciences		School of Life Sciences, Jawaharlal Nehru University, New Delhi			2013	
Career Profile						
<ul style="list-style-type: none"> ▪ Assistant Professor in Department of Microbiology, Gargi College, University of Delhi since July 2015 ▪ Assistant Professor in Department of Microbiology, Bhaskaracharya College of Applied Sciences, University of Delhi from Jan 2015 to May 2015 ▪ UGC Dr. DS Kothari Postdoctoral Fellow in School of Biotechnology, Jawaharlal Nehru University, New Delhi from 1 Nov 2013 to Dec 2015 ▪ SRF in Membrane biology lab, School of Life Sciences, Jawaharlal Nehru University, New Delhi, India from 1 Feb 2013 to 31 Oct 2013 						
Administrative Assignments						
<ul style="list-style-type: none"> ▪ Mentor of BSc (H) Microbiology 1st yr students in 2018-19 ▪ Member of Pathfinder Committee, Gargi College ▪ Assisted in Admission process 						

Areas of Interest / Specialization
Molecular Biology, Environmental Microbiology, Microbial Genetics
Subjects Taught
Molecular biology, Biochemistry, Microbial genetics and Genomics, Cell biology, Bacteriology, Microbial Physiology, Environment Microbiology, Industrial Microbiology, Inheritance Biology, Instrumentation and Biotechniques
Research Guidance
<ul style="list-style-type: none"> ▪ Isolation and characterization of pigment producing fungi from spoiled food under “The Star College Scheme of the Department of Biotechnology (DBT), Ministry of Science and Technology, Government of India ▪ Pigment production by microorganisms: Natural colorants with antimicrobial activity and enzyme production under “The Star College Scheme of the Department of Biotechnology (DBT), Ministry of Science and Technology, Government of India. The project was selected for Pathfinder Award Science 2019-20 ▪ Biodegradation of Synthetic dyes: a green solution to soil and water pollution under Star College Scheme, Department of Biotechnology, Ministry of Science and Technology, Government of India
Recent Publications
<ol style="list-style-type: none"> 1. 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. <i>J Biol Chem</i>. 2013 Aug 23;288(34):24480-93. doi: 10.1074/jbc.M113.488353 2. 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 <i>Candida albicans</i>. <i>J Biol Chem</i>. 2013 Jun 7;288(23):16775-87. doi: 10.1074/jbc.M113.467159 [Publication Recognized as Paper of the Week] 3. 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 <i>Candida albicans</i>. <i>FEMS Yeast Res</i>. 2014 Jun;14(4):624-32. doi: 10.1111/1567-1364.12149 [Publication Recognized as Editor’s Choice] 4. Prasad R, Rawal MK. Efflux pump proteins in antifungal resistance. <i>Front Pharmacol</i>. 2014 Aug 29;5:202. doi: 10.3389/fphar.2014.00202 5. Rawal MK, Shokoohinia Y, Chianese G, Zolfaghari B, Appendino G, Tagliatalata-Scafati O, Prasad R, Di Pietro A. Jatrophanes from <i>Euphorbia squamosa</i> as potent inhibitors of <i>Candida albicans</i> multidrug transporter. <i>J Nat Prod</i>. 2014 Dec 26;77(12):2700-6. doi: 10.1021/np500756z 6. 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.” <i>Scientific Reports</i> 5, no. 1 (September 2015): 11211. ISSN No. 2045-2322. doi: 10.1038/srep11211 7. 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. <i>FEMS Yeast Res</i>. (Aug 2015). ISSN: 1567-1356. doi: 10.1093/femsyr/fov036

8. 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
9. 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
10. 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**
11. 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**
12. **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**
13. 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.
14. Esposito, Mélissa, Shweta Nim, Louis-Félix Nothias, Jean-François Gallard, **Manpreet Kaur Rawal**, Jean Costa, Fanny Roussi, et al. "Evaluation of Jatrophone 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**
15. 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**
16. 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⁺ Antiporter." *Journal of Molecular Biology* 430, no. 5 (March 2018): 682–694. ISSN No. 0022-2836. doi: **10.1016/j.jmb.2018.01.005**
17. 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

2 CHAPTERS IN EDITED BOOKS

1. Antifungals: Mechanism of Action and Drug Resistance in Yeast Membrane Transport, *Advances in Experimental Medicine and Biology*, 2016. Springer International Publishing Switzerland. ISBN: 0065-2598
2. Candida Efflux ATPases and Antiporters in clinical Drug Resistance in Yeast Membrane Transport, *Advances in Experimental Medicine and Biology*, 2016. Springer International Publishing Switzerland. ISBN: 0065-2598

2 BOOKS AUTHORED

1. Food and Dairy Microbiology.
2. Lab II – Microbiology, Genetics, Molecular Biology & rDNA Technology, Food and Dairy Microbiology.

MODULE DEVELOPED

“Microorganisms in Environment Management“ for MASSIVE OPEN ONLINE COURSE (MOOC) On “General Microbiology” for master’s students in the frame of SWAYAM (A project supported by MHRD, Govt. of India)

Conference Organization/ Presentations

1. International Conferences outside India:
 - 9th Yeast Lipid Conference, Germany , 2009
 - 4th Federation of European Biochemical Societies (FEBS) HFP 2011, La Colle sur Loup France , 2011
 - 11th ASM Conference on Candida and Candidiasis San Francisco, California, United States, 2012
 - Multi-Drug Efflux Systems Gordon research Conference (GRC 2013), California, United States, 2013
 - 12th ASM Conference on Candida and Candidiasis, New Orleans, Louisiana, United States, 2014
 - 6th FEBS Advanced Lecture Course Human Fungal Pathogens (HFP 2015), France, 2015
2. International Conferences within India
 - 28th Small Meeting on Yeast Transport and Energetics (SMYTE 2010) at JNU, New Delhi, 2010
 - Indian Proteomics Conference (IPCON 2011)
 - 7th International Conference on Yeast Biology held at Indian Institute of Technology Bombay, 2011
 - 8th International Conference on Yeast Biology organized by CSIR-Institute of Microbial Technology India
 - 20 years of Cdr1 Research, organized by JNU, New Delhi
3. Invited speaker in 7th International Conference on Yeast Biology held at Indian Institute of Technology Bombay, India, 2011
4. Organizing member in National symposiums on "Biofuels: An Alternative and Non-Conventional Energy source for future", Feb 2015
5. Co-convener of National webinar on Intellectual property rights-A kaleidoscope of opportunity, May 2020
6. International meeting on 2nd Lipids in the Forefront: Lot more to discover’ Dec 2019
7. National Seminars:
 - Metagenomics, Feb 2016
 - Probiotics: Ameliorating the burden of lifestyle disorders, Feb 2019
8. National conference on Advances in interdisciplinary Microbiology: Perspectives from Academia and Industry, March 2018

Research Projects (Major Grants/Research Collaboration)

- Research Collaboration with Dr Sobhan Sen, Associate Professor, School of physical Sciences, Jawaharlal Nehru University, New Delhi
- Research Collaboration with Prof Andrew M Lynn, School of Computational and Integrative Sciences, Jawaharlal Nehru University, New Delhi 110067, India

Awards and Distinctions

- Awarded InSc Research Excellence Award 2020 by Institute of Scholars (InSc), Bengaluru
- Awarded UGC Dr D.S. Kothari Post Doctoral Fellowship
- Awarded an International Youth Travel Fund (YTF) from Federation of European Biochemical Societies (FEBS), France
- Awarded A Carl Storm International Diversity Fellowship (CSID) by the GRC, USA
- Awarded Joint CSIR-UGC JRF
- Awarded Joint CSIR-UGC NET

Association With Professional Bodies

- Member, American Society for Microbiology, USA
- Member, Society of Biological Chemists, India
- Member, Microbiologists Society, India
- Professional Member, Institute of Scholars

Other Activities

- **Reviewer of UGC listed science journals:**
 - International Journal of Neuroscience
 - Scientific reports
 - International Journal of Basic and Applied Sciences
- **Faculty Development Programmes**
 - National FDP on “Digital Pedagogy to Enhance Teaching and Learning”
 - National FDP on “Quality Assurance in HEIs Reorienting Teaching-learning Paradigm”
 - National FDP on “Writing Research Proposals and Addressing IPR Related Issues”
- Completed one week off online certificate course on “Digital Teaching Techniques”
- Participated in the NAAC sponsored National Seminar titled “Mentoring the Teacher-Mentors: Capacity Building Programme, organized by Internal Quality Assurance Cell (IQAC) of Gargi College and also have been mentor of 1 yr students in 2018-19