

Curriculum Vitae

Sneh Lata Panwar
Professor
School of Life Sciences
Jawaharlal Nehru University, New Delhi
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• Education

	Degree	Year	Subject	University/Institution
1.	BSc	1992	Biochemistry	Sri Venkateswara College, University of Delhi
2.	MSc	1994	Biochemistry	University of Delhi South Campus
3.	PhD	2001	Life Sciences	Jawaharlal Nehru University
4.	Postdoctoral Fellow	2001-2004	Yeast Molecular Genetics	Department of Genetics, Cell Biology & Development, University of Minnesota, U.S.A
5.	Postdoctoral Fellow	2004-2006	Yeast Molecular Genetics	Dept. of Physiology & Biophysics, University of Iowa, Iowa City, U.S.A.
6.	Research Associate	2005-2006 August	Yeast Molecular Genetics	School of Life Sciences, Jawaharlal Nehru University, New Delhi

• Work experience

S.No	Positions held	Name of the Institute	From	To
1.	Assistant Professor	School of Life Sciences, Jawaharlal Nehru University, New Delhi	2006	2018
2.	Associate Professor	School of Life Sciences, Jawaharlal Nehru University, New Delhi	2018	2021
3.	Professor	School of Life Sciences, Jawaharlal Nehru University, New Delhi	2021	Present

- **Research interests:** Yeast Molecular Biology and Genetics
- **Personal Statement:** I am a Professor of Microbial Genetics, and my research is focused on understanding the biology of the human pathogenic fungus, *Candida albicans*. I have a background in Yeast molecular biology, with specific training and expertise in techniques dealing with the budding yeast and pathogenic fungus, *C. albicans*. Our group has been involved in identifying novel antifungal targets in *C. albicans*, which is a natural component of the human flora that can cause life-threatening infections in immunosuppressed patients. Treatment of fungal infections is a challenge due to the limited repertoire of available antifungals, necessitating the need to identify cellular targets for antifungal therapy. Our lab focuses on dissecting various cellular processes that are regulated by the mitochondria and the seven-transmembrane receptor family of proteins (Rta2, Rta3 and Rta4), in an attempt to identify features that are unique to *C. albicans*. The novel targets our group is bringing forward are opening new avenues in *Candida* biology, and expanding on the antifungal target space. Currently, we have also initiated ER stress-related work on the emerging fungal pathogen, *C. auris*. In addition, I have successfully administered the projects sanctioned, collaborated with other researchers, and produced several peer-reviewed publications from each project.
- **Courses taught:** Biochemistry, Microbiology Microbial physiology and Fungal genetics and biotechnology to the Master's students here
- **PhD students supervised**
 - **Supervised:** 10
 - **Co-supervised:** 2
 - **Thesis submitted:** 12
- **I have completed 7 projects and the Ongoing projects that I would like to highlight include:**
 - **Sponsoring Agency: Council of Scientific and Industrial Research**
PI: Sneha Lata Panwar
Title: Genetic analysis of the unfolded protein response in the emerging fungal pathogen *Candida auris*: potential target for antifungal therapy
 Duration: 2024 - 2027
 - **Sponsoring Agency: Department of Science & Technology**
PI: Sneha Lata Panwar
Title: Molecular insight into the role of Rta2 in calcineurin pathway-mediated circumvention of ER stress in *Candida albicans*
 Duration: 2023 - 2026
- **Awards and Honours**
 - Innovative Young Biotechnologist Award for 2007 (IYBA-2007) by Department of Biotechnology, Ministry of Science and Technology, Government of India.
 - Awarded C. R. Krishnamurthy Young Scientist Award in 2000.

- Delhi University Gold Medal for standing first in M.Sc Biochemistry, University of Delhi, New Delhi in 1994
- Qualified the JRF/NET Fellowship awarded by the Council for Scientific and Industrial Research, Government of India in 1994.
- Qualified the Graduate Aptitude Test in Engineering (percentile score 99.14). All India Rank- 20 in 1994.

- **Visits for research exchange**

- Guest Scientist at the Institut für Molekulare Infektions biologie, Wurzburg, Germany, 2022
- Visiting scientist at the VIB-KU Leuven Center for Microbiology, Leuven, Belgium, 2011
- Visiting scientist at the Institut für Molekulare Infektions biologie, Wurzburg, Germany, 2010
- Teaching Assistant at the Molecular Mycology course in Woods Hole, MA, U.S.A in 2002

- **Publications**

- **Research papers**

- Farha Husain, Prerna Pathak, Elvira Román, Jesús Pla and **Sneh Lata Panwar**. Adaptation to Endoplasmic Reticulum stress in *Candida albicans* relies on the activity of the Hog1 mitogen-activated protein kinase (2022). *Front Microbiol.* 12:794855. doi: 10.3389/fmicb.2021.794855.
- Nidhi Verma, Om Prakash Narayan, D Prasad, Abhimanyu Jogawat, **Sneh Lata Panwar**, Meenakshi Dua and Atul K Johri. Functional characterization of a high-affinity iron transporter (PiFTR) from the endophytic fungus *Piriformospora indica* and its role in plant growth and development (2022). *Environ Microbiol.* 24: 689-706. doi:10.1111/1462-2920.15659.
- Shabnam Sircaik, Elvira Roman, Priyanka Bapat, Keunsook K Lee, David Andes, Neil A. R. Gow, Clarrisa Nobile, Jesús Pla and **Sneh Lata Panwar**. The protein kinase Ire1 impacts pathogenicity of *Candida albicans* by regulating homeostatic adaptation to endoplasmic reticulum stress (2021). *Cell microbiol,* 23 (5):e13307. doi: 10.1111/cmi.13307.
- Sumit Rastogi, Lasse Van Wijlick, Shivani Ror, Keunsook K Lee, Elvira Roman, Pranjali Agarwal, Nikhat Manzoor, Neil A R Gow, Jesús Pla, Joachim Ernst and **Sneh Lata Panwar**. Ifu5, a WW domain-containing protein interacts with Efg1 to achieve coordination of normoxic and hypoxic functions to influence pathogenicity traits in *Candida albicans* (2020). *Cell microbiol,* 22(2): e13140. doi: 10.1111/cmi.13140.
- Shivani Ror and **Sneh Lata Panwar**. Sef1-regulated iron regulon responds to mitochondria-dependent iron-sulfur cluster biosynthesis in *Candida albicans* (2019). *Front Microbiol,* 10:1528. doi: 10.3389/fmicb.2019.01528.
- Eijaz K Pathan, Vandana Ghormade, **Sneh Lata Panwar**, Rajendra Prasad, Mukund V Deshpande. Molecular studies of NAD- and NADP-glutamate dehydrogenase decipher the conundrum of yeast-hypha dimorphism in zygomycete *Benjiminiella poitrasii* (2019). *FEMS yeast res,* 19(8). pii: foz074. doi: 10.1093/femsyr/foz074.

- Sonali Mishra, Sumit Kumar Rastogi, Sangeeta Singh, **Sneh Lata Panwar**, Manoj Kumar Shrivash, Krishna Misra. Controlling pathogenesis in *Candida albicans* by targeting Efg1 and Glyoxylate pathway through naturally occurring polyphenols (2019). *Mol Bio Rep*, 46(6): 5805-5820. doi: 10.1007/s11033-019-05014-z.
- Manoj K. Shirvash, Sonali Mishra, **Sneh Lata Panwar**, Shabnam Sircaik, Jyoti Pandey and Krishna Misra. Attenuation of pathogenicity of *Candida albicans* by application of polyphenols (2018). *J Microb & Biochem Technol*, 10: 2:27-39 doi: 104172/1948-5948.1000392.
- Archita Srivastava, Shabnam Sircaik, Farha Husain, Edwina Thomas, Shivani Ror, Sumit Rastogi, Darakshan Alim, Priyanka Bapat, David R Andes, Clarrisa Nobile and **Sneh Lata Panwar**. Distinct roles of the 7-transmembrane receptor protein Rta3 in regulating the asymmetric distribution of phosphatidylcholine across the plasma membrane and biofilm formation in *Candida albicans* (2017). *Cell microbiol*, 19(12). doi: 10.1111/cmi.12767.
- Edwina Thomas, Shabnam Sircaik, Elvira Roman, Steven Claypool, Jean-Michel Brunel, Jesús Pla and **Sneh Lata Panwar**. The activity of *RTA2*, a downstream effector molecule of the calcineurin pathway, is required for tunicamycin-induced ER stress response in *Candida albicans* (2015). *FEMS Yeast Res.* 15pii: fov095. doi: 10.1093/femsyr/fov095.
- Edwina Thomas, Elvira Roman, Steven Claypool, Jesús Pla and **Sneh Lata Panwar**. Mitochondria Influence *CDR1* Efflux Pump Activity, Hog1-Mediated Oxidative Stress Pathway, Iron Homeostasis, and Ergosterol Levels in *Candida albicans* (2013). *Antimicrob Agents Chemother.* 57 (11): 5580-5599. doi: 10.1128/AAC.00889-13.
- Raman Manoharlal, Naseem A Gaur, **Sneh Lata Panwar**, Joachim Morschhaeuser and Rajendra Prasad. Transcriptional activation and increased mRNA stability contributes to overexpression of *CDR1* in azole-resistant *Candida albicans* (2008). *Antimicrob Agents Chemother.* 52 (4): 1481-1492. doi:10.1128/AAC.01106-07.
- Ritu Pasrija, **Sneh Lata Panwar** and Rajendra Prasad. CaCdr1p and CaMdr1p multidrug transporters of *Candida albicans* display different lipid specificities: both ergosterol and sphingolipids are essential for targeting of CaCdr1p to membrane rafts (2008). *Antimicrob Agents Chemother.* 52 (2): 694-704. doi:10.1128/AAC.00861-07.
- **Sneh Lata Panwar** and W. Scott Moye-Rowley. Long chain base tolerance in *Saccharomyces cerevisiae* is induced by retrograde signals from the mitochondria (2006). *J Biol Chem.* 281: 6376-6384. doi: 10.1074/jbc.M512115200.
- Xiaoting Zhang, Ania Kolackowzsi, Frederic Deveaux, **Sneh Lata Panwar**^{*}, Timothy C Hallstrom, Claude Jacq and W. Scott Moye-Rowley. Transcriptional regulation by Lge1p requires a function independent of its role in histone H2B ubiquitination (2005). *J. Biol. Chem.* 280: 2759-2770. doi: 10.1074/jbc.M408333200. **the first three author contributed equally to this work.*
- **Sneh Lata Panwar**, Melanie Legrand, Daniel Dignard, Malcolm Whiteway and Paul T Magee. *MF α 1*, the Gene Encoding the α Mating Pheromone of *Candida albicans* (2003). *Eukaryot Cell.* 2 (6):1350-1360. doi: 10.1128/EC.2.6.1350-1360.2003.
- **Sneh Lata Panwar**, Shankarling Krishnamurthy, Vinita Gupta, Anne-Marie Alarco, Martine Raymond, Dominique Sanglard and Rajendra Prasad. *CaALK8*, an alkane assimilating cytochrome P450 confers multidrug resistance when expressed in a hypersensitive strain of *Candida albicans* (2001). *Yeast* 18(12):1117-1129. <https://doi.org/10.1002/yea.762>.

- Shankarling Krishnamurthy, Vinita Gupta, **Sneh Lata Panwar** and Rajendra Prasad. Characterisation of human steroid hormone efflux mediated by Cdr1p, a multidrug transporter of *Candida albicans*, belonging to ABC super family (1998). *FEMS Microbiol Letts.* **158(1)**: 69-74. [https://doi.org/10.1016/S0378-1097\(97\)00502-8](https://doi.org/10.1016/S0378-1097(97)00502-8).
- Shankarling Krishnamurthy, Uday Chatterjee, Vinita Gupta, Rajendra Prasad, P Das, **Sneh Lata Panwar**, Syed E. Hasnain and Rajendra Prasad. (1998). Deletion of transmembrane domain (TM) 12 of *CDR1* a multidrug transporter from *Candida albicans*, leads to altered drug specificity: Expression of a yeast multidrug transporter in Baculovirus expression system. *Yeast* 14(6): 535-550. doi: 10.1002/(sici)1097-0061(19980430)14:6<535::aid-yea254>3.0.co;2-5.
- Shankarling Krishnamurthy, Vinita Gupta, **Sneh Lata Panwar** and Rajendra Prasad (1998). Expression of *CDR1*, multidrug resistance gene of *Candida albicans*: *in vitro* transcriptional activation by heat shock, drugs and human steroid hormones. *FEMS Microbiol Letts.* 160(2): 191-197. <https://doi.org/10.1111/j.1574-6968.1998.tb12910.x>.
- Vinita Gupta, Avmeet Kohli, Shankarling Krishnamurthy, Niti Puri, Syed A. Aalamgeer, **Sneh Lata Panwar** and Rajendra Prasad. (1998). Identification of polymorphic mutant alleles of *CaMDR1*, a major facilitator of *Candida albicans*, which confers multidrug resistance and its *in vitro* transcriptional activation. *Curr Genet.* 34(3): 192-199. doi: 10.1007/s002940050385.

○ Reviews

- Darakshan Alim, Shabnam Sircaik and **Sneh Lata Panwar**. The significance of lipids to biofilm formation in *Candida albicans*: an emerging perspective (2018). *J. of Fungi*, 4. *Doi:10.3390/jof4040140*.
- **Sneh Lata Panwar**, Ritu Pasrija and Rajendra Prasad (2008). Membrane homeostasis and multidrug resistance in yeast. *Biosci Rep*, 28: 217-228.
- R. Prasad and **Sneh Lata Panwar** (2004) Physiological relevance of multidrug transporters in yeasts. *Curr Sci*, 86: 1.
- R. Prasad and **Sneh Lata Panwar** and Smriti (2001) Drug resistance in yeasts- An emerging scenario. *Adv Microb Physiol.* **46**: 156-189.
- R. Prasad., S. Krishnamurthy, V. Gupta and **Sneh Lata Panwar** (1998) Multidrug transporters of *Candida albicans*. *Folia Microbiol.* **43**, 228.
- R. Prasad, S. Krishnamurthy, Ramasare Prasad, Vinita Gupta and **Sneh Lata Panwar** (1996). Multidrug resistance: an emerging threat. *Curr Sci* **71**, 205-213.

○ Book Chapters

- Hina Sanwal, **Sneh Lata Panwar** and Rajendra Prasad. ATP-binding cassette (ABC) transporters in yeasts, their role in multidrug resistance and survival. In: ABC transporters in microorganisms: Research, innovation and value as targets against drug resistance. Alicia Ponte-Sucre (Ed), Caister Academic Press (2009). doi.org/10.21775/9781910190517
- R. Prasad, **Sneh Lata Panwar** and S. Krishnamurthy. Drug resistance mechanisms of human pathogenic fungi. In: Fungal Pathogenesis: Principles and Clinical Applications., R. Cihlar and R. A. Calderone, (Eds).Marcel Dekker(2001).

- R. Prasad, **Sneh Lata Panwar** and Neeti Puri. Sex and drug ATPases in yeasts. In: Biophysical Processes in Living systems., P. PardhaSaradhi Ed. Oxford and IBH Publishing Co. Pvt. Ltd. (2001).
- **Organization of Seminars/symposia and workshop**
 - **Coordinator, 26th Refresher course in Life Sciences & Biotechnology at UGC-HRDC**, Jawaharlal Nehru University, New Delhi, 2021
 - **Coordinator, Orientation programme at UGC-HRDC**, Jawaharlal Nehru University, New Delhi, 2016 & 2018
 - **Organizing committee member of the 28th small meeting on yeast transport and energetics (SMYTE)**, 2010
 - **Organizing committee member of the 10th conference on yeast biology**, Jawaharlal Nehru University, New Delhi, 2018
- **Presentations and Conferences**
 - **Poster presentations**
 - Poster presented in conference organized by the **Microbiology Society, U. K** on Candida and Candidiasis at Montreal, Canada in 2023
 - Poster presented in the FEBS advanced course on Molecular Mechanisms of Host-pathogen Interactions and Virulence in Human Fungal Pathogens at La Colle sur Loup, France in 2022
 - Poster presented in conference organized by the **American Society for Microbiology** on Candida and Candidiasis at Seattle, U.S.A in 2010, 2012, 2014, 2016 & 2020
 - Poster presented in **Euroconference on Fungal Virulence Factors and Diseases** at Nice, France in 2009
 - Poster presented in the **Yeast General Meeting** at Seattle, Washington, U.S.A in 2004.
 - Poster presented in Euroconference on Fungal Virulence Factors and Diseases organized by the **European Commission** at Seefeld, Austria, in 2001.
 - **Invited lectures**
 - 30 years of CDR1 meeting at Amity University, Haryana, 2024
 - 12th conference on **yeast biology**, IISER Mohali, 2023
 - **FungiNet meeting** held by the Collaborative Research Centre at the University of Wurzburg, Germany on "Pathogenic fungi and their human host-Networks of interaction, 2022
 - **27th Refresher course in Life Sciences & Biotechnology** at UGC-HRDC, Jawaharlal Nehru University, New Delhi, 2022
 - 11th conference on **yeast biology**, University of Hyderabad, Hyderabad, 2019
 - 10th conference on **yeast biology**, Jawaharlal Nehru University, New Delhi, 2018
 - Conference of **Society of biological chemists**, Jawaharlal Nehru University, New Delhi, 2017
 - 9th International conference on **yeast biology** held in Jadavpur University, Kolkata, 2015
 - International conference on **yeast biology** held in IMTECH, Chandigarh, 2013.