

## CURRICULUM VITAE

### Dr Purva Vats, PhD

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### EDUCATION

Ph.D.	Microbiology/ Biotechnology	2003	Institute of Microbial Technology (Jawaharlal Nehru University, New Delhi, India)
M.Sc.	Microbiology (Hons.)	1997	Panjab University, Chandigarh, India.
B.Sc.	Microbiology (Hons.)	1994	Panjab University, Chandigarh, India.

### PROFESSIONAL EXPERIENCE

June 2014- Till today Associate Research Scientist at The Jackson Laboratory of Genomic Medicine, Farmington, Connecticut in Prof George Weinstock lab working in the area of microbiome, doing genomic and metagenomic sequencing to understand the role of microbes in regulating human health.

Sep 2010- May 2014 Research Associate Scientist-I in the Dept. of Molecular Biology and Biophysics (earlier known as Molecular, Microbial and Structural Biology), University of Connecticut Health Center, Farmington, Connecticut, USA working in the area of bacterial cell division and cytoskeletal elements.

Sep 2004- Aug 2010 Post-Doctoral Research Fellow in the lab of Prof. Lawrence Rothfield, Dept. of Molecular, Microbial and Structural Biology, University of Connecticut Health Center, Farmington, Connecticut, USA working in the area of bacterial cell division and cytoskeletal elements.

Jan 2003- May 2004 Post-Doctoral Research Fellow in the lab of Dr. Anand K Bachhawat, Dept. of Molecular Biology and Yeast Genetics, Institute of Microbial Technology, Chandigarh, India working on Yeast molecular biology.

2000-2003 Senior Research Fellow in the Institute of Microbial Technology, Chandigarh, India.

1998-2000 Junior Research Fellow in the Institute of Microbial Technology, Chandigarh, India.

## TEACHING/MENTORING EXPERIENCE

- Jan 2014- till today Teaching Microbiology and Anatomy & Physiology at Capital community college, Hartford, CT as an Adjunct Faculty.
- Sep 2010- May 2014 Mentored two PhD students, two postdoctoral fellows and four summer students besides supervising two research assistants. I mentored them to learn the basic techniques of bacterial genetic research and molecular biology along with cutting edge techniques of microscopy.
- Sep 2004- Sep 2010 Mentored many summer students and supervised their research projects. The training received in my lab helped my summer students to secure research positions in prestigious institutions like Harvard and Princeton.
- 2003-2004
1. Taught principles of microbiology and molecular biology in the classroom setting at Institute of Microbial technology to undergraduate students in India.
  2. Taught basic and advanced lab procedures to the graduate students at Institute of Microbial technology, India.
- 1998-2004 Mentored several summer students and Master's degree students at Institute of Microbial technology

## PUBLICATIONS/PATENTS

**PATENT:** Purva Vats and U.C. Banerjee. A process for the production of extracellular phytase using novel isolate of *Aspergillus niger* var teigham. Patent No.: 197539 granted on 22/09/2006.

### **PUBLICATIONS:**

*Total citation index of all the listed publications: **971***

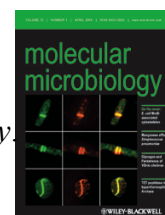
*First author: **14/19**; Co-author : **5/19***

*\*Corresponding author: **4/19***

*📌 Journal Cover page Illustration: **1***

### **List of publications:**

1. **\*Purva Vats** and Lawrence Rothfield. (2016). FtsZ determinants involved in *FtsZ* interactions and bacterial morphogenesis revealed by saturation mutagenesis of FtsZ surface-exposed residues. Submitted to *EMBO Reports*.
2. Xia Sun, **\*Purva Vats** and Lawrence Rothfield. (2016). The role of FtsK in assembly of the MreB-based midcell cytoskeletal ring of *Escherichia coli*. Submitted to *Journal of Bacteriology*.
3. **\*Purva Vats**, Ji Yu and Lawrence Rothfield. (2009). The dynamic nature of the bacterial cytoskeleton. *Cellular and Molecular Life Sciences*. Vol. 66 (20): 3353-3362. PMID: 19641848
4. **\*Purva Vats**, Yu-Ling Shih and Lawrence Rothfield. (2009). Assembly of the MreB-associated cytoskeletal ring of *E.coli*. *Molecular Microbiology*. Vol. 72 (1): 170-182. PMID: 19220747
5. **Purva Vats**, Bharat Bhushan and U.C. Banerjee. (2009). Studies on the dephosphorylation of phytic acid in livestock feed using phytase from *Aspergillus niger* van Teighem. *Bioresource Technology*. Vol. 100 (1): 287-291. PMID: 18650085
6. **Purva Vats**, Bharat Bhushan, Asit K Chakarborti and U.C. Banerjee. (2008). Separation and identification of enzymatically prepared dephosphorylated products of myo-inositolhexakisphosphate using LC-MS. *Journal of Separation Science*. Vol. 31 (22): 3829-3833. PMID: 19009537
7. **Purva Vats** and Lawrence Rothfield. (2007). Duplication and segregation of the actin (MreB) cytoskeleton during the prokaryotic cell cycle. *Proceedings of National Academy of Sciences, USA (PNAS)*. Vol. 104 (45): 17795-17800. PMID: 17978175
8. **Purva Vats** and U.C. Banerjee. (2006). Catalytic characterization of phytase (myo-inositolhexakisphosphate phosphohydrolase) from *Aspergillus niger* van Teighem: Glycosylation pattern, kinetics and molecular properties. *Enzyme and Microbial Technology*. Vol. 39: 596-600.
9. **Purva Vats**, M.S. Bhattacharyya and U.C. Banerjee. (2005). Uses of Phytases (myo-inositolhexakisphosphate phosphohydrolase) for combating phosphorus pollution: A biological approach. *Critical Reviews in Environmental Science and Technology*. Vol. 35 (5): 469-486.
10. **Purva Vats** and U.C. Banerjee. (2005). Biochemical characterization of extracellular phytase (myo-inositol hexakisphosphate phosphohydrolase) from a hyper-producing



- strain of *Aspergillus niger* van Teighem. *J Industrial Microbiology and Biotechnology*. Vol. 32 (4): 141-147. [PMID: 15776271](#)
11. Srikanth CV, **Purva Vats**, Andrea Bourbouloux, Serge Delrot, Anand K Bachhawat. (2005). Multiple cis- regulatory elements and the yeast sulphur regulatory network are required for the regulation of the yeast glutathione transporter, Hgt1p. *Current Genetics*. Vol. 47(6): 345-58. [PMID: 15821937](#)
  12. Lawrence Rothfield, Aziz Taghbalout and **Purva Vats**. (2005). Bacterial cells have cytoskeletons, Too. *ASM News*. Vol. 71(12): 582-586.
  13. Harpreet Rai, M.S. Bhattacharyya, J. Singh, T.K. Bansal, **Purva Vats** and U.C. Banerjee. (2005). Removal of Dyes from the effluent of textile and dyestuff manufacturing industry: A review of emerging techniques with reference to biological treatment. *Critical Reviews in Environmental Science and Technology*. Vol. 35 (3): 219-238.
  14. **Purva Vats**, D.K. Sahoo and U.C. Banerjee. (2004). Studies on the production of phytase (*myo*-inositolhexakisphosphate phosphohydrolase) by *Aspergillus niger* van Teighem in laboratory scale fermenter. *Biotechnology Progress*. Vol. 20 (3): 737-743. [PMID: 15176876](#).
  15. **Purva Vats** and U.C. Banerjee. (2004). Production studies and catalytic properties of phytases (*myo*-inositolhexakisphosphate phosphohydrolases): An Overview. *Enzyme and Microbial Technology*. Vol. 35: 3-14.
  16. Ganguly D, Srikanth CV, Kumar C, **Vats P**, Bachhawat AK. (2003). Why is glutathione (a tripeptide) synthesized by specific enzymes while TSH releasing hormone (TRH or thyroliberin), also a tripeptide, is produced as part of a prohormone protein? *IUBMB Life*. Vol. 55 (9): 553-554. [PMID: 14658762](#)
  17. **Purva Vats** and U.C. Banerjee. (2003). Release of intracellular  $\beta$ -galactosidase of *Bacillus polymyxa* using high pressure homogenization in French Press. *IIChe*. Vol. 38 (1): 43-45.
  18. **Purva Vats** and U.C. Banerjee. (2002). Studies on the production of phytase by a newly isolated sp. of *Aspergillus niger* van Teighem obtained from rotten wood-logs. *Process Biochemistry*. Vol. 38: 211-217.
  19. **Purva**, S.K. Soni, L.K. Gupta, J.K. Gupta. (1998). Thermostable alkaline protease from alkalophilic *Bacillus* sp. IS-3. *Ind. J. Microbiol*. Vol. 38: 149-152.

## **PUBLICATIONS IN SCIENTIFIC MAGAZINE**

Lawrence Rothfield, Aziz Taghbalout, **Purva Vats** (2005). Bacterial cells have cytoskeleton, too. *ASM News*. 582-586.

## **CONFERENCES/MEETINGS/WORKSHOPS**

- Presented my work on “FtsZ mutagenesis and its role in bacterial morphogenesis”, at Molecular Biology and Biophysics 2013 Retreat held on Nov 15<sup>th</sup>-16<sup>th</sup> 2013 at Interlaken Resort, Salisbury, Connecticut, USA.
- Oral presentation on, " The role of FtsZ in *E.coli* morphogenesis: saturation mutagenesis of FtsZ surface residues" in European Molecular Biology Organization (EMBO) workshop on Reconstructing the essential bacterial cell cycle machinery held from Sep 16<sup>th</sup>-18<sup>th</sup> 2012 at Real Sitio de San Ildefonso (Segovia), Spain.
- Poster presentation on “The prokaryotic actin (MreB) ring is a multiprotein structure involved in cytoskeletal segregation”. **Purva Vats** and Lawrence Rothfield, in Gordon Research Conference on Bacterial Cell Surfaces held from June 22-27, 2008 at Colby-Sawyer College in New London, New Hampshire, USA.
- Poster presentation on “Division and segregation of *E.coli* actin (MreB)-associated cytoskeleton involves a multiprotein ring structure”. **Purva Vats** and Lawrence Rothfield, in 108<sup>th</sup> American society of Microbiology-General Meeting held from June 1-5, 2008 at new Boston Convention and Exhibition Center, Boston, Massachusetts, USA.
- Oral presentation on, "Prokaryotic actin associated cytoskeletal ring: a multiprotein structure" in Molecular, Microbial and Structural Biology 2008 Retreat held on Apr 29<sup>th</sup> 2008 at University of Hartford, Hartford, Connecticut, USA.
- Oral presentation on “Duplication and segregation of prokaryotic actin (MreB) cytoskeleton during the division cycle ” in Boston Bacterial Meeting 2007 held on June 21-22, 2007 at Tufts University School of Medicine, Boston, Massachusetts, USA.
- Poster presentation on " Duplication and partition of prokaryotic actin cytoskeleton during the division cycle". **Purva Vats** and Lawrence Rothfield, in Molecular, Microbial and Structural Biology 2007 Retreat held on Apr 10<sup>th</sup> 2007 at Garmin Hall, Farmington, Connecticut, USA.
- Oral presentation on, "Cellular dynamics of MreB: an actin like cytoskeletal protein in bacteria" in Molecular, Microbial and Structural Biology 2006 Retreat held on Mar 16<sup>th</sup> 2006 at Storrs Campus, Connecticut, USA.

- Participated in Yeast 2003: An international meeting on yeast biology held on Feb 20-22<sup>nd</sup> 2003 at Institute of Microbial Technology, Chandigarh, INDIA.
- Poster presentation on “Biochemical characterization and application of *myo*-inositolhexakisphosphate degrading enzyme from *Aspergillus niger* van Teighem”, **Purva Vats**, D.K. Sahoo, U.C. Banerjee, in an International Conference on Emerging Frontiers at interface of Chemistry and Biology, held on Apr 28<sup>th</sup> -30<sup>th</sup> 2003 at Trivandrum, INDIA.

### **AWARDS/ ACHIEVEMENTS/ SCHOLARSHIPS**

2009	Selection of “ <i>E.coli</i> cytoskeleton micrograph” on the cover page of Molecular Microbiology journal.
2007	Selection of research article on, “Duplication and segregation of the actin (MreB) cytoskeleton during the prokaryotic cell cycle” published in PNAS ( <i>Proceedings of National Academy of Sciences USA</i> ) by <u>Faculty of 1000 Biology</u> that comprehensively and systematically highlights and reviews the most interesting papers published in the biological sciences, based on the recommendations of a faculty of well over 2300 selected leading researchers.
2000-2003	Awarded National Senior Research Fellowship by the Council of Scientific and Industrial Research (premium funding agency), Government of India.
1998-2000	Awarded National Junior Research Fellowship by the Council of Scientific and Industrial Research, Government of India
Dec'1998	Qualified National Eligibility Test conducted jointly by the Council of Scientific and Industrial Research (CSIR) and University Grants Commission (UGC), New Delhi to screen Junior Research Fellows for Ph.D. program and eligibility for lectureship in Government colleges and universities.
1997	Awarded with University Gold Medal as topper of the class in Masters of Sciences (Honors) Microbiology, Panjab University, Chandigarh, India

- 1994                      Awarded with University Gold Medal as topper of the class in Bachelors of Sciences (Honors) Microbiology, Panjab University, Chandigarh, India
- 1992-1997                Awarded National Scholarship during Bachelors and Masters (Honors) from Government of India

#### **MEMBERSHIPS OF SCIENTIFIC SOCIETIES**

- American Society of **Microbiology (ASM)**-the world's largest scientific society of individuals interested in the microbiological sciences: active member since 2005 till date
- American Society of **Biochemistry and Molecular Biology (ASBMB)**: active member from 2008

#### **EDITORIAL BOARD MEMBER**

- **JBMBR (Journal of Biochemistry and Molecular Biology Research)**
- **CREST (Current Research in Engineering, Science and Technology)** journal.
- **WJBC (World Journal of Biological Chemistry)** journal.
- **JMBFS (Journal of Microbiology, Biotechnology & Food Sciences)** journal.
- **The Microbes** journal.

#### **REVIEWER OF SCIENTIFIC JOURNALS**

- Reviewer of Journal of Molecular Biology (Elsevier publications)
- Reviewer of FEBS Letters (Elsevier publications)
- Reviewer of Journal of Chromatography A (Elsevier publications)
- Reviewer of Regulatory Toxicology and Pharmacology (Elsevier publications)
- Reviewer of IJMS journal (International Journal of Molecular Sciences-MDPI publications).
- Reviewer of Biotechnology Progress (ACS: American Chemical Society publications)
- Reviewer of SJM (Scientific Journal of Microbiology)
- Reviewer of Microorganisms journal (MDPI publications)
- Reviewer of Microbiology Insights journal
- Reviewer of Gene Expression to Genetical Genomics (Libertas Academica journals)
- Reviewer of Gene Regulation and Systems Biology (Libertas Academica journals)