Curriculum Vitae

MANISH DWIVEDI, Ph. D.

Assistant Professor & DST-INSPIRE Faculty
Amity University Uttar Pradesh
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POST-DOCTORAL EXPERIENCE

- **Dec. 2017-Jun 2018:** DST-INSPIRE Faculty at CSIR-Central Drug Research Institute, Lucknow.

- **2014-2017:** At The Alexander Silberman Institute of Life Sciences, Hebrew University of Jerusalem, Israel, research on structural organization and functional mechanism of NhaA, Na^+/H^+ antiporter Membrane protein and relevance to Human antiporter responsible for specific diseases like hypertension, Heart diseases etc.
- **2013-2014:** In National Research Center for Plant Biotechnology, New Delhi, INDIA, worked in **ICAR-NAIP Research Project:** Allele Mining and Expression Profiling of Resistance and Avirulence genes in Rice Blast Pathosystem for Development of Race None-Specific Disease Resistance.

TEACHING EXPERIENCE

- **2006-2007:** One year full time lecturer (Biotechnology & Microbiology) for U.G. and P.G. classes in C.S.J.M. Kanpur University affiliated college (Janta (P.G.) College Bakewar, Etawah), India.

- **2007-2012:** Part time teaching and practical lab work for graduate and post-graduate (Biotechnology) level at University of Allahabad, India.

EDUCATION

- **2007-2012: Ph. D. (Awarded in 2014), submitted 2012**
  Centre for Bioinformatics/ Biochemistry, University of Allahabad *(www.allduniv.ac.in)*
  Research Topic: "Lysosomal Membrane Proteins: Analytics on Sequence using IgYs and Bioinformatics Tools"

- **2006-2007: M. Phil. (Bio-technology) 62%**
  Chaudhary Devi Lal University, Sirsa, Haryana, INDIA *(www.cdlu.edu.in*)

- **2004-2006 : M. Sc. (Bio-technology) 80%July,**
  C.S.J.M. Kanpur University, Kanpur, INDIA *(www.kanpuruniversity.org*)

- **2001-2004 : B. Sc. (Botany, Zoology and Chemistry) 70%**
  C.S.J.M. Kanpur University, Kanpur, INDIA *(www.kanpuruniversity.org*)

LIST OF RESEARCH PUBLICATIONS

- Quick M., **Dwivedi M.**, Padan E., Insight into the direct interaction of Na+ with NhaA and mechanistic implications, **Nature: Scientific reports**, 11; 7045 (2021). (https://doi.org/10.1038/s41598-021-86318-8)
- **Dwivedi M**, Shaw A. Implication of cation-proton antiporters (CPA) in human health and diseases causing microorganisms. **Biochimie.** 2021 Jan 13;182:85-98.
- Sreevidya S, **Manish Dwivedi**, Immunoinformatic based analytics on T-cell epitope from spike protein of SARS-CoV-2 concerning Indian population. **Biorxiv**, DOI: https://doi.org/10.1101/2021.01.07.425724 (2021).
- **Manish Dwivedi,** Sutanu Mukhopadhyay, Targeting the multidrug efflux pump; Tap protein to reduce survival of Mycobacterium tuberculosis, **Research Square** preprint, 2020 (DOI 10.21203/rs.3.rs-137844/v1).
- **Manish Dwivedi**, Site-directed mutations reflecting functional and structural properties of *Ec*-NhaA, **Biochimie**, 180; 79-89 (2021). (**IF: 3.413)**
- **Manish Dwivedi***, Vijay Tripathi, Dhruv Kumar and Dwijendra K. Gupta, Structural and Morphological Characterization of CdS Nanoparticles, **Current Physical Chemistry**, 11;1, 69-79 (2021).
- Yadav H, Nayak S, **Dwivedi M.** Analytics on Antimicrobial Activity of Lichen Extract. J Pure Appl Microbiol. Published online 13 May, 2021.
- **Manish Dwivedi,** Exploration of Ion Channels in Mycobacterium tuberculosis: Implication on Drug Discovery and Potent Drug Targets Against Tuberculosis, **Current Chemical Biology**, 14 (1);14-29 (2020).
- Gal Masrati, **Manish Dwivedi**, Abraham Rimon, Yael Gluck-Margolin, Amit Kessel, Haim Ashkenazy, Itay Mayrose, Etana Padan, Nir Ben-Tal, Using Phylogeny to Decipher Electrogenicity in Cation/Proton Antiporters, **Biophysical Journal (Cell Press)**, 116, 3, 554A, 2747-Pos (2019). **(IF: 3.665)**
- Gal Masrati, **Manish Dwivedi**, Abraham Rimon, Yael Gluck-Margolin, Amit Kessel, Haim Ashkenazy, Itay Mayrose, Etana Padan, Nir Ben-Tal, Transport determinants in cation/proton antiporters: phylogenetic analysis and simulations guide experiments, **FEBS Open Biology**, 8; S.38-2, 12-13 (2018). (https://doi.org/10.1002/2211-5463.12449) (**IF 2.23**)
- Gal Masrati, **Manish Dwivedi**, Abraham Rimon, Yael Gluck-Margolin, Amit Kessel, Haim Ashkenazy, Itay Mayrose, Etana Padan & Nir Ben-Tal, Broad phylogenetic analysis of cation/proton antiporters reveals transport determinants. **Nature Communications, 9**, 4205 (2018). **(IF: 12.35)**
- Miyer Patiño-Ruiz1, **Manish Dwivedi,** Octavian Călinescu**,** Mehmet Karabel1, Etana Padan**,** Klaus Fendler, Replacement of Lys-300 with a glutamine in the NhaA Na^+/H^+ antiporter of *Escherichia coli* yields a functional electrogenic transporter**. The Journal of Biological Chemistry, 2018,** 4;294(1):246-256**. (IF: 4.27)**
- Abraham Rimon, **Manish Dwivedi**, Assaf Friedler and Etana Padan, Asp133 Residue in NhaA Na^+/H^+ Antiporter Is Required for Stability Cation Binding and Transport **(equal contribution)**, **Journal of Molecular Biology**, 430: 6, 867-880 (2018). **(IF: 5.067)**

- **Manish Dwivedi**, Shahar Sukenik, Assaf Friedler and Etana Padan. Ec-NhaA transporter switches from antagonistic to synergistic antiporting via a single point mutation. **Nature: Scientific Reports**, 6, doi: 10.1038/srep23339 (2016). **(IF: 4.525)**
- Octavian Călinescu, **Manish Dwivedi,** Miyer Patino-Ruiz, Etana Padan, Klaus Fendler, Lysine300 is essential for stability but not for electrogenic transport of the NhaA Na^+/H^+ Antiporter **(equal contribution). The Journal of Biological Chemistry,** 292 (19), 7932-7941(2017). **(IF: 4.27)**
- **Manish Dwivedi**, Vijay Tripathi, Surya P. Singh and D.K. Gupta. Combustion synthesis and characterization of the Eu doped Y_2O_3 Nanoparticles. **Advanced Science Letters**, 6, 213-216, (2012). **(IF: 1.25)**
- **Manish Dwivedi** and D. K. Gupta**,** A Comparative Genomics based evaluation on Evolutionary aspect of Cystinosin: the Protein defective in Cystinosis, **Journal of Computing**, 3 (6), 130-134 (2011). **(IF: 0.5)**
- **Manish Dwivedi**, Vijay Tripathi, Ashutosh Mani and D. K. Gupta, In Silico study on Evolutionary account of Lysosomal Associated Membrane Protein -1 (LAMP-1). BVICAM'S **International Journal of Information Technology**, 2 (3), (2010).
- **Manish Dwivedi** and Dwijendra K. Gupta, Evolutionary Inferences on Lysosomal Membrane Proteins (LMPs) defective in metabolic disorders: Cystinosin and Sialin. **Advances in Applied Science Research** (Pelagia Research Library), 5(2), 353-358 (2014). **(IF: 3.52)**
- Ashutosh Mani, **Manish Dwivedi**, Vijay Tripathi and D.K. Gupta, An evolutionary Account of GPI Anchored Proteins. **European Journal of Experimental Biology,** 1 (1):148-155 (2011). **(IF: 1.09)**

BOOK CHAPTER

- *Overexpression, Isolation, Purification, and Crystallization of NhaA*, Etana Padan, **Manish Dwivedi**, Methods in Enzymology**,** Membrane Proteins—Engineering, Purification and Crystallization, Chapter 7, Volume 557, 135–148 (2015) (Elsevier publication).
- *Nanophosphors-Nanogold immunoconjugates in Isolation of Biomembranes and in Drug Delivery*. Dwijendra Gupta, Dhruv Kumar, **Manish Dwivedi**, Vijay Tripathi, Pratibha Phadke-Gupta and Surya Pratap Singh, Chapter 10, Book: Nanomedicine for Drug Delivery and Therapeutics (Wiley-Scrivener Publisher, Edited by Ajay Kumar Mishra). (DOI: 10.1002/9781118636299.ch10), (2013).
- *A review on role of mesenchymal stem cells in bone regeneration*, Anurag Singh, Dr. Priti Mathur, **Dr. Manish Dwivedi**, Recent Trends in Science, Agriculture, Technology and Management; Ch. 30; Vol. 1; 208-214 (2020) (ISBN: 978-81-935728-4-9)
- *A review on ovarian cancer: an alarming health hazard*, Priya Giri, Dr. Priti Mathur, **Dr. Manish Dwivedi**, Recent Trends in Science, Agriculture, Technology and Management; Ch. 31; Vol. 1; 215-221 (2020) (ISBN: 978-81-935728-4-9)

CERTIFICATE/ AWARDS/ ACHIEVEMENTS

- **EMBO Travel award** (2019) to attend EMBO event at Hamburg, Germany.
- **Visiting Scientist** at Johns Hopkins University School of Medicine, (June-Nov. 2019) (Not availed)
- **DST-INSPIRE Faculty Award** (2017); Gov. of India
- **PBC Post-doctoral fellowship** (2015) from Planning and Budget Committee of Higher education, Israel for outstanding researcher from India and China.
- **Fulbright-Nehru Academic and Professional Excellence fellowship** (Selected as an Alternate panel), pending due to Covid-19 epidemic.
- **Senior researcher (Post-doc)** (2013) at National Research center for Plant Biotechnology, New Delhi, India.
- **Junior Research Fellow (**2007-2009) & **Senior Research Fellow** (2009-2011), Molecular Membrane Biology, Center of Bioinformatics, University of Allahabad, INDIA under **DST-NSTI Research Project:** Nanophosphors Tagged- Nanogold Immunoglobulin Conjugates in Molecular characterization of Lysosomal transport vesicles: A Proteomic based Study.
- **Certificate in Computing** (CIC).
- **First prize** in Science Exhibition on BIO GAS PLANT MODEL.
- **First prize** in best poster presentation in International symposium-cum-workshop on Recent trends in Bioinformatics, Systems Biology & Molecular interactions at University of Allahabad, INDIA.
- **Second prize** (lead authorship) in best poster presentation International symposium-cum workshop on Recent trends in Bioinformatics, Systems Biology & Molecular interactions at University of Allahabad, INDIA.
- **Second position** in Post-graduation in Biotechnology at College level.
- **Travel grant** from Department of Biotechnology (DBT), New Delhi (2011) to attend International Conference at Belgium

ACADEMIC MEMBERSHIPS

- Translational Biomedical Research Society (Life member: LM0015).
- International Academy of Physical Sciences (Life member)
- Indian Science Congress Association (Life member: L16725).
- Proteomics Society (INDIA) (Life Member No. 452)
- The Society of Biological Chemists (Life Member: 4192)
- Indian Biophysical Society (Life Member: 1267)
- Israel Chemical Society.
- Israel society for Biochemistry and Molecular biology.
- Member in HIC-Vac (Human Infection challenge) (URL: https://www.hic-vac.org/members/members- profiles/dr-manish-dwivedi)

EDITOR/ REVIEWER ROLE:

- Member of Editorial board of International Journal of Biophysics, Biochemistry & Molecular Biology (IJBBMB), Science Publishing Group, NY, USA.
- Member of Editorial board of International Journal of Biological Sciences and Applications, American

Association of Science and Technology (AASCIT), USA.

- Bentham Science Ambassador from India for Bentham Science Publication.
- Reviewer in Advances in Science, Technology and Engineering Systems Journal (ASTESJ) (Scopus Journal ISSN: 2415-6698).
- Reviewer in Material Chemistry and Physics (Elsevier)
- Reviewer in Phytomedicine Plus (Elsevier)

TECHNICAL SKILLS

- Different Molecular Biology, cell biology and microbiology Techniques.
- Membrane proteins expression, purification and characterization techniques.
- Primer based mutation, Random/site directed mutation Cys-scanning, Ligand-protein interaction and their thermodynamic & kinetic study.
- Isothermal Titration Calorimetry (ITC), Circular Dichroism (CD), Stopped-Flow Fluorimeter, Steady state fluorescence spectrophotometer, HPLC, Mass-spectrophotometer etc.
- Maintenance and propagation of Animal Cell Lines (U937, HL60, MCF-7 etc.).
- Immunization of lab animals and antibody production, purification.
- Preparation and characterization of Nanoparticles and nanogold.

BIO-INFORMATICS SKILLS

In silico: structure prediction, biomolecular interaction studies etc.

INVITED RESEARCH WORK PRESENTATION IN CONFERENCE/ SYMPOSIA

- EMBO Workshop on Tools for Structural Biology of Membrane Proteins, Oct. 7-9, 2019 at Hamburg, Germany. Work presented: Combined Biochemical and Biophysical approach reveal the crucial role of Lysine300 in stability of the *Ec*-NhaA, Na^+/H^+ antiporter.
- *Synergistic and Antagonistic binding Na^+/H^+ to Ec-NhaA*, at Symposium on Na^+/H^+ transporter, Nov.-Dec. 2015, Max-Planck Institute for Biophysics, Germany.
- *Na^+/H^+ Transport activity of Ec-NhaA* at The Israel Society for Biochemistry and Molecular Biology (ISBMB), Nov. 2015, Bar Ilan University, Israel.
- *Facile route for the preparation and characterization of CdS Nanoparticles,* Poster presented at International Conference on Advanced Complex Inorganic Nanoparticles, University of Namur, 2011, Belgium.
- *A Bioinformatics based Proteomic Approach on Cystinosin Protein Family: Lysosomal Membrane Cystine Transporte rs* , (Oral presentation) CONIAPS XII, 2010, University of Rajasthan, India.
- *A Comparative Genomics based evaluation on Evolutionary aspect of Cystinosin: the Protein defective in Cystinosis,* (Oral presentation) 1st IFIP International Conference on Bioinformatics, 2010, at SVNIT, Surat, India.
- *An Evolutionary Account of the Protein defective in Cystinosis: a Metabolic Disorder,* (Oral presentation) National Conference on Impact of Environmental Changes on Human Life, S. S. Khanna Degree College, Nov, 2010, Allahabad, India.

- *Biogenesis of Lysosome: An Evolutionary Analysis of Lysosomal Associated Membrane Protein -1 (LAMP-1)* (Oral presentation) BVICAM, Feb. 2009, New Delhi, India.
- *Preparation and characterization of ZnO nanophosphors*, Poster presented, DST-Nanomission Meeting, March 12-14, 2009, Kolkata, India.
- *A New framework on the development of transgenic insect resistant chickpea plant,* National Seminar on Innovation in Biosciences, D.B.S. College, Kanpur, 11-12 Dec, 2006, India.
- *Genomics based Evolutionary Study on Sialin: the Lysosomal Sialic Acid Membrane Transporter Protein,* National Symposium on Bioinformatics: Challenges in the post-Genomic era, 2012, University of Jammu, India.

ABSTRACT PUBLISHED IN THE PROCEEDINGS OF THE CONFERENCE

- **Manish Dwivedi,** Vijay Tripathi, Shanthy Sundaram and Dwijendra Gupta, *Lysosomal Storage Diseases: Application of Nanophosphor-Nanogold-coated Immunoconjugates in Affinity Purification of Lysosomal Membrane Transporter Vesicles,* 2012, Indian Science Congress, KIIT University, India.
- Dwijendra K. Gupta, **Manish Dwivedi**, Vijay Tripathi, Surya Pratap Singh and Dhruv Kumar: Eu-doped Y_2O_3 Nanoparticles as a Potential Bio-Imaging Probe: Synthesis and Characterization Studies, International Conference on"Exosomes and Microvesicles 2011" in Orlando, Oct. 2011.
- **Manish Dwivedi,** Vijay Tripathi and Dwijendra Gupta, *Nanophosphor-Tagged Nanogold Immunoglobulin Conjugates in Molecular Characterisation of Lysosomal transport vesicles- A Proteomics based Study: Preparation and Characterisation of ZnO Nanophosphors,* 2011, Indian Science Congress, SRM University, Chennai, India.
- **Manish Dwivedi,** Vijay Tripathi, and Dwijendra Gupta, *A Bioinformatics based Proteomic Approach on Cystinosin Protein Family: Lysosomal Membrane Cystine Transporters,* CONIAPS XII, Dec. 2010.
- Dwijendra Gupta, Shanthy Sundaram, **Manish Dwivedi** and Vijay Tripathi: *Application of Nanophosphor-Nanogold Coated Immunoconjugates in Affinity purification of Membrane Transport Vesicles and Possible Drug Delivery*, International Conference on Nanotechnology: Fundamentals and Applications, Aug. 2010 at University of Ottawa, Ontario, **Canada**.
- **Manish Dwivedi,** Vijay Tripathi, and Dwijendra Gupta, *Biogenesis of Lysosome: An Evolutionary Analysis of Lysosomal Associated Membrane Protein-1 (LAMP-1)* INDIACom-2009, Feb. 2009 New Delhi, India.
- Ashutosh Mani, **Manish Dwivedi,** Vijay Tripathi, and Dwijendra Gupta, Evolutionary account of GPI Anchor proteins: A Bioinformatics Approach, INDIACom-2009, Feb 26-27, 2009 New Delhi, India.
- Vijay Tripathi **Manish Dwivedi,** Ashutosh Mani and Dwijendra Gupta, Bioinformatics based study on Zbtb7 Protein, INDIACom-2009, Feb 26-27, 2009 New Delhi, India.

- Ritesh Misra, A. K. Singh, **Manish Dwivedi** and S. R. Tripathi: *Impact of abiotic factors on the follial fungal diseases of mulberry in Doon valley,* National Seminar on Innovation in Biosciences, Dec. 11-12, 2006 at D.B.S. College, Kanpur.
- A. K. Singh, Ritesh Misra, **Manish Dwivedi** and S. R. Tripathi: *A study of effect of antimicrobial agents extracted from various plant, Impact of abiotic factors on the follial fungal diseases of mulberry in Doon valley,* National Seminar on Innovation in Biosciences, Dec. 11-12, 2006 at D.B.S. College, Kanpur.

PARTICIPATIONS IN WORKSHOPS & IN OTHER ACADEMIC ACTIVITIES

- Regulation of Sodium transport in Health and diseases (4-5 Jan. 2016) at Weizmann Institute of Science, Israel.
- 79th annual meeting of Israel Chemical Society, 4-5 Feb 2014, Israel.
- The Batsheva de Rothchild Seminar on Functional Peptide and Protein Nanostructures' (25th - 28th May, 2014) organized by Israel Academy of Science and Humanities, Kibbutz Tzuba, Israel.
- 9th International Workshop on Nano-mechanical Sensing 2012 held at Indian Institute of Technology, Bombay, India during June 6-8, 2012.
- 7th Familiarization Workshop on Nanofabrication Technologies held at Indian Institute of Technology, Bombay, India during June 4-5, 2012.
- Workshop on Emerging Trends in Agri-informatics and Bioinformatics held at Faculty of Biological Engineering, Shobhit University on Feb. 18th, 2012.
- As a **Resource Person** on Science Day, February 28, 2011 held at Center of Biotechnology, University of Allahabad.
- "Joint **Indo-Canadian Meeting** on Development of Low-Cost Lab-on-a-chip Medical devices for Health Monitoring", Jan 9-11, 2011 at Indian Institute of Technology, Bombay.
- International "Winter School on Nano-Scale Materials and Devices", Dec. 13-17, 2010 at Indian Institute of Technology, Bombay organized by joint efforts of INUP, INDIA & Nano-science and Nanotechnology at Cambridge, USA.
- As a **Resource Person** in the International Seminar-cum-Workshop on Molecular Modeling, Protein-Protein Interaction and Computer Aided Drug Designing, March 20-22, 2010 at Center of Bioinformatics, University of Allahabad, INDIA.
- Third Science Conclave: A congregation of Nobel Laureates organized at Indian Institute of Information Technology, Allahabad, India during Dec. 08-14, 2010.
- "BIO-CON-2007" organized by Sai College of Medical Science and Technology, Kanpur during Jan. 27-28, 2007.
- National Conference on Immunology in Health & Diseases at Institute of Life Sciences, Kanpur University during Jan. 11-12, 2006.

PERSONAL DETAILS

Native Address	:	867/14, Behind C.M.O. Office, Jail Road, Acharya Dwivedi Nagar, Raebareli-229001 (U.P.) INDIA
Father's Name	:	Shri Kaushal Kishore Dwivedi
Mother's Name	:	Smt. Maya Dwivedi
Date of Birth	:	16th June, 1985 (16/06/1985)
Nationality	:	Indian
Gender	:	Male

LANGUAGES KNOWN

To Speak, read and write	**:**	English & Hindi