Curriculum vitae

Dr. Vipul Vaibhava,
Assistant Professor, PG Department of Zoology, M. S. College, Motihari.
B. R. A. Bihar University, Muzaffarpur.
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SUMMARY:

More than four years of teaching experience at PG/UG level.

Close to 6 years of bio-pharmaceutical industry based experience in biological sciences with a strong understanding of Cell and molecular biology research, scientific methods and analysis.

Additionally, 7 years of research experience in molecular and cell biology.

ACADEMIC PROFILE:

Ph.D. in **Cell and Molecular Biology,** Centre for Cellular and Molecular Biology (CCMB), Hyderabad.

Ph.D. degree awarded by Jawaharlal Nehru University (JNU), New Delhi, India, 2013.

Title: "Regulation of endocytic membrane trafficking by optineurin-interacting protein, TBC1D17"

M.Sc. (Zoology) [2006] B. R. A. Bihar University, Muzaffarpur.

University Topper in Zoology.

PROFESSIONAL EXPERIENCE:

August 22, 2019- till date

Assistant Professor, PG Department of Zoology, M. S. College, Motihari.

Additional responsibility -

HoD, PG Department of Zoology, M. S. College, Motihari (October 1, 2019-till date)

IQAC coordinator, M. S. College, Motihari. (since September 05, 2022)

October 1, 2018 to April 3, 2019

Scientific Manager, IPM division of Biocon Research Ltd., Bangalore.

July 1, 2016- September 28, 2018

Scientific Manager, IPM division of Biologics, Dr. Reddy's Laboratory, Hyderabad.

Identifying and managing the potential IP (patent) threats in the area of downstream processing of a biologic (Biosimilar) drug development.

December 1, 2013- June 30, 2016

Assistant Scientific Manager, Biologics, Dr. Reddy's Laboratory, Hyderabad.

Worked in close collaboration with the Cell and Protein Sciences (CAPS)/ upstream division of Biologic (Biosimilar) development and the Intellectual Property Management (IPM) division to understand and convey effectively the potential IP threats in the development of a biosimilar drug and carve out ways to overcome those IP threats.

Post-Doctoral Fellow
August 19, 2013- December 1, 2013, Biologics, Dr. Reddy's Laboratory, Hyderabad.
Dec 2012- August 7, 2013- in the laboratory of Dr. Ghanshyam Swarup at the Centre for Cellular and Molecular Biology (CCMB), Hyderabad, India.

RESEARCH EXPERIENCE:

Doctoral Research:

My Ph.D. work involves studies on the role of TBC1D17, a GTPase activating protein and optineurin in endocytic trafficking and recycling pathways and mechanism of defective transferrin receptor (TfR) trafficking by E50K mutant of optineurin. My work provides a novel mechanism of Rab GTPase regulation wherein an effector of a Rab (in this case optineurin) recruits a GAP (TBC1D17) for the inactivation of a Rab (Rab8). This work has implications on certain forms of glaucoma, a neurodegenerative disease that causes blindness and amyotrophic lateral sclerosis, a motor neuron disease.

Post-doctoral Research:

Signal transduction and vesicular trafficking go hand in hand. My post doctoral work included studies on signal transduction initiated by transferring receptor endocytosis.
My industrial post-doctoral stint was with biosimilar drug development. This included the studies on life cycle management of biosimilar drugs and scale up issue faced by the same.

TECHNICAL EXPERTISE:

Cell biology: Culturing mammalian cell lines, Transient and stable transfection of mammalian cells, Adenoviral mediated gene delivery, Co-immunoprecipitation, GST pull down assay, Immunocytochemistry, Luciferase reporter assays.

Imaging: Fluorescence and apotome microscopy, Confocal microscopy and live cell imaging. LSM510, ImageJ and other imaging softwares.

Molecular Biology: Preparation of ultra-competent cells, Yeast two hybrid assay, DNA and RNA isolation, Gene-cloning, Site directed mutagenesis, PCR, RT-PCR, Western blotting, Expression of recombinant proteins, Vector based RNAi, Cloning in adenoviral vectors and other routine molecular biology protocols.

Biochemistry and Immunology: Protein estimations, Agarose and Poly acrylamide Gel Electrophoresis, Detection using Enhanced Chemi-luminescence (ECL), Radioactivity handling, Spectrophotometeric assays and luminometric assays, Molecular cloning and protein expression using bacterial-expression system.

Bioinformatics: DNA and protein sequence alignment, DNA and protein homology analysis, Motif search.

Patents: FTO searches, patent filings and prosecution, patentability report, infringement analysis, invalidation grounds, legal intricacies of case laws

Software proficiency: MS Office, Adobe Photoshop, image analysis and 3D re-construction suites (Image J, Axiovision, LSM5 Image examiner etc.)

ORIENTATION AND REFRESHER PROGRAMME

- Successfully completed a 4-Week Induction/Orientation Programme for "Faculty in Universities/Colleges/Institutes of Higher Education" from June 04 - July 01, 2020 and obtained grade A+ Certificate by Teaching Learning Centre, Ramanujan College, University of Delhi.
- Successfully completed a two week Refresher Course in Zoology, organized by TLC, Ramanujam College in collaboration with Gargi College, University of Delhi from April 25-May 09, 2022 and obtained A+ grade.

COURSES TAUGHT:

UG: Cell Biology. Biochemistry, Genetics, Evolution.
PG: Molecular Cell Biology, Molecular Genetics, Biochemistry, Immunology, Evolution.

PUBLICATIONS:

1). Vaibhava V, Nagabhushana A, Chalasani M.L, Sudhakar C, Kumari A and Swarup G (2012). Optineurin mediates a negative regulation of Rab8 by the GTPase activating protein TBC1D17. *J. Cell Science*. Nov 1; 125(Pt 21):5026-5039.

This article was the **cover article** of J. Cell Science November 1 issue.
One among the top four Most read articles in the month of August 2012.
Highlighted article of the journal. A commentary on the article appeared in the same issue of the journal, **'Optineurin minds Rab8's GAP'**, November 1, 2012. J Cell Sci 125, e2101.

2). C. Sudhakar, **V. Vaibhava**, G. Swarup. IRF-1-binding site in the first intron mediates interferon-γ- induced optineurin promoter activation, *Biochemical and Biophysical Research Communications (BBRC)* (2013), July 19, 437:179–184.

3). Ghanshyam Swarup, **Vipul Vaibhava** and Ananthamurthy Nagabhushana. (2013). 'Functional defects caused by mutations in Optineurin'. Chapter 6, pp 103-127; Glaucoma: Basic and Clinical Aspects; ISBN 980-953- 307-706-7.

4) *Nandini Rangaraj, ***Vipul Vaibhava**, Cherukuri Sudhakar, Shivranjani C Moharir, and Ghanshyam Swarup. (2023). Transferrin-induced signaling through transferrin receptor and AKT kinase mediates formation of Rab8- and MICAL-L1-positive tubules involved in receptor recycling. *Biorxiv*, February 7, 2023. *Equal contribution

5) Kancharana Balabhaskararao, Hashnu Dutta, **Vipul Vaibhava**, Nishant Jain. (2023). IDH1, a metabolic enzyme or its mutant migrate to nucleus in a KPNA-dependent manner. *Eur. Chem. Bull*. 2023,12(issue 8), 7327-7337.

6) Ghanshyam Swarup*, **Vipul Vaibhava**, and Swetha Medchalmi. (2024). Transferrin receptor endocytosis and signalling in health and disease. (*Manuscript Submitted*)

AWARDS, FELLOWSHIPS AND RECOGNITION:

- Qualified CSIR-NET-JRF Dec. 2005 and June 2006.
- Junior Research Fellowship (2006-2008) and Senior Research Fellowship (2008-2011) from the Council of Scientific and Industrial Research (CSIR), INDIA to pursue Ph.D.
- Secured 97.78 percentile with an All India rank of 144 in GATE -2005 in the Life Sciences.
- https://www.thehindu.com/sci-tech/health/two-molecular-mechanisms-causing-glaucoma-found/article4902049.ece
- An image of the published work appeared as the cover page of CCMB annual report 2012.

PARTICIPATION IN CONFERENCES AND SYMPOSIA:

- Participated in "**Indo-US Symposium on Molecular Virology-2022**" from 15th to 17th February 2022 sponsered by Ministry of education, under SPARC.
- Attended a two day national workshop on "Transformation through NAAC accredition process" held on 21st-22nd June 2021 conducted by Institute of Academic Excellance, Hyderabad.
- Participated in a four day online webinar on "Current trends in Research and Innovation, Research Paper publication , IPR and patents, research projects and fundraising" conducted by Institute of Academic Excellence, Hyderabad from 27th-31st August 2021.
- Organized a National Conference on "Recent Advances and Current Trends in Biological Sciences", **BioCosm-2019** held at Munshi Singh College, Motihari, from November 11-12, 2019.
- Selected for "**EMBO Global Exchange Lecture Course on molecular mechanism of protein transport**", a week-long symposium organized at National Centre for Biological Sciences, TIFR, Bangalore, INDIA from December 1-8, 2010.
- Presented a poster "TBC1D17 interacts with optineurin to regulate Rab8-optineurin mediated endocytic membrane trafficking" in **AICBC-2009** organised by University of Hyderabad.
- Presented a poster "A novel mechanism of Rab8 regulation by Optineurin and TBC1D17" in **All India Cell Biology Conference-2012**, organized by BARC-Mumbai.

- Presented a poster "Regulation of Membrane Vesicle Trafficking and Signal Transduction by Optineurin, a Protein Involved in Neurodegeneration" in the conference "**Biology 2012 and beyond**" organized by Centre for Cellular and Molecular Biology (CCMB), Hyderabad.
- Attended an international conference on IP management organized by **World Intellectual Property Forum** in December 2015.