Neethu Puthumadathil, PhD

neethu0607@gmail.com +919773520845

A freelance editor with researcher experience in biotechnology and biophysics | Experience in science communication especially in medicine | Interested in making science more accessible as an English second language editor

Employment:

Cactus communications 2022 to present
Selected for client direct editor and expert editor in a short time
Completed 316 assignments (1,120,738 words)
9 clients favorited, 62 outstanding ratings, and 26 specific editor requests

Project Assistant Level II 2014 to 2015
National Environmental Engineering Research Institute

Education:

Doctor of Philosophy under the guidance of Dr. Mahendran K.R., Membrane Biology Lab, Transdisciplinary Biology, Rajiv Gandhi Centre for Biotechnology and Manipal Academy of Higher Education
Thesis on 'Structural and functional characterization of synthetic transmembrane peptide pores'
- Designed and built synthetic α helical pores based on natural membrane proteins
- Characterized the assembly of a helix barrel and structural and functional properties of the helix barrel using peptide redesign, and chemical and biophysical techniques
- The work will help in understanding the mechanism of assembly of pore forming toxins and antimicrobial peptides, and the potential of synthetic alpha helical peptides for sensing biomolecules

Master of Science, Biotechnology at VIVA College, University of Mumbai
Thesis on 'Biosorption of zinc, a heavy metal by two species of seaweeds, Ulva spp. and Gracilaria spp'

Bachelor of Science, Biotechnology at K.C. College, University of Mumbai
Thesis on 'Isolation of heavy metal accumulating microorganisms and comparative study' as a part of Science Honors Program (Best Presentation Award)

Publications:

1. **Puthumadathil, Neethu**, Poornendhu Jayasree, K. Santhosh Kumar, K. Madhavan Nampoothiri, Harsha Bajaj, and Kozhinjampara R. Mahendran. "Detecting the structural assembly pathway of human antimicrobial peptide pores at single-channel level." *Biomaterials science* 7, no. 8 (2019): 3226–3237.

2. **Puthumadathil, Neethu**†, Smrithi Krishnan†, Greeshma S. Nair, and Kozhinjampara R. Mahendran. "Assembly of alpha-helical transmembrane pores through an intermediate state." *Nanoscale* 14, no. 17 (2022): 6507–6517. († Equal contribution)

3. Krishnan, Smrithi†, **Neethu Puthumadathil**†, Amina H. Shaji, K. Santhosh Kumar, Gayathri Mohan, and Kozhinjampara R. Mahendran. "Designed alpha-helical barrels for charge-selective peptide translocation." *Chemical Science* 12, no. 2 (2021): 639–649. († Equal contribution)

4. Krishnan R, Smrithi, Remya Satheesan, **Neethu Puthumadathil**, K. Santhosh Kumar, Poornendhu Jayasree, and Kozhinjampara R. Mahendran. "Autonomously Assembled Synthetic Transmembrane Peptide Pore." *Journal of the American Chemical Society* 141, no. 7 (2019): 2949–2959.

5. Sreekumar, Sreeshma Nellootil, Bhaba Krishna Das, Rahul Raina, **Neethu Puthumadathil**, Sonakshi Udinia, Amit Kumar, Sibasis Sahoo et al. "Dual avatars of E. coli grxB encoded Glutaredoxin 2 perform ascorbate recycling and ion channel activities." *bioRxiv* (2021): 2021–08.

6. Joseph, Annu, Lekshmy CR Nair, Betcy Susan Johnson, Philip Litto Thomas, Renjini Ambika Padmanabhan, **Neethu Puthumadathil**, and Malini Laloraya. "Transcriptional Regulation of Nos2 via STAT5B Binding to Nos2 Gene Promoter Mediates Nitric Oxide Production: Relevance in ß-Cell Maintenance." *Cellular physiology and biochemistry* (2019): 141–155.

Abstracts published

1. Anitha, Puthumadathil Neethu Narayanan, Smrithi Krishnan, and Kozhinjampara R. Mahendran. "Structural and Functional Properties of Synthetic Transmembrane Peptide Pores." Biophysical Journal 118, no. 3 (2020): 156a.

2. Krishnan, R. Smrithi, Puthumadathil Neethu Narayanan Anitha, and Kozhinjampara R. Mahendran. "Messaging Across Membranes Through Synthetic Alpha Helical Pore Assemblies." Biophysical Journal 120, no. 3 (2021): 144a.

Academic Awards and Fellowships:

International Travel Support by DST - Science and Engineering Research Board (SERB) for attending "64th Annual Meeting of the Biophysical Society, USA"

Cleared CSIR-UGC NET- JRF (December, 2016) and secured 77th rank in the subject of Life- sciences under UGC fellowship scheme

Cleared CSIR-UGC NET- JRF (June, 2014) and secured 58th rank in the subject of Life-sciences under UGC fellowship scheme

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Research experimental skills:

1. Reconstitution of membrane proteins in planar lipid bilayers and single channel recordings
2. Single molecule electrical sensing

3. Advanced liposomes preparation and permeation assays
4. Peptide synthesis by solid phase synthesis, purification by HPLC and secondary structure characterization by CD spectroscopy
5. Fluorescence Assisted Cell Sorting (FACS)
6. Microbiology and biochemistry analysis (Blood processing)
7. Maintenance of animal cell culture, differentiation of pre-adipocytes into mature adipocytes, and gene silencing using siRNA
8. Basic Animal Handling

Professional training:

1. Attended a certificate course on Laboratory Animal Science conducted by Animal Research Facility, Rajiv Gandhi Centre for Biotechnology from 25th July, 2016 to 29th July, 2016

2. Attended a school on 'International Perspectives on Qualitative Microbial Risk Assessment' organized under the Infrastructure for Health and Ecosystem Risk Assessment - An Indo-US Collaboration Building Resources for Quantitative Microbial Risk Assessment at Indian Institute of Public Health, Hyderabad from 22nd March 2015 to 27th March 2015

3. Attended training in Biotechnology (Recombinant DNA technology, Plant tissue culture and Polymerase chain reaction) from Shreedhar Bhat's Laboratory (recognised by Karnataka Biotechnology and Information Technology Services) from 4th May, 2009 to 23rd May, 2009

4. Observed various techniques in Microbiology, Immunology and Hematology in the pathology department of Jagjivanram Hospital (Western Railway) from 16th October, 2008 to 12th November, 2008

Conferences:

1. 5th Prato Conference on Pore Forming Proteins (2021), Virtual Meeting (ePoster)
2. 64th Annual Meeting of the Biophysical Society (2020) in San Diego, California (Poster)
3. International conference on Multiscale Simulation & Mathematical Modelling of Complex Biological Systems 2019 (Poster)
4. International Conference on Molecular Signalling: Basics to Applications (ICMS 2017) organized by Anna University (Poster)
5. National Seminar on Fungii and Health Care (2012) organized by Mycological Society of India (Poster)
6. Research Meet on Biotechnology, Environmental Sciences and Phytochemicals (2011) organized by Konark Group (Poster)

Soft skills:

Windows: Word, Excel, PowerPoint, Origin, Single channel analysis using pClamp
Basic knowledge of bioinformatics tools (PyMOL, Var Seq, BLAST, RasMol, ClustalW, Swiss PDB Viewer) and databases.

Other activities:

Student co-ordinator at Rajiv Gandhi Centre for Biotechnology for the year 2017-2018.
Organized various workshops, seminars and events at NEERI, and during graduation and post-graduation courses.