Dr. Vadivel Prabahar
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Protein Biochemist and Molecular Biologist trained at IIT Madras. 13+ years of technical expertise in downstream processing, process development of recombinant antibodies and proteins, protein purification, and characterization enzyme discovery, molecular cloning, and heterologous protein expression (E.coli, mammalian and insect cell lines),. Expertise in handling diverse proteins (GPCRs, Biologics [ScFv, Fab], FAS-I, Vigilin, Calnuc, Chlorophyll binding protein and Kinase). Proficient in communication skills, project management, training junior scientists and proposal writing. Pre-PhD. experience in Antarctica microbial diversity.

Education

- 2007-2014: Ph. D. (Biotechnology), Indian Institute of Technology- Madras (IITM), Chennai, India

Research Experience

- **Visiting Scientist Research Associate (01/2020- 10/2020);** *Weizmann Institute of Science (WIS), Israel*
- **Postdoctoral Fellow (05/2018- 10/2019);** *Weizmann Institute of Science (WIS), Israel*
- **Postdoctoral Fellow (10/2014 – 5/2018**); *Technion, Israel*
- **Visiting Student (03/2014- 10/2014);** *Weizmann Institute of Science (WIS), Israel*
- **Ph. D. Project (01/2007 – 01/2014);** *Indian Institute of Technology (IIT) Madras, India*
- **Project SRF (2000- 2005);** *Centre for Cellular and Molecular biology (CCMB), India*

Projects Handled

- Understanding the network of NF-kB Interacting Kinase (NIK/MAP3K) to explore the architecture of NIK specific interactome using XL-MS
- Structural elucidation of Melanocortin 4 Receptor (MC4R) in complex with an agonist Set melanotide, heterotrimeric G proteins (G$\boldsymbol{\alpha}$S-$\boldsymbol{\beta\gamma}$) and ScFv16 antibody using cryoEM technique
- Identification of novel inhibitors against the pathogen, Mycobacterium tuberculosis
- Water Soluble Chlorophyll binding protein: The sequence, structure, function and molecular evolution
- Biochemical characterization of an RNA binding protein, Vigilin
- Drosophila Nucleobindin" (Dmnucb): Characterization of an evolutionarily conserved Ca2+, Zn2+ and G protein- binding protein
- Investigating the microbial diversity from the soil samples of pristine environments of Antarctica

Research Skills

- **Downstream Processing**: Protein purification- AKTA FPLC and batch purification- Ion exchange, Gel Filtration, and Affinity (Affinity based- His, GST, SUMO, Streptavidin, chitin binding domain, FLAG, Profinity), Western blot, Immunoprecipitation

- **Molecular biology**: Clone development, Construction of expression vectors with different tags (GST/His/FLAG/STREP TACTIN/Profinity), Site-directed mutagenesis (Single/ Double/ Multi), Gene Editing (CRISPR/ Cas) **(Preliminary level experience**)
- **Upstream Processing**: Heterologous protein expression- Insect cell lines (Sf9, *T.ni*), Human cell lines (Expi 293 F cells, Free style 293F, HEK 293T, HeLa S3) and E. coli; Cell disruption - Homogenizer and French Press, TFF, ultrafiltration
- **Bio-Analytical**: Spectrophotometer (UV/ visible, CD, fluorescence), Isothermal titration (ITC), SEC-MALS, Differential scanning colorimetry (DSC), Microscale thermophoresis [MST]** (Preliminary level experience**)

Management and Mentorship skills

- Mentored post-graduates on research projects during PhD. and postdoc projects
- Served as assistant warden at IIT-Madras for 2 years
- Molecular Biology Lab set up and management

Publications

1. Hadar, Israeli., Degtjarik, O., Fierro, F., Chunilal, V., Gill, A., Roth, N., Botta, J., **Prabahar, V**., Peleg, Y., Chan, L., Ben-Zvi2, D., McCormick, P., Masha N., and Shalev-Benami., M. (2021). Structure of Active MC4 Receptor Complex Reveals Mechanism for Satiety Signaling. **Science (Accepted)**
2. **Prabahar, V**., Afriat-Jurnou, L., Paluy, I., Peleg, Y., and Noy, R. (2020). New Homologues of *Brassicaceae* Water-Soluble Chlorophyll Proteins shed light on Chlorophyll binding, Spectral Tuning, and Molecular Evolution *FEBS Journal, 287(5):991-1004*
3. Peleg, Y., **Prabahar, V**., Bednarczyk, D., and Unger, T. (2017). Harnessing the Profinity eXact™ System for Expression and Purification of Heterologous Proteins in *E.coli.* (*ed*.), *Methods and Protocols, Methods in Molecular Biology*, vol 1586, DOI 10.1007/978-1-4939-6887-9_3
4. Bednarczyk, D., Dym, O., **Prabahar, V.**, Peleg, Y., Pike, DH., Noy D. (2016). Fine Tuning of Chlorophyll Spectra by Protein-Induced Ring Deformation. Angew Chem Int Ed Engl, 55(24): 6901-5
5. Chaturvedi, P., **Prabahar, V**., Manorama, R., Pindi, PK., Bhadra, B., Begum, Z., and Shivaji, S. (2008). Exiguobacterium soli sp. nov. a psychrophilic bacterium from the McMurdo Dry Valleys, Antarctica. *International Journal of Systematic and Evolutionary Microbiology*, 58: 2447-53.
6. **Prabahar, V**., Dube, S., Reddy, G. S. N., and Shivaji, S. (2004). *Pseudonocardia antarctica* sp. nov an actinomycete from the soil of McMurdo Dry Valley, Antarctica. *Systematic and Applied Microbiology*, 27: 66-71
7. Reddy, G.S.N., Prakash, J.S.S., **Prabahar, V**., Matsumoto, G. I., Stakebrandt, E., and Shivaji, S. (2003). *Kokuria polaris* sp. nov. an orange pigmented psychrotropic bacterium isolated from an Antarctic cyanobacterial mat sample. *International Journal of Systematic and Evolutionary Microbiology*, 53: 183-187

Honors and Scholarships

- 2020-2020: *Visiting scientist Research Associate, Weizmann Institute of Science, Israel*
- 2018-2019: *Postdoctoral Fellowship, Weizmann Institute of Science, Israel*
- 2014- 2018: *Postdoctoral Fellowship, Technion, Israel*
- 2007-2009: *Senior Research Fellowship (for doing Ph.D at IIT Madras), CSIR, India*
- 2000-2005: *Senior Research Fellowship (Adhoc-project), CCMB, Hyderabad, India*

Travel Grants

- 2016: *Migal Travel Grant to attend International Conference at Maastricht, Netherlands*

- 2013: *IIT Travel Grant to attend International Conference at Amsterdam, Netherlands*

Conferences/ Workshops

- 2017: 4th Conference of ISBE, Tel Aviv, Israel
- 2016: 17th International Congress on Photosynthesis Research: Photosynthesis in a Changing World, Maastricht, Netherlands
- 2013: 5th EMBO meeting on "Advancing Life Sciences-2013", Amsterdam, Netherlands
- 2013: International conference on "Biomolecular forms and functions. A celebration of 50 years of the Ramachandran map", Bangalore, India
- 2012: EMBO Global Lecture Series on "Structural and Biophysical method for Biological Macromolecules in Solution, Hyderabad, India