

# Dr. Anbarasu Karthikaichamy Ph.D.

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Stony Brook University  
Stony Brook, NY 11794

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## EDUCATION

- 2014 – 2019 **Ph.D.**, IITB-Monash Research Academy (joint Ph.D. program)  
Thesis: **Molecular plasticity of microalgal stress response**  
Supervisors: Santosh Noronha (IIT Bombay), Dieter Bulach (Monash University), Sanjeeva Srivastava (IIT Bombay), Ross Coppel (Monash University) and Tomal Dattaroy (Reliance Industries Limited)
- 2011 – 2013 **M.Tech., Biopharmaceutical Technology**, Centre for Biotechnology, Anna University, Chennai, India
- 2007 – 2011 **B.Tech., Biotechnology**, Mepco Schlenk Engineering College, Sivakasi, India
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## APPOINTMENTS

- 08.2019 – present **Postdoctoral Associate**, School of Marine and Atmospheric Sciences, Stony Brook University, Stony Brook, NY, USA
- 01.2016 – 05.2016  
07.2015 – 11.2015  
01.2014 – 11.2014 **Graduate Teaching Assistant**, Department of Chemical Engineering, Indian Institute of Technology Bombay, Mumbai, India
- 08.2011 – 05.2013 **Master Student Research Assistant**, Tissue Culture and Drug Discovery Lab, Centre for Biotechnology, Anna University, Chennai, India
- 12.2010 – 04.2011 **Student Research Assistant**, Gene Expression Lab, Mepco Schlenk Engineering College, Sivakasi, India
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## HONORS

- 2019 Best Ph. D thesis award nomination
- 2018 Best 3 Minute Thesis Talk (Dept. of Chemical Engineering, IIT Bombay)
- 2017 Awarded Travel Grant (MGE, Monash University) to attend 11<sup>th</sup> IPC, Szczecin, Poland
- 2016 Awarded Travel Grant (IITB-Monash Research Academy) to attend 10<sup>th</sup> ABO summit, Phoenix, AZ, USA
- 2014 Gold medallist for Highest CPI in M. Tech Biopharmaceutical Technology from Anna University, Chennai
- 2012 Awarded Lectureship (36<sup>th</sup> rank) by Council of Scientific and Industrial Research (CSIR), Government of India

## RESEARCH PROJECTS

2019 – pres. Developing *Aurantiochytrium* as an experimental model system (EMS)

- Generated knockouts using CRISPR/Cas9
- Evaluation of vitamin B dependency in marine protist
- Protein composition in bothrosome.

2014 – 2019 Molecular plasticity of microalgal stress response

- Studied physiology of microalgae under hyper-saline conditions
- Used RNA-seq and proteomics to identify key salinity response genes and proteins

2011 – 2013 Significance of mTOR and c-Src in estrogen mediated breast cancer signalling

- Studied the significance of ER and downstream signalling proteins in triple negative breast cancer

2010 – 2011 Evolution of the RNase P RNA structural domain in *Leptospira* spp.

- Employed RNase P RNA (RPR) gene to investigate the phylogeny of structural domains in 150 strains of *Leptospira* spp.

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## PUBLICATIONS [ORCID 0000-0002-1789-6566]

**Karthikaichamy A**, Srivastava S, Coppel R, Beardall J, Noronha S, Bulach D. Temporal transcriptomic profiling of *Microchloropsis gaditana* CCMP526 under hyper-saline conditions. *\*In preparation for submission.*

**Karthikaichamy, A.**, Beardall, J., Coppel, R., Noronha, S., Bulach, D., Schittenhelm, R. B., & Srivastava, S. (2020). A Data-Independent-Acquisition-based proteomic approach towards understanding the acclimation strategy of *Microchloropsis gaditana* CCMP526 in hypersaline conditions. *bioRxiv*. DOI: 10.1101/2020.03.18.996223

Deore, P., **Karthikaichamy, A.**, Beardall, J., & Noronha, S. (2020). Non-photochemical quenching, a non-invasive probe for monitoring microalgal grazing: an early indicator of predation by *Oxyrrhis marina* and *Euplotes* sp. *Applied Phycology*, 1(1), 20-31. DOI: 10.1080/26388081.2019.1651218

**Karthikaichamy A**, Deore P, Srivastava S, Coppel R, Bulach D, Beardall J, Noronha S. 2018. Temporal acclimation of *Microchloropsis gaditana* CCMP526 in response to hypersalinity. *Bioresource Technology*. 254. DOI: 10.1016/j.biortech.2018.01.062

**Karthikaichamy A**, Deore P, Rai V, Bulach D, Beardall J, Noronha S, Srivastava S. 2017. Time for Multiple Extraction Methods in Proteomics? A Comparison of Three Protein Extraction Methods in the Eustigmatophyte Alga *Microchloropsis gaditana* CCMP526. *Omics: A Journal Of Integrative Biology*. 21. DOI: 10.1089/omi.2017.0128

Ravishankar V, Ahmed A, Sivagnanam U, Muthuraman K, **Karthikaichamy A**, Wilson HA, Devendran A, Hartskeerl RA, Raj SM. 2014. Evolution of the RNase P RNA structural domain in *Leptospira* spp. *Research In Microbiology*. 165. DOI: 10.1016/j.resmic.2014.10.007

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## CONFERENCES & SEMINARS

**Karthikaichamy A**, Deore P, Srivastava S, Coppel R, Bulach D, Beardall J, Noronha S. Poster presentation at the 11<sup>th</sup> International Phycological Congress, Szczecin, Poland, August, 2017. “Temporal Acclimation of *Nannochloropsis gaditana* CCMP526 in Response to Hyperosmolarity”

**Karthikaichamy A**, Rai V, Deore P, Noronha S, Dasgupta S Srivastava S. Poster presentation at the 10th Algal Biomass Organisation summit, Phoenix, AZ, USA. October, 2016. “Increasing Proteome Coverage in *Nannochloropsis gaditana* CCMP526”

**Karthikaichamy A**. Waste to Wealth Symposium. IITB-Monash Research Academy, Mumbai, India. March, 2016.

**Karthikaichamy A**. Participated in Indo-US workshop on “Cell Factories”. Department of Chemical Engineering, Indian Institute of Technology Bombay, Mumbai, India. March, 2016.

**Karthikaichamy A**. Co-ordinator – seminar on “Futuristic Approach to Alternatives”. Department of Chemical Engineering, Indian Institute of Technology Bombay, Mumbai, India. November, 2015.

**Karthikaichamy A**. Participated in the workshop at the 23rd National Congress of Parasitology. Centre for Biotechnology, Anna University, Chennai, India. November, 2011.

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## PUBLIC DATASETS

Sequence (partial) of RNaseP RNA subunit (*rnpB*) gene of 18 *Leptospira* serovars submitted to NCBI GenBank. April, 2015. Published in DOI: 10.1016/j.resmic.2014.10.007.

**Anbarasu Karthikaichamy** and Jackie Collier. CRISPR/Cas9 based knockout generation in *Aurantiochytrium limacinum* (ATCC MYA-1381). Protocols.io. December 2019. DOI: 10.17504/protocols.io.baeyibfw

**Anbarasu Karthikaichamy** and Jackie Collier. Synthetic media (A1) for *Aurantiochytrium limacinum* (ATCC MYA-1381). Protocols.io. December 2019. DOI: 10.17504/protocols.io.bafuibnw

**Anbarasu Karthikaichamy** and Jackie Collier. Ectoplasmic Net (EN) formation in *Aurantiochytrium limacinum* (ATCC MYA-1381). Protocols.io. March 2020. DOI: 10.17504/protocols.io.bc7hizj6

**Anbarasu Karthikaichamy**. Protein extraction form *Aurantiochytrium limacinum* (ATCC MYA-1381). Protocols.io. March 2020. DOI: 10.17504/protocols.io.bc7gizjw

**Mass spectrometry proteomics data** deposited to the ProteomeXchange Consortium with the dataset identifier PXD017297, PXD017164. Project name: A Data-Independent-Acquisition-based proteomic approach towards understanding the acclimation strategy of *Microchloropsis gaditana* CCMP526 in hypersaline conditions. January 2020.

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## TEACHING & MENTORSHIP

2019 – 2020 **Research Mentor** of Xegfred Lou T. Quidet, Interdisciplinary Biology undergraduate at Stony Brook University. Studies on vitamin B dependency of a marine protist *Aurantiochytrium limacinum*.

## SERVICE

- 2017 – 2018 **Publication Database Maintenance.** Involved in periodical updating and analysing IITB-Monash Academy's publication database.
- 2016 **In-charge for setting up Biology Lab** at IITB-Monash Academy's new building. Involved in designing, cost-comparison and procurement of lab wares and analytical instruments.
- 2015 **Design Manager**, ResCon'15, Indian Institute of Technology Bombay, Mumbai, India. Conceptualized and co-ordinated the design requirements for the annual Research Scholars Confluence at IIT Bombay.
- 2014 **Records and Laboratory Maintenance Assistant.** Undergrad lab, Department of Chemical Engineering, Indian Institute of Technology Bombay, Mumbai, India. In-charge for routine collection of students' assignments, final grading and lab maintenance.
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## SKILLS

Skilled in generating and analysing large OMICS (RNA-seq and proteomics) datasets; Working knowledge in R (statistical, phylogenetic and plotting packages); Excellent knowledge in microscopy techniques (light and fluorescence microscope), spectrometry (HR-LC/MS, FT-IR, FT-NIR, fluorescence and PAM fluorometer); Expert in molecular cloning and algal physiology; Experience with knock-out generation using CRISPR/Cas9.

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## LANGUAGES

English (professional proficiency), Tamil (native), Hindi (speaking proficiency)

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## REFERENCES

### Jackie Collier, PhD

Associate Professor,  
School of Marine and Atmospheric Sciences,  
Stony Brook University, NY, USA  
[jackie.collier@stonybrook.edu](mailto:jackie.collier@stonybrook.edu)

### Dieter Bulach, PhD

Senior Research Scientist  
VLSCI & EMBL Australia Bioinformatics Resource  
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### John Beardall, PhD

Emeritus Professor  
School of Biological Sciences  
Monash University, Clayton, VIC, Australia  
[john.beardall@monash.edu](mailto:john.beardall@monash.edu)

### Ross Coppel, PhD

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