

Yi Jin LIEW

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PROFESSIONAL EXPERIENCE

- 2023– **Senior Research Scientist, CSIRO, Australia (2+ years; current)**
- 2018– **Research Scientist, CSIRO, Australia (5 years)**
- 2023 Cell and Molecular Health, Health and Biosecurity Research Unit
- Identified potential methylation-based biomarkers, and developed high-throughput methods to advance tests for various cancers
 - Identified potential peptide theranostic biomarkers for various cancers, created app to process and visualise NGS data
 - Progressed a pan-animal epigenetic clock
 - Chief investigator on 1 external grant (\$1.0m); project leader for 5 internal grants (combined \$2.0m)
 - Provided academic guidance to a research scientist, a postdoc, and a PhD student; formal supervision to a vacation student
- 2013– **Postdoctoral Fellow, King Abdullah University of Science and Technology, Saudi Arabia (5 years)**
- 2018 PI: Prof. Manuel Aranda, Red Sea Research Center
- Investigated epigenetic adaptation in corals facing climate change
 - Contributed to genome projects of five marine organisms
 - Maintains a data portal for reef organisms, <http://reefgenomics.org>
 - Provided academic guidance for five PhD students, two master's students, two interns, and two high school students
- 2009– **Lab demonstrator, University of Cambridge, UK (various stints)**
- 2011
- Demonstrated general lab skills to first- to third-year undergraduates, and graded lab reports
- 2005 **Relief teacher, The Chinese High School, Singapore (5 months)**
- Taught Chemistry to gifted students aged 13–15
 - Designed course materials and exams, graded student work

EDUCATION

- PhD **Trinity Hall, University of Cambridge, UK (Oct 2008–Dec 2012)**
- PI: Dr. Gos Micklem, Department of Genetics
- Thesis title: Small RNA studies in *Drosophila melanogaster*, *Stylophora pistillata* and *Symbiodinium* sp.
- BA **Magdalene College, University of Cambridge, UK (Oct 2005–Jun 2008)**
- First-Class (Honours) in Genetics

INVITED TALKS

2019 Statistical Bioinformatics Seminar, University of Sydney, Sydney, Australia

ORAL PRESENTATIONS AT CONFERENCES

2025 21st ISDE World Congress for Esophageal Diseases, Brisbane, Australia

2022 Diagnostics Specialisation Course, Sydney, Australia

2020 C₃DIS (Collaborative Conference on Computational & Data Intensive Science)
Virtual/Melbourne, Australia

2018 ABACBS-2018 National Conference, Melbourne, Australia

2017 European Coral Reef Symposium 2017, Oxford, UK
RSRC Open Science Conference, Thuwal, KSA
KAUST Research Conference: Environmental Epigenetics, Thuwal, KSA

2016 KAUST Research Conference: International Conference on the Marine
Environment of the Red Sea, Thuwal, KSA
13th International Coral Reef Symposium, Honolulu, Hawaii, USA

2014 3rd Asia-Pacific Coral Reef Symposium, Kenting, Taiwan

2012 12th International Coral Reef Symposium, Cairns, Australia

AWARDS AND PRIZES

2008 Special Malaysia University Composition Fee Bursary (£24,000 p.a. × 3 years)
Trinity Hall Research Bursary (£4,000 p.a. × 3 years)
Bundy Scholarship (£250)
College Prize for Natural Sciences (£115)

2007 Gold award and Best BioBrick award for "BOL: Bacteria OnLine" (International
Genetically Engineered Machines Competition, MIT)

2006 Scholarship from College Governing Body
College Prize for Natural Sciences

2005 Jardine Scholarship (£30,000 p.a. × 3 years)
Honorary Cambridge Commonwealth Trust Scholarship

OUTREACH ACTIVITIES

2025 Led a team that ran five strawberry DNA extraction workshops for ~100 high school
students as part of a CSIRO "With STEM You Can" Careers Expo
Volunteered at a local library, gave a talk about science as a career

- 2021 Partnered with a local high school as an “authentic audience” during science lessons. Provided feedback on student presentations, gave talks and organised enrichment activities
- 2019 Spruiked science for the “STEM in Schools” event at a local high school
- 2018 Co-organised and taught in a “Stats in R” course for departmental members
Co-author on paper picked up by the BBC (<http://www.bbc.com/news/science-environment-43801895>)
- 2017 Co-chaired a two-day departmental seminar “RSRC Open Science Conference 2017”
Interviewed for published work about RNA editing in an alga
(<https://discovery.kaust.edu.sa/en/article/345/tweaking-the-transcriptome-to-tackle-stress>)
- 2016 Interviewed by KAUST about why I chose to work there
(<https://www.kaust.edu.sa/en/news/a-place-for-big-ideas>)
Maintained lab website (<https://coralsymbiomics.kaust.edu.sa>)
- 2015 Co-wrote an opinion piece on corals’ epigenetic adaptation to climate change
(<http://www.natureasia.com/en/nmiddleeast/article/10.1038/nmiddleast.2015.194>)

PUBLICATIONS (*: co-first)

<https://scholar.google.com/citations?user=zOJXpucAAAAJ&hl=en&oi=ao>
<https://orcid.org/0000-0003-2553-8870>

Mutschler R, Caputo AT, Guo Z, **Liew YJ**, Fiorito MM, et al. Protein biosensors of heart failure biomarker S100A γ . *Biosens Bioelectron X*. 2025; **27**:100700.

Guanzon D, Ross JP, Ma C, Berry O, **Liew YJ**. Comparing methylation levels assayed in GC-rich regions with current and emerging methods. *BMC Genomics*. 2024; **25**:741.

Cui Z, Ergun Ayva C, **Liew YJ**, Guo Z, Mutschler R, et al. mRNA display pipeline for protein biosensor construction. *ACS Sensors*. 2024; **9**(6):2846–2857.

Mouradov D, ..., **Liew YJ**, et al. Oncomicrobial community profiling identifies clinicomolecular and prognostic subtypes of colorectal cancer. *Gastroenterology*. 2023; **165**(1):104–120.

Cui G, ..., **Liew YJ**, et al. Molecular insights into the Darwin paradox of coral reefs from the sea anemone Aiptasia. *Sci Adv*. 2023; **9**:eadf7108.

Cui G*, Liew YJ*, Konciute MK, Zhan Y, Hung SH, et al. Nutritional control regulates symbiont proliferation and life history in coral-dinoflagellate symbiosis. *BMC Biol.* 2022; **20**(1):1–16.

Howells EJ, Abrego D, Liew YJ, Burt JA, Meyer E, et al. Enhancing the heat tolerance of reef-building corals to future warming. *Sci Adv.* 2021; **7**:eabg6070.

Herrera M, Liew YJ, Venn A, Tambutté E, Zoccola D, et al. New insights from transcriptomic data reveal differential effects of CO₂ acidification stress on photosynthesis of an endosymbiotic dinoflagellate *in hospite*. *Front Microbiol.* 2021; **12**:666510.

Wang X, Zoccola D, Liew YJ, Tambutté E, Cui G, et al. The evolution of calcification in reef-building corals. *Mol Biol Evol.* 2021; **38**(9):3543–3555.

Liew YJ*, Howells EJ*, Wang X, Michell CT, Burt JA, et al. Intergenerational epigenetic inheritance in reef-building corals. *Nat Clim Chang.* 2020; **10**:254–259.

Locke WJ, Guanzon D, Ma C, Liew YJ, Duesing KR, et al. DNA Methylation Cancer Biomarkers: Translation to the Clinic. *Front Genet.* 2019; **10**:1150.

Cui G, Liew YJ, Li Y, Kharbatia N, Zahran NI, et al. Host-dependent nitrogen recycling as a mechanism of symbiont control in Aiptasia. *PLOS Genet.* 2019; **15**(6):e1008189.

Ahmed HI, Herrera M, Liew YJ, Aranda M. Long-term temperature stress in the coral model Aiptasia supports the “Anna Karenina principle” for bacterial microbiomes. *Front Microbiol.* 2019; **10**:975.

Cziesielski MJ, Liew YJ, Aranda M. Summarized datasheet for multi-omics response of three Exaiptasia strains to heat stress: a new way to process omics data. *BMC Res Notes.* 2018; **11**:905.

Li Y, Liew YJ, Cui G, Cziesielski MJ, Zahran N, et al. DNA methylation regulates transcriptional homeostasis of algal endosymbiosis in the coral model Aiptasia. *Sci Adv.* 2018; **4**:eaat2142.

Liew YJ, Zoccola D, Li Y, Tambutté E, Venn AA, et al. Epigenome-associated phenotypic acclimatization to ocean acidification in a reef-building coral. *Sci Adv.* 2018; **4**:eaar8028.

Cziesielski MJ*, Liew YJ*, Cui G, Schmidt-Roach S, Campana S, et al. Multi-omics analysis of thermal stress response in a zooxanthellate cnidarian reveals the importance of associating with thermotolerant symbionts. *Proc R Soc B.* 2018; **285**:20172654.

Chen JE, Cui G, Wang X, **Liew YJ**, Aranda M. Recent expansion of heat-activated retrotransposons in the coral symbiont *Symbiodinium microadriaticum*. *ISME*. 2018; **12**:639–643.

Voolstra CR, Li Y, **Liew YJ**, Baumgarten S, Zoccola D, et al. Comparative analysis of the genomes of *Stylophora pistillata* and *Acropora digitifera* provides evidence for extensive differences between species of corals. *Sci Rep*. 2017; **7**(1):17583.

Brüwer JD, Agrawal S, **Liew YJ**, Aranda M, Voolstra CR. Association of coral algal symbionts with a diverse viral community responsive to heat shock. *BMC Microbiol*. 2017; **17**(1):174.

Wang X, **Liew YJ**, Li Y, Zoccola D, Tambutte S, et al. Draft genomes of the corallimorpharians *Amplexidiscus fenestrafer* and *Discosoma* sp. *Mol Ecol Resour*. 2017; **17**(6):e187–e195.

Voolstra CR, **GIGA Community of Scientists**, Wörheide G, Lopez JV. Advancing Genomics through the Global Invertebrate Genomics Alliance (GIGA). *Invertebr Syst*. 2017; **31**:1–7.

Liew YJ, Li Y, Baumgarten S, Voolstra CR, Aranda M. Condition-specific RNA editing in the coral symbiont *Symbiodinium microadriaticum*. *PLOS Genet*. 2017; **13**(2):e1006619.

Liew YJ, Aranda M, Voolstra CR. Reefgenomics.Org - a repository for marine genomics data. *Database*. 2016; **2016**:baw152.

Aranda M, Li Y, **Liew YJ**, Baumgarten S, Simakov O, et al. Genomes of coral dinoflagellate symbionts highlight evolutionary adaptations conducive to a symbiotic lifestyle. *Sci Rep*. 2016; **6**:39734.

Bhattacharya D, ..., **Liew YJ**, et al. Comparative genomics explains the evolutionary success of reef-forming corals. *eLife*. 2016; **5**:e13288.

Liew YJ*, Ryu T*, Aranda M, Ravasi T. miRNA Repertoires of Demosponges *Styliasa carteri* and *Xestospongia testudinaria*. *PLOS ONE*. 2016; **11**(2):e0149080.

Ryu T, Seridi L, Moitinho-Silva L, Oates M, **Liew YJ**, et al. Hologenome analysis of two marine sponges with different microbiomes. *BMC Genomics*. 2016; **17**(1):1.

Baumgarten S, Simakov O, Esherick LY, **Liew YJ**, Lehnert EM, et al. The genome of *Aiptasia*, a sea anemone model for coral symbiosis. *PNAS*. 2015; **112**(38):11893–11898.

Liew YJ, Aranda M, Carr A, Baumgarten S, Zoccola D, et al. Identification of microRNAs in the coral *Stylophora pistillata*. *PLOS ONE*. 2014; **9**(3):e91101.

Baumgarten S, Bayer T, Aranda M, **Liew YJ**, Carr A, et al. Integrating microRNA and mRNA expression profiling in *Symbiodinium microadriaticum*, a dinoflagellate symbiont of reef-building corals. *BMC Genomics*. 2013; **14**:704

OTHER PUBLICATIONS (NOT PEER-REVIEWED)

Liew YJ, Aranda M. Epigenetic adaptation of corals: A new hope? *Nature Middle East*. 2015; doi:10.1038/nmiddleeast.2015.194

LANGUAGE AND COMPUTING SKILLS

Languages Fluent in English and Mandarin
 Proficient in Malay and Cantonese

Computing Extremely familiar with Windows (incl. MS Office) and UNIX
 Expert in Python, R, Bash
 Competent in Perl, Visual Basic, HTML and CSS