

# Yi Jin LIEW

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## EDUCATION

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- 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

## PROFESSIONAL EXPERIENCE

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- 2018–     **Research Scientist, CSIRO, Australia (current)**  
Molecular Diagnostics Solutions, Health and Biosecurity
- Identifying potential theranostic biomarkers for various cancers
  - Analysing genetic signatures of a precursor of colorectal cancer
  - Reviewed three papers
- 2013–     **Postdoctoral Fellow, King Abdullah University of Science and Technology,**  
2018     **Saudi Arabia (5 years)**  
PI: Prof. Manuel Aranda, Red Sea Research Center
- Investigated the role of epigenetics in corals as a mechanism to keep pace with climate change
  - Contributed to genome projects of five marine organisms
  - Designed and maintained a data portal for reef organisms, <http://reefgenomics.org>
  - Reviewed six papers
  - 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

## INVITED TALKS

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

## ORAL PRESENTATIONS AT CONFERENCES

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- 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  
13<sup>th</sup> International Coral Reef Symposium, Honolulu, Hawaii, USA
- 2014 3<sup>rd</sup> Asia-Pacific Coral Reef Symposium, Kenting, Taiwan
- 2012 12<sup>th</sup> International Coral Reef Symposium, Cairns, Australia

## AWARDS AND PRIZES

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- 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

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- 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/nmiddleeast.2015.194>)

## POSTGRAD & UNDERGRAD SUPERVISION

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PhD students: **five**. My advice ranges from

- Bioinformatics basics e.g. using the UNIX command-line; how to write scripts in Python to analyse data etc.
- Statistical concepts e.g. what tests to carry out if the data is not Gaussian; how to propagate standard errors; why multiple testing correction is important etc.
- Good lab practices, especially when working with RNA e.g. ensuring bench is RNase-free; work quickly on ice to prevent RNA degradation; avoid freeze-thawing of samples etc.
- Scientific writing e.g. when to use past or present tense; how to structure their ideas etc. I have read through and edited the PhD proposals from all five students; and multiple manuscripts from three.

Master's/undergrad/high school students: **six**. Guidance provided is similar in theme as PhD students, but in a more directed fashion. Examples include

- Performing initial experiments with them
- Outlining how data analysis should proceed
- Editing their written reports and improving their presentations

## PUBLICATIONS (\*: co-first)

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**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 Exaiaptasia strains to heat stress: a new way to process omics data. *BMC Res Notes*. 2018; **11**:905.

Li Y, **Liew YJ**, Cui G, Cziekielski 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.

Cziekielski 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 *Stylissa 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)

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**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

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Languages	Fluent in English and Mandarin Proficient in Malay and Cantonese
Computing	Extremely familiar with Windows and UNIX environments Expert in Python, Bash Competent in Perl, R, Visual Basic, HTML and CSS