Meeting Report: 8th Australian Developmental Biology Workshop
Written by Frank Tulenko, Sam Keenan and Quoc Duy Tran (all ARMI, Monash).

This summer's 8th Australian Developmental Biology Workshop brought together students and early career researchers from Australia and New Zealand, and distinguished faculty from around the world, to discuss development, evolution, and life as a scientist, all in the context of the beautiful Flinder's coastline in Mornington Pennisula. Participants were greeted on Sunday—the first day of the four-day workshop—with a light lunch and an opportunity to get to know each other before diving into a series of interactive sessions on developmental organisms and the tools we use to study them. These sessions were presented by Brigid Hogan (Duke University), Edwina McGlinn (ARMI), Alan Davidson (University of Auckland), Claude Desplan (NYU), and Cliff Tabin (Harvard), and covered a variety of traditional models such as mouse, chick, and zebrafish, as well as non-model systems including wasps and cavefish. Highlights included discussing the strengths and weaknesses of each system, how to best approach picking an animal depending on your biological question of interest, and how advances in molecular methods and technologies have opened up regions of phylogeny to study that were historically inaccessible. In the evening, Brigid Hogan gave the first keynote seminar, presenting her lab's impactful work using mouse as a model for studying lung development and the role of stem cells in the adult lung. The day concluded with a poster session in which the participants in the workshop presented their research.

The second day began with Cliff Tabin's keynote address in which he discussed the development of the vertebrate gut, providing an example of how molecular signaling and physical forces are integrated during organogenesis. A series of shorter lectures on organogenesis and disease modeling followed Cliff's seminar. These covered a broad array of anatomical systems, and were given by Ian Smyth (Monash Biomedicine Discovery Institute), Brigid Hogan, Edwina McGlinn (ARMI), Richard Harvey (Victor Chang Cardiac Research Institute), Quenten Schwarz (Center for Cancer Biology, Adelaide), Natasha Harvey (Center for Cancer Biology, Adelaide), Claude Desplan, and Cliff Tabin. In the middle of the day, the participants and the faculty took a hiatus from science for a picnic lunch and bushwalk to Bushranger's bay, where some particularly friendly flies joined them. Later in the day, Mirana Ramialison gave a keynote lecture on her lab's work investigating cis-regulatory circuits in development and congenital disease. This lecture brought to the forefront the power of combining wet bench work with bioinformatics and the use of rapidly expanding ontologies for gene regulation. The day closed with an informal and energized discussion of early career development.

Tuesday brought two wonderful keynote lectures. In the first, Claude Desplan discussed how temporal and spatial patterning generates neural diversity in the fly. In addition to the elegant science presented in this work, Claude's ability to distill complex ideas down to their core provided an exceptional teaching moment on how to present science. Alan Davidson presented the second keynote lecture, providing a tour of early zebrafish development with a focus on formation of the kidney. Alan's remarkable work was highlighted by the striking role of cell behavior in

establishing the segments of the nephric system. Claude's and Alan's seminars bracketed a series of shorter sessions by Quenten Schwarz, Alan Davidson, Richard Harvey, Edwina McGlinn, Mirana Ramialison, Natasha Harvey, and Ian Smyth that centered on stem and progenitor cells in development, and how genomics, epi-genomics, and bioinformatics provide powerful tools for studying development and modeling disease. Following Tuesday's last lecture, a Workshop Dinner at the Epicurean Restaurant capped off the evening, drawing rave reviews by everyone that attended!

The last day of the Workshop began with presentations by Natasha Harvey, Ian Smyth, and Quenten Schwarz on tools available for studying developmental biology, with a particular focus on microscopy and imaging. The workshop concluded with a final session that explored how framing developmental questions in a comparative context can shed new light on the mechanisms that drive morphological evolution. Cliff Tabin, Peter Currie (ARMI), and Claude Desplan gave this series of seminars, providing a grand tour across bilaterian phylogeny, from ants to elephant sharks to jerboas. Overall, the workshop was a great success, stimulating the scientific curiousity of everybody involved.