Eco-Evo-Devo: The greatest show on earth

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The magnificent diversity of animal forms and functions arises from species-specific developmental programs orchestrated by intricate gene regulatory networks (GRNs). These GRNs have been shaped by natural selection to adapt to specific environmental and ecological conditions. Our research group is committed to unveiling the molecular complexity inherent in the evolution of animal development, examining a diverse array of model systems that include *Caenorhabditis* nematodes, *Drosophila* flies, and fig-associated insects. We leverage a range of sophisticated tools, such as single-cell omics and experimental evolution techniques, with the goal of elucidating the molecular mechanisms that facilitate the adaptation of developmental GRNs to fluctuating environmental conditions. Moreover, we are pioneering a novel research model system to investigate the origin of animal development. This innovative approach includes the study of choanoflagellates, organisms considered to closely resemble proto-animals, thereby offering insights into the early stages of animal evolution.