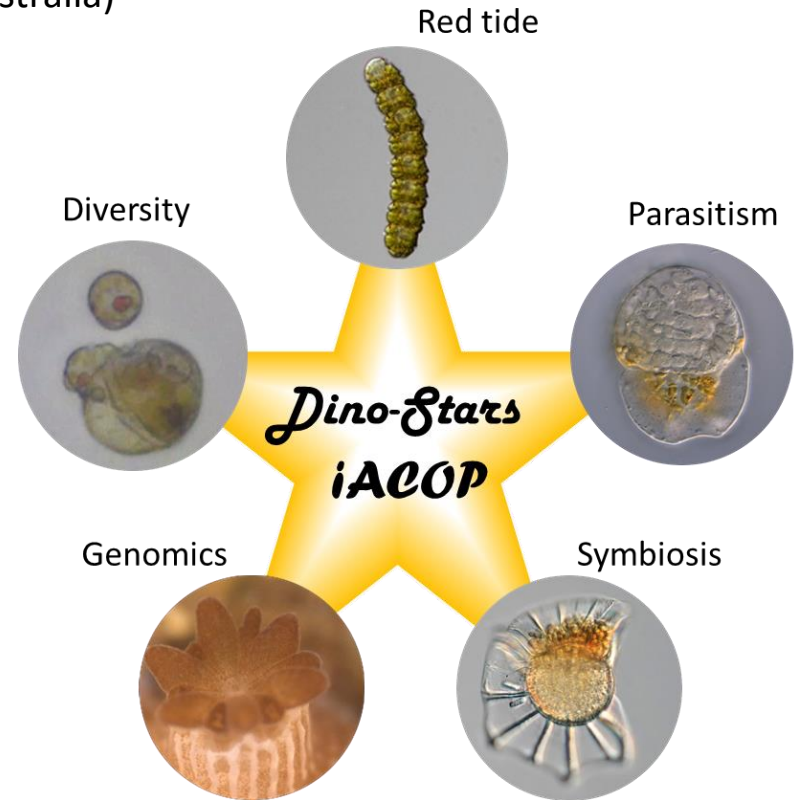


Symposium 6

Ecology and Evolution of Dinoflagellates in the Genomics Era

Organizers: Hwan Su Yoon (Korea) and Cheong Xin Chan (Australia)

Synopsis: Dinoflagellates are protists that are ubiquitous in marine and fresh waters. They critically sustain global aquatic ecosystems via primary production and cycling of organic carbon and nitrogen. Estimated at ca. 2,500 species, dinoflagellates are highly diverse, covering a broad spectrum of trophism (heterotrophy, photoautotrophy, and/or mixotrophy), environment (tropics, temperate, or polar), and lifestyle (free-living, symbiotic, or parasitic). Bloom-forming species may cause “red tides”, which produce toxins that pose serious human health risks. Symbiotic species of family Symbiodiniaceae are crucial symbionts in corals and other coral reef organisms. Parasitic species can cause death in economically important crustaceans such as crabs and lobsters. Although dinoflagellates are ecologically and economically important, they pose many challenges in modern research. Their taxonomy can be confounded by subtly different morphology, ecology may involve distinct modes of symbiosis and multiple interacting species in a complex ecosystem, chromosomes are permanently condensed in crystalline structure, nuclear genomes are large (up to 70-fold larger than a human genome), and organellar genomes are atypical of eukaryotes. Their evolutionary history is also highly intricate; some photosynthetic lineages harbor tertiary plastids derived from haptophyte, diatom and/or green algal sources. In this symposium, we will discuss current understanding of dinoflagellate ecology and evolution, with perspectives of taxonomy/diversity, red tide, parasitism, symbiosis, and genomics, and how we can use this knowledge to drive future research.



Speakers:

A.S. Lim (Korea), S.H. Baek (Korea), S. Kim (Korea), T. Nakayama (Japan), and C.X. Chan (Australia)