

SEMINAR

Mon 18 Mar 2019 | 4pm | DBS Conference Room 1

Hosted by Prof Peter Ng

The function, origin, evolution and development of novel complex traits



By **Antonia Monteiro**

Department of Biological Sciences, NUS

How novel traits originate over the course evolution is still poorly understood. My lab has been investigating this question focusing on the origin, function, evolution and development of eyespot color patterns on the wings of nymphalid butterflies. Eyespots originated close to the base of the nymphalid clade, presumably from simpler spot patterns, and likely because they served an adaptive function. I will describe some of our lab's recent experiments that show how eyespots function both in predator avoidance and in sexual signaling. At the mechanistic level, eyespots likely originated via the co-option of one or more pre-existing gene regulatory networks. I will detail our lab's current efforts in trying to identify which networks were co-opted, and the genetic and developmental basis of such co-option. In addition, I will summarize recent work detailing how specific lineages of nymphalids have become sensitive to temperature variation to produce plasticity in eyespot size, an exquisite adaptation to alternating wet and dry seasons. Finally, I will introduce some novel directions we are taking to identify the transcriptomics of color in individual butterfly wing scales, and mechanisms that connect variation in pigmentary color to variation in wing scale morphology.