Evolutionary Origins and Function of Animal Specific Gene Regulatory Networks: Insights from the Sponges

Since the sequencing of the first sponge genomes, we have known that these early animals possess members of most of the animal specific transcription factor, signal transduction and structural gene families. Sponges thus have genes that are crucial for setting up pathways for growth, differentiation, cell specification, adhesion, innate immunity and self/non-self recognition. It also appears that many metazoan-specific characteristics evolved before the sponges diverged from the rest of the animal lineage including stem cells, peristaltic-like contractions, and environmentally stimulated behaviors even though they lack muscles, nerves and a gut. Sponges thus represent the opportunity to study novel molecular mechanisms for key aspects of animal development. And they also offer the possibility of elucidating fundamental conserved molecular, cellular and developmental pathways in early animals. Our work on the Pax/Six and Wnt signaling pathways in the model freshwater sponge, Ephydatia muelleri, demonstrate both novel and putative conserved roles for these animal specific gene networks in the sister group of the Metazoa.

Monday, May 16, 2016
12:00 P.M.
3440 Mol Sci Bldg

If you would like to meet with the speaker or attend dinner with the speaker, please contact Carol Canedo at (310) 206-4956 or carol@chem.ucla.edu