

The contributions of genomics for understanding the phylogeny, ecology and evolution of molluscs

T. Cunha

Smithsonian Tropical Research Institute, Panama City, Panama
Email: CunhaT@si.edu

What processes have shaped the evolution of the diverse, ancient and successful molluscs? In this talk I will highlight some of the latest contributions of genomics to molluscan studies from three major perspectives: evolutionary relationships, molluscan biology, and genome evolution. As the amount of data grows and more taxa are sampled, phylogenies have been better resolved both among and within classes of molluscs. Nonetheless, even the largest available datasets still fail to elucidate a few deep divergences. Focusing on abalones, turban snails and keyhole limpets, I will show how genome-level data is often needed, but not always sufficient, and that accounting for the complexity of large datasets is essential to understand phylogenomic conflict. Genomics is also providing new insights into important biological processes, ecological questions and applications, such as biomineralization, symbiotic relationships, and population dynamics. As an example, I will show how genome-wide data reveals the history of populations of a threatened marine species to inform conservation actions. Finally, as the number and quality of whole mollusk genomes increase, questions about the evolution of genomes themselves could be revisited. I will summarize genomic resources currently available, and their use to explore topics such as the evolution of genome size and structure.