

RHEINISCHE FRIEDRICH-WILHELMS-UNIVERSITÄT BONN
Fachgruppe Biologie

Zoologisches Forschungsmuseum Alexander Koenig

Biologisches Kolloquium

Sommersemester 2019

Montag, den 8. 7. 2019, 17 Uhr c.t.

im Hörsaal Zoologie, Poppelsdorfer Schloss

Prof. Dr. Bernhard Lieb

Inst. Molekulare Physiologie, Universität Mainz

“Hemocyanin: Structure, function and evolution“

Einladung: Prof. Dr. H. Wägele (ZFMK)

Abstract:

Hemocyanin is the oxygen transport protein of Mollusca and Arthropoda. However, hemocyanins of both phyla evolved independently and represent different molecules with totally different gene and protein structures. The focus of our studies is hemocyanin of Mollusca. The primary structure of hemocyanins comprises 3-12 repetitive 45 kDa domains which evolved by gene/exon duplication most probably 600 million years ago, before the radiation of molluscs into the eight different classes occurred. We are analyzing hemocyanin-genes, their evolutionary history and their differential expression as well as the assembly and structural characteristics of these proteins. Additionally, we are using hemocyanin data to reconstruct and infer the evolution and phylogeny at species levels, but we are also investigating different molluscan families, orders and classes using gene structures, cDNA data and the primary structures. Most recently, we unraveled that hemocyanin gene duplications seem to correlate to independent habitat shifts from marine to terrestrial and limnic habitats observed in Tectipleura (a group of Heterobranchia), respectively. I will summarize our previous analyses mainly encompassing phylogenetic and ontogenetic outcomes and provide new insights in our recent and planned work.