

Annotation of *Phaedon cochleariae*'s transcriptome and establishment of BLAST servers and genome browser

Magdalena Stock, Antje Burse, and Wilhelm Boland
MPI for Chemical Ecology, Jena, Germany
Department of Bioorganic Chemistry
mstock@ice.mpg.de

During leaf beetle evolution, larvae of some species have developed the ability to use the glucosides of their host plant to produce their own defensive compounds against predators. Until now, little is known about the molecular basis of the sequestration process of these compounds, as well as involved transporters.

Because of lacking genomic data of this non-model organism, a cDNA library of *Phaedon cochleariae* transcripts was sequenced using 454 sequencing technology. The resulting fragments and additional Sanger sequences (ESTs) have been analyzed, and *de novo* assembled to reconstruct the transcripts and to build up a transcriptome.

For assembling the fragments into contiguous sequences (contigs, representing the transcripts) the Newbler software and PAVE (a program for assembling and viewing ESTs) have been applied, resulting in 74,227 (PAVE) and 25,956 (Newbler) contigs. The contiguous sequences were annotated by sequence homology search, gene ontology annotation and binding motif search. Observing the Newbler contigs, we could, amongst others, identify 57 putative ABC transporters and 38 putative glucose transporters.

Furthermore, two different BLAST servers have been established to provide the transcript sequences for homology search, and currently, a genome browser is established to observe the transcripts mapped onto the genome of *Tribolium castaneum*.

Using *P. cochleariae*'s transcriptome (assembled by Newbler) as reference, expression studies are planned. The transcripts of various tissues (also of a related species) are going to be sequenced using Illumina sequencing technology. Afterwards, the transcript levels will be compared to identify putative (tissue specific) transporters, as well as putative enzymatic proteins involved in the sequestration process of the defensive compounds.