



# CDB SEMINAR

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Monday, August 1, 2011

16:00~17:00 C1F CDB Auditorium

## WHAT HAPPENED TO THE GENOME OF VERTEBRATE CLOSEST LIVING RELATIVES?

### Summary

A major step immediately preceding the emergence of vertebrates is a double round of whole genome duplications. Numerous duplicated genes have been retained after this event, in particular many duplicates of developmental genes, as we recently learned from comparative genomics. This somewhat strengthens the assumption that vertebrates owe their high level of anatomical complexity to specialization of new members within developmental gene families. How these genes became individually and finely regulated is a question generating considerable work and hypotheses for the evolution of vertebrate genomes, with Hox genes being a very speaking example.

How did the closest relatives of vertebrates evolve in parallel? It was somewhat surprising to learn a few years ago that the last living group having diverged from vertebrates are the tunicates, and not the cephalochordates whose anatomy is highly reminiscent of vertebrates. Tunicates are marine chordates that have extremely diverse adult forms and adopted very peculiar life styles. Tunicates probably underwent a simplification process from their chordate ancestors. The known genomes of two distantly related tunicate genomes indicate a more rapid evolution of gene sequences and genome architecture. What happened to the chordate genome in the tunicate lineage of *Oikopleura dioica* is our major interest and question. The profound divergence observed, which will be reported in more details during this presentation, can be interpreted in various ways, one of which as the outcome of a "catastrophic" evolution.

### Host:

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