Adaptation in genes, duplicates, families, functional modules and genomes

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Searching for evolutionary patterns in funcionally linked group of genes

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Five mammals

Complete genomes of 5 mammals species (*Homo sapiens*, *Pan troglodytes*, *Mus musculus*, *Rattus norvegicus* and *Canis familiaris*) where retrieved from *Ensembl* [Flicek *et al.*2011]. Also orthology prediction between each pair of species possibly done between human and the others was retrieved from *Ensembl Compara* [Vilella *et al.*2009] using biomart [Kinsella *et al.*2011]. Only groups of orthologs *one-to-one* with one representative of each species where kept in the final dataset. 4.1 NUMBERS

6 *Drosophila*

4.2.2 Alignments

Each of the group of orthologous sequences were aligned with Muscle [Edgar2004], and, once aligned sequences were cleaned with trimal [Capella-Gutiérrez *et al.*2009] keeping all sequences but trimming aligment columns with the euristic1 method.

4.3 open on colocalization → not random

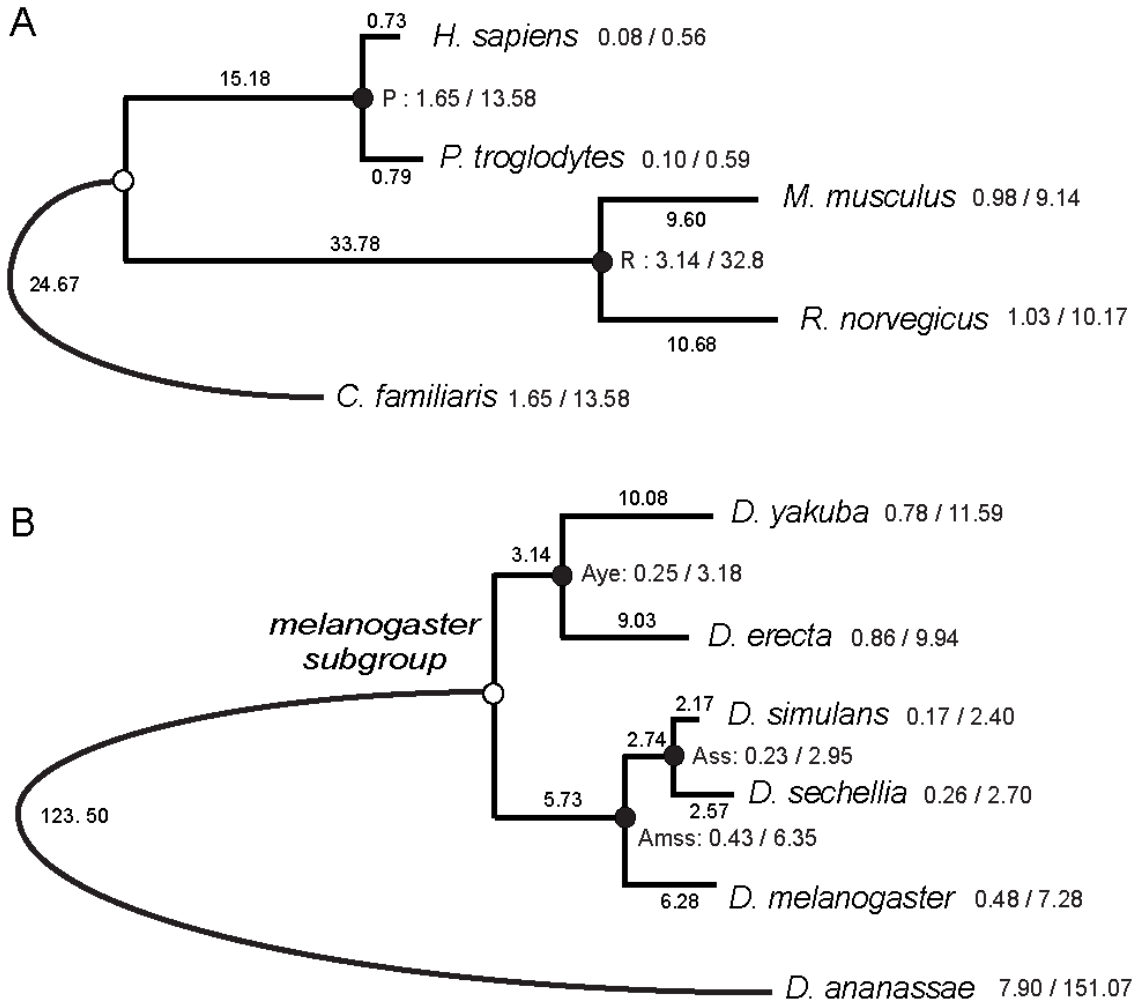

Figure 4.1: Mammals and *Drosophila* phylogeny. blabli blob lu dkfnlskjdf

Chapter 5

Tools, programs, methods

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