## **Description of Additional Supplementary Files**

**Supplementary Data 1:** BUSCO proteins found in Metamonada based on searches for 245 proteins present in at least one taxon.

Supplementary Data 2: DNA replication and repair orthologs in 18 diverse eukaryotic genomes.

**Supplementary Data 3:** Additional genomes queried during the searches for ORC, Cdc6 and Ndc80 proteins.

**Supplementary Data 4:** Spindle assembly, kinetochore and APC/C orthologs in 18 diverse eukaryotic genomes.

**Supplementary Data 5:** Lengths of Orc1-6, Cdc6 and Orc1/Cdc6-like proteins and domain architecture comparisons between metamonads and other eukaryotes.

**Supplementary Data 6:** Orc1, Cdc6 and Orc1/Cdc6-likeproteins.