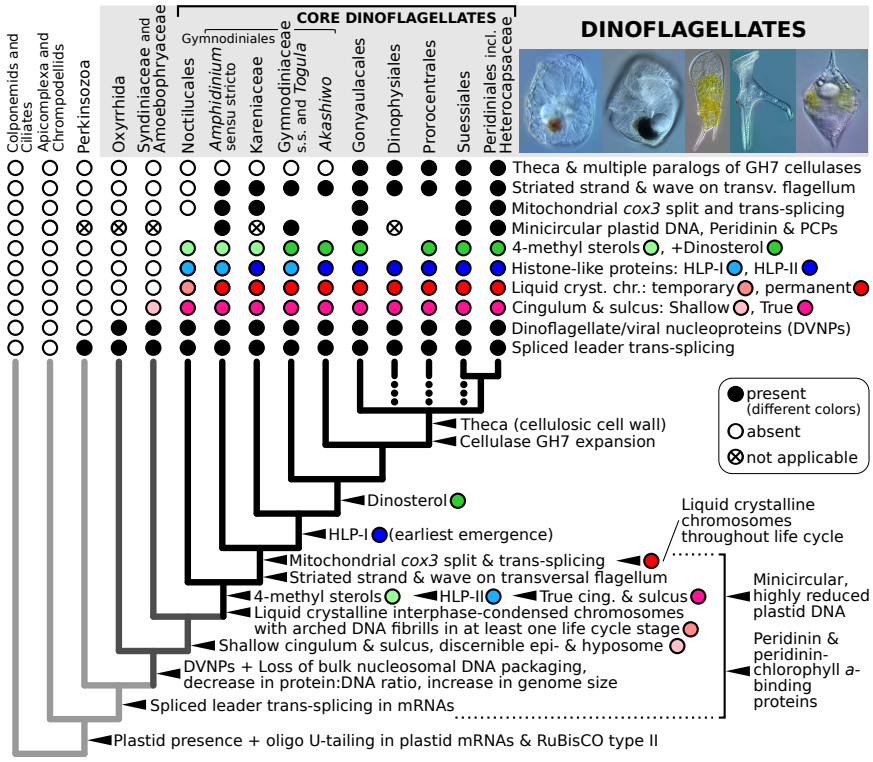
DINOFLAGELLATES
CORE DINOFLAGELLATES
Gymnodiniales
Colponemids and Ciliates
Apicomplexa and Chromopodellids
Perkinsozoa
Oxyrrhida
Syndiniaceae and Amoebophryaceae
Noctilucales
Amphidinium sensu stricto
Kareniaceae
Gymnodiniaceae s.s. and Togula
Akashiwo
Gonyaulacales
Dinophysiales
Prorocentrales
Suessiales
Peridiniales incl. Heterocapsaceae
Theca & multiple paralogs of GH7 cellulases
Striated strand & wave on transv. flagellum
Mitochondrial cox3 split and trans-splicing
Minicircular plastid DNA, Peridinin & PCPs
4-methyl sterols, +Dinosterol
Histone-like proteins: HLP-I, HLP-II
Liquid cryst. chr.: temporary, permanent
Cingulum & sulcus: Shallow, True
Dinoflagellate/viral nucleoproteins (DVNPs)
Spliced leader trans-splicing
present (different colors)
absent
not applicable
Theca (cellulosic cell wall)
Cellulase GH7 expansion
Dinosterol
HLP-I (earliest emergence)
Mitochondrial cox3 split & trans-splicing
Striated strand & wave on transversal flagellum
4-methyl sterols
HLP-II
True cing. & sulcus
Liquid crystalline interphase-condensed chromosomes with arched DNA fibrills in at least one life cycle stage
Shallow cingulum & sulcus, discernible epi- & hyposome
DVNPs + Loss of bulk nucleosomal DNA packaging, decrease in protein:DNA ratio, increase in genome size
Spliced leader trans-splicing in mRNAs
Plastid presence + oligo U-tailing in plastid mRNAs & RuBisCO type II
Liquid crystalline chromosomes throughout life cycle
Minicircular, highly reduced plastid DNA
Peridinin & peridinin-chlorophyll a-binding proteins