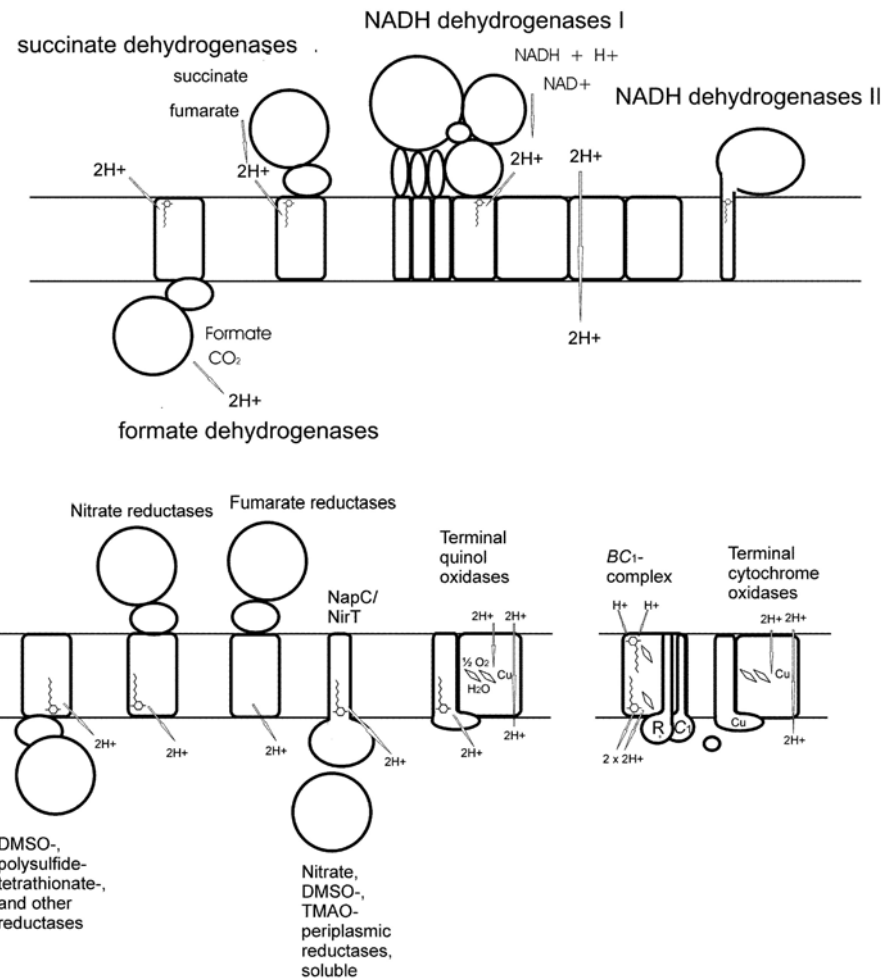


М.Ф. Яньюшин

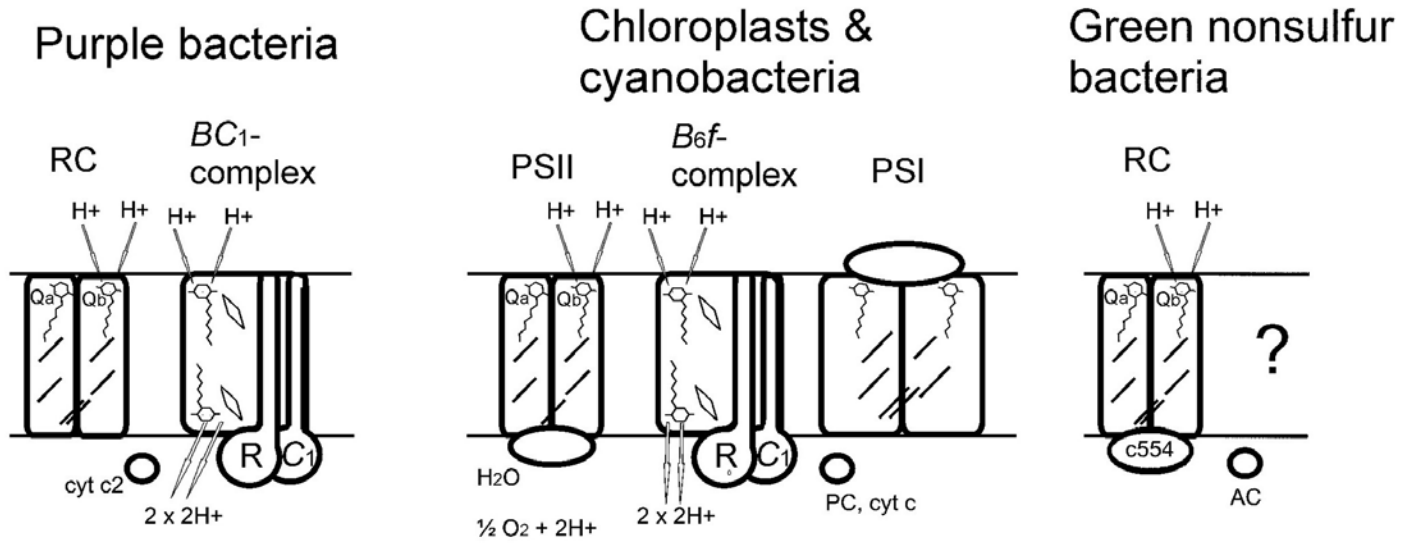
Институт фундаментальных проблем биологии РАН, Пущино

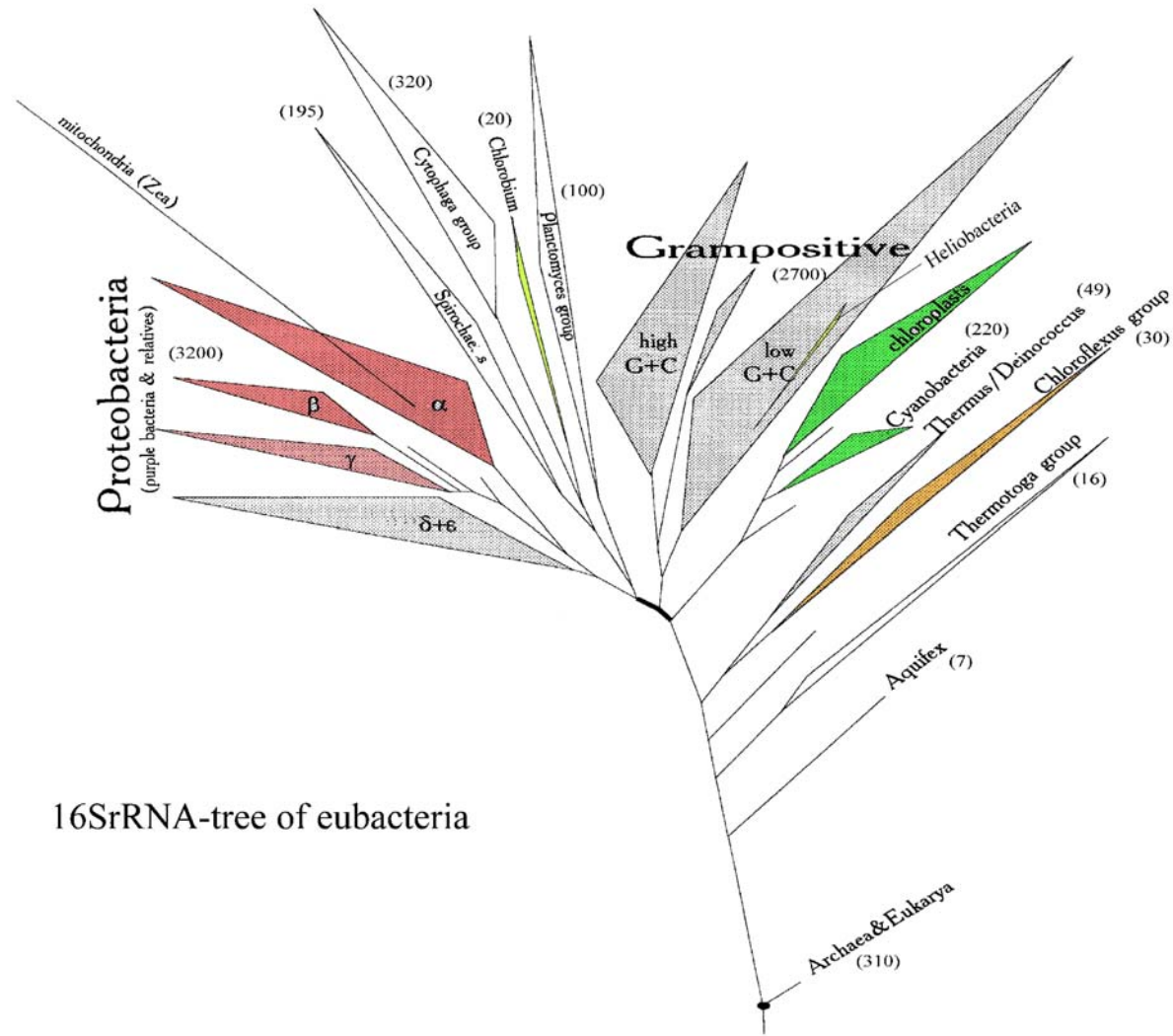
Опероны бактериальных мембранных оксидоредуктаз:
Структурное разнообразие, распределение по геномам, филогения.

Компоненты дыхательных цепей

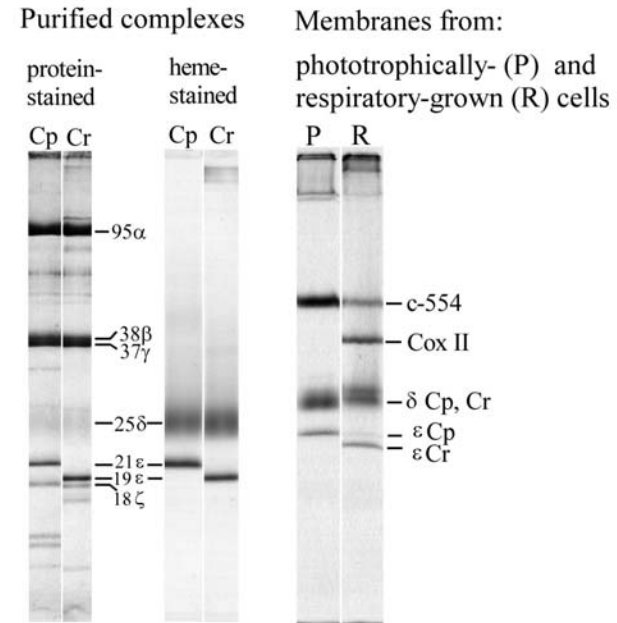


Компоненты фотосинтетических цепей

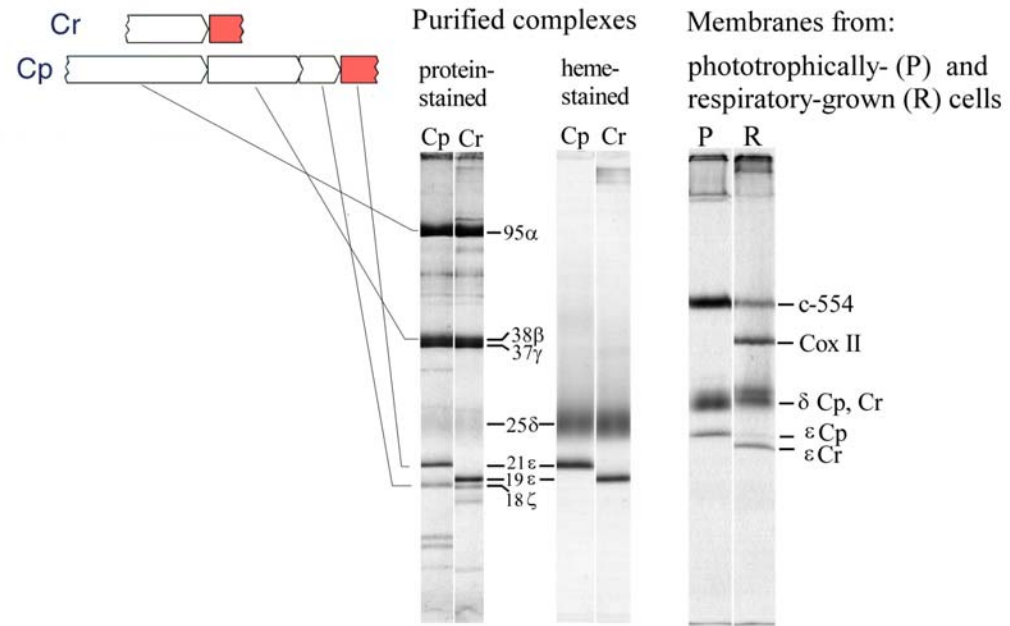




One of the complexes is expressed in phototrophic culture and the other in respiratory one

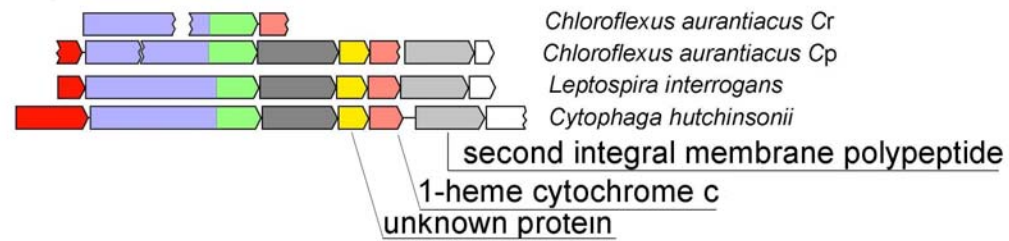


Search for genes encoding the complexes in *C. aurantiacus* genome



First search for homologies in genomic databases

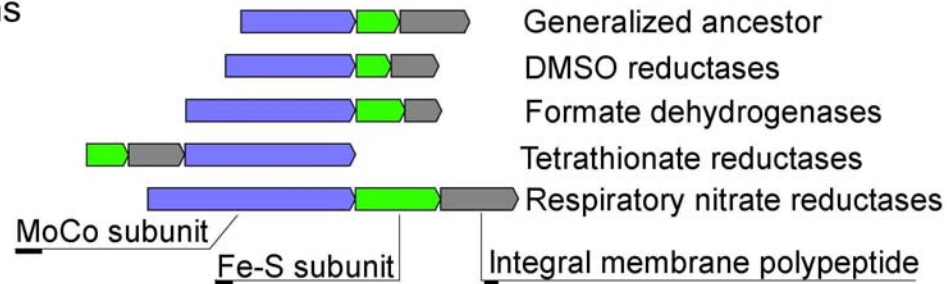
MFIcc operons



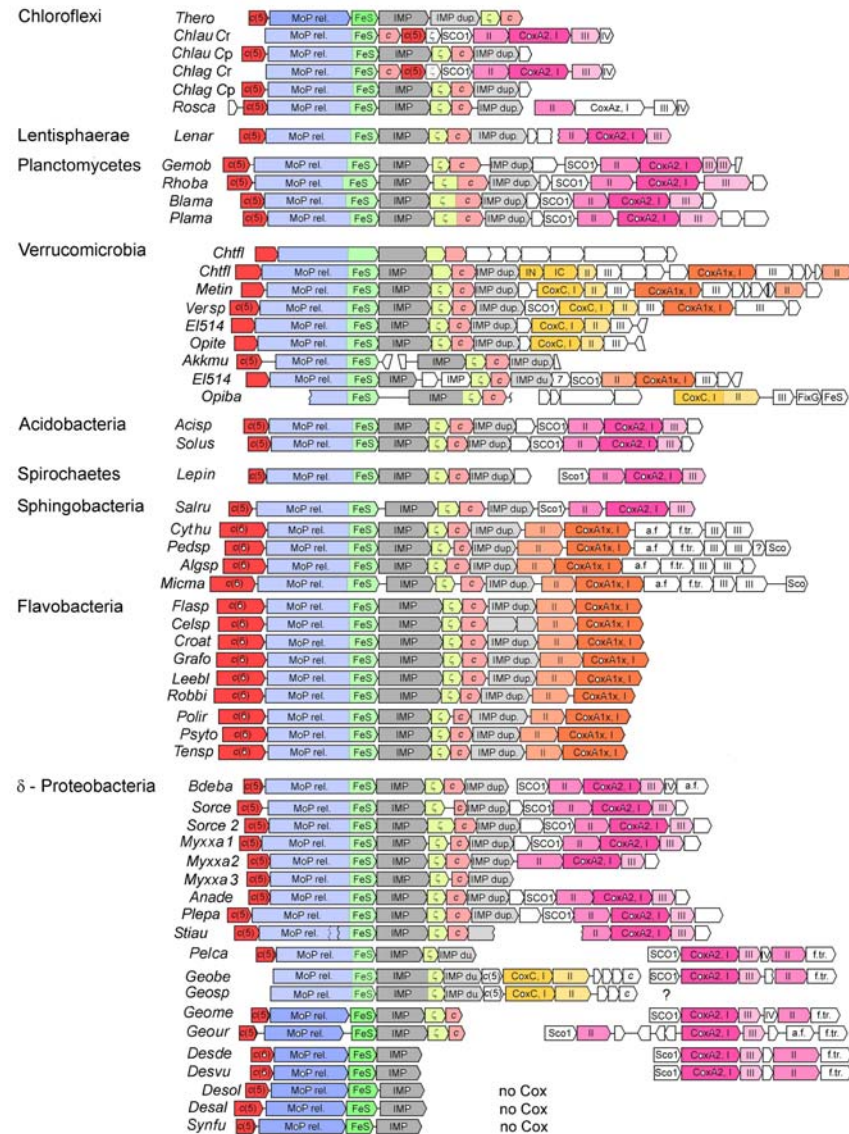
intermediate (MFIc)



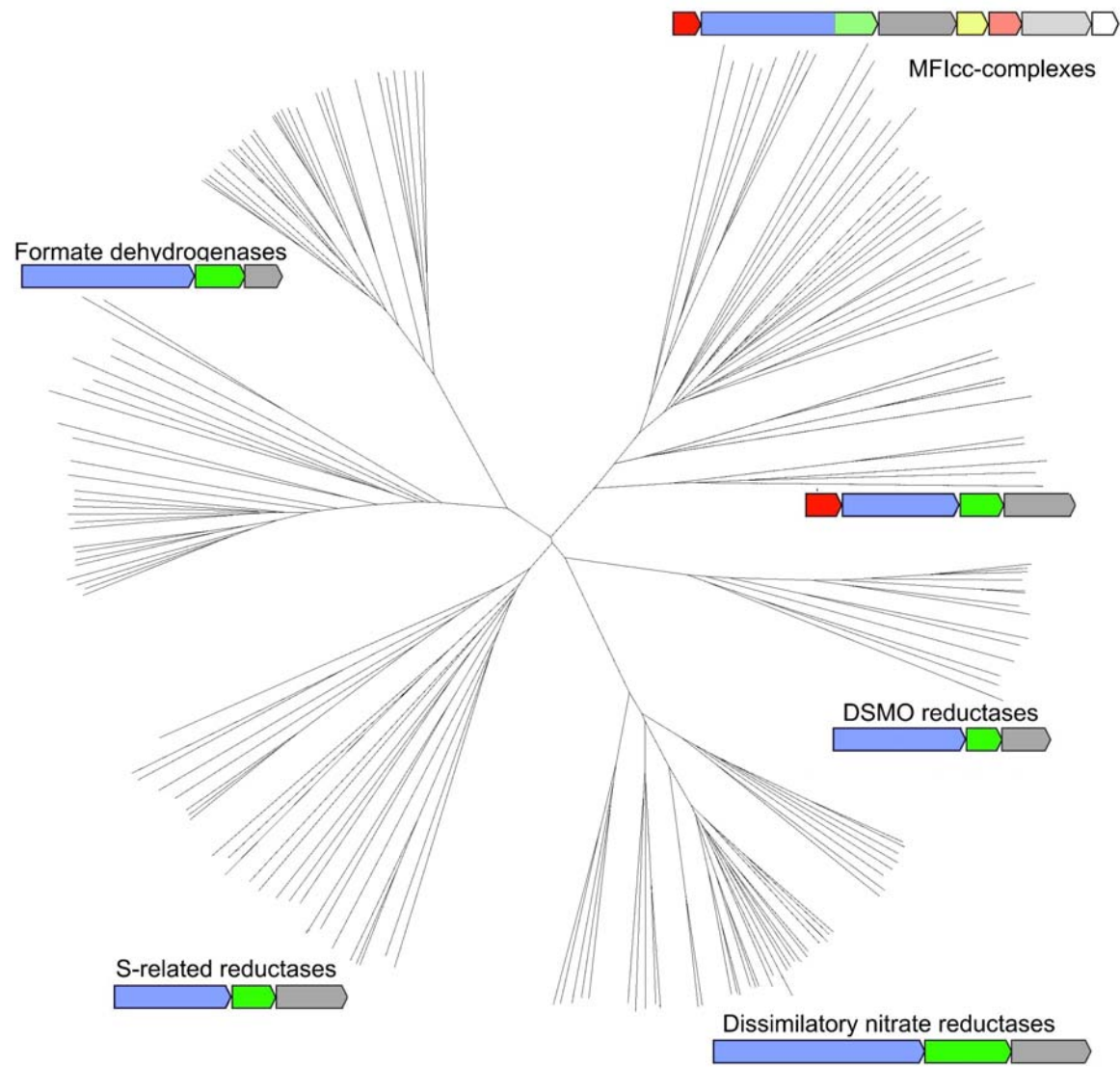
MFI operons

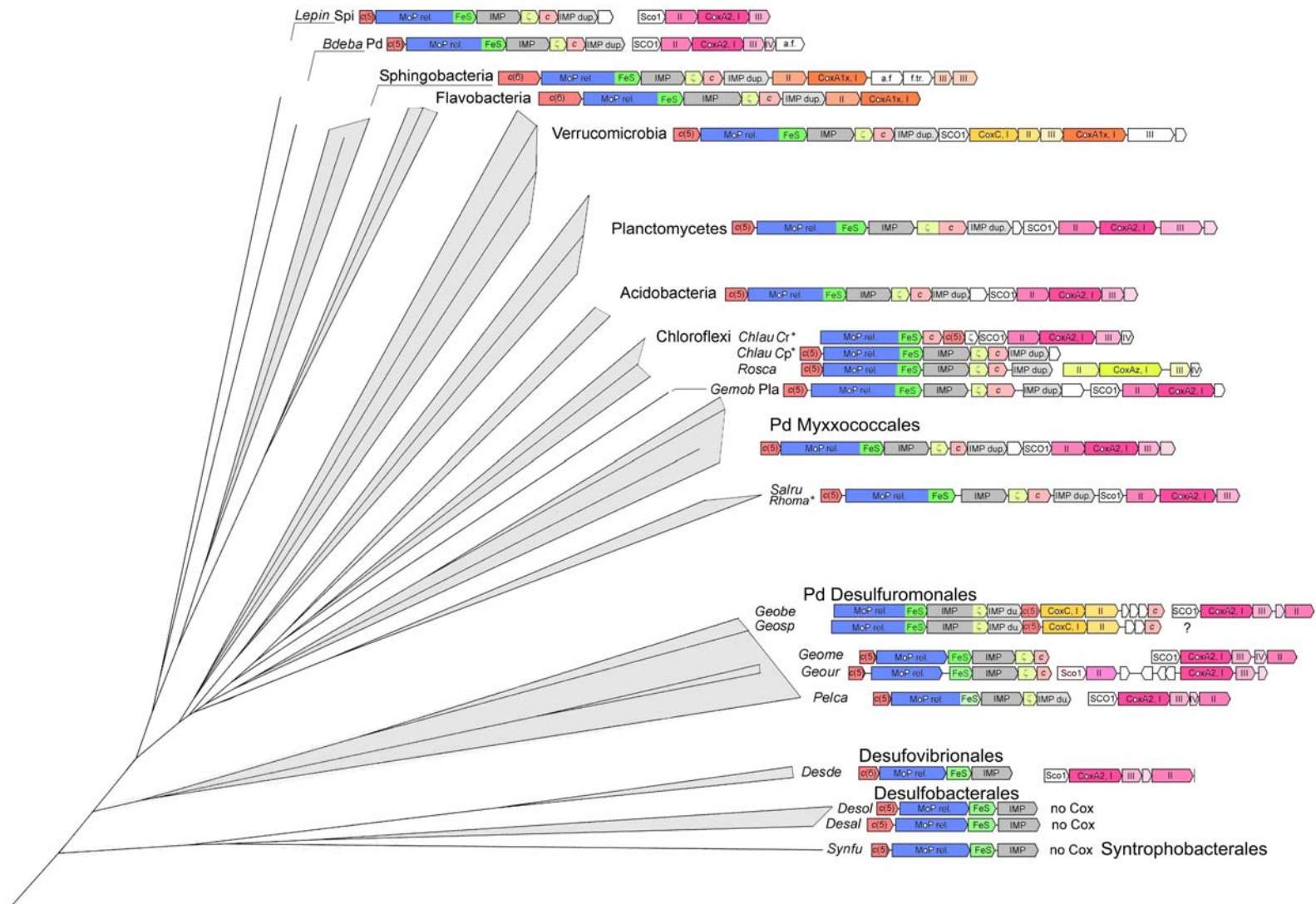


MFIsс-опероны, которые можно найти в опубликованных геномах

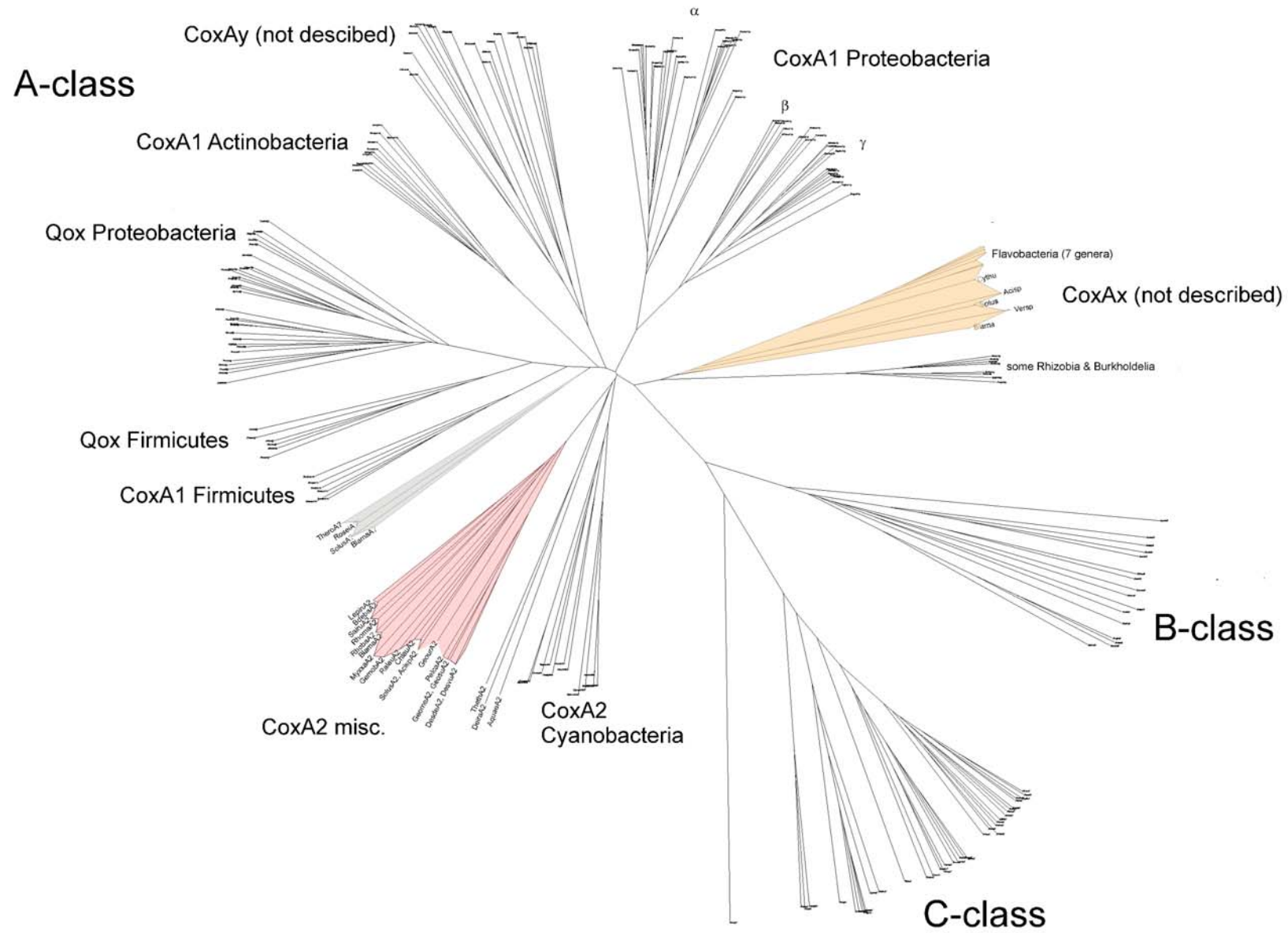


Дендрограмма MFI и MFicc-оперонов

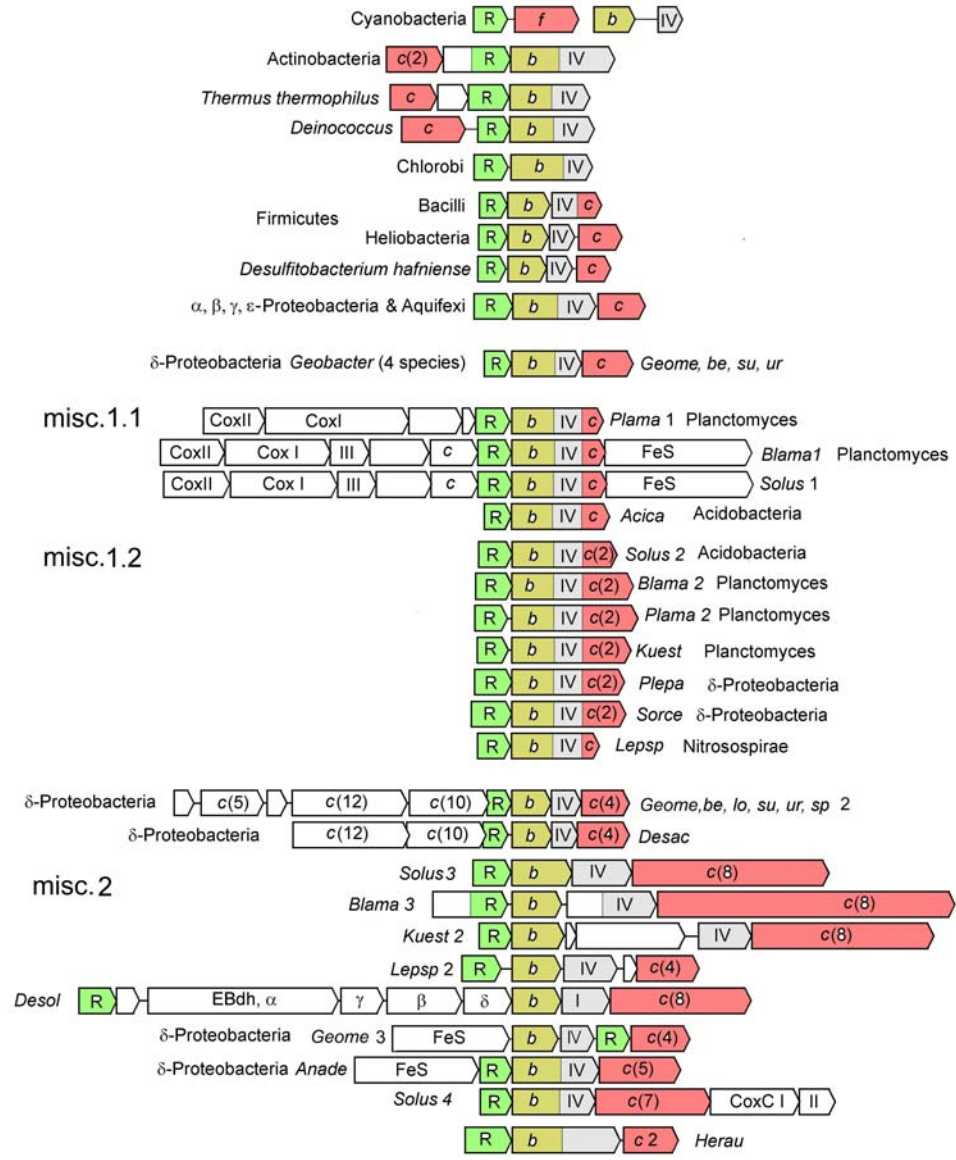




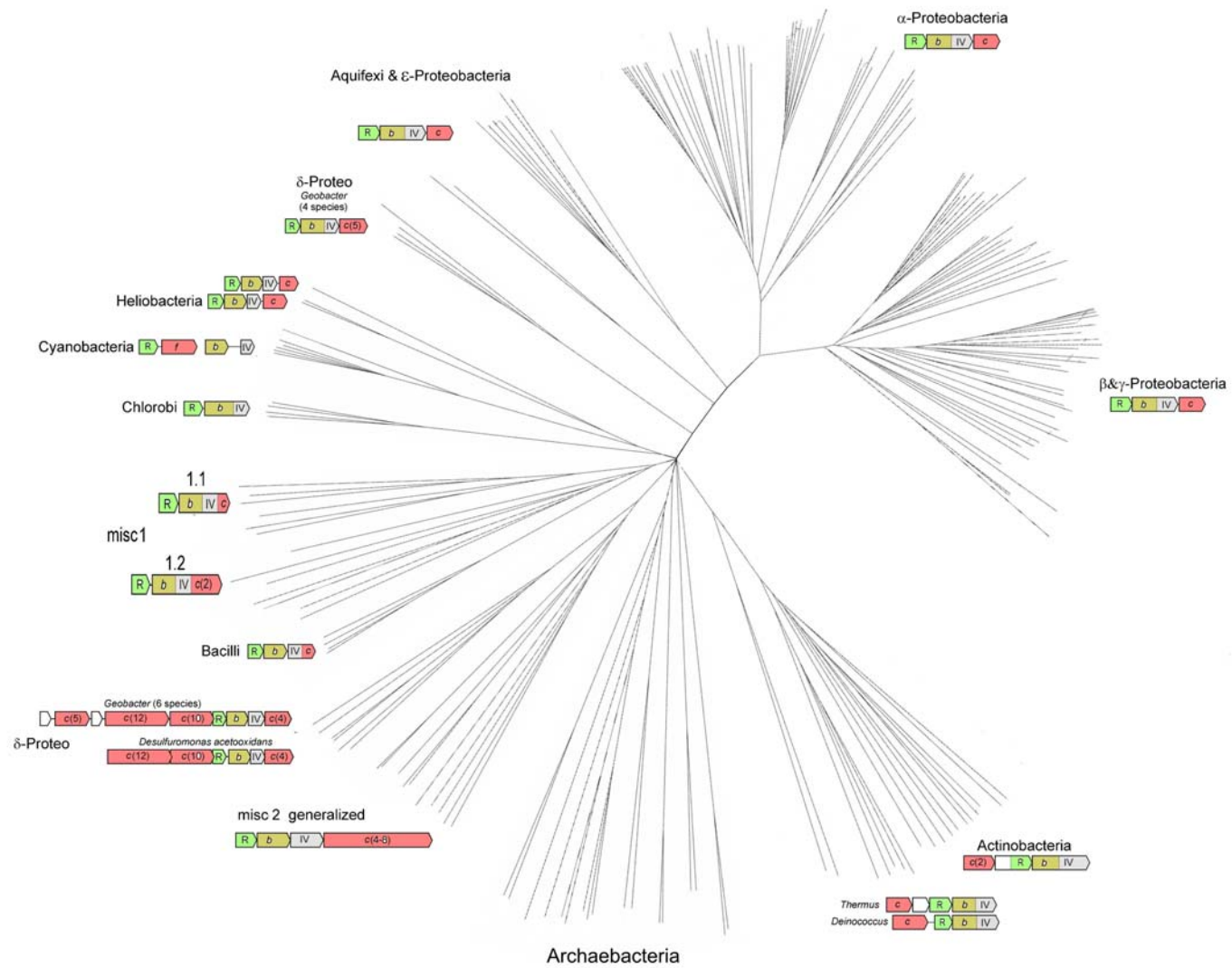
Dendrogram for subunit I of Cu-heme cytochrome(quinol) oxidases



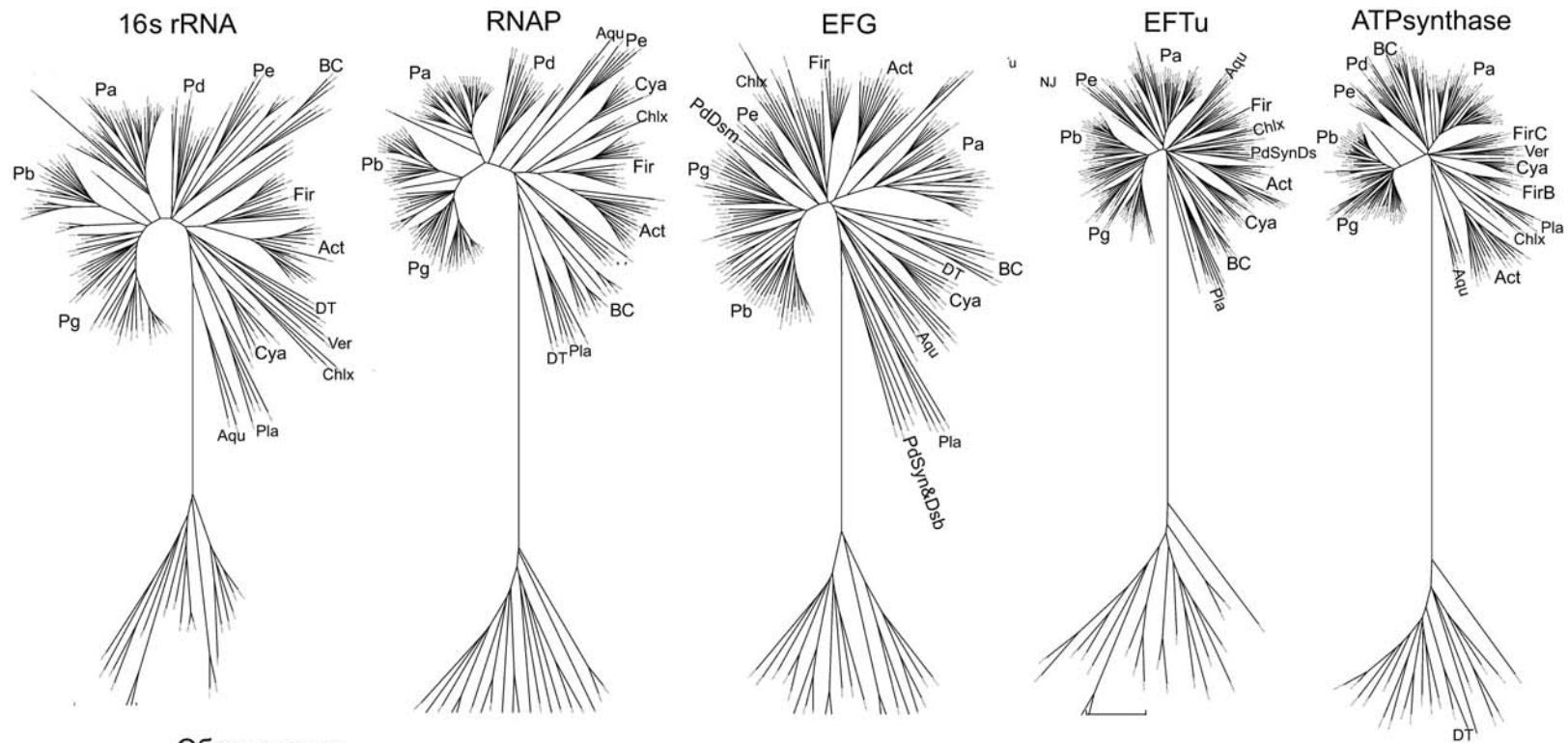
bc1- и bc1-подобные опероны



Дендрограмма bc1-оперонов



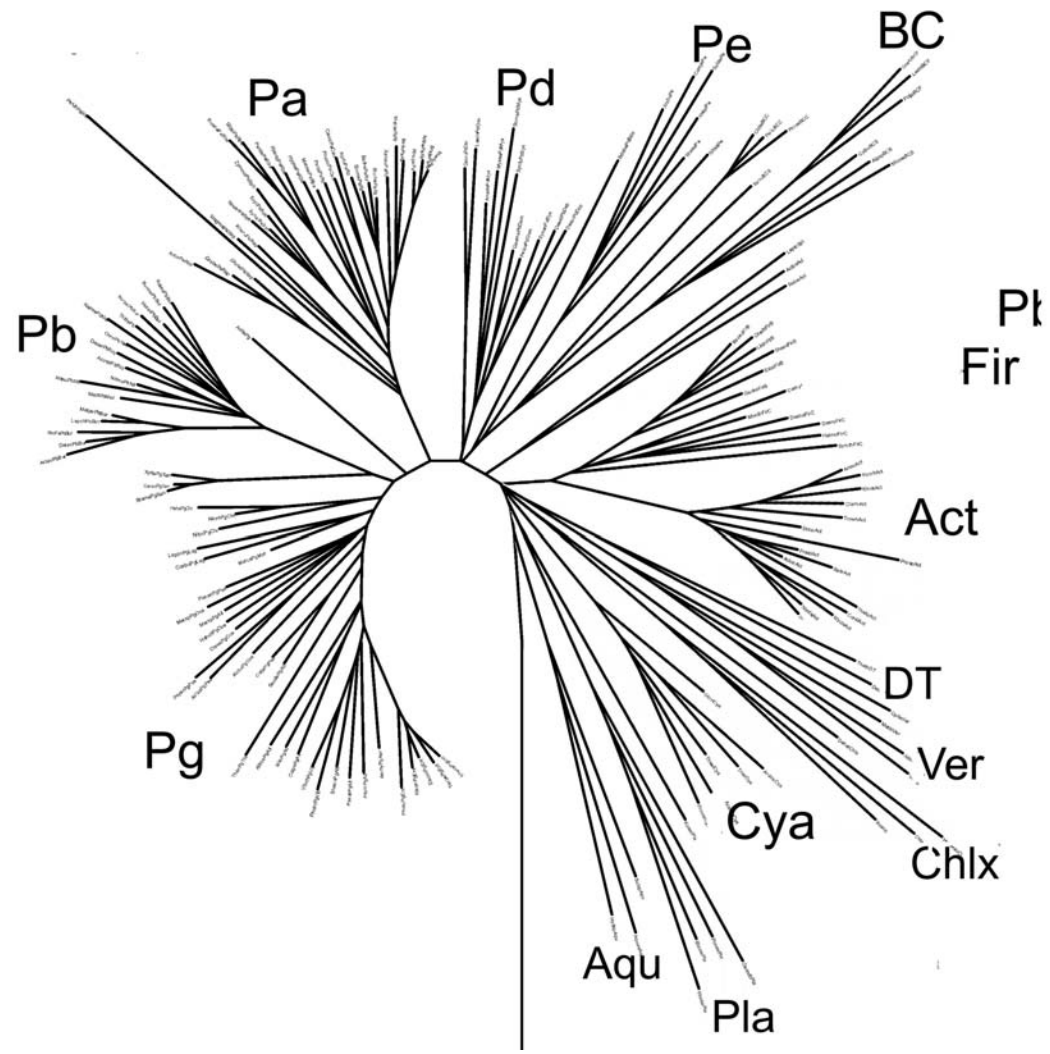
Насколько похожи дендрограммы надежных молекулярных часов

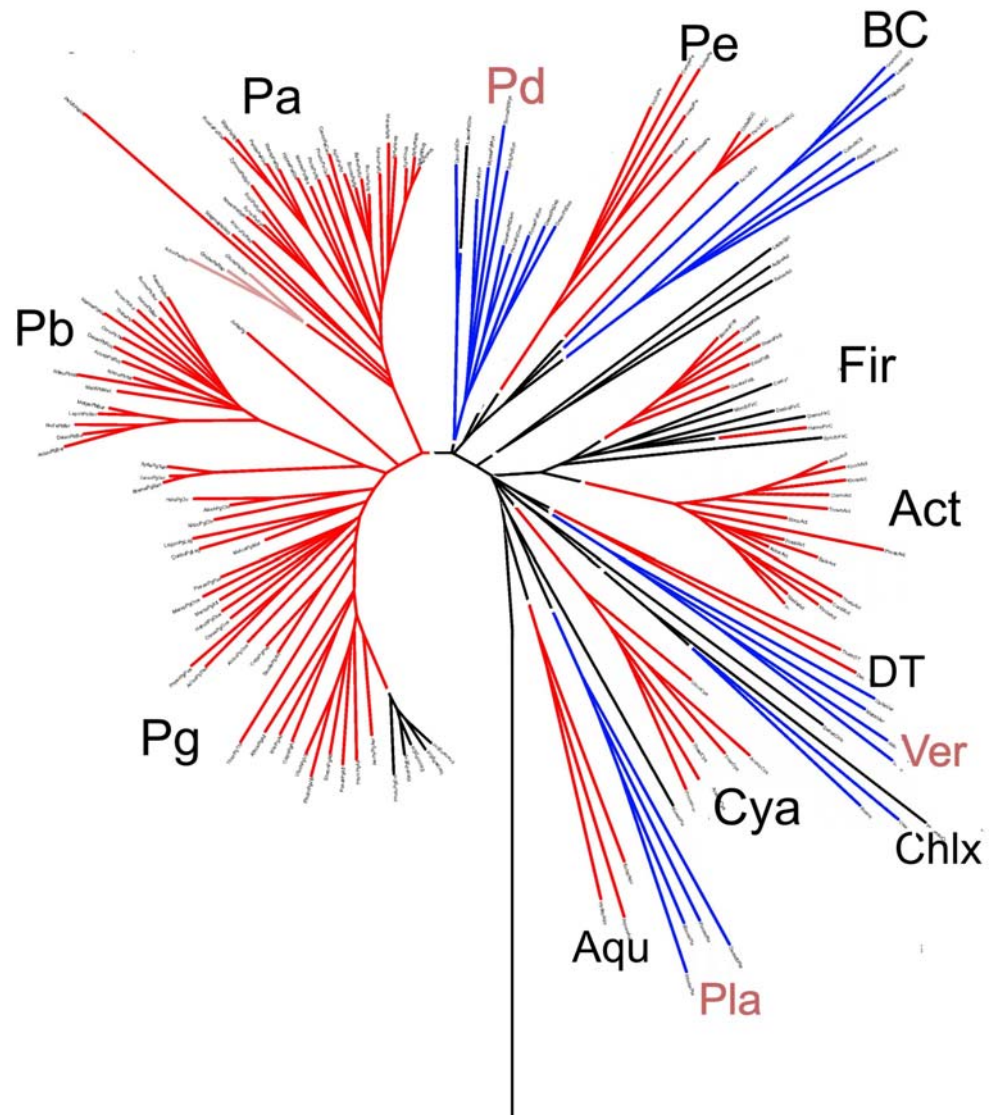


Обозначения

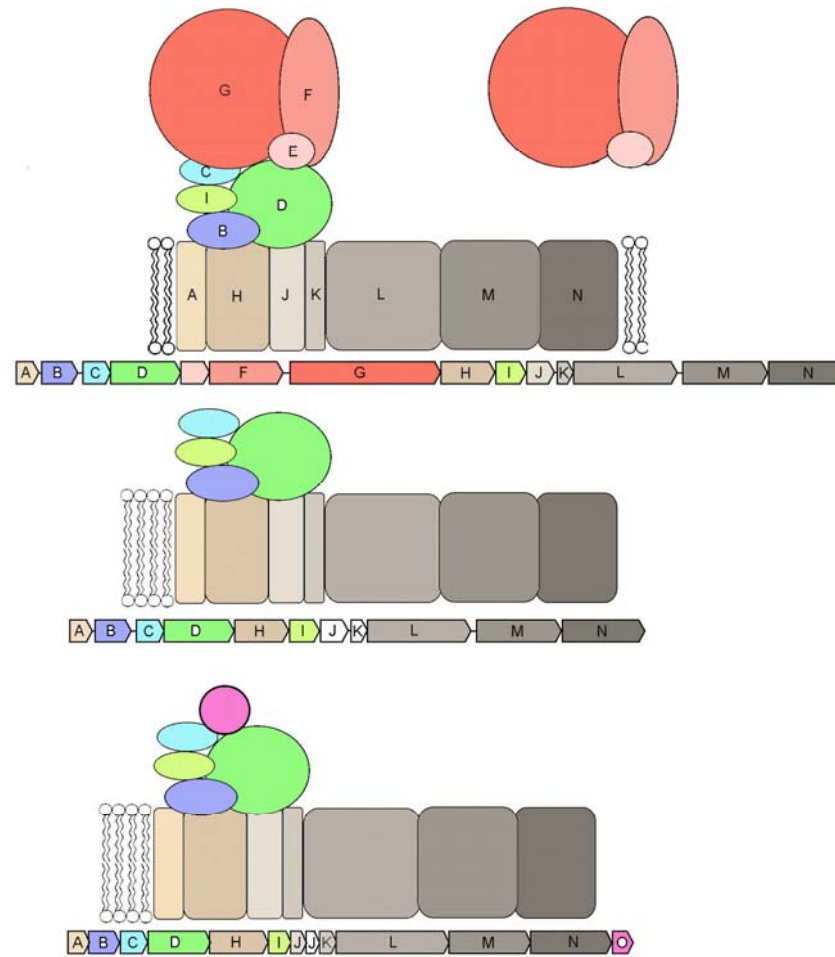
Pabgde Proteobacteria, Fir Firmicutes, Act Actinobacteria, Cya Cyanobacteria, BC Bacteroidetes & Chlorobii

Aqu Aquifexi, Chlx Chloroflexi, Pla Planctomycetes, Ver Verrucomicrobia, DT Deinococcus-Thermus





NADH-дегидрогеназа I



Dendrogram for large subunits of H₂ases and NuoD

