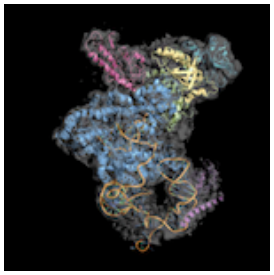

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Short Talk 9 - Structure of the yeast respiratory supercomplex

Wednesday 21 November 2018 09:40 (20 minutes)

In yeast (Saccharomyces cerevisiae), complex III and complex IV are respiratory chain complexes capable of transferring electrons to oxygen converting it to water. This process results in the creation of a proton gradient over the inner mitochondrial membrane, which drives the ATP synthesis. Complex III and complex IV in yeast form supercomplexes to assist this process. The structure and functional relevance of the yeast supercomplexes is however largely unknown. In this work we solved the structures of the yeast supercomplexes using single particle cryo-electron microscopy at a resolution range of 3.2-3.5 Å. This work reveals the overall architecture of the supercomplexes in yeast and how they differ from similar assemblies previously described in mammals. We show the first near-atomic structure of yeast complex IV and the protein-protein, and lipid-protein interaction implicated in supercomplex formation. Using the structural insight obtained in this study combined with yeast genetics, we hope to generate and characterize respiratory chains mutants that are unable to form supercomplexes, thus providing a greater insight into their overall function.

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