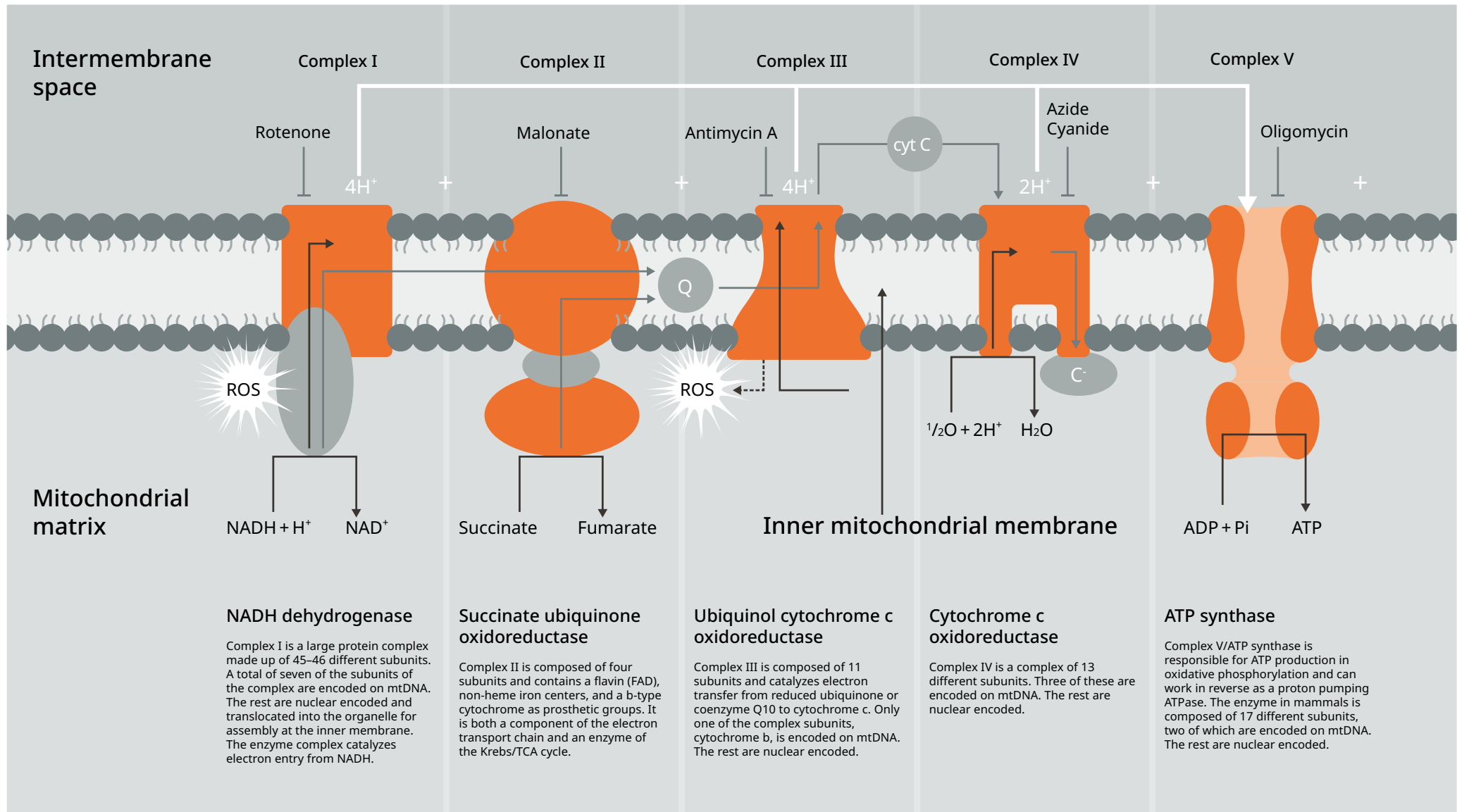


Oxidative Phosphorylation



NADH dehydrogenase

Complex I is a large protein complex made up of 45-46 different subunits. A total of seven of the subunits of the complex are encoded on mtDNA. The rest are nuclear encoded and translocated into the organelle for assembly at the inner membrane. The enzyme complex catalyzes electron entry from NADH.

Succinate ubiquinone oxidoreductase

Complex II is composed of four subunits and contains a flavin (FAD), non-heme iron centers, and a b-type cytochrome as prosthetic groups. It is both a component of the electron transport chain and an enzyme of the Krebs/TCA cycle.

Ubiquinol cytochrome c oxidoreductase

Complex III is composed of 11 subunits and catalyzes electron transfer from reduced ubiquinone or coenzyme Q10 to cytochrome c. Only one of the complex subunits, cytochrome b, is encoded on mtDNA. The rest are nuclear encoded.

Cytochrome c oxidoreductase

Complex IV is a complex of 13 different subunits. Three of these are encoded on mtDNA. The rest are nuclear encoded.

ATP synthase

Complex V/ATP synthase is responsible for ATP production in oxidative phosphorylation and can work in reverse as a proton pumping ATPase. The enzyme in mammals is composed of 17 different subunits, two of which are encoded on mtDNA. The rest are nuclear encoded.

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