The cytochrome bc1 complexis a highly conserved enzyme of the mitochondrial respiratory chain. In S. cerevisiae it consists of three catalytic subunits, Cobp, Rip1p, and Cyt1p, plus seven additional subunits: Cor1p, Qcr2p, Qcr6p, Qcr7p, Qcr8p, Qcr9p, and Qcr10p. The crystal structure of the complex shows that two functional units, each containing these ten subunits, associate with each other in the mitochondrial inner membrane. Assembly of a functional complex requires two proteins, Cbp3p and Cbp4p, that are not components of the complex but may associate with it during assembly. It also requires Bcs1p, an AAA-family ATPase that interacts with a precursor of the complex to mediate incorporation of the Rip1p and Qcr10p subunits. The mechanism of energy transfer by the complex, known as the protonmotive Q cycle, has been studied in detail. The net result of the Q cycle is the stepwise transfer of an electron through the complex from ubiquinol to cytochrome c, coupled with the translocation of a proton across the mitochondrial inner membrane. The function of the cytochrome bc1 complex is essential to the energy-generating process of oxidative phosphorylation, which is carried out by the enzyme complexes of the mitochondrial respiratory chain.Cor1p, one of the so-called \"core\" subunits, is essential for assembly and activity of the cytochrome bc1 complex and thus for respiratory growth; in the null mutant the heme group is not inserted into cytochrome b. Cor1p, Qcr2p, and Qcr7p comprise a large domain of the cytochrome bc1 complex that extends into the mitochondrial matrix.COR1 is conserved in other eukaryotes, and its human homolog is UQCRC1. Cor1p has sequence similarity to mitochondrial processing peptidases that remove N-terminal targeting sequences from proteins during import into mitochondria. The Neurospora crassa Cor1p homolog has been demonstrated to function both as a cytochrome bc1 complex subunit and as a \"processing enhancing protein\" that contributes to the proteolytic activity of the mitochondrial processing peptidase, but such a dual function has not been demonstrated for S. cerevisiae Cor1p and the significance of the sequence similarity is unclear.