Cytochrome c oxidase catalyzes the terminal step in the electron transport chain involved in cellular respiration. This multisubunit enzyme of the mitochondrial inner membrane, also known as Complex IV, is composed of three core subunits encoded by the mitochondrial genomeand eight additional subunits encoded by nuclear genes. The phenotype of a mutation affecting any of the genes encoding cytochrome c oxidase subunits, or any of the multiple genes required for expression or assembly of the subunits, is a decrease or block in respiratory growth. The inability to respire is not lethal since S. cerevisiae can grow by fermentation, but nonrespiring cells grow more slowly than respiratory-competent cells even on glucose-containing medium, resulting in smaller colony size. Such mutations causing \"petite\" colonies were first described by Ephrussi and colleagues around 1950.