Abstrakt

Most of mitochondrial proteins are synthesized in the cytoplasm and after that transported to the outer or the inner membrane or to the intermembrane space and the mitochondrial matrix. All mitochondrial proteins cross the outer membrane via the TOM complex. From here different populations of proteins follow distinct transport routes: (i) β-barel proteins are assembled in the outer membrane with the help the SAM complex, (ii) after the passage through the TOM complex the intermembrane space proteins are bound by the MIA pathway, (iii) the mitochondrial carrier proteins of the inner mitochondrial membrane require the activity of the TIM22 complex and finally (iv) the matrix proteins as well as the small sub-population of the inner membrane proteins are transported via the TIM23 complex. Whereas the transport across the outer mitochondrial membrane does not require the additional energy, the transport across the inner membrane depends on ATP and/or the membrane potential. The transported proteins carry targeting sequences which are recognized by the outer membrane receptors.

Key words: protein import, mitochondria, translocase, membrane, matrix, intermembrane space