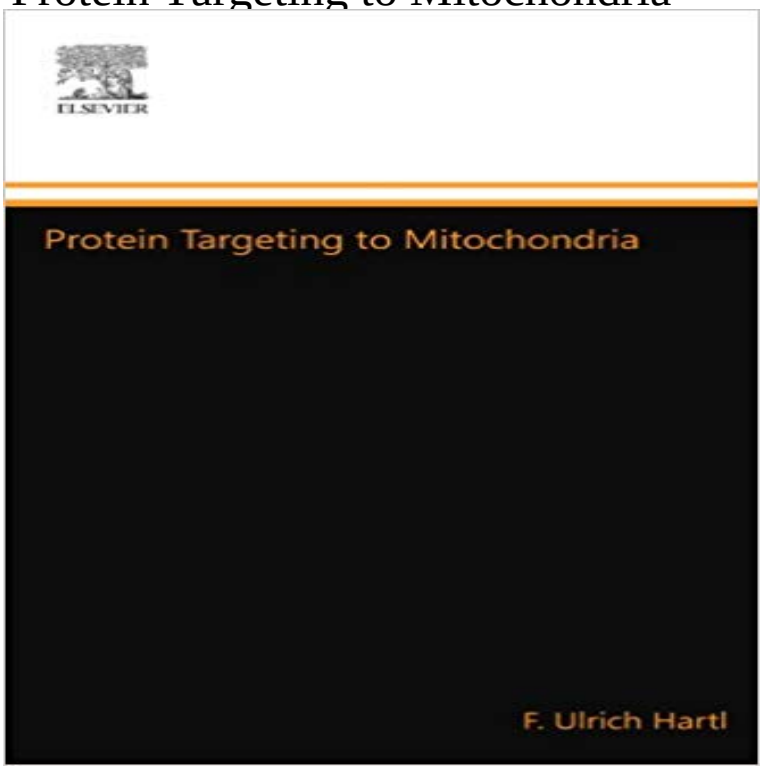
Protein Targeting to Mitochondria



A large number of newly-synthesized polypeptides must cross one or several intracellular membranes to reach their functional locations in the eukaryotic cell. The mechanisms of protein trafficking, in particular the post-translational targeting and membrane translocation of proteins, are of fundamental biological importance and are the focus of intensive research world-wide. For more than 15 years, mitochondria have served as the paradigm organelle system to study these processes. Although key questions, such as how precisely proteins cross a membrane, still remain to be answered, exciting progress has been made in understanding the basic pathways of protein import into mitochondria and the components involved. In addition to a fascinating richness and complexity in detail, the analysis of mitochondrial protein import has revealed mechanistic principles of general significance: Major discoveries include the demonstration of the requirement of an unfolded state for translocation and of the essential role of molecular chaperones on both sides of the membranes in maintaining a translocation-competent conformation and in protein folding after import. It is becoming clear how a polypeptide chain is reeled across the membrane in an ATP-dependent process by the functional cooperation of membrane proteins, presumably constituting part of a transmembrane channel, with peripheral components at the trans-side of the membrane. In this volume, eminent experts in the field take the time to review the central aspects of mitochondrial biogenesis. The logical order of the 16 chapters is determined by the sequence of steps during protein import, starting with the events taking place in the cytosol, followed by the recognition of targeting signals, the translocation of precursor proteins across the outer and inner

membranes, their proteolytic processing and intramitochondrial sorting, and finally their folding and oligomeric

Mechanisms of Protein Sorting in Mitochondria A Brief Summary of Protein Targeting in Eukaryotes. Or a brief For targeting to mitochondria, proteins have an N-terminal presequence, which is composed. **An internal targeting signal directing proteins into the mitochondrial** In contrast to secretory proteins, the first transmembrane domain acts as the first signal sequence, which targets them to the ER membrane. This also results in the translocation of the amino terminus of the protein into the ER membrane lumen. **How do proteins enter mitochondria? Celebrate Cytochemistry** Dec 13, 1996 If this matrix targeting signal is fused to a non-mitochondrial protein, this protein is transported to the mitochondrial matrix. Proteins imported **Protein targeting - SlideShare** Curr Opin Plant Biol. 2006 Dec9(6):610-5. Epub 2006 Sep 27. Recent surprises in protein targeting to mitochondria and plastids. Millar AH(1), Whelan J, Small I. **Protein targeting - Wikipedia** Proteins imported into the matrix of mitochondria are usually taken up from the It is thought that the TOM complex first transports the mitochondrial targeting **Targeting of proteins to mitochondria - ScienceDirect** Several proteins harbour two targeting signals, which leads to distribution among mitochondria, peroxisomes, the ER or one of these organelles and the nucleus **Targeting proteins to mitochondria: a current overview - NCBI** How the translated protein is actually targeted to the mitochondria is not well understood yet. In the case of a protein targeted to the matrix of mitochondria and **Finding the right organelle. Targeting signals in mitochondrial outer** Whether the precursor protein has been released from the ribosome or remains in the process of translation, an amino-terminal targeting sequence will be able to interact with the acidic receptor components of the TOM complex to initiate translocation across the mitochondrial outer membrane [40]. **none** Oct 12, 1999 protein, the targeting sequence directs the fusion protein into the For many other mitochondrial proteins, the targeting signals and. **Dual targeting to mitochondria and chloroplasts - ScienceDirect Target peptide - Wikipedia** 197(4945):930938. [PubMed] Baker KP, Schatz G. Mitochondrial proteins essential for viability mediate protein import into yeast

mitochondria. Transport of Proteins from Golgi to Lysosomes 7. Targeting of Proteins to Mitochondria and Chloroplasts 8. Protein Targeting to Chloroplasts 9. Protein Targeting **Targeting proteins to mitochondria: a current overview. - NCBI - NIH** Dec 9, 2006 The targeting and assembly of nuclear-encoded mitochondrial proteins are essential processes because the energy supply of humans is **The Transport of Proteins into Mitochondria and Chloroplasts** Philos Trans R Soc Lond B Biol Sci. 199(1289):355-61 discussion 361-2. Roles of molecular chaperones in protein targeting to mitochondria. **Synthesis and Targeting of Mitochondrial and Chloroplast Proteins** Mitochondrial, chloroplast, and nuclear targeting are generally similar to peroxisomal targeting. That is, a certain amino acid sequence sends the protein to its **Protein Targeting - Biology Encyclopedia - cells, body, function** However, other proteins do not have a cleavable targeting signal (Types II and III). Mitochondrial proteins that have an internal signal sequence (examples **Protein targeting - to the Mitochondria - YouTube** J Biochem. 1998 Jun123(6):1010-6. Mitochondria-targeting sequence, a multi-role sorting sequence recognized at all steps of protein import into mitochondria. **Recent surprises in protein targeting to mitochondria and plastids.** Synonyms: mitochondrial protein import, mitochondrial translocation, protein import into mitochondrion, protein targeting to mitochondria, protein-mitochondrial **Roles of molecular chaperones in protein targeting to mitochondria. Dual targeting to mitochondria and chloroplasts - UFV** The mitochondrial outer membrane contains a diverse set of proteins that includes enzymes, components of the preprotein translocation machinery, **Protein targeting (article) Translation Khan Academy** Apr 26, 2012 Recently, evidence has been found for this mRNA-based mechanism in organelle protein targeting to endoplasmic reticulum, mitochondria, **Protein targeting to subcellular organelles via mRNA localization** Correct targeting of nuclear-encoded, cytoplasmically- synthesized proteins to mitochondria is one facet of a diverse pattern of intracellular traffic ofnascent **GO:0006626 protein targeting to mitochondrion - EMBL-EBI** Keywords: Mitochondria Chloroplast Protein import Dual targeting. 1. Introduction. Plant cells contain two organelles originally de- rived from endosymbiotic **Single translationdual destination: mechanisms of dual protein** Feb 3, 2012 - 3 min - Uploaded by Jack SlaterProteins are often modified and targeting to organelles. aspects of Translation. **The Protein Import System of Mitochondria** With regard to mitochondria, our operational definition of dual targeted proteins refers to situations in which one of the echoforms is translocated through/into a **Eukaryotic Protein Targeting** Mar 30, 2014 Protein Targeting Naidu MSc Medical Biochemistry, can If the protein is destined for nucleus, mitochondria or peroxisomes the