1. Record Nr. UNINA9910830401503321

Titolo	Protein-lipid interactions [[electronic resource]] : from membrane domains to cellular networks / / edited by Lukas K. Tamm
Pubbl/distr/stampa	Weinheim, : Wiley-VCH, c2005
ISBN	1-280-85408-1 9786610854080 3-527-60676-9 3-527-60699-8
Descrizione fisica	1 online resource (472 p.)
Altri autori (Persone)	TammLukas K
Disciplina	572.68
Soggetti	Membrane proteins Lipoproteins Lipids Proteins Protein binding Membrane lipids
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Protein-Lipid Interactions; Preface; Contents; List of Contributors; Part 1 How Lipids Shape Proteins; 1 Lipid Bilayers, Translocons and the Shaping of Polypeptide Structure; 1.1 Introduction; 1.2 Membrane Proteins: Intrinsic Interactions; 1.2.1 Physical Determinants of Membrane Protein Stability: The Bilayer Milieu; 1.2.2 Physical Determinants of Membrane Protein Stability: Energetics of Peptides in Bilayers; 1.2.3 Physical Determinants of Membrane Protein Stability: Helix-Helix Interactions in Bilayers; 1.3 Membrane Proteins: Formative Interactions 1.3.1 Connecting Translocon-assisted Folding to Physical Hydrophobicity Scales: The Interfacial Connection1.3.2 Connecting Translocon-assisted Folding to Physical Hydrophobicity Scales: Transmembrane Insertion of Helices; 1.4 Perspectives; References; 2 Folding and Stability of Monomeric -Barrel Membrane Proteins; 2.1 Introduction; 2.2 Stability of -Barrel Membrane Proteins; 2.2.1

Thermodynamic Stability of FepA in Detergent Micelles; 2.2.2 Thermodynamic Stability of OmpA in Phospholipids Bilayers; 2.2.3 Thermal Stability of FhuA in Detergent Micelles
2.3 Insertion and Folding of Transmembrane -Barrel Proteins2.3.1 Insertion and Folding of -Barrel Membrane Proteins in Micelles; 2.3.2 Oriented Insertion and Folding into Phospholipid Bilayers; 2.3.3 Assemblies of Amphiphiles Induce Structure Formation in -Barrel Membrane Proteins; 2.3.4 Electrophoresis as a Tool to Monitor Insertion and Folding of -Barrel Membrane Proteins; 2.3.5 pH and Lipid Headgroup Dependence of the Folding of -Barrel Membrane Proteins; 2.4 Kinetics of Membrane Protein Folding
2.4.1 Rate Law for -Barrel Membrane Protein Folding and Lipid Acyl Chain Length Dependence2.4.2 Synchronized Kinetics of Secondary and Tertiary Structure Formation of the -Barrel OmpA; 2.4.3 Interaction of OmpA with the Lipid Bilayer is Faster than the Formation of Folded OmpA; 2.5 Folding Mechanism of the -Barrel of OmpA into DOPC Bilayers; 2.5.1 Multistep Folding Kinetics and Temperature Dependence of OmpA Folding; 2.5.2 Characterization of Folding Intermediates by Fluorescence Quenching; 2.5.3 The -Barrel Domain of OmpA Folds and Inserts by a Concerted Mechanism
2.6 Protein-Lipid Interactions at the Interface of -Barrel Membrane Proteins2.6.1 Stoichiometry of the Lipid-Protein Interface; 2.6.2 Lipid Selectivity of -Barrel Membrane Proteins; 2.7 Orientation of -Barrel Membrane Proteins in Lipid Bilayers; 2.7.1 Lipid Dependence of the -Barrel Orientation Relative to the Membrane; 2.7.2 Inclination of the -Strands Relative to the -Barrel Axis in Lipid Bilayers; 2.7.3 Hydrophobic Matching of the -Barrel and the Lipid Bilayer; 2.8 In vivo Requirements for the Folding of OMPs; 2.8.1 Amino Acid Sequence Constraints for OmpA Folding in vivo
2.8.2 Periplasmic Chaperones

Sommario/riassunto

In 17 contributions by leading research groups, this first comprehensive handbook in the field covers the interactions between proteins and lipids that make the fabric of biological membranes from every angle. It examines the relevant hermodynamic and structural issues from a basic science perspective, and goes on to discuss biochemical and cell biological processes. The book covers physical principles as well as mechanisms of membrane fusion and fission. Additionally, chapters on bilayer structure and protein-lipid interactions as well as on how proteins shape lipids and vice versa, membrane