



An electrochemical platform for studying biomembrane processes

By Lucia Becucci

LAP Lambert Academic Publishing Jun 2014, 2014. Taschenbuch. Book Condition: Neu. 220x150x8 mm. Neuware - Tethered bilayer lipid membranes, tBLMs, are biomimetic membranes consisting of a lipid bilayer interposed between the aqueous solution and a hydrophilic chain, called spacer, anchored to a metal electrode, which are used to incorporate single peptides or membrane proteins, so as to elucidate their structure-function relationships. Hg is a particularly convenient supporting electrode material for tBLMs thanks to its liquid state, which imparts to the lipid bilayer a fluidity and lateral mobility comparable with that of biological membranes, but with a much higher robustness and resistance to electric fields. The free movement of lipid molecules enables mercury-supported tBLMs to react to the presence of proteins, charges and physical forces in a dynamic and responsive manner, mimicking the functionality of living cell membranes. This review describes the way in which the structure of these tBLMs is affected by the incorporation and functional activity of peptides and small proteins and the mode of formation of ohmic or voltage gated ion channels, by using electrochemical impedance spectroscopy, potential-step chronocoulometry, cyclic voltammetry and phase-sensitive AC voltammetry. 128 pp. Englisch.



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