

# **DRUG-MEMBRANE INTERACTIONS**

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# Drugmembrane Interactions

**Lorena Alvarez**



## **Drug-membrane Interactions:**

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Drug-membrane Interactions E. K. Rooney, University of Southampton, 1986 *Drug-biomembrane interaction studies* S. Giarellis, G. Nounesis, 2013-10-31 DSC is a non invasive experimental technique which besides other numerous applications has been extensively applied in investigating the thermodynamic properties of synthetic and biological membranes The calorimetric profiles of phase transitions of self organized lipid membranes can provide valuable information about membrane interactions with biomolecules pharmaceutical agents other membranes etc The scope of this chapter is to review specific applications of DSC in studying membrane nucleic acid interactions which have attracted scientific attention for their biological relevance as well as for their potential for biotechnological and pharmaceutical advances

**In Silico Modelling of Membranes and Drug Membrane Interactions** Callum Dickson, 2014 Advances in Membrane Fluidity. Membrane Interactions of Human Immunodeficiency Virus Roland C. Aloia, Cyril C. Curtain, 1992-06-11

**Development of High-throughput Technologies for the Study of Drug-membrane Interactions**, 2011 *An Investigation on the Interaction of Heart Drugs Beta-adrenergic Blockers and Calcium Blockers with Membrane Lipids Using Artificial Model Membrane* Biao Shi, 1985

**Pharmacologic Analysis of Drug-receptor Interaction** Terrence P. Kenakin, 1993 A guide to quantitative drug receptor pharmacology this new edition aims to cover all receptor systems whether derived from molecular

biology or animal studies Using existing data it demonstrates how theoretical models facilitate drug development and integrates theory with practice This second edition aims to be a valuable resource for all researchers involved in the drug design and development process Not only has the text been updated and revised but reflecting the significant technical breakthroughs of recent years it now more generally encompasses all receptor systems whether derived from molecular biology or whole animal studies These systems are examined within the framework of current drug receptor theories particularly the receptor occupation theory the operational model of drug action and the ternary complex model

**Probing Lipid Membrane Interactions with Drug Molecules and Cationic Proteins Using Combined Experimental and Computational Analysis** Lorena Alvarez, 2023 The lipid bilayer's integrity is essential for cell function as it acts as the primary barrier against external molecules like drugs and peptides which can alter the bilayer's physical properties This dissertation investigates how amphetamine AMPH and methamphetamine METH and the charged HIV1 TAT peptide impact the stability of lipid bilayers using a home built lipid bilayer apparatus that enables real time monitoring through electrical and fluorescence measurements Our findings indicate that AMPH and METH increase the lipid bilayer's ion permeability with METH having a greater destabilizing effect High concentrations of these stimulants akin to levels in blood plasma of individuals with stimulant related brain injuries lead to pore formation in the bilayer The extent of destabilization correlated with the drug concentration We also studied the translocation dynamics of the charged HIV1 TAT peptide across the lipid bilayer The analysis of current fluctuations showed that successful translocation of the TAT peptide is concentration dependent highlighting the significance of charge in inducing membrane deformation or pore formation Additionally molecular dynamic simulations were used to explore AMPH interactions with the lipid bilayer in greater detail The results revealed AMPH's preferred orientation during interaction and its hydrophobic nature as evidenced by the larger energy barrier encountered in the hydrophilic head group regions of the lipid bilayer To complement these findings we utilized surface enhanced Raman spectroscopy SERS to estimate the concentrations of AMPH within lipid bilayers The data showed a positive correlation between characteristic peak heights and AMPH concentrations Moreover whole cell patch clamp measurements on neuronal cells were employed to examine AMPH's effects in a more intricate lipid environment This research contributes to the understanding of how stimulants and charged peptides interact with lipid bilayers which is vital for insights into their biological impacts and in developing therapeutic interventions

*Chemical Abstracts*, 1924

*Structure-property Correlations in Drug Research* Han van de Waterbeemd, 1996 This book provides an overview of statistical chemometric methods used in the rapidly changing arena of drug discovery It deals with physicochemical molecular descriptors modern statistical methods to study structure property and structure activity relationships including three dimensional QSAR approaches and the concepts of molecular diversity All scientists who investigate quantitative structure activity relationships in medicinal agricultural or environmental chemistry should benefit from this book

Cannabinoid Receptors Roger G. Pertwee,1995 Thus cannabinoid research must now extend well beyond the realms of pharmacology and molecular biology into those of physiology and pathophysiology Indian Journal of Pure & Applied Physics ,1994-07 **NMR Spectroscopy in Drug Research** Jerzy W. Jaroszewski,Kjeld Schaumburg,Helmer Kofod,1988 *Hydrophobicity and Solvation in Drug Design* Yvonne Connolly Martin,Robert Simon DeWitte,2000 **Nephrotoxicity, ototoxicity of drugs** Jean-Paul Fillastre,1982 *Theoretical Biophysics Technical Report* ,1991 *Absorption and Drug Development* Alex Avdeef,2003-08-21 Many times drugs work fine when tested outside the body but when they are tested in the body they fail One of the major reasons a drug fails is that it cannot be absorb by the body in a way to have the effect it was intended to have Permeability Solubility Dissolution and Charged State of Ionizable Molecules Helps drug discovery professionals to eliminate poorly absorbable molecules early in the drug discovery process which can save drug companies millions of dollars Extensive tabulations in appendix format of properties and structures of about 200 standard drug molecules *Diseases of the Kidney* Robert W. Schrier,Carl W. Gottschalk,1988

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