

1. Record Nr.	UNINA9910337949603321
Titolo	Cholesterol Modulation of Protein Function : Sterol Specificity and Indirect Mechanisms // edited by Avia Rosenhouse-Dantsker, Anna N. Bukiya
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2019
ISBN	3-030-04278-2
Edizione	[1st ed. 2019.]
Descrizione fisica	1 online resource (200 pages)
Collana	Advances in Experimental Medicine and Biology, , 0065-2598 ; ; 1115
Disciplina	612.0153 572.5795
Soggetti	Proteomics Proteins Cell membranes Molecular biology Protein Science Membrane Biology Molecular Medicine
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Part 1. Sterol specificity in modulating protein function: 1. Chirality effect on cholesterol modulation of protein function -- 2. A critical analysis of molecular mechanisms underlying membrane cholesterol sensitivity of GPCRs -- 3. Regulation of BK channel activity by cholesterol and its derivatives -- 4. Chiral specificity of cholesterol orientation within cholesterol binding sites in inwardly rectifying potassium channels -- Part 2. Indirect modulation of protein function by cholesterol: 5. Cholesterol effect on the physical properties of lipid membranes -- 6. Effect of cholesterol on the dipole potential of lipid membranes -- 7. Mass spectroscopy imaging of cholesterol -- 8. Cholesterol-dependent gating effects on ion channels.
Sommario/riassunto	In this book, renowned scientists describe the role of steroid chirality and modification of lipid membrane physical properties in the modulation of G protein-coupled receptors and ion channels. The

application of commonly-used technical approaches such as mass spectrometry and nuclear magnetic resonance transfer spectroscopy for studies on cholesterol distribution and alteration of lipid bilayer characteristics is also discussed. This book offers comprehensive insights into the current understanding of cholesterol-driven modulation of protein function via mechanisms that extend beyond lipid-protein direct interactions. In the first part, the chapters introduce the reader to the use of the chemical derivatives of cholesterol as a valuable laboratory tool in the studies of cholesterol-driven modulation of protein function. In the second part, examples of cholesterol-induced changes in membrane physical characteristics are presented and discussed in light of their multifaceted contribution to the effect of cholesterol on protein function. The book will be of interest to undergraduate and graduate students as well as basic science and medical researchers with a keen interest in the biophysical properties of cholesterol and physiological consequences of cholesterol presence in biological systems.
