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Sommario/riassunto	<p>Maxi calcium-activated potassium channels (BK) are an amazing category of ion channels which are found in cellular plasma membranes as well as in membranes of intracellular organelles. The function of these channels is to repolarize any excited membrane by passing a potassium outward current, in response to depolarization and/or increase in local calcium levels. Thus, voltage and calcium ions are involved in gating the channel under physiological conditions. This dual activation makes them perfect sensors for many cellular events that require integration between intracellular calcium levels and electrical signals. A plethora of physiological and pathophysiological functions, such as membrane hyperpolarization, modulation of synaptic transmission, hormone secretion or mental deficiencies, vaso-regulation, epilepsies, heart diseases, myotonic dystrophies, hypertension etc, in almost all cells and tissues were reported for these channels. BK channels are main targets for important ligands like alcohol and gaseous neurotransmitters, such as NO, CO or H₂S, to name a few. In the last years, the molecular entities and mechanisms involved in modulation of BK channels have gained tremendous attention, as the key role of these channels in cellular processes became increasingly recognized. Indeed, accessory proteins such as slob, beta and gamma subunits, all serve to modulate the channel gating characteristics. Moreover, channel subunit expression and function is further tuned by phosphorylation/ dephosphorylation</p>

processes, redox mechanisms and the lipid microenvironment of the BK channel protein complex. This e-book contains structural and functional aspects of BK channels, channel modulation by a variety of agents and cellular components, as well as the channel's relevance in health and disease.
