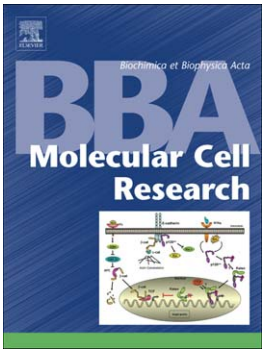


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# Pharmacological targeting of ion channels for cancer therapy: *in vivo* evidences

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**Abstract (186 words)**

Since the discovery of the participation of various ion channels in the regulation of cell proliferation and programmed cell death two decades ago, the field exploring ion channel function in relation to cancer has undergone rapid development. Although the mechanisms accounting for the impact of ion channel modulators on cancer growth have not been fully clarified in all cases, numerous *in vivo* experiments targeting diverse ion channels in various cancer models illustrate the great potentiality of this approach and promote ion channels to the class of oncological targets. In the present review we give an updated overview of the field and critically discuss the promising results obtained in pre-clinical models using specific pharmacological modulators of calcium, sodium, potassium and anion-permeable ion channels, whose expression is often altered in tumor cells and tissues. The most, especially critical issues are specificity of action and side-effects. Interestingly, some of the most potent drugs are natural products, and several of the active compounds are already used in the clinic for other purposes. In these latter cases involving drug repositioning we may expect a faster progression from preclinical to clinical studies.