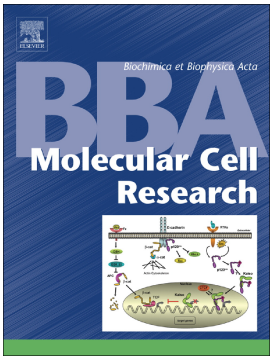

Calcium signaling and the therapeutic targeting of cancer cells.

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Calcium signaling and the therapeutic targeting of cancer cells.

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Abstract

The calcium signal is implicated in a variety of processes important in tumour progression (e.g. proliferation and invasiveness). The calcium signal has also been shown to be important in other processes important in cancer progression including the development of resistance to current cancer therapies. In this review, we discuss how Ca^{2+} channels, pumps and exchangers may be drug targets in some cancer types. We consider what factors should be taken into account when considering an optimal Ca^{2+} channel, pump or exchanger as a candidate for further assessment as a novel drug target in cancer. We also present and summarize how some therapies for the treatment of cancer intersect with Ca^{2+} signaling and how pharmacological manipulation of the machinery of Ca^{2+} signaling could promote the effectiveness of some therapies. We also review new therapeutic opportunities for Ca^{2+} signal modulators in the context of the tumour microenvironment.

Keywords: calcium, calcium signal, cancer, cytotoxics, resistance, therapeutics