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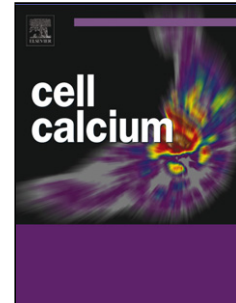
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Short title: Calcium Signaling in Trypanosomes

## Calcium Signaling in Trypanosomatid Parasites

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*Abbreviations:* FCaBP, flagellar calcium binding protein; VTC, vacuolar transporter chaperone.

### ABSTRACT

Calcium ion ( $\text{Ca}^{2+}$ ) is an important second messenger in trypanosomatids and essential for their survival although prolonged high intracellular  $\text{Ca}^{2+}$  levels lead to cell death. As other eukaryotic cells, trypanosomes use two sources of  $\text{Ca}^{2+}$  for generating signals:  $\text{Ca}^{2+}$  release from intracellular stores and  $\text{Ca}^{2+}$  entry across the plasma membrane.  $\text{Ca}^{2+}$  release from intracellular stores is controlled by the inositol 1,4,5-trisphosphate receptor ( $\text{IP}_3\text{R}$ ) that is located in acidocalcisomes, acidic organelles that are the primary  $\text{Ca}^{2+}$  reservoir in these cells. A plasma membrane  $\text{Ca}^{2+}$ -ATPase controls the cytosolic  $\text{Ca}^{2+}$  levels and a number of pumps and exchangers are responsible for  $\text{Ca}^{2+}$  uptake and release from intracellular compartments. The trypanosomatid genomes contain a wide variety of signaling and regulatory proteins that bind  $\text{Ca}^{2+}$  as well as many  $\text{Ca}^{2+}$ -binding

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