Electrophysiological characterization of potassium conductive pathways in Trypanosoma cruzi

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Potassium channels (K+ channels) are members of one of the largest and most diverse families of membrane proteins, widely described from bacteria to humans. Their functions include voltage-membrane potential maintenance, pH and cell volume regulation, excitability, organogenesis and cell death. K+ channels are involved in sensing and responsing to environmental changes such as acidification, O2 pressure, osmolarity, and ionic concentration. Trypanosoma cruzi is a parasitic protozoan, causative agent of Chagas disease (American trypanosomiasis) an endemic pathology in Latin America, where up 200,000 new cases are reported annually. In protozoan parasites, the presence of K+ channels has been suggested, but functional direct evidence supporting this hypothesis is limited, mainly due to the difficulty of employing conventional electrophysiological methods to intact parasites. In T. cruzi, K+ conductive pathways are thought to contribute in the regulatory volume decrease observed under hyp