

Characterization of calmodulin binding sites on TRP channels

ABSTRACT

Transient receptor potential (TRP) proteins are a diverse family of proteins with structural features typical of ion channels. Calmodulin (CaM) is known to play an important role in the regulation of TRP channels activity. We tried to find and characterize the CaM binding sites of both C-terminus of TRPV1 and N- and C- terminus of TRPM5 ion channel. According to Calmodulin Target Database TRPM5 channel contains three CaM binding sites, one on the N-terminus and two on the C-terminus. Based on this prediction we found three CaM binding sites that fit with the results predicted by the Calmodulin Target Database. TRPV1 was reported that binds CaM on C-terminus, and no classic CaM binding motif was found in this region. In this work, we studied CaM binding site of the C-terminus TRPV1 and we determine the most important amino acids for the CaM/TRPV1 interaction. The most essential residue in this interaction is the arginin 785.

Keywords:

TRPM5, TRPV1, Calmodulin, CaM binding site, Site-directed mutagenesis, Fluorescence anizotropie

Klíčová slova:

TRPM5, TRPV1, Kalmodulin, Kalmodulin vazebné místo, Místně specifická mutageneze, Anizotropie fluorescence