

Computational approaches to the study of the TRPV1 channel activation and modulation

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Transient receptor potential (TRP) ion channels constitute a notable family of cation channels involved in the ability of organisms to detect noxious mechanical, thermal and chemical stimuli that gives rise to the perception of pain. One of the most experimentally studied agonist of TRP channels is capsaicin, which is responsible for the burning sensation produced when chili pepper is in contact with organic tissues. Understanding how TRP channels are regulated by capsaicin and other natural products is essential to high impact pharmacological applications, particularly those related to pain treatment. By selected examples from the work we have carried out, I will provide an overview of the current knowledge we have about activation, permeation and selectivity of TRPV1, one of the so-called 'human molecular thermometers'.