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Transient Receptor Potential Canonical 6 (TRPC6) Channel in the Pathogenesis of Diseases: A Jack of Many Trades

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Abstract

The mammalian Transient Receptor Potential Canonical (TRPC) subfamily comprises seven transmembrane proteins (TRPC1-7) forming cation channels in the plasma membrane of mammalian cells. TRPC channels mediate Ca²⁺ and Na⁺ influx into the cells. Amongst TRPCs, TRPC6 deficiency or increased activity due to gain-of-function mutations has been associated with a multitude of diseases, such as kidney disease, pulmonary disease, and neurological disease. Indeed, the TRPC6 protein is expressed in various organs and is involved in diverse signalling pathways. The last decade saw a surge in the investigative studies concerning the physiological roles of TRPC6 and describing the development of new pharmacological tools modulating TRPC6 activity. The current review summarizes the progress achieved in those investigations.

Keywords: Fibrosis; Inflammation; Ion channels; Signalling; TRPC6.

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