

TRPM4 enhances cell proliferation through up-regulation of the β -catenin signaling pathway

Armisen, Ricardo

Marcelain, Katherine

Simon, Felipe

Tapia, Julio C.

Toro, Jessica

Quest, Andrew F.G.

Stutzin, Andrés

Altered expression of some members of the TRP ion channel superfamily has been associated with the development of pathologies like cancer. In particular, TRPM4 levels are reportedly elevated in diffuse large B-cell non-Hodgkin lymphoma, prostate, and cervical cancer. However, whether such changes in TRPM4 expression may be relevant to genesis or progression of cancer remains unknown. Here we show that reducing TRPM4 expression decreases proliferation of HeLa cells, a cervical cancer-derived cell line. In this cell line, constitutive TRPM4 silencing promoted GSK-3 β -dependent degradation of β -catenin and reduced β -catenin/Tcf/Lef-dependent transcription. Conversely, overexpression of TRPM4 in T-REx 293 cells (a HEK293-derived cell line) increased cell proliferation and β -catenin levels. Our results identify TRPM4 as an important, unanticipated regulator of the β -catenin pathway, where aberrant signaling is frequently associated with cancer. ©

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