

Outwardly rectifying Cl⁻ channel in guinea pig small intestinal villus enterocytes:

Effect of inhibitors

Monaghan, Alan S.

Mintenig, Gerard M.

Sepúlveda, Francisco V.

Previous studies in enterocytes isolated from the villus region of small intestinal epithelium have identified a macroscopic current carried by Cl⁻. In this work a single-channel patch-clamp study was carried out in the same cells, and a spontaneously active, outwardly rectifying Cl⁻ channel was identified and proposed to underlie the whole cell current. The channel had conductances of 62 and 19 pS at 80 and -80 mV, respectively, in symmetrical Cl⁻ solutions in excised patches. Similar activity was seen in cell-attached patches, but only outward currents could be discerned in this configuration. The activity of the channel, measured as open probability, was independent of intracellular calcium levels and voltage. The selectivity sequence for different anions was SCN⁻ > I⁻ > Br⁻ > Cl⁻ > F⁻ > (gluconate, glutamate, SO₄²⁻). The channel was inhibited by 5-nitro-2-(3-phenylpropylamino)benzoic acid (NPPB), verapamil, and 4-hydroxytamoxifen (but not by tamoxifen), with potencies similar to those ob