

Colchicine alters apamin receptors, electrical activity, and skeletal muscle relaxation

Vergara, Cecilia

Ramirez, Beatriz

Behrens, María Isabel

A low conductance calcium-activated K^+ channel is thought to regulate the rate of firing of several excitable cells. In skeletal muscle the expression of this channel is under nerve control. Previously, we reported that axonal flow blockade of rat nerves, induced by colchicine, caused a transient increase in muscle apamin receptors, determined by ^{125}I -apamin binding to membrane fractions. The increase in apamin receptors was correlated with repetitive discharges resembling myotonic potentials in the electromyogram, that were blockable by apamin. Here we show that the increase in muscle apamin receptors and the alteration of the electromyogram are followed closely by a slowing of the twitch relaxation, that in turn, is decreased by apamin. Furthermore, the presence of myotonic-like alterations in the electromyogram and a slowing of muscle relaxation when muscle apamin receptors are increased suggests that these channels may participate, among other factors, in the generation of some kinds