

Abstract

Purinergic receptors are membrane ion channels activated by extracellular ATP. In vertebrates, seven genes encoding P2X subunits was found. These subunits are designated as P2X₁₋₇. Every P2X receptor subunit consists of two transmembrane domains, extracellular domain and intracellular N- and C- termini. P2X receptors fold to homo- or heterotrimers. P2X receptors have a wide distribution in the organism, functional receptors are found in neurons, glial cells, muscle cells and also in nonexcitable tissues as epithelial, endothelial, and in hemopoietic tissue. Purinergic signalling plays an important role in pain transmission, CNS injury and immune processes. P2X receptors are synthesized on the rough endoplasmic reticulum and are transported to the plasma membrane after post-translational modifications in the Golgi apparatus. The distribution and transport of P2X receptors is subunit specific and dependent on the cell type in which they are expressed. P2X receptors can be divided into three groups according to the way they are moved in the cell, which differ in transport speed, plasma membrane accumulation rate and rate of internalization.