5-HT3 receptor

The 5-HT3 receptor belongs to the Cys-loop superfamily of ligand-gated ion channels (LGICs) and therefore differs structurally and functionally from all other 5-HT receptors (5-hydroxytryptamine, or serotonin) receptors which are G protein-coupled receptors.

This ion channel is cation-selective and mediates neuronal depolarization and excitation within the central and peripheral nervous systems.

As with other ligand gated ion channels, the 5-HT3 receptor consists of five subunits arranged around a central ion conducting pore, which is permeable to sodium (Na), potassium (K), and calcium (Ca) ions. Binding of the neurotransmitter 5-hydroxytryptamine (serotonin) to the 5-HT3 receptor opens the channel, which, in turn, leads to an excitatory response in neurons. The rapidly activating, desensitizing, inward current is predominantly carried by sodium and potassium ions.

5-HT3 receptors have a negligible permeability to anions.

They are most closely related by homology to the nicotinic acetylcholine receptor.

see Ondansetron