IUPHAR/BPS Guide to Pharmacology CITE
https://doi.org/10.2218/gtopdb/F65/2023.1

Urotensin receptor in GtoPdb v.2023.1

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Abstract

The urotensin-II (U-II) receptor (UT, **nomenclature as agreed by the NC-IUPHAR Subcommittee on the Urotensin receptor [26, 36, 94]**) is activated by the endogenous dodecapeptide urotensin-II, originally isolated from the urophysis, the endocrine organ of the caudal neurosecretory system of teleost fish [7, 93]. Several structural forms of U-II exist in fish and amphibians [94]. The goby orthologue was used to identify U-II as the cognate ligand for the predicted receptor encoded by the rat gene *gpr14* [2, 20, 63, 69, 72]. Human urotensin-II, an 11-amino-acid peptide [20], retains the cyclohexapeptide sequence of goby U-II that is thought to be important in ligand binding [61, 53, 10]. This sequence is also conserved in the deduced amino-acid sequence of rat urotensin-II (14 amino-acids) and mouse urotensin-II (14 amino-acids), although the N-terminal is more divergent from the human sequence [19]. A second endogenous ligand for the UT has been discovered in rat [86]. This is the urotensin II-related peptide, an octapeptide that is derived from a different gene, but shares the C-terminal sequence (CFWKYCV) common to U-II from other species. Identical sequences to rat urotensin II-related peptide are predicted for the mature mouse and human peptides [32]. UT exhibits relatively high sequence identity with somatostatin, opioid and galanin receptors [94]. The urotensinergic system displays an unprecedented repertoire of four or five ancient UT in some vertebrate lineages and five U-II family peptides in teleost fish [91].

Contents

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