

Neuropeptide Y receptors in GtoPdb v.2025.3

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Abstract

Neuropeptide Y (NPY) receptors (**nomenclature as agreed by the NC-IUPHAR Subcommittee on Neuropeptide Y Receptors [159]**) are activated by the endogenous peptides [neuropeptide Y](#), neuropeptide Y-(3-36), [peptide YY](#), PYY-(3-36) and [pancreatic polypeptide](#) (PP). The receptor originally identified as the Y3 receptor has been identified as the [CXCR4 chemokine receptor](#) (originally named LESTR, [140]). The y6 receptor is a functional gene product in mouse, absent in rat, but contains a frame-shift mutation in primates producing a truncated non-functional gene [85]. Three-dimensional structures have been determined for subtype active receptors Y₁, Y₂ and Y₄ [216, 115] and inactive antagonist bound Y₁ and Y₂ receptors [245, 215]. Many of the agonists exhibit differing degrees of selectivity dependent on the species examined. For example, the potency of PP is greater at the rat Y₄ receptor than at the human receptor [63]. In addition, many agonists lack selectivity for individual subtypes, but can exhibit comparable potency against pairs of NPY receptor subtypes, or have not been examined for activity at all subtypes. [¹²⁵I]-PYY or [¹²⁵I]-NPY can be used to label Y₁, Y₂, Y₅ and y₆ subtypes non-selectively, while [¹²⁵I][cPP(1-7), NPY(19-23), Ala³¹, Aib³², Gln³⁴]hPP may be used to label Y₅ receptors preferentially (note that cPP denotes chicken peptide sequence and hPP is the human sequence).

Contents

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Receptors

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<https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=305>

Y₂ receptor

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Y₄ receptor

<https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=307>

Y₅ receptor

<https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=308>

Y₆ receptor

<https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=683>

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