Histamine

Overview: Histamine receptors (nomenclature as agreed by NC-IUPHAR Subcommittee on Histamine Receptors, see Hill *et al*., 1997) are activated by the endogenous ligand histamine. Marked species differences exist between histamine receptor orthologues (see Hill *et al*., 1997).

Nomenclature	H_1	H_2	H_3	H_4
Ensembl ID	ENSG00000171088	ENSG00000168546	ENSG00000146013	ENSG00000125861
Principal transduction	$G_{q/11}$	G_s	$G_{i/o}$	$G_{i/o}$
Selective agonists	Histaprodifen, N^{τ}-methylhistaprodifen	Amthamine	Methimepip (Kitbunnadaj *et al*., 2005), immethridine (Kitbunnadaj *et al*., 2004)	Clobenpropit, 4-methylhistamine, VUF8430 (Lim *et al*., 2006)
Selective antagonists	Triprolidine (9.9), mepyramine (9.1)	Tiotidine (7.8), ranitidine (7.1)	Clobenpropit (9.9), iodophenpropit (9.6), A331440 (8.5, Hancock *et al*., 2004), thioperamide (8.4)	JNJ7777120 (8.1)
Probes	[^{3}H]-Mepyramine (1 nM), [^{11}C]-Mepyramine, [^{11}C]-doxepin	[^{3}H]-Tiotidine (15 nM), [^{125}I]-iodoaminopotentidine (0.3 nM)	[^{3}H]-*R*-α-Methylhistamine (0.5 nM), [^{3}H]-N^{α}-methylhistamine (2 nM), [^{125}I]-iodophenpropit (0.6 nM), [^{125}I]-iodoproxyfan (0.06 nM)	[^{3}H]-JNJ7777120 (3.6 nM)

Histaprodifen and N^{τ}-methylhistaprodifen are reduced efficacy agonists. The H_4 receptor appears to exhibit broadly similar pharmacology to the H_3 receptor for imidazole-containing ligands, although *R*-α-methylhistamine and *N*-α-methylhistamine are less potent, while clobenpropit acts as a reduced efficacy agonist (Nakamura *et al*., 2000; Oda *et al*., 2000; Liu *et al*., 2001; Nguyen *et al*., 2001; Zhu *et al*., 2001). Moreover, 4-methylhistamine is identified as a high-affinity, full agonist for the human H_4 receptor (Lim *et al*., 2005). [^{3}H]-Histamine has been used to label the H_4 receptor in heterologous expression systems.

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