Neuromedin U

Overview: Neuromedin U receptors (provisional nomenclature) are activated by the endogenous 25 amino-acid peptide neuromedin U (NMU), a peptide originally isolated from pig spinal cord (Minamino *et al*., 1985). In humans, NMU appears to be the sole product of a precursor (ENSG00000109255) showing a broad tissue distribution, but which is expressed at highest levels in the upper gastrointestinal tract, CNS, bone marrow and fetal liver. Much shorter versions of NMU are found in some species, but not human, and are derived at least in some instances from the proteolytic cleavage of the longer NMU. Despite species differences in NMU structure, the C-terminal region (particularly the C-terminal pentapeptide) is highly conserved and contains biological activity. Neuromedin S (NMS) has also been identified as an endogenous agonist (Mori *et al*., 2005). NMS is a 36 amino-acid product of a precursor protein derived from a single gene (ENSG00000204640) and contains an amidated C-terminal heptapeptide identical to NMU. NMS appears to activate NMU receptors with equivalent potency to NMU.

Nomenclature	NMU1	NMU2
Other names	GPR66, FM3, SNORF62 (Fujii *et al.*, 2000; Hedrick *et al.*, 2000; Hosoya *et al.*, 2000; Howard *et al.*, 2000; Kojima *et al.*, 2000; Raddatz *et al.*, 2000; Szekeres *et al.*, 2000)	FM4, TGR1, SNORF72 (Hosoya *et al.*, 2000; Howard *et al.*, 2000; Raddatz *et al.*, 2000; Shan *et al.*, 2000)
Ensembl ID	ENSG00000171596	ENSG00000132911
Principal transduction	$G_{q/11}$ (Hedrick *et al.*, 2000; Brighton *et al.*, 2004a)	$G_{q/11}$ (Hosoya *et al.*, 2000; Brighton *et al.*, 2004a)
Antagonists	–	R-PSOP (Liu *et al.*, 2009)

NMU1 and NMU2 couple predominantly to $G_{q/11}$ although there is evidence of coupling to $G_{i/o}$ (see Hosoya *et al*., 2000; Brighton *et al*., 2004a; Hsu and Luo, 2007). NMU1 and NMU2 can be labelled with [^{125}I]-NMU and [^{125}I]-NMS (of various species, e.g. Meng *et al*., 2008), BODIPY® TMR-NMU or Cy3B-NMU-8 (Brighton *et al*., 2004a).

Abbreviations: NMS, neuromedin S; **NMU**, neuromedin U; **R-PSOP**, (*R*)-5′-(phenylaminocarbonylamino)spiro[1-azabicyclo[2.2.2.]octane-3,2′(3′*H*)-furo[2,3-*b*]pyridine]

Further Reading

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