Corticotropin-releasing factor

Overview: Corticotropin-releasing factor (CRF, nomenclature as recommended by the NC-IUPHAR sub-committee on Corticotropin-releasing Factor Receptors, see Hauger *et al.*, 2003) receptors are activated by the endogenous peptides CRF (also known as corticotropin-releasing hormone [CRH], a 41 amino-acid peptide, ENSG00000147571), urocortin 1 (a 40 amino-acid peptide, ENSG00000163794), urocortin 2 (a 38 amino-acid peptide, ENSG00000145040) and urocortin 3 (a 38 amino-acid peptide, ENSG00000178473). CRF_1 and CRF_2 receptors are activated non-selectively by CRF and urocortin 1. Binding to CRF receptors can be conducted using [^{125}I]-Tyr^0-CRF or [^{125}I]-Tyr^0-sauvagine with K_d values of 0.1–0.4 nM. CRF_1 and CRF_2 receptors are non-selectively antagonized by α-helical CRF-(9-41), D-Phe-CRF-(12-41) and astressin.

Nomenclature	CRF_1	CRF_2
Other names	CRF-RA, PC-CRF	CRF-RB, HM-CRF
Ensembl ID	ENSG00000120088	ENSG00000106113
Principal transduction	G_s	G_s
Selective agonists	–	Urocortin 2 (Reyes *et al.*, 2001), urocortin 3 (Lewis *et al.*, 2001)
Selective antagonists	CP154526 (8.3–9.0, Lundkvist *et al.*, 1996), NBI27914 (8.3–9.0, Chen *et al.*, 1996), antalarmin (8.3–9.0, Webster *et al.*, 1996), CRA1000 (8.3–9.0, Chaki *et al.*, 1999), DMP696 (8.3–9.0, He *et al.*, 2000), R121919 (8.3–9.0, Zobel *et al.*, 2000), SRA125543A (8.7–9.0, Gully *et al.*, 2002), CP376395 (7.8, Chen *et al.*, 2008)	K41498 (9.2, Lawrence *et al.*, 2002), K31440 (8.7–8.8, Ruhmann *et al.*, 2002), antisauvagine-30 (Ruhmann *et al.*, 1998)

A CRF binding protein has been identified (CRF-BP, ENSG00000145708) to which both CRF and urocortin 1 bind with high affinities, which has been suggested to bind and inactivate circulating CRF (Perkins *et al.*, 1995).

Abbreviations: antalarmin, *N*-butyl-*N*-ethyl-(2,5,6-trimethyl)-7-[2,4,6-trimethylphenyl]-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl-amine; **astressin**, *cyc*$^{30–33}$[D-Phe^{12},Nle^{21,38},Glu^{30},Lys^{33}]CRF-(12-41); **CP154526**, butyl-ethyl-(2,5-dimethyl-7-[2,4,6-trimethylphenyl]-7*H*-pyrrolo[2,3-*d*]pyrimidin-4-yl)amine; **CRA1000**, 2-(*N*-[2-methylthio-4-isopropylphenyl]-*N*-ethyl-amino-4-[4-{3-fluorophenyl}-1,2,3,6-tetrahydropyridin-1-yl]-6-methylpyrimidine); **D-Phe-CRF-(12-41)**, D-Phe^{12},Nle^{21,38},αMeLeu^{37}-CRF; **DMP696**, 4-(1,3-dimethoxyprop-2-ylamino)-2,7-dimethyl-8-(2,4-dichlorophenyl)pyrazolo[1,5-*a*]-1,3,5-triazine; **K31440**, Ac-(D-Tyr^{11},His^{12},Nle^{17})sauvagine-(11-40); **K41498**, [D-Phe^{11},His^{12},Nle^{17}]sauvagine-(11-40); **NBI27914**, 2-methyl-4-(*N*-propyl-*N*-cyclopropanemethylamino)-5-chloro-6-(2,4,6-trichloroanilino)pyrimidine; **R121919**, 3-[6-(dimethylamino)-4-methyl-3-pyridinyl]-2,5-dimethyl-*N*,*N*-dipropylpyrazolo[1,5-*a*]pyrimidin-7-amine; **SRA125543A**, 4-(2-chloro-4-methoxy-5-methylphenyl)-*N*-[(1S)-2-cyclopropyl-1-(3-fluoro-4-methylphenyl)ethyl]5-methyl-*N*-(2-propynyl)-1,3-thiazol-2-amine hydrochloride

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