



Mapping of the full length and the truncated interleukin-18 receptor alpha in the mouse brain

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ABSTRACT

The cytokine IL-18 acts on the CNS both in physiological and pathological conditions. Its action occurs through the heterodimeric receptor IL-18R α β . To better understand IL-18 central effects, we investigated in the mouse brain the distribution of two IL-18R α transcripts, a full length and an isoform lacking the intracellular domain hypothesized to be a decoy receptor. Both isoforms were expressed in neurons throughout the brain primarily with overlapping distribution but also with some unique pattern. These data suggest that IL-18 may modulate neuronal functions and that its action may be regulated through expression of a decoy receptor.

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Abbreviations: 3V, third ventricle; 7, facial nucleus; AAD, anterior amygdaloid area dorsal part; AAV, anterior amygdaloid area ventral part; Acb, nucleus accumbens; ACo, cortical amygdaloid nucleus anterior part; AD, anterodorsal thalamic nuclei; AHA, anterior hypothalamic area anterior part; AHC, anterior hypothalamic area central part; AHiAL, amygdalohippocampal area anterolateral part; AHiPM, amygdalohippocampal area postmedial part; AHP, anterior hypothalamic area posterior part; AI, agranular insular cortex; Aint, anterior interposed nucleus; AIP, agranular insular cortex posterior part; AM, anteromedial thalamic nuclei; AOD, anterior olfactory nucleus dorsal part; AOL, anterior olfactory nucleus lateral part; AOM, anterior olfactory nucleus medial part; AOV, anterior olfactory nucleus ventral part; APir, amygdalopiriform transition area; APT, anterior pretectal nucleus; Arc, arcuate hypothalamic nucleus; Au1, primary auditory cortex; AuD, auditory cortex dorsal part; AuV, auditory cortex ventral part; AV, anteroventral thalamic nuclei; AVPe, anteroventral periventricular nucleus; BAOT, bed nucleus of accessory olfactory tract; BLA, basolateral amygdaloid nucleus anterior part; BLP, basolateral amygdaloid nucleus posterior part; BLV, basolateral amygdaloid nucleus ventral part; BMA, basomedial amygdaloid nucleus anterior part; BMP, basomedial amygdaloid nucleus posterior part; BST, bed nucleus of stria terminalis; CA, Ammon's horn; CA1, CA1 field of the hippocampus; CA2, CA2 field of the hippocampus; CA3, CA3 field of the hippocampus; CeC, central amygdaloid nucleus capsular division; CeL, central amygdaloid nucleus lateral division; CeM, central amygdaloid nucleus medial division; Cg1, cingulate cortex area 1; Cg2, cingulate cortex area 2; Circ, circular nucleus; CPu, caudate-putamen (striatum); DC, dorsal cochlear nucleus; DEN, dorsal endopiriform nucleus; DG, dentate gyrus; DLG, dorsal lateral geniculate nucleus; DLO, dorsolateral orbital cortex; DM, dorsomedial hypothalamic nucleus; DMC, dorsomedial hypothalamic nucleus compact part; DMD, dorsomedial hypothalamic nucleus diffuse part; DMV, dorsomedial hypothalamic nucleus ventral part; DP, dorsal peduncular cortex; DpG, deep gray layer of the superior colliculus; DpMe, deep mesencephalic nucleus; DR, dorsal raphe nucleus; DTM, dorsal tuberomammillary nucleus; DTT, dorsal tenia tecta; Ect, ectothalamic cortex; EPI, external plexiform layer of the olfactory bulb; EW, Edinger-Westphal nucleus; FrA, frontal association cortex; Gi, gigantocellular reticular nucleus; GI, granular insular cortex; GL, glomerular layer of the olfactory bulb; GrDG, granular layer of the dentate gyrus; GrL, granular cell layer of the cerebellar cortex; GrO, granule layer of the olfactory bulb; HDB, nucleus of the horizontal limb of the diagonal band; IG, indusium griseum; IL, infralimbic cortex; IMLF, interstitial nucleus of the medial longitudinal fasciculus; InG, intermediate gray layer of the superior colliculus; IPI, internal plexiform layer of the olfactory bulb; LA, lateral amygdaloid nucleus; LA, lateroanterior hypothalamic nucleus; Lat, lateral (dentate) cerebellar nucleus; LEnt, lateral entorhinal cortex; LH, lateral hypothalamic area; LHb, lateral habenular nucleus; LM, lateral mammillary nucleus; LMol, lacunosum molecular layer of the hippocampus; LO, lateral orbital cortex; LOT, nucleus of lateral olfactory tract; LPO, lateral preoptic area; LSD, lateral septal nucleus dorsal part; LSI, lateral septal nucleus intermediate part; LSV, lateral septal nucleus ventral part; M1, primary motor cortex; M2, secondary motor cortex; MCLH, magnocellular nucleus of the lateral hypothalamic area; MCPC, magnocellular nucleus of the posterior commissure; MCPO, magnocellular preoptic nucleus; MD, mediodorsal thalamic nucleus; Me, medial amygdaloid nucleus; ME, median eminence; Med, medial (fastigial) cerebellar nucleus; MHb, medial habenular nucleus; Mi, mitral cell layer of the olfactory bulb; ML, medial mammillary nucleus lateral part; MM, medial mammillary nucleus; MnPO, median preoptic nucleus; MnR, median raphe nucleus; MO, medial orbital cortex; Mol, molecular layer of the dentate gyrus; MOL, molecular layer of the cerebellar cortex; MPA, medial preoptic area; MPOC, medial preoptic nucleus central part; MPOL, medial preoptic nucleus lateral part; MPOM, medial preoptic nucleus medial part; MS, medial septal nucleus; MVe, medial vestibular nucleus; Or, oriens layer hippocampus; P, Purkinje cell layer; PAG, periaqueductal gray; PaDC, paraventricular hypothalamic dorsal cap; PaLM, paraventricular hypothalamic lateral magnocellular part; PaMM, paraventricular hypothalamic medial magnocellular part; PaMP, paraventricular hypothalamic medial parvocellular part; PaPO, paraventricular hypothalamic nucleus posterior; PaS, parasubiculum; PaV, paraventricular hypothalamic nucleus ventral part; Pe, periventricular hypothalamic nucleus; PF, parafascicular thalamic nucleus; PH, posterior hypothalamic area; Pir, piriform cortex; PLCo, posterolateral cortical amygdaloid nucleus; PMCo, posteromedial cortical amygdaloid nucleus; PMD,