

β-endorphin (B31.15): sc-51680

BACKGROUND

POMC (pro-opiomelanocortin), also known as corticotropin-lipotropin, is a 267 amino acid polypeptide hormone precursor that goes through extensive, tissue-specific posttranslational processing by prohormone convertases. POMC is cleaved into ten hormone chains named NPP, γ-MSH, ACTH, α-MSH, CLIP (corticotropin-like intermediary peptide), Lipotropin β, Lipotropin γ, β-MSH, β-endorphin and Met-enkephalin. Defects in the gene that encodes POMC are the cause of POMC deficiency, which is characterized by red hair and adrenal insufficiency. Mutations in the POMC gene have also been linked to susceptibility to obesity. β-endorphin is a 31 amino acid active peptide that is expressed primarily in neurons of the hypothalamus and in pituitary gland. β-endorphin, along with the active peptide Met-enkephalin, acts as an opioid neurotransmitter.

REFERENCES

1. Millington, G.W., et al. 2001. Differential effects of α-, β- and γ₂-melanocyte-stimulating hormones on hypothalamic neuronal activation and feeding in the fasted rat. *Neuroscience* 108: 437-445.
2. Grässel, S., et al. 2009. The melanocortin system in articular chondrocytes: melanocortin receptors, pro-opiomelanocortin, precursor proteases, and a regulatory effect of α-melanocyte-stimulating hormone on proinflammatory cytokines and extracellular matrix components. *Arthritis Rheum.* 60: 3017-3027.
3. McLaughlin, P.J., et al. 2009. Growth inhibition of thyroid follicular cell-derived cancers by the opioid growth factor (OGF)-opioid growth factor receptor (OGFr) axis. *BMC Cancer* 9: 369.
4. Belgardt, B.F., et al. 2009. Hormone and glucose signalling in POMC and AgRP neurons. *J. Physiol.* 587: 5305-5314.
5. Fehér, P., et al. 2010. Dephosphorylation/inactivation of tyrosine hydroxylase at the median eminence of the hypothalamus is required for suckling-induced Prolactin and adrenocorticotrop hormone responses. *Brain Res. Bull.* 82: 141-145.
6. Höftberger, R., et al. 2010. Peroxisomal localization of the proopiome-lanocortin-derived peptides β-lipotropin and β-endorphin. *Endocrinology* 151: 4801-4810.
7. Canzian, F., et al. 2010. Comprehensive analysis of common genetic variation in 61 genes related to steroid hormone and Insulin-like growth factor-I metabolism and breast cancer risk in the NCI breast and prostate cancer cohort consortium. *Hum. Mol. Genet.* 19: 3873-3884.
8. Jang, P.G., et al. 2010. NFκB activation in hypothalamic pro-opiome-lanocortin neurons is essential in illness- and leptin-induced anorexia. *J. Biol. Chem.* 285: 9706-9715.

CHROMOSOMAL LOCATION

Genetic locus: POMC (human) mapping to 2p23.3.

SOURCE

β-endorphin (B31.15) is a mouse monoclonal antibody raised against β-endorphin of human origin.

PRODUCT

Each vial contains 100 μg IgG₁ in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

β-endorphin (B31.15) is recommended for detection of POMC and the processed active peptide β-endorphin of human origin by immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for POMC siRNA (h): sc-37277, POMC shRNA Plasmid (h): sc-37277-SH and POMC shRNA (h) Lentiviral Particles: sc-37277-V.

Molecular Weight of POMC precursor: 30 kDa.

Molecular Weight of β-endorphin: 3 kDa.

SELECT PRODUCT CITATIONS

1. Guzzo, L.S., et al. 2015. Involvement of endogenous opioid peptides in the peripheral antinociceptive effect induced by the coffee specific diterpene kahweol. *Pharmacol. Rep.* 67: 1010-10115.
2. Petrocchi, J.A., et al. 2019. Peripheral antinociception induced by ketamine is mediated by the endogenous opioid system. *Eur. J. Pharmacol.* 15: 172808.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.