

ACTH (1.B.55): sc-70313

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. ACTH, also known as corticotropin, is a 39 amino acid active peptide that stimulates the secretion of cortisol by the adrenal gland. ACTH is often produced in response to biological stress. The synthetic analog of ACTH is known as Synacthen, and is used diagnostically and for treatment of adrenal insufficiency of central origin.

REFERENCES

1. Millington, G.W., et al. 2001. Differential effects of α -, β - and γ (2)-melanocyte-stimulating hormones on hypothalamic neuronal activation and feeding in the fasted rat. *Neuroscience* 108: 437-445.
2. Grassel, 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.

CHROMOSOMAL LOCATION

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

SOURCE

ACTH (1.B.55) is a mouse monoclonal antibody raised against the N-terminus of ACTH of rat origin.

PRODUCT

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

STORAGE

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

APPLICATIONS

ACTH (1.B.55) is recommended for detection of POMC and the processed active peptides ACTH and Synacthen of human and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], 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); non cross-reactive with C-terminal ACTH, specifically CLIP (ACTH 17-39); may cross-react <1% with Insulin, KLH and BSA.

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.

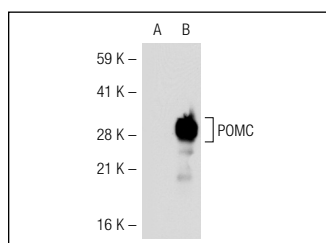
Molecular Weight of ACTH/Synacthen: 5 kDa.

Positive Controls: POMC (h): 293T Lysate: sc-111490 or rat pituitary tissue extract.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-mouse IgG-HRP: sc-2005 (dilution range: 1:2000-1:32,000) or Cruz Marker™ compatible goat anti-mouse IgG-HRP: sc-2031 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-mouse IgG-FITC: sc-2010 (dilution range: 1:100-1:400) or goat anti-mouse IgG-TR: sc-2781 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 4) Immunohistochemistry: use ImmunoCruz™: sc-2050 or ABC: sc-2017 mouse IgG Staining Systems.

DATA



ACTH (1.B.55): sc-70313. Western blot analysis of POMC expression in non-transfected: sc-117752 (A) and human POMC transfected: sc-111490 (B) 293T whole cell lysates.

RESEARCH USE

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