

Product Data Sheet

□ Cat # RP-603

Recombinant Human Agouti-Related Protein

Size: □ 2 ug

□ 10 ug

Synonyms:

ART, AGRT, ASIP2, MGC118963, AGRP.

Introduction:

Agouti-related protein is an endogenous antagonist of hypothalamic alpha-melanocortin receptors MC3R and MC4R with potent orexigenic activity. Although a complete deletion of the AGRP gene does not produce any significant metabolic phenotypes, reduction in AGRP expression by RNA interference is associated with increased metabolic rate along with reduced weight gain. In hypothalamus, it is produced by neurons in the medial portion of arcuate nucleus, which produce also the potent orexigenic peptide Neuropeptide Y (NP-Y). Another site of central AGRP production is the hypothalamic nucleus. AGRP encompasses 132 amino acid residues and its alpha-melanocortin inhibiting activity results in a 34 amino acid cystine knot domain within the C-terminal (87-132) portion of the protein. Both AGRP and NP-Y expression was shown to be suppressed by leptin. Central administration of AGRP induces hyperphagia and increased gain in body weight in rodents, but may also exert metabolic effects even when hyperphagia is prevented. In the absence of hyperphagia, intracerebralventricular administration of AGRP caused significant increases in plasma leptin and insulin concentrations (twofold and 1.5-fold, respectively) and fat pad mass.

In the periphery, AGRP mRNA was found in adrenal glands, lung, testis, ovary, skeletal muscle and adipose tissue in humans or rodents. In the adrenals, it was shown that AGRP antagonizes glucocorticoid production mediated by MC4R. AGRP could then modulate locally the functions of some peripheral tissues such as adrenals.

In human and rat serum, detectable levels of AGRP-like activity were reported in the lower picogram range. The serum AGRP levels were elevated in obese humans compared to lean controls and increased with fasting in rats.

Description:

The Human Agouti-related protein is created as a recombinant protein with N-terminal fusion of HisTag.

The Human Agouti-related protein His-Tagged Fusion Protein, produced in *E. coli*, is 14.4 kDa protein containing 112 amino acid residues of the human AGRP and 16 additional amino acid residues - HisTag, thrombin cleavage site (underlined).

The AGRP is purified by proprietary chromatographic techniques.

MKHHHHHHHM LVPRGSAQMG LAPMEGIRRP DQALLPELPG LGLRAPLKKT TAEQAEEFLL QEQAQALAEVL DLQDREPRSS RRCVRLHESC LGQQVPCCDP
CATCYCRFFN AFCYCRKLG T AMNPCSRT

Source:

Escherichia Coli.

Physical Appearance:

Sterile Filtered White lyophilized (freeze-dried) powder.

Formulation:

Lyophilized from 0.5 mg/ml in 5mM TRIS, 25mM NaCl, pH 7.5.

Solubility:

Add 0.2 ml of dH₂O and let the lyophilized pellet dissolve completely.

Specificity:

The amino acid sequence of the recombinant human Agouti-related protein is 100% homologous to the amino acid sequence of the human Agouti-related protein without signal sequence.

Purification Method:

Three-step procedure using affinity Ni-NTA chromatography and size exclusion chromatography before and after refolding.

Purity:

Purity of Agouti-related protein recombinant human is >95 % (SDS-PAGE analyzed).

Applications:

Western blotting, ELISA.

References:

• Korner J, Wissig S, Kim A, Conwell IM, Wardlaw SL. Effects of agouti-related protein on metabolism and hypothalamic neuropeptide gene expression. *J Neuroendocrinol.* 2003 Dec; 15(12): 1116-21. • Olszewski PK, Wickwire K, Wirth MM, Levine AS, Giraudo SQ. Agouti-related protein: appetite or reward? *Ann N Y Acad Sci.* 2003 Jun; 994: 187-91. • Argyropoulos G, Rankinen T, Bai F, Rice T, Province MA, Leon AS, Skinner JS, Wilmore JH, Rao DC, Bouchard C. The agouti-related protein and body fatness in humans. *Int J Obes Relat Metab Disord.* 2003 Feb; 27(2): 276-80. • Shen CP, Wu KK, Shearman LP, Camacho R, Tota MR, Fong TM, Van der Ploeg LH. Plasma agouti-related protein level: a possible correlation with fasted and fed states in humans and rats

Usage:

This item is for LABORATORY RESEARCH USE ONLY. The product may not be used as drugs, agricultural or pesticidal products, food additives or household chemicals. If supplied in powder then reconstitute it in 100 ul water for 1 mg/ml stock and store in liquid at 4°C for ~1 week or aliquots in suitable size and store at -20°C for long term storage..Rev.



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