

RAP as an LRP1 antagonist

Catalogue number: 153996

Sub-type: Inhibitor

Images:

Contributor

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Images:

Tool details

***FOR RESEARCH USE ONLY**

Name: RAP as an LRP1 antagonist

Alternate name: receptor-associated protein

Class:

Conjugate:

Description: Receptor-Associated Protein (RAP) is a chaperone of LRP1 (lipoprotein receptor-related protein 1). Usually, at low pHs the D3 domain unfolds and RAP dissociates from LRP1. In contrast, this RAP was engineered by Prasad et al. 2015, to overcome this. A disulfide bond was introduced to RAP, resulting in a stable RAP, which allows high affinity binding to LRP1. As a result, this RAP is an effective inhibitor of LRP1 activity. This stable RAP is resistant to both pH and heat denaturation. It has been shown to be a potent inhibitor of LRP1 function in both in vitro and in vivo. To stabilise the RAP, the following mutations were made: H257F, H259F, Y260C, H268F, H290F, T297C. LRP1 is an endocytic receptor that interacts with several ligands including alpha 2-macroglobulin. Functionally, the receptor mediates cellular signalling with implications in Alzheimer's disease. This receptor is expressed in brain, liver, and lung and localized to the cytoplasm and nucleus. Expression of LRP1 requires RAP, a molecular chaperone of LRP1.

Purpose: Inhibit LRP1 function

Parental cell:

Organism:

Tissue:

Model:

Gender:

Isotype:

Reactivity:

Selectivity:

Host:

Immunogen:

Immunogen UNIPROT ID:

Sequence:

Growth properties:

Production details: Expressed and purified from BL21 E. coli

Formulation:

Recommended controls:

Bacterial resistance:

Selectable markers:

Additional notes: This RAP protein was engineered to resist pH and heat-induced denaturation via the addition of a disulfide bond within the D3 domain and elimination of key histidine residues. This stable RAP molecule does not disassociate from LRP1 under acidic conditions and thus functions as a potent LRP1 antagonist both in-vitro and in-vivo.

Target details

Target: LRP1

Target alternate names: Lipoprotein receptor-related protein 1

Target background: LRP1 is an endocytic receptor that interacts with several ligands including alpha 2-macroglobulin. Functionally, the receptor mediates cellular signalling with implications in Alzheimer's disease. This receptor is expressed in brain, liver, and lung and localized to the cytoplasm and nucleus. Expression of LRP1 requires RAP, a molecular chaperone of LRP1.

Molecular weight: 38kDa

Ic50:

Applications

Application: Inhibits LRP1 function

Application notes:

Handling

Format:

Concentration:

Passage number:

Growth medium:

Temperature:

Atmosphere:

Volume:

Storage medium:

Storage buffer:

Storage conditions:

Shipping conditions: Dry Ice

Related tools

Related tools:

References

References: Ruiz et al. 2005. J Lipid Res. 46(8):1721-31. PMID: 15863833. ; The apoE isoform binding properties of the VLDL receptor reveal marked differences from LRP and the LDL receptor.

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