





# Retinoic Acid Receptor alpha Protein (AA 1-462) (Strep Tag)



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#### Overview

| Quantity:                     | 1 mg  |
|-------------------------------|---|
| Target:                       | Retinoic Acid Receptor alpha (RARA)                                   |
| Protein Characteristics:      | AA 1-462  |
| Origin:                       | Mouse   |
| Source:                       | Tobacco (Nicotiana tabacum)   |
| Protein Type:                 | Recombinant   |
| Purification tag / Conjugate: | This Retinoic Acid Receptor alpha protein is labelled with Strep Tag. |
| Application:                  | Western Blotting (WB), SDS-PAGE (SDS), ELISA                          |

#### **Product Details**

Sequence:

MASNSSSCPT PGGGHLNGYP VPPYAFFFPP MLGGLSPPGA LTSLQHQLPV SGYSTPSPAT IETQSSSSEE IVPSPPSPPP LPRIYKPCFV CQDKSSGYHY GVSACEGCKG FFRRSIQKNM VYTCHRDKNC IINKVTRNRC QYCRLQKCFD VGMSKESVRN DRNKKKKEAP KPECSESYTL TPEVGELIEK VRKAHQETFP ALCQLGKYTT NNSSEQRVSL DIDLWDKFSE LSTKCIIKTV EFAKQLPGFT TLTIADQITL LKAACLDILI LRICTRYTPE QDTMTFSDGL TLNRTQMHNA GFGPLTDLVF AFANQLLPLE MDDAETGLLS AICLICGDRQ DLEQPDKVDM LQEPLLEALK VYVRKRRPSR PHMFPKMLMK ITDLRSISAK GAERVITLKM EIPGSMPPLI QEMLENSEGL DTLSGQSGGG TRDGGGLAPP PGSCSPSLSP SSHRSSPATQ SP

Sequence without tag. The proposed Strep-Tag is based on experience s with the expression system, a different complexity of the protein could make another tag necessary. In case you have a special request, please contact us.

Characteristics: Key Benefits:

- · Made in Germany from design to production by highly experienced protein experts.
- Protein expressed with ALiCE® and purified by multi-step, protein-specific process to ensure correct folding and modification.
- These proteins are normally active (enzymatically functional) as our customers have reported (not tested by us and not guaranteed).
- State-of-the-art algorithm used for plasmid design (Gene synthesis).

This protein is a **made-to-order protein** and will be made for the first time for your order. Our experts in the lab will ensure that you receive a correctly folded protein.

The big advantage of ordering our **made-to-order proteins** in comparison to ordering custom made proteins from other companies is that there is no financial obligation in case the protein cannot be expressed or purified.

#### Expression System:

- ALiCE®, our Almost Living Cell-Free Expression System is based on a lysate obtained from Nicotiana tabacum c.v.. This contains all the protein expression machinery needed to produce even the most difficult-to-express proteins, including those that require posttranslational modifications.
- During lysate production, the cell wall and other cellular components that are not required for
  protein production are removed, leaving only the protein production machinery and the
  mitochondria to drive the reaction. During our lysate completion steps, the additional
  components needed for protein production (amino acids, cofactors, etc.) are added to
  produce something that functions like a cell, but without the constraints of a living system all that's needed is the DNA that codes for the desired protein!

#### Concentration:

- The concentration of our recombinant proteins is measured using the absorbance at 280nm.
- The protein's absorbance will be measured in several dilutions and is measured against its specific reference buffer.
- We use the Expasy's protparam tool to determine the absorption coefficient of each protein.

#### Purification:

Two step purification of proteins expressed in Almost Living Cell-Free Expression System (ALiCE®):

- 1. In a first purification step, the protein is purified from the cleared cell lysate using StrepTag capture material. Eluate fractions are analyzed by SDS-PAGE.
- Protein containing fractions of the best purification are subjected to second purification step through size exclusion chromatography. Eluate fractions are analyzed by SDS-PAGE and Western blot.

### **Product Details**

| Purity:          | ≥ 80 % as determined by SDS PAGE, Size Exclusion Chromatography and Western Blot. |
|------------------|---|
| Endotoxin Level: | Low Endotoxin less than 1 EU/mg (< 0.1 ng/mg)                                     |

| Target Details    |  |
|-------------------|--|
| Target:           | Retinoic Acid Receptor alpha (RARA)  |
| Alternative Name: | Rara (RARA Products)   |
| Background:       | Retinoic acid receptor alpha (RAR-alpha) (Nuclear receptor subfamily 1 group B member            |
|                   | 1),FUNCTION: Receptor for retinoic acid (PubMed:17205979). Retinoic acid receptors bind as       |
|                   | heterodimers to their target response elements in response to their ligands, all-trans or 9-cis  |
|                   | retinoic acid, and regulate gene expression in various biological processes (PubMed:17205979).   |
|                   | The RXR/RAR heterodimers bind to the retinoic acid response elements (RARE) composed of          |
|                   | tandem 5'-AGGTCA-3' sites known as DR1-DR5 (PubMed:17205979). In the absence of ligand,          |
|                   | the RXR-RAR heterodimers associate with a multiprotein complex containing transcription          |
|                   | corepressors that induce histone deacetylation, chromatin condensation and transcriptional       |
|                   | suppression (By similarity). On ligand binding, the corepressors dissociate from the receptors   |
|                   | and associate with the coactivators leading to transcriptional activation (PubMed:17205979,      |
|                   | PubMed:9230306, PubMed:19078967). Formation of heterocomplex with histone deacetylases           |
|                   | might lead to inhibition of RARE DNA element binding and to transcriptional repression (By       |
|                   | similarity). Transcriptional activation and RARE DNA element binding might be supported by the   |
|                   | transcription factor KLF2 (By similarity). RARA plays an essential role in the regulation of     |
|                   | retinoic acid-induced germ cell development during spermatogenesis (PubMed:15901285). Has        |
|                   | a role in the survival of early spermatocytes at the beginning prophase of meiosis               |
|                   | (PubMed:15901285, PubMed:17905941). In Sertoli cells, may promote the survival and               |
|                   | development of early meiotic prophase spermatocytes (PubMed:10660575,                            |
|                   | PubMed:17905941). In concert with RARG, required for skeletal growth, matrix homeostasis         |
|                   | and growth plate function (PubMed:19389355). Together with RXRA, positively regulates            |
|                   | microRNA-10a expression, thereby inhibiting the GATA6/VCAM1 signaling response to pulsatile      |
|                   | shear stress in vascular endothelial cells (By similarity). In association with HDAC3, HDAC5 and |
|                   | HDAC7 corepressors, plays a role in the repression of microRNA-10a and thereby promotes the      |
|                   | inflammatory response (By similarity). {ECO:0000250 UniProtKB:P10276,                            |
|                   | ECO:0000269 PubMed:10660575, ECO:0000269 PubMed:15901285,  |
|                   | ECO:0000269 PubMed:17205979, ECO:0000269 PubMed:17905941,  |
|                   | ECO:0000269 PubMed:19078967, ECO:0000269 PubMed:19389355,  |
|                   |  |

ECO:0000269|PubMed:9230306}.

### **Target Details**

| Molecular Weight: | 50.7 kDa   |
|-------------------|--|
| UniProt:          | P11416   |
| Pathways:         | Nuclear Receptor Transcription Pathway, Retinoic Acid Receptor Signaling Pathway,            |
|                   | Intracellular Steroid Hormone Receptor Signaling Pathway, Steroid Hormone Mediated           |
|                   | Signaling Pathway, Cellular Response to Molecule of Bacterial Origin, Positive Regulation of |
|                   | Immune Effector Process, S100 Proteins   |
|                   |  |

## **Application Details**

| Application Details |   |
|---------------------|---|
| Application Notes:  | In addition to the applications listed above we expect the protein to work for functional studies as well. As the protein has not been tested for functional studies yet we cannot offer a guarantee though.  |
| Comment:            | ALiCE®, our Almost Living Cell-Free Expression System is based on a lysate obtained from Nicotiana tabacum c.v This contains all the protein expression machinery needed to produce even the most difficult-to-express proteins, including those that require post-translational modifications. |

During lysate production, the cell wall and other cellular components that are not required for protein production are removed, leaving only the protein production machinery and the mitochondria to drive the reaction. During our lysate completion steps, the additional components needed for protein production (amino acids, cofactors, etc.) are added to produce something that functions like a cell, but without the constraints of a living system - all that's needed is the DNA that codes for the desired protein!

Restrictions: For Research Use only

## Handling

| Format:          | Liquid   |
|------------------|--|
| Buffer:          | The buffer composition is at the discretion of the manufacturer. If you have a special request, please contact us. |
| Handling Advice: | Avoid repeated freeze-thaw cycles.   |
| Storage:         | -80 °C   |
| Storage Comment: | Store at -80°C.  |
| Expiry Date:     | Unlimited (if stored properly)   |