

Product datasheet

Retinoic Acid Receptor alpha peptide ab4910

Description

Product name	Retinoic Acid Receptor alpha peptide
Purity	> 95 % SDS-PAGE.
Animal free	No
Nature	Synthetic

Specifications

Our [Abpromise guarantee](#) covers the use of **ab4910** in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

Applications	Blocking
Form	Liquid

Additional notes

This peptide may be used for control experiments with the monoclonal and polyclonal antibodies that react with this product and the RAR catalogue [ab5791](#) and [ab5423](#). Using a solution with equal weights per unit volume of peptide and corresponding antibody will yield a solution with a large molar excess of peptide that is able to competitively bind the antibody.

Preparation and Storage

Stability and Storage	Shipped at 4°C. Upon delivery aliquot and store at -20°C or -80°C. Avoid repeated freeze / thaw cycles.
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General Info

Function	Receptor for retinoic acid. 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. The RXR/RAR heterodimers bind to the retinoic acid response elements (RARE) composed of tandem 5'-AGGTCA-3' sites known as DR1-DR5. In the absence of ligand, the RXR-RAR heterodimers associate with a multiprotein complex containing transcription corepressors that induce histone acetylation, chromatin condensation and transcriptional suppression. On ligand binding, the corepressors dissociate from the receptors and associate with the coactivators leading to transcriptional activation. RARA plays an essential
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role in the regulation of retinoic acid-induced germ cell development during spermatogenesis. Has a role in the survival of early spermatocytes at the beginning prophase of meiosis. In Sertoli cells, may promote the survival and development of early meiotic prophase spermatocytes. In concert with RARG, required for skeletal growth, matrix homeostasis and growth plate function (By similarity). Regulates expression of target genes in a ligand-dependent manner by recruiting chromatin complexes containing MLL5. Mediates retinoic acid-induced granulopoiesis.

Involvement in disease

Note=Chromosomal aberrations involving RARA are commonly found in acute promyelocytic leukemia. Translocation t(11;17)(q32;q21) with ZBTB16/PLZF; translocation t(15;17)(q21;q21) with PML; translocation t(5;17)(q32;q11) with NPM. The PML-RARA oncoprotein requires both the PML ring structure and coiled-coil domain for both interaction with UBE2I, nuclear microspeckle location and sumoylation. In addition, the coiled-coil domain functions in blocking RA-mediated transactivation and cell differentiation.

Sequence similarities

Belongs to the nuclear hormone receptor family. NR1 subfamily.
Contains 1 nuclear receptor DNA-binding domain.

Domain

Composed of three domains: a modulating N-terminal domain, a DNA-binding domain and a C-terminal ligand-binding domain.

Post-translational modifications

Phosphorylated on serine and threonine residues. Phosphorylation does not change during cell cycle. Phosphorylation on Ser-77 is crucial for transcriptional activity (By similarity).

Phosphorylation by AKT1 is required for the repressor activity but has no effect on DNA binding, protein stability nor subcellular localization. Phosphorylated by PKA in vitro. This phosphorylation on Ser-219 and Ser-369 is critical for ligand binding, nuclear localization and transcriptional activity in response to FSH signaling.

Sumoylated by SUMO2, mainly on Lys-399 which is also required for SENP6 binding. On all-trans retinoic acid (ATRA) binding, a conformational change may occur that allows sumoylation on two additional site, Lys-166 and Lys-171. Probably desumoylated by SENP6. Sumoylation levels determine nuclear localization and regulate ATRA-mediated transcriptional activity.

Trimethylation enhances heterodimerization with RXRA and positively modulates the transcriptional activation.

Ubiquitinated.

Cellular localization

Nucleus. Cytoplasm. Nuclear localization depends on ligand binding, phosphorylation and sumoylation. Translocation to the nucleus in the absence of ligand is dependent on activation of PKC and the downstream MAPK phosphorylation.

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