

# Recombinant Rat AHR Protein

**For Research Use Only**

## 1. Basic Product Information

Catalog No.: REP52359

Size: 10ug, 100ug

Protein Name: Aryl hydrocarbon receptor (Ah receptor) (AhR)

Synonym: Ahr

UniProt ID: P41738

UniProt Link: [www.uniprot.org/uniprotkb/P41738/entry](http://www.uniprot.org/uniprotkb/P41738/entry)

Species Source: Rat

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 853 AA

Molecular Weight: 96 KD

Protein Tag: C-terminal His6

## 2. Amino Acid Sequence

MSSGANITYASRKRKPVQKTVKPVPAEGIKSNPSKRHRDRLNTELDRLASLLPFPQDVINKLKDLSV  
LRLSVSYLRAKSFFDVALKSTPADRSRGQDQCRAQVRDWQDLQEGEFLLQALNGFVLVVTADALVF  
YASSTIQDYLGFGQSDVIHQSVYELIHTEADRAEFQRQLHWALNPSQCTDSAQGVDETHGLPQPAVY  
YTPDQLPPENTAFMERCFCRLRCLLDNSSGFLAMNFQGRCLKYLGQNKKGKDGALLPPQLALFAI  
ATPLQPPSILEIRTKNFIFRTKHKLDFTPIGCDAGKQLILGYTEVELCNKGSGYQFIHAADMLHCAESHI  
RMIKTGESGMTVFRLLAKHSRWRWVQSNARLIYRNGRPDIATQRPLTDEEGREHLQKRSMTLPF  
MFATGEAVLYEISSPFSPIMDPLPIRTKSNTSRKDWAPQSTPSKDSFHPNSLMSALIQQDESIYLCPP  
SSPAPLDSHFLMDSMSECGSWQGSFAVASNEALLKHEEIRHTQDVNLTLSGGPSELFPDNKNNDLY  
SIMRNLGIDFDIRSMQNEEFFRTDSSGEVDFKIDITDEILTYVQDSLNNSTLLNSACQQQPVSQHL  
CMLQERLQLEQQQLQQQHPTQTLEPQRQLCQVEVPQHELQKTKHMQVNGMFASWNPAPPVS  
FSCPQKERKHYSLFSLGQTAQEFQYKSEVDSMPYTNFAPCNQSLPEHSGKTQLDFPGRDFER  
SLHPNASNLEDFVSLQVPENQRHGINSQSAMVSPQAYYAGAMSMYQCQAGPQHTPVDQMAYSP  
EIPGSQAFLSKFQSPSILNEAYSADLSSIGHLQTAHLPLRLAEAPLPDITPSGFL

## 3. Buffer Composition



Liquid format: PBS-based buffer containing 50% glycerol. Glycerol concentration can be customized upon customer request; please state special requirements when placing your order.

Lyophilized format: Buffer before lyophilization is PBS supplemented with 6% trehalose.

## 4. Storage Conditions

Upon receipt, store the product at -20 °C or -80 °C. Aliquot the product for on-demand use to preserve protein activity and prevent denaturation and inactivation caused by repeated freeze-thaw cycles.

## 5. Product Description

This product is recombinant Aryl hydrocarbon receptor (Ah receptor) (AhR) produced using the HEK293T eukaryotic cell expression system. It is suitable for in-vitro functional assays, protein-protein interaction studies, antibody preparation and other biomedical research applications.

**Protein Function:** Ligand-activated transcription factor that enables cells to adapt to changing conditions by sensing compounds from the environment, diet, microbiome and cellular metabolism, and which plays important roles in development, immunity and cancer (PubMed:7812217). Upon ligand binding, translocates into the nucleus, where it heterodimerizes with ARNT and induces transcription by binding to xenobiotic response elements (XRE). Regulates a variety of biological processes, including angiogenesis, hematopoiesis, drug and lipid metabolism, cell motility and immune modulation. Xenobiotics can act as ligands: upon xenobiotic-binding, activates the expression of multiple phase I and II xenobiotic chemical metabolizing enzyme genes (such as the CYP1A1 gene). Mediates biochemical and toxic effects of halogenated aromatic hydrocarbons. Next to xenobiotics, natural ligands derived from plants, microbiota, and endogenous metabolism are potent AHR agonists. Tryptophan (Trp) derivatives constitute an important class of endogenous AHR ligands. Acts as a negative regulator of anti-tumor immunity: indoles and kynurenic acid generated by Trp catabolism act as ligand and activate AHR, thereby promoting AHR-driven cancer cell motility and suppressing adaptive immunity. Regulates the circadian clock by inhibiting the basal and circadian expression of the core circadian component PER1. Inhibits PER1 by repressing the CLOCK-BMAL1 heterodimer mediated transcriptional activation of PER1. The heterodimer ARNT:AHR binds to the dioxin response element (DRE) of target gene promoters and activates their transcription (By similarity).

**Subcellular Localization:** Cytoplasm . Nucleus . Note=Initially cytoplasmic; upon binding with ligand and interaction with a HSP90, it translocates to the nucleus.

## 6. Notes

- Avoid repeated freeze-thaw cycles to maintain protein stability and biological activity.
- Please specify special buffer-composition requirements at the time of order placement.
- For research use only. Not intended for clinical diagnosis, therapeutic use or commercial manufacturing.