

Recombinant Human NR1H4 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP50736

Size: 10ug, 100ug

Protein Name: Bile acid receptor (Farnesoid X-activated receptor) (Farnesol receptor HRR-1) (Nuclear receptor subfamily 1 group H member 4) (Retinoid X receptor-interacting protein 14) (RXR-interacting protein 14)

Synonym: NR1H4, BAR, FXR, HRR1, RIP14

UniProt ID: Q96RI1

UniProt Link: www.uniprot.org/uniprotkb/Q96RI1/entry

Species Source: Human

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 486 AA

Molecular Weight: 56 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MVMQFQGLENPIQISPHCSCTPSGFFMEMMSMKPAKGVLTEQVAGPLGQNLEVEPYSQYSNVQFP
QVQPQISSSSYYSNLGFYPQQPEEWYSPGIYELRRMPAETLYQGETEVAEMPVTKKPRMGASAGRI
KGDELVCVCGDRASGYHYNALTCEGCKGFFRRSITKNAVYKCKNGGNCVMDMYMRRKCQECRLR
KCKEMGMLAECMYTGLLTEIQCKSKRLRKNVKQHADQTVNEDSEGRDLRQVTSTTKSCREKTELTP
DQQTLLHFIMDSYNKQRMPEITNKILKEEFSAEENFLITEMATNHVQVLVEFTKKLPGFQTLDHED
QIALLKGSAMEFLRSAEIFNKKLPSGHSDDLLEERIRNSGISDEYITPMFSFYKSIGELKMTQEEYALL
TAIVILSPDRQYIKDREAVEKLQEPLLDVLQKLCKIHQPENPQHFAELLGRLTELRTFNHHHAEMLM
SRVNDHKFTPLLCEIWDVQ

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 Bile acid receptor (Farnesoid X-activated receptor) (Farnesol receptor HRR-1) (Nuclear receptor subfamily 1 group H member 4) (Retinoid X receptor-interacting protein 14) (RXR-interacting protein 14) 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. Receptor for bile acids (BAs) such as chenodeoxycholic acid (CDCA), lithocholic acid, deoxycholic acid (DCA) and allocholic acid (ACA). Plays an essential role in BA homeostasis through the regulation of genes involved in BA synthesis, conjugation and enterohepatic circulation. Also regulates lipid and glucose homeostasis and is involved in innate immune response (PubMed:10334992, PubMed:10334993, PubMed:21383957, PubMed:22820415). The FXR-RXR heterodimer binds predominantly to farnesoid X receptor response elements (FXREs) containing two inverted repeats of the consensus sequence 5'-AGGTCA-3' in which the monomers are spaced by 1 nucleotide (IR-1) but also to tandem repeat DR1 sites with lower affinity, and can be activated by either FXR or RXR-specific ligands. It is proposed that monomeric nuclear receptors such as NR5A2/LRH-1 bound to coregulatory nuclear responsive element (NRE) half-sites located in close proximity to FXREs modulate transcriptional activity (By similarity). In the liver activates transcription of the corepressor NR0B2 thereby indirectly inhibiting CYP7A1 and CYP8B1 (involved in BA synthesis) implicating at least in part histone demethylase KDM1A resulting in epigenomic repression, and SLC10A1/NTCP (involved in hepatic uptake of conjugated BAs). Activates transcription of the repressor MAFK (involved in regulation of BA synthesis) (By similarity). Activates transcription of SLC27A5/BACS and BAAT (involved in BA conjugation), ABCB11/BSEP (involved in bile salt export) by directly recruiting histone methyltransferase CARM1, and ABCC2/MRP2 (involved in secretion of conjugated BAs) and ABCB4 (involved in secretion of phosphatidylcholine in the small intestine) (PubMed:12754200, PubMed:15471871, PubMed:17895379). Activates transcription of SLC27A5/BACS and BAAT (involved in BA conjugation), ABCB11/BSEP (involved in bile salt export) by directly recruiting histone methyltransferase CARM1, and ABCC2/MRP2 (involved in secretion of conjugated BAs) and ABCB4 (involved in secretion of phosphatidylcholine in the small intestine) (PubMed:10514450, PubMed:15239098, PubMed:16269519). In the intestine activates FGF19 expression and secretion leading to hepatic CYP7A1 repression (PubMed:12815072, PubMed:19085950). The function also involves the coordinated induction of hepatic KLB/beta-klotho expression (By similarity). Regulates transcription of liver UGT2B4 and SULT2A1 involved in BA detoxification; binding to the UGT2B4 promoter seems to imply a monomeric transactivation independent of RXRA (PubMed:12806625, PubMed:16946559). Modulates lipid homeostasis by activating liver NR0B2/SHP-mediated repression of SREBF1 (involved in de novo lipogenesis), expression of PLTP (involved in HDL formation), SCARB1 (involved in HDL hepatic uptake), APOE, APOC1, APOC4, PPARA (involved in beta-oxidation of fatty acids), VLDLR and SDC1 (involved in the hepatic uptake of LDL and IDL remnants), and inhibiting expression of MTTP (involved in VLDL assembly) (PubMed:12554753, PubMed:12660231, PubMed:15337761). Increases expression of APOC2 (promoting lipoprotein lipase activity implicated in triglyceride clearance) (PubMed:11579204). Transrepresses APOA1 involving a monomeric competition with NR2A1 for binding to a DR1 element (PubMed:11927623, PubMed:21804189). Also reduces triglyceride clearance by inhibiting expression of ANGPTL3 and APOC3 (both involved in inhibition of lipoprotein lipase) (PubMed:12891557). Involved in glucose homeostasis by modulating hepatic gluconeogenesis through activation of NR0B2/SHP-mediated repression of respective genes. Modulates glycogen synthesis (inducing phosphorylation of glycogen synthase kinase-3) (By similarity). Modulates glucose-stimulated insulin secretion and is involved in insulin resistance (PubMed:20447400). Involved in intestinal innate immunity. Plays a role in



protecting the distal small intestine against bacterial overgrowth and preservation of the epithelial barrier (By similarity). Down-regulates inflammatory cytokine expression in several types of immune cells including macrophages and mononuclear cells (PubMed:21242261). Mediates trans-repression of TLR4-induced cytokine expression; the function seems to require its sumoylation and prevents N-CoR nuclear receptor corepressor clearance from target genes such as IL1B and NOS2 (PubMed:19864602). Involved in the TLR9-mediated protective mechanism in intestinal inflammation. Plays an anti-inflammatory role in liver inflammation; proposed to inhibit pro-inflammatory (but not antiapoptotic) NF-kappa-B signaling) (By similarity).; [Isoform 1]: Promotes transcriptional activation of target genes NR0B2/SHP (inducible by unconjugated CDCA), SLC51B/OSTB (inducible by unconjugated CDCA and DCA) and FABP6/IBAP; low activity for ABCB11/BSEP (inducible by unconjugated CDCA, DCA and ACA); not inducible by taurine- and glycine-amidated CDCA.; [Isoform 2]: Promotes transcriptional activation of target genes ABCB11/BSEP (inducible by unconjugated CDCA, DCA and ACA), NR0B2/SHP (inducible by unconjugated CDCA DCA and ACA), SLC51B/OSTB (inducible by unconjugated CDCA and DCA) and FABP6/IBAP; not inducible by taurine- and glycine-amidated CDCA.; [Isoform 3]: Promotes transcriptional activation of target genes NR0B2/SHP (inducible by unconjugated CDCA), SLC51B/OSTB (inducible by unconjugated CDCA and DCA) and IBAP; low activity for ABCB11/BSEP (inducible by unconjugated CDCA, DCA and ACA); not inducible by taurine- and glycine-amidated CDCA.; [Isoform 4]: Promotes transcriptional activation of target genes ABCB11/BSEP (inducible by unconjugated CDCA, ACA and DCA), NR0B2/SHP (inducible by unconjugated CDCA, ACA and DCA), SLC51B/OSTB (inducible by unconjugated CDCA and DCA) and FABP6/IBAP; most efficient isoform compared to isoforms 1 to 3; not inducible by taurine- and glycine-amidated CDCA.

Subcellular Localization: Nucleus .; [Isoform 1]: Nucleus .; [Isoform 2]: Nucleus .; [Isoform 3]: Nucleus .; [Isoform 4]: 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.