

FXR-LBD^{GST} (residues 222-472)

Farnesoid-X-activated Receptor, Ligand Binding Domain

human, recombinant, *E. coli*

Cat. No.	Amount
PR-834	10 µg

For *in vitro* use only
Quality guaranteed for 12 months
Store at -80°C

Avoid freeze / thaw cycles

Form

Liquid. Supplied in 20 mM Tris-HCl pH 8.0, 20% glycerol, 100 mM KCl, 1 mM DTT and 0.2 mM EDTA.

Activity

20 ng are sufficient for a gel-mobility shift assay and 100 ng are sufficient for a protein-protein interaction assay.

Application

GST-FXR has been applied in DNA and protein-protein interaction assays.

Purity

> 95% by SDS-PAGE

Description

Recombinant GST-FXR-LBD is isolated from an *E. coli* strain that carries the coding sequence of the human FXR-LBD under the control of a T7 promoter.

Farnesoid-X-activated receptor (FXR) was originally identified and cloned in rat as an orphan nuclear hormone receptor based on hybridization with a degenerate oligonucleotide designed from the highly conserved nuclear hormone receptor DNA binding domain. FXR functions as a heterodimer with RXR and binds to sequence elements in the promoters of target genes. The FXR/RXR heterodimer binds with highest affinity to inverted repeats separated by 1 bp (IR-1) and with low affinity to direct repeats separated by 4 and 5 bp (DR-4 and DR-5). As is the case for other nuclear hormone receptors, FXR regulates target gene activity in response to ligand. While initial studies suggested that farnesol and retinoid metabolites were likely ligands for FXR, current data support the notion that FXR is a bile acid sensor that plays an integral role in bile acid synthesis and transport. In the small intestine, FXR regulates bile acid uptake through the upregulation of the ileal bile acid binding protein gene via binding to an upstream response element. The FXR/RXR heterodimer can be activated by the bile salt chenodeoxycholic acid (CDCA) and FXR is required for the bile salt-dependent transcriptional control of the human ABCB11 gene (the bile salt export pump). In addition, FXR has been shown to inhibit the cholesterol 7-hydroxylase gene (CYP7A1) transcription.

Selected References:

- Plass *et al.* (2002) Farnesoid X receptor and bile salts are involved in transcriptional regulation of the gene encoding the human bile salt export pump. *Hepatology* **35**:589.
Chiang *et al.* (2001) Regulation of cholesterol 7 α -hydroxylase gene (CYP7A1) transcription by the liver orphan receptor (LXR α). *Gene* **262**:257.
Makishima *et al.* (1999) Identification of a nuclear receptor for bile acids. *Science* **284**:1362.
Parks *et al.* (1999) Bile acids: natural ligands for an orphan nuclear receptor. *Science* **284**:1365.
Wang *et al.* (1999) Endogenous bile acids are ligands for the nuclear receptor FXR/BAR. *Mol. Cell* **3**:543.

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Grober *et al.* (1999) Identification of a bile acid-responsive element in the human ileal bile acid-binding protein gene. Involvement of the farnesoid X receptor/*9*-cis-retinoic acid receptor heterodimer. *J. Biol. Chem.* **274**:29749.

Zavacki *et al.* (1997) Activation of the orphan receptor RIP14 by retinoids. *Proc. Natl. Acad. Sci.* **94**:7909.

Forman *et al.* (1995) Identification of a nuclear receptor that is activated by farnesol metabolites. *Cell* **81**:687.

Seol *et al.* (1995) Isolation of proteins that interact specifically with the retinoid X receptor: two novel orphan receptors. *Mol. Endocrinol.* **9**:72.