

## Esrrb Estrogen related receptor beta mouse, recombinant, *E.coli*

Cat. No.	Amount
PR-961	10 µg

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

### Form

Liquid. Supplied in 10 mM Tris-HCl pH 8.0, 100 mM NaCl, 2 mM TCEP

### Application

- Mobility shift assays or DNase footprinting
- Protein-protein and small molecules-protein interaction assays.
- *in-vitro* drug screening

### Molecular Weight

11.4 kDa

### Sequence

GNAIPKRLCL VCGDIASGYH YGVASCEACK  
AFFKRTIQGN IEYNCPATNE CEITKRRRKS  
CQACRFMKCL KVGMLKEGVR LDRVRRGGRQK  
YKRRLDSENS

### Purity

95% by SDS-PAGE

### Description

Estrogen related receptor beta (Esrrb) belongs to the NR3B2 subfamily of nuclear receptors which are classified based on the sequence conservation of their DNA binding domain and Ligand binding domain (1). This orphan nuclear receptor is known to be critical for mammalian development, physiology and homeostasis, in which Estrogen related receptor null mice could not survive through gestation due to placental abnormalities (2), and is also implicated in hearing impairment (3).

Recent evidence has shown that instead for the need of the four Yamanaka factors (4) to generate induced pluripotent stem (iPS) cells, Esrrb could undergo conjunction with Oct4 and Sox2 to mediate reprogramming of mouse embryonic fibroblasts (MEFs) to iPS cells (5). Esrrb is known to bind to the half site, AGGTCA, and could also homodimerize on the inverted repeats motif AGGTCANNNTGACCT.

This protein construct contains the core DNA binding domain and the C-terminal extension which corresponds to the 11o1 protein structure of the human Err2; residues 96-194 (6).

### Selected References

- Mangelsdorf *et al.* (1995) The RXR Heterodimers and Orphan Receptors *Cell*. *Cell* 83:841-850.
- Luo *et al.* (1997) Placental abnormalities in mouse embryos lacking the orphan nuclear receptor ERR-b. *Nature* **388**: 778-782.
- Collin *et al.* (2008) Mutations of ESRRB Encoding Estrogen-Related Receptor Beta cause Autosomal-Recessive Nonsyndromic Hearing Impairment DFNB35. *Am. J. Hum. Genet.* **82**:125-138.
- Takahashi *et al.* (2007) Induction of pluripotent stem cells from adult human fibroblasts by defined factors. *Cell* 131:861-72.
- Feng *et al.* (2009) Reprogramming of fibroblasts into induced pluripotent stem cells with orphan nuclear receptor Esrrb. *Nature Cell Biology* **11**:197 - 203.
- Gearhart *et al.* (2003) Monomeric Complex of Human Orphan Estrogen Related Receptor-2 with DNA: A Pseudo-dimer Interface Mediates Extended Half-site Recognition. *J. Mol. Biol.* **327**: 819-832.