

PBR (3D8-B2): sc-293216

BACKGROUND

Mitochondrial peripheral-type benzodiazepine receptor (PBR) is an indispensable element of the steroidogenic machinery, where it mediates the delivery of cholesterol to the inner mitochondrial side chain cleavage cytochrome P-450 upon ligand activation. PBR is composed of three subunits, an isoquinoline binding site, a voltage-dependent anion channel and an adenine nucleotide carrier. PBR is genetically conserved from bacteria to humans and in humans is widely expressed in peripheral organs, whereas in the brain, it is sparse and located mainly in glial cells. Peroxisome proliferator perfluorodecanoic acid (PFDA) inhibits the Leydig cell steroidogenesis by affecting PBR mRNA stability, thus inhibiting PBR expression, cholesterol transport into the mitochondria and subsequent steroid formation. A cytoplasmic protein, PRAX-1 (peripheral benzodiazepine receptor-associated protein 1), is found to specifically interact with PBR. The polypeptide diazepam binding inhibitor is an endogenous PBR ligand. PBR also binds Ro 5-4864 (4'-chlorodiazepam) and PK 11185 (an isoquinoline carboxamide derivative), but not clonazepam, and PBR regulates the cholesterol transport that results in decreased circulating corticosterone levels.

REFERENCES

- Weizman, R. and Gavish, M. 1993. Molecular cellular and behavioral aspects of peripheral-type benzodiazepine receptors. *Clin. Neuropharmacol.* 16: 401-417.
- Gavish, M. 1995. Hormonal regulation of peripheral-type benzodiazepine receptors. *J. Steroid Biochem. Mol. Biol.* 53: 57-59.
- Amri, H., Drieu, K. and Papakopoulos, V. 1997. *Ex vivo* regulation of adrenal cortical cell steroid and protein synthesis, in response to adrenocorticotropic hormone stimulation, by the *Ginkgo biloba* extract EGb 761 and isolated ginkgolide B. *Endocrinology* 138: 5415-5426.
- Papadopoulos, V., Amri, H., Li, H., Boujrad, N., Vidic, B. and Garnier, M. 1997. Targeted disruption of the peripheral-type benzodiazepine receptor gene inhibits steroidogenesis in the R2C Leydig tumor cell line. *J. Biol. Chem.* 272: 32129-32135.
- Papadopoulos, V., Widmaier, E.P., Amri, H., Zilz, A., Li, H., Culty, M., Castello, R., Philip, G.H., Sridaran, R. and Drieu, K. 1998. *In vivo* studies on the role of the peripheral benzodiazepine receptor (PBR) in steroidogenesis. *Endocr. Res.* 24: 479-487.
- Kelly-Hershkovitz, E., Weizman, R., Spanier, I., Leschiner, S., Lahav, M., Weisinger, G. and Gavish, M. 1998. Effects of peripheral-type benzodiazepine receptor antisense knockout on MA-10 Leydig cell proliferation and steroidogenesis. *J. Biol. Chem.* 273: 5478-5483.
- Galiegue, S., Jbilo, O., Combes, T., Bribes, E., Carayon, P., Le Fur, G. and Casellas, P. 1999. Cloning and characterization of PRAX-1. A new protein that specifically interacts with the peripheral benzodiazepine receptor. *J. Biol. Chem.* 274: 2938-2952.
- Boujrad, N., Vidic, B., Gazouli, M., Culty, M. and Papadopoulos, V. 2000. The peroxisome proliferator perfluorodecanoic acid inhibits the peripheral-type benzodiazepine receptor (PBR) expression and hormone-stimulated mitochondrial cholesterol transport and steroid formation in Leydig cells. *Endocrinology* 141: 3137-3148.

CHROMOSOMAL LOCATION

Genetic locus: TSPO (human) mapping to 22q13.2.

SOURCE

PBR (3D8-B2) is a mouse monoclonal antibody raised against amino acids 1-169 of PBR of human origin.

PRODUCT

Each vial contains 100 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

PBR (3D8-B2) is recommended for detection of PBR of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

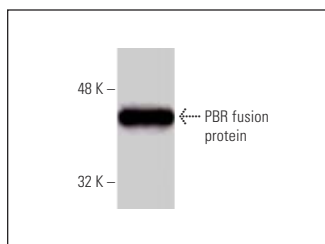
Suitable for use as control antibody for PBR siRNA (h): sc-40821, PBR shRNA Plasmid (h): sc-40821-SH and PBR shRNA (h) Lentiviral Particles: sc-40821-V.

Molecular Weight of PBR: 18/32/30 kDa.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



PBR (3D8-B2): sc-293216. Western blot analysis of human recombinant PBR fusion protein.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.