

RAR β (336): sc-56864

BACKGROUND

Retinoids (RA) are metabolites of vitamin A (retinol) that are important signaling molecules during vertebrate development and tissue differentiation. RAs activate the retinoic acid receptor (RAR) and retinoid X receptor (RXR) nuclear transcription factor families and thus modulate the effects of RA on gene expression. Most retinoid forms (including all *trans* RA, 9-*cis* RA, 4-oxo RA and 3,4 dihydro RA) activate RAR family members, whereas RXR family members are activated by 9-*cis*-RA only. RAR family members, which include RAR α , RAR β and RAR γ , belong to the same class of nuclear transcription factors as thyroid hormone receptors, vitamin D₃ receptor and ecdysone receptor. The human RAR β gene maps to chromosome 3p24.2 and encodes two isoforms, RAR β 1 and RAR β 2. The RAR β 2 isoform may act as a tumor suppressor gene by inducing apoptosis. This role for RAR β 2 may explain the chemopreventive and therapeutic effects of retinoids. RAR β 2 expression is diminished or lost completely during breast cancer progression. RAR β expression also decreases in over 50 percent of oral and lung premalignant lesions; loss of RAR β expression may contribute to carcinogenesis.

REFERENCES

1. Krust, A., et al. 1989. A third human retinoic acid receptor, hRAR γ . Proc. Natl. Acad. Sci. USA 86: 5310-5314.
2. Mangelsdorf, D.J., et al. 1994. The retinoid receptors. In Sporn, M.B., et al, eds. The Retinoids: Biology, Chemistry, and Medicine, 2nd Edition. New York: Raven Press, Ltd., 314-349.
3. Bhat, M.K., et al. 1994. Phosphorylation enhances the target gene sequence-dependent dimerization of thyroid hormone receptor with retinoid X receptor. Proc. Natl. Acad. Sci. USA 91: 7927-7931.
4. Lotan, R. 1997. Roles of retinoids and their nuclear receptors in the development and prevention of upper aerodigestive tract cancers. Environ. Health Perspect. 4: 985-988.
5. Mark, M., et al. 1997. Genetic control of the development by retinoic acid. C. R. Seances Soc. Biol. Fil. 191: 77-90.
6. Brand, N., et al. 1998. Identification of a second human retinoic acid receptor. Nature 332: 850-853.
7. Randolph, T.R. 2000. Acute promyelocytic leukemia (AML-M3)—Part 2: Molecular defect, DNA diagnosis, and proposed models of leukemogenesis and differentiation therapy. Clin. Lab. Sci. 13: 106-116.
8. Staels, B. 2001. Regulation of lipid and lipoprotein metabolism by retinoids. J. Am. Acad. Dermatol. 45: 158-167.
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CHROMOSOMAL LOCATION

Genetic locus: RARB (human) mapping to 3p24.2; Rarb (mouse) mapping to 14 A2.

SOURCE

RAR β (336) is a mouse monoclonal antibody raised against a RAR β peptide of human origin.

PRODUCT

Each vial contains IgG₁ in 100 μ l of 10 mM HEPES and 150 mM NaCl with < 0.1% sodium azide, 1% stabilizer protein and 25% glycerol.

APPLICATIONS

RAR β (336) is recommended for detection of RAR β of mouse, rat and human origin by Western Blotting (starting dilution to be determined by researcher, dilution range 1:100-1:1000).

Suitable for use as control antibody for RAR β siRNA (h): sc-29466, RAR β siRNA (m): sc-36391, RAR β shRNA Plasmid (h): sc-29466-SH, RAR β shRNA Plasmid (m): sc-36391-SH, RAR β shRNA (h) Lentiviral Particles: sc-29466-V and RAR β shRNA (m) Lentiviral Particles: sc-36391-V.

Molecular Weight of RAR β : 51 kDa.

Positive Controls: U-87 MG cell lysate: sc-2411, HL-60 whole cell lysate: sc-2209 or K-562 nuclear extract: sc-2130.

SELECT PRODUCT CITATIONS

1. Brossaud, J., et al. 2013. Retinoids and glucocorticoids target common genes in hippocampal HT22 cells. J. Neurochem. 125: 518-531.
2. Tamaki, M., et al. 2019. All-*trans* retinoic acid suppresses bone morphogenetic protein 4 in mouse diabetic nephropathy through a unique retinoic acid response element. Am. J. Physiol. Endocrinol. Metab. 316: E418-E431.
3. Dahiya, N.R., et al. 2022. The Sin3A/MAD1 complex, through its PAH2 domain, acts as a second repressor of retinoic acid receptor β expression in breast cancer cells. Cells 11: 1179.

STORAGE

For immediate and continuous use, store at 4° C for up to one month. For sporadic use, freeze in working aliquots in order to avoid repeated freeze/thaw cycles. If turbidity is evident upon prolonged storage, clarify solution by centrifugation.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.



See **RAR β 2 (B-12): sc-514585** for RAR β 2 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor[®] 488, 546, 594, 647, 680 and 790.