MONOCLONAL ANTI-RETINOIC ACID RECEPTOR α
CLONE 763
Purified Mouse Immunoglobulin

Product Number R 2527

Product Description
Monoclonal Anti-Retinoic Acid Receptor α (RARα) (mouse IgG1 isotype) is derived from the hybridoma produced by the fusion of mouse myeloma p3-NS-1/Ag4.1 cells with splenocytes from BALB/c mice immunized with a synthetic peptide derived from the N-terminus of human RARα. The antibody is purified by protein G chromatography.

Monoclonal Anti-Retinoic Acid Receptor specifically recognizes human RARα (60 kDa). It does not react with human RARβ and RARγ isotypes or with the human retinoid X receptor (hRXR). It has been used in immunohistochemistry with frozen or formalin-fixed paraffin-embedded tissue sections, and in immunoblotting.

Retinoids are metabolites of vitamin A and play important roles as signaling molecules in vertebrate development and differentiation. Two nuclear receptor families are involved in retinoid signaling: the retinoic acid receptor family (RARs), which includes RARα, RARβ, and RARγ and the retinoid X receptors (RXRs), which includes RXRα, RXRβ, and RXRγ. Members of the RAR family are retinoic acid-inducible enhancer factors that have high affinity for all-trans retinoic acids. They belong to the superfamily of steroid/thyroid nuclear receptors. The RARα and RARβ genes are more homologous to the two related thyroid hormone receptors THRA and THRβ, than to any other member of the nuclear receptor family, indicating that the thyroid hormone and retinoid acid receptors evolved from a common ancestor. The ligand binding domains of the RARs are highly conserved and RAR isoforms are expressed in distinct patterns throughout developing and mature organisms. The RXR family members are closely related to each other in their DNA- and ligand-binding domains but are very divergent from the retinoic acid receptor (RAR) subfamily in both structure and ligand specificity. RXRs are activated by 9-cis retinoic acid, a stereo and photoisomer of all-trans-RA.1-3

Retinoid X receptors act as cellular coregulators that form heterodimers by binding to the receptors for retinoic acid (RAR), thyroid hormone (TR), vitamin D3 (VDR), or peroxisome proliferators (PPAR). These heterodimers then bind to their cognate DNA response elements and regulate gene expression.4-6

The RARα gene is involved in Acute Promyelocytic Leukemia (APL) and associated with chromosomal translocations of the RARα gene, which variably fuses with either the PML (promyelocytic leukemia) or the PLZF (promyelocytic leukaemia zinc finger) locus, leading to the generation of RARα-X and X-RARα fusion proteins. Both fusion proteins can exert oncogenic functions through their ability to interfere with the activities of X and RARα proteins. RARα and RXRα also appear to interact in a hormone-dependent manner with the circadian clock genes CLOCK and MOP4 expressed in the suprachiasmatic nucleus and in peripheral tissues and regulate cyclically physiological processes. These interactions negatively regulate CLOCK-BMAL1 and MOP4-BMAL1 heterodimer-mediated transcriptional activation of clock gene expression in vascular cells. Nuclear hormones may play a critical role in resetting a peripheral vascular clock.7-9

Reagent
Monoclonal Anti-Retinoic Acid Receptor α is supplied as a solution in phosphate buffered saline, pH 7.4, with 0.08% sodium azide.

Precautions and Disclaimer
Due to the sodium azide content, a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazards and safe handling practices.

Storage/Stability
Store at –20 °C. Upon initial thawing freeze the solution in working aliquots for extended storage. Avoid repeated freezing and thawing to prevent denaturing the antibody. Do not store in a frost-free freezer. The antibody is stable for at least 12 months when stored appropriately. Working dilutions should be discarded if not used within 12 hours.

Product Profile
A working concentration of 1 µg/ml is recommended for immunoblotting or immunohistochemistry on frozen or formalin-fixed, paraffin-
embedded sections. Immunocytochemistry was performed with HeLa or NIH/3T3 cell preparations. Note: In order to obtain best results using different techniques and preparations we recommend determining optimal working concentration by titration.

References