Revision 3

Store at -20C

#8589

# Retinoic Acid and Retinoid X Receptors Antibody Sampler Kit

Cell Signaling TECHNOLOGY®

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**For Research Use Only. Not for Use in Diagnostic Procedures.**

| Product Includes | Product # | Quantity | Mol. Wt | Isotype/Source |
|---|---|---|---|---|
| RARα (E6Z6K) Rabbit mAb | 62294 | 20 µl | 60 kDa | Rabbit IgG |
| RXRα (D6H10) Rabbit mAb | 3085 | 20 µl | 53 kDa | Rabbit IgG |
| RXRβ Antibody | 8715 | 20 µl | 70-72 kDa | Rabbit |
| RARγ1 (D3A4) XP® Rabbit mAb | 8965 | 20 µl | 58 kDa | Rabbit IgG |
| RXRγ Antibody | 5629 | 20 µl | 55 kDa | Rabbit |
| Anti-rabbit IgG, HRP-linked Antibody | 7074 | 100 µl | | Goat |

Please visit cellsignal.com for individual component applications, species cross-reactivity, dilutions, protocols, and additional product information.

## Description

The Retinoic Acid and Retinoid X Receptors Antibody Sampler Kit provides an economical means to investigate the expression of various subtypes of retinoic acid and retinoid X receptors. The kit contains enough primary antibody to perform two western blot experiments per primary.

## Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. Do not aliquot the antibody.

## Background

Nuclear retinoic acid (RA) receptors (RARs) consist of three subtypes encoded by separate genes: α (NR1B1), β (NR1B2), and γ (NR1B3). For each subtype, there are at least two isoforms, which are generated by differential promoter usage and alternative splicing and differ only in their N-terminal regions. Retinoids, which are metabolites of vitamin A, serve as ligands for RARs (1). RARs function as ligand-dependent transcriptional regulators and are found to be heterodimerized with retinoid X receptors (RXRs). These transcriptionally active dimers regulate the expression of genes involved in cellular differentiation, proliferation, and apoptosis (2,3). Consequently, RARs play critical roles in a variety of biological processes, including development, reproduction, immunity, and organogenesis (4-6). RAR mutations, fusion proteins, altered expression levels, or aberrant post-translational modifications result in multiple diseases due to altered RAR function and disruption of homeostasis.

In contrast to the ubiquitously expressed RARα subtype, RARγ displays a complex tissue-specific expression pattern (7). The hematopoietic system expresses significant levels of RARγ, and a recent study identified a role for RARγ in hematopoietic stem cell maintenance (8). RARγ is the predominant subtype in human and mouse epidermis, representing 90% of the RARs in this tissue (9-11). Given the high level of RARγ expression in the skin, it has been suggested that this nuclear receptor participates in a transcriptional program that governs maintenance and differentiation of normal epidermis and skin appendages. The transcriptional activity of RARγ is under stringent control, in part, through retinoic acid-induced phosphorylation and proteasomal degradation (12).

The human retinoid X receptors (RXRs) are encoded by three distinct genes (*RXR*α, *RXR*β, and *RXR*γ) and bind selectively and with high affinity to the vitamin A derivative, 9-*cis*-retinoic acid. RXRs are type-II nuclear hormone receptors that are largely localized to the nuclear compartment independent of ligand binding. Nuclear RXRs form heterodimers with nuclear hormone receptor subfamily 1 proteins, including thyroid hormone receptor, retinoic acid receptors, vitamin D receptor, peroxisome proliferator-activated receptors, liver X receptors, and farnesoid X receptor (13). Since RXRs heterodimerize with multiple nuclear hormone receptors, they play a central role in transcriptional control of numerous hormonal signaling pathways by binding to *cis*-acting response elements in the promoter/enhancer region of target genes (14).

## Background References

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## Limited Uses