

# Retinoic Acid and Retinoid X Receptors Antibody Sampler Kit



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| Product Includes                                 | Product # | Quantity    | Mol. Wt   | Isotype/Source |
|--|-----------|-------------|-----------|----------------|
| RAR $\alpha$ (E6Z6K) Rabbit mAb                  | 62294     | 20 $\mu$ l  | 60 kDa    | Rabbit IgG     |
| RXR $\alpha$ (D6H10) Rabbit mAb                  | 3085      | 20 $\mu$ l  | 53 kDa    | Rabbit IgG     |
| RXR $\beta$ Antibody                             | 8715      | 20 $\mu$ l  | 70-72 kDa | Rabbit         |
| RAR $\gamma$ 1 (D3A4) XP <sup>®</sup> Rabbit mAb | 8965      | 20 $\mu$ l  | 58 kDa    | Rabbit IgG     |
| RXR $\gamma$ Antibody                            | 5629      | 20 $\mu$ l  | 55 kDa    | Rabbit         |
| Anti-rabbit IgG, HRP-linked Antibody             | 7074      | 100 $\mu$ l |           | Goat           |

Please visit [cellsignal.com](http://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  $\mu$ g/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at  $-20^{\circ}\text{C}$ . Do not aliquot the antibody.

## Background

Nuclear retinoic acid (RA) receptors (RARs) consist of three subtypes encoded by separate genes:  $\alpha$  (NR1B1),  $\beta$  (NR1B2), and  $\gamma$  (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 RAR $\alpha$  subtype, RAR $\gamma$  displays a complex tissue-specific expression pattern (7). The hematopoietic system expresses significant levels of RAR $\gamma$ , and a recent study identified a role for RAR $\gamma$  in hematopoietic stem cell maintenance (8). RAR $\gamma$  is the predominant subtype in human and mouse epidermis, representing 90% of the RARs in this tissue (9-11). Given the high level of RAR $\gamma$  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 RAR $\gamma$  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 $\alpha$* , *RXR $\beta$* , and *RXR $\gamma$* ) 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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