

## PPAR $\gamma$ Regulated Fatty Acid Metabolism Antibody Sampler Kit



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1 Kit (7 x 20 microliters)

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

Product Includes	Product #	Quantity	Mol. Wt	Isotype/Source
Phospho-AMPK $\alpha$ (Thr172) (40H9) Rabbit mAb	2535	20 $\mu$ l	62 kDa	Rabbit IgG
AMPK $\alpha$ (D5A2) Rabbit mAb	5831	20 $\mu$ l	62 kDa	Rabbit IgG
CBP (D6C5) Rabbit mAb	7389	20 $\mu$ l	300 kDa	Rabbit IgG
GCN5L2 (C26A10) Rabbit mAb	3305	20 $\mu$ l	94 kDa	Rabbit IgG
PPAR $\gamma$ (C26H12) Rabbit mAb	2435	20 $\mu$ l	53, 57 kDa	Rabbit IgG
SirT1 (C14H4) Rabbit mAb	2496	20 $\mu$ l	120 kDa	Rabbit
RXR $\alpha$ (D6H10) Rabbit mAb	3085	20 $\mu$ l	53 kDa	Rabbit IgG
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

PPAR $\gamma$  Regulated Fatty Acid Metabolism Antibody Sampler Kit provides an economical means to evaluate PPAR $\gamma$  and related proteins involved in lipid metabolism. This kit contains enough primary antibody to perform two western blots 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°C. Do not aliquot the antibody.

### Background

AMPK is a heterotrimeric complex composed of a catalytic  $\alpha$  subunit and regulatory  $\beta$  and  $\gamma$  subunits, each of which is encoded by two or three distinct genes ( $\alpha$ 1, 2;  $\beta$ 1, 2;  $\gamma$ 1, 2, 3) (1). The kinase is activated by an elevated AMP/ATP ratio due to cellular and environmental stress, such as heat shock, hypoxia, and ischemia (1). The tumor suppressor LKB1 phosphorylates AMPK $\alpha$  at Thr172 in the activation loop, and this phosphorylation is required for AMPK activation (2-4). Accumulating evidence indicates that AMPK not only regulates the metabolism of fatty acids and glycogen, but also modulates protein synthesis and cell growth through EF2 and TSC2/mTOR pathways, as well as blood flow via eNOS/nNOS (5).

CBP (CREB-binding protein) is a transcriptional co-activator that associates with PPAR $\gamma$  (6,7). CBP also contains histone acetyltransferase (HAT) activity, allowing it to acetylate histones and other proteins (7). General Control of Amino Acid Synthesis Yeast Homolog Like 2 (GCN5L2) is a transcription adaptor protein and a histone acetyltransferase (HAT) that functions as the catalytic subunit of the STAGA and TFTC transcription coactivator complexes (8). GCN5L2 is 73% homologous to the p300/CBP-associated factor PCAF, another HAT protein found in similar complexes (9). GCN5L2 acetylates non-histone proteins such as the transcription co-activator PGC1- $\alpha$  (10).

Peroxisome proliferator-activated receptor  $\gamma$  (PPAR $\gamma$ ) is a member of the ligand-activated nuclear receptor superfamily and functions as a transcriptional activator (11). PPAR $\gamma$  is preferentially expressed in adipocytes as well as in vascular smooth muscle cells and macrophage (12).

The Silent Information Regulator (SIR2) family of genes is a highly conserved group of genes that encode nicotinamide adenine dinucleotide (NAD)-dependent protein deacetylases, also known as class III histone deacetylases (13). SirT1, the mammalian ortholog of Sir2, is a nuclear protein implicated in the regulation of many cellular processes, including apoptosis, cellular senescence, endocrine signaling, glucose homeostasis, aging, and longevity. Targets of SirT1 include PPAR $\gamma$  (14), and the PPAR $\gamma$  coactivator-1 $\alpha$  (PGC-1 $\alpha$ ) protein (15). Deacetylation of PPAR $\gamma$  and PGC-1 $\alpha$  regulates the gluconeogenic/glycolytic pathways in the liver and fat mobilization in white adipocytes in response to fasting (14,15).

The human retinoid X receptors (RXRs) are type-II nuclear hormone receptors 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. Nuclear RXRs form heterodimers with PPAR to help regulate transcription during lipid metabolism (16).

### Background References

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