

# Phospho-CREB (Ser133) (4D11) rabbit mAb

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**Catalog:** #2126

**Store at:** -20°C

*For Research Use Only. Not For Use In Diagnostic Procedures.*

Applications	Detection	Clonality	Isotype
Flow Cytometry, WB	Anti-Rabbit IgG	Monoclonal	Rabbit IgGk

**Format:** Unconjugated

**Cross Reactivity:** Predicted to work with mouse, rat and other homologues.

**Formulation:** 1X PBS, 0.02% NaN<sub>3</sub>, 50% Glycerol, 0.1% BSA

**Preparation:** Protein A+G

**Reactivity:** Human, Mouse

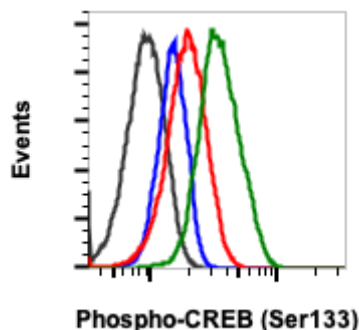
**Recommended Usage:** 1µg/mL – 0.001µg/mL. It is recommended that the reagent be titrated for optimal performance for each application. See product image legends for additional information.

**Immunogen:** A synthetic phospho-peptide corresponding to residues surrounding Ser133 of human phospho CREB

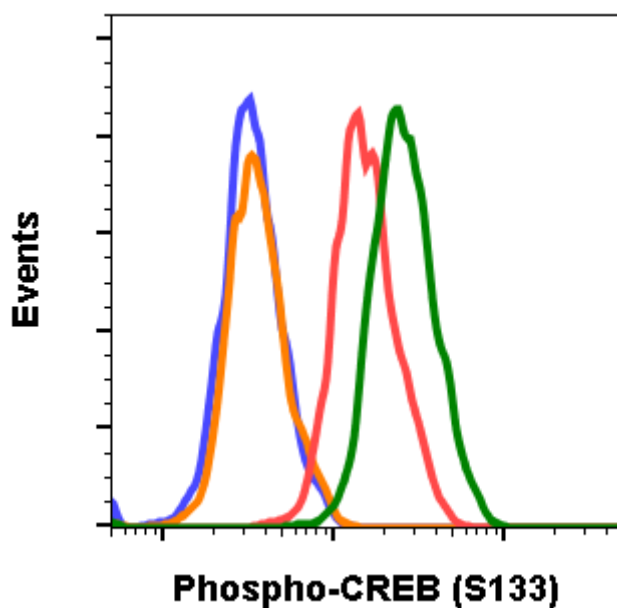
**Description:** The cyclic AMP-responsive element (CRE)-binding protein (CREB) is a 43-kDa leucine zipper transcription factor that belongs to the CREB/ATF family and modulates the activity of many eukaryotic transcription factors by altering their subcellular localization, DNA binding, or transactivation response. It regulate downstream targets involving in various cellular functions including cell proliferation, survival, and differentiation (1-2). CREB activity is considered critical for neuronal function and regulates synaptic plasticity, long-term memory formation and neuronal survival (3). CREB serine 133 (Ser-133) residue is phosphorylated by various kinases and this phosphorylation promotes the interaction of CREB with a number of transcription coactivators, especially the histone acetyltransferases CREB-binding protein (CBP) or p300 (4,5). CREB can be phosphorylated and thus activated in response to various stimuli such as growth factors, neurotransmitters, stress signals that increase intracellular cAMP or calcium levels. CREB is also activated by phosphorylation at Ser-133 through nuclear translocation of transducer of regulated CREB activity (TORC) coactivators (6,7). CREB is phosphorylated in response to hormonal stimuli that increase intracellular cAMP production, but it can also be phosphorylated in response to a wide variety of extra-cellular signals, including growth factors, osmotic stress and ultraviolet irradiation. Several kinases including ribosomal protein S6 kinase (pp90RSK), protein kinase C (PKC), protein kinase B/AKT, and mitogen- and stress-activated protein kinase (MSK-1) can phosphorylate CREB at Ser-133 (1,8). Different growth factors such as mast/stem cell growth factor, basic fibroblast growth factor, and Granulocyte-macrophage colony-stimulating factor (GM-CSF), can all induce phosphorylation of CREB (9, 10). Phospho CREB, upon activation, dimerizes and binds to the promoter regions of its target gene that contains cAMP response element (CRE site), TGACGTCA, or CRE half sites CGTCA/TGACG, and promotes the recruitment of its transcriptional coactivators, CBP/p300, for CREB-mediated transcription. Therefore, phospho CREB can regulate various cellular mechanisms through modulating its target genes. CREB is progressively dephosphorylated by the Ser/Thr phosphatases protein phosphatase 1 (PP1) and PP2A.

## References:

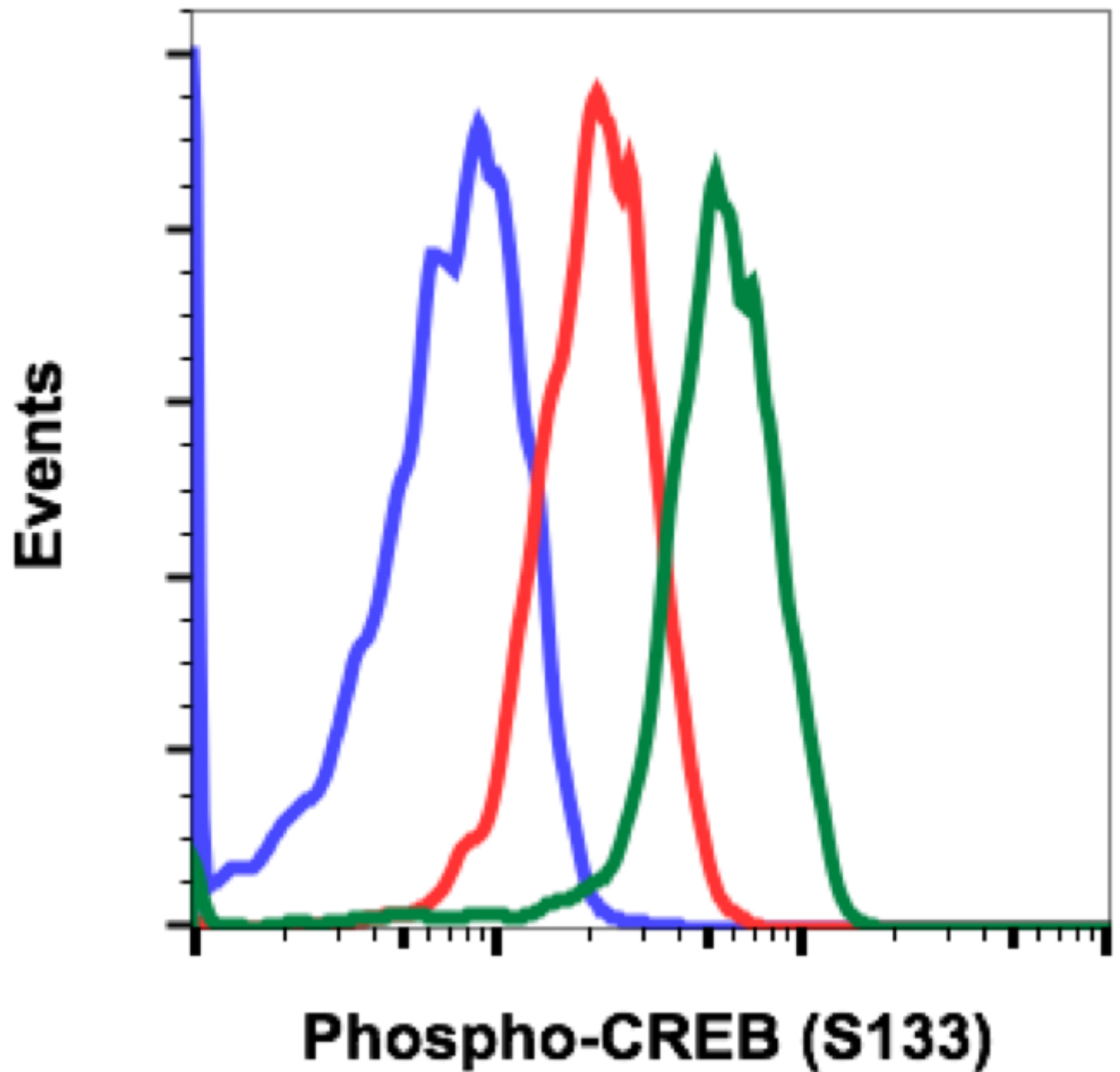
1. Mayr B, et al. (2001). Nat. Rev. Mol. Cell Biol. 2: 599–609.
2. Sandoval S, et al. (2009) Adv. Hematol. 2009:634292.
3. Lonze BE, et al. (2002) Neuron 34: 371–85.
4. Chrivia JC, et al. (1993) Nature 365: 855–9.
5. Kundu TK, et al. (2000) Mol. Cell 6: 551–61.
6. Shaywitz AJ, et al. (1999) Annu. Rev. Biochem. 68: 821–61.
7. Conkright MD, et al. (2003) Mol. Cell 12: 413–23.
8. Bohm M, et al. (1995) Cell Growth Differ. 6: 291–302.
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Flow cytometric analysis of SK-N-MC cells untreated (red) or treated with forskolin (green) using Phospho-CREB (Ser133) (4D11) Rabbit mAb CREBS133-4D11 at 0.01 ug/mL #2126, or concentration-matched Rabbit (G9) mAb IgG Isotype Control #2141 for cells untreated (black) or treated with forskoin (blue).



Flow cytometric analysis of NIH3T3 cells secondary antibody only negative control (blue) or 0.1 µg/mL of isotype control Cat. #2141 (orange) or untreated (red) or treated with PDGF (green) using Phospho-CREB (Ser133) antibody CREBS133-4D11 at 0.1µg/mL. Cat #2126.



Flow cytometric analysis of U937 cells secondary antibody only negative control (blue) or untreated (red) or treated with calyculin A (green) using 1ng/mL Phospho-CREB (Ser133) antibody CREBS133-4D11. Cat. #2126.

kDa

160-

110-

80-

60-

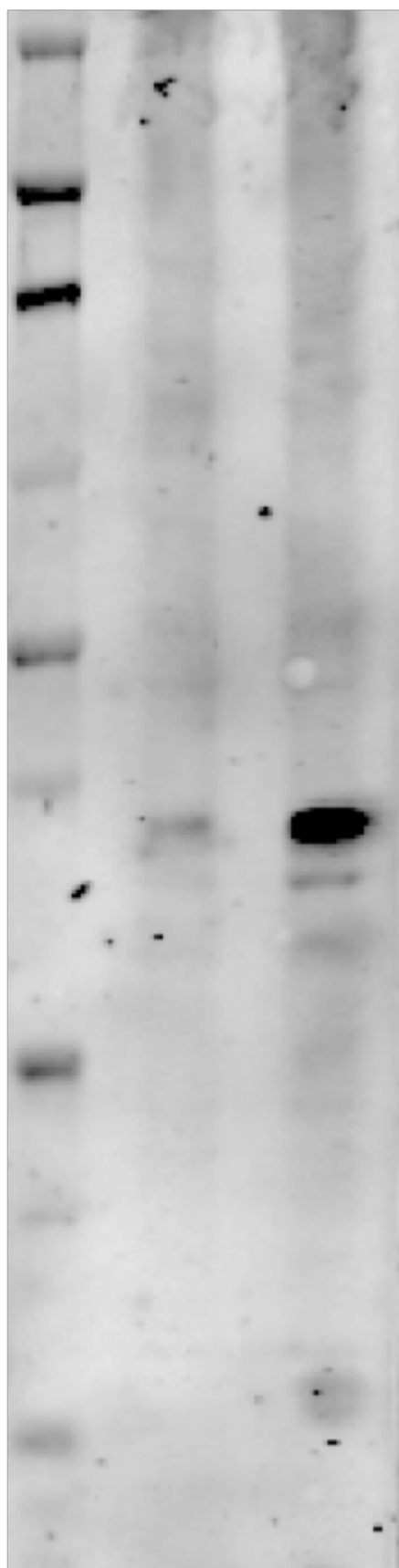
50-

40-

30-

20-

15-

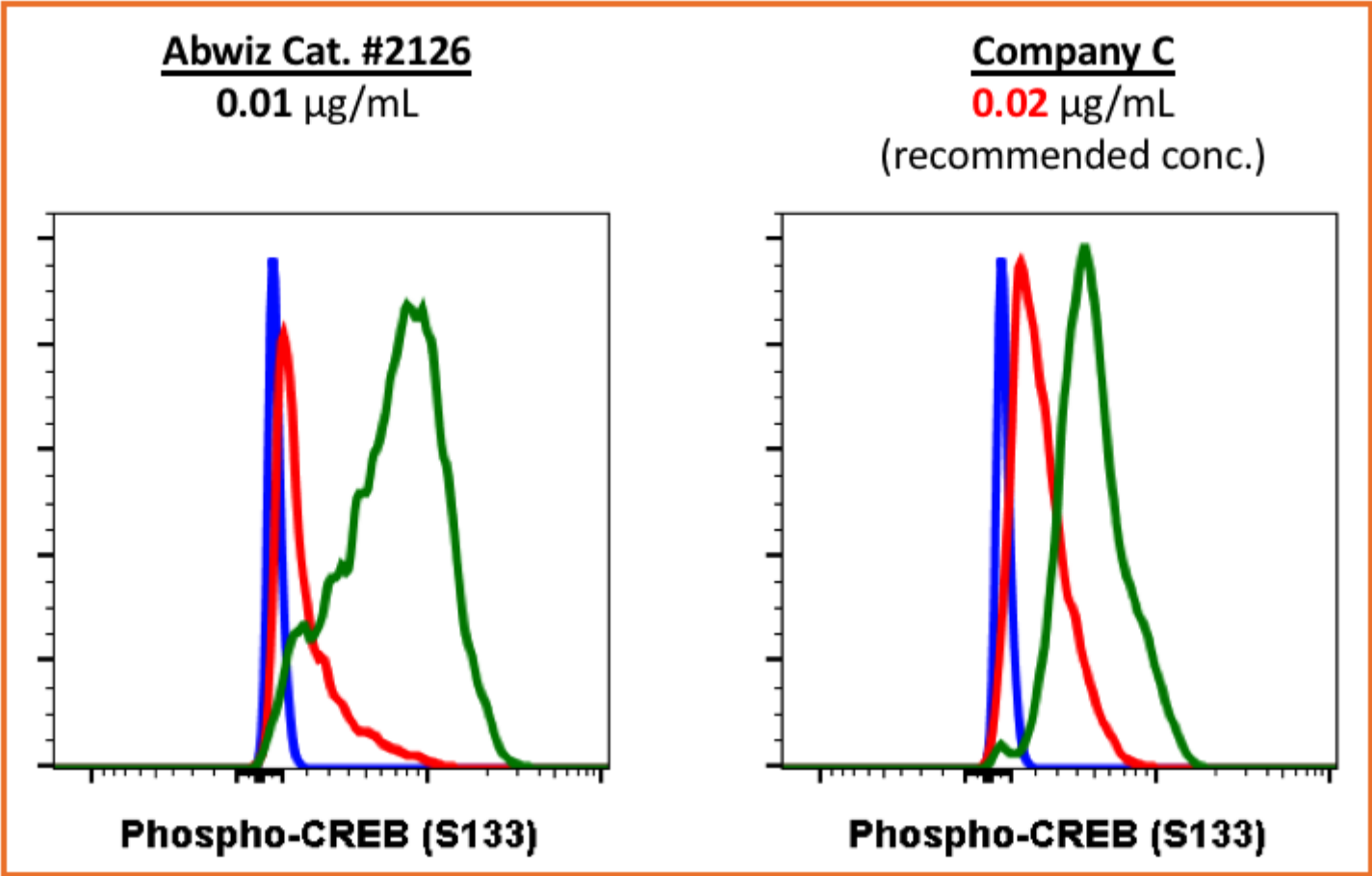


Phospho-CREB (S133)

-

+

Forskolin/  
IBMX



Flow cytometric analysis of SK.N.MC cells secondary antibody only negative control (blue) or untreated (red) or treated with forskolin (green) using 0.01 ug/mL of Phospho-CREB (Ser133) antibody CREBS133-4D11 (Abwiz Cat. #2126) or Company C antibody at 0.02 ug/mL (manufacturer's recommended concentration).