Revision 4

Store at -20C

#4161

Phospho-Glucocorticoid Receptor (Ser211) Antibody

Cell Signaling TECHNOLOGY®

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

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W, IP, IF-IC	H M R	Endogenous	95	Rabbit	#P04150	2908

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Immunoprecipitation	1:50
Immunofluorescence (Immunocytochemistry)	1:1600

Storage

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

Specificity/Sensitivity

Phospho-Glucocorticoid Receptor (Ser211) Antibody detects endogenous levels of glucocorticoid receptor only when phosphorylated at serine 211. This antibody does not cross-react with other unrelated phosphorylated proteins.

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding serine 211 of human glucocorticoid receptor. Antibodies are purified by protein A and peptide affinity chromatography.

Background

Glucocorticoid hormones control cellular proliferation, inflammation, and metabolism through their association with the glucocorticoid receptor (GR)/NR3C1, a member of the nuclear hormone receptor superfamily of transcription factors (1). GR is composed of several conserved structural elements, including a carboxy-terminal ligand-binding domain (which also contains residues critical for receptor dimerization and hormone-dependent gene transactivation), a neighboring hinge region containing nuclear localization signals, a central zinc-finger-containing DNA-binding domain, and an amino-terminal variable region that participates in ligand-independent gene transcription. In the absence of hormone, a significant population of GR is localized to the cytoplasm in an inactive form via its association with regulatory chaperone proteins, such as HSP90, HSP70, and FKBP52. On hormone binding, GR is released from the chaperone complex and translocates to the nucleus as a dimer to associate with specific DNA sequences termed glucocorticoid response elements (GREs), thereby enhancing or repressing transcription of specific target genes (2). It was demonstrated that GR-mediated transcriptional activation is modulated by phosphorylation (3-5). Although GR can be basally phosphorylated in the absence of hormone, it becomes hyperphosphorylated upon binding receptor agonists. It has been suggested that hormone-dependent phosphorylation of GR may determine target promoter specificity, cofactor interaction, strength and duration of receptor signaling, receptor stability, and receptor subcellular localization (3).
Indeed, Ser211 of human GR is phosphorylated to a greater extent in the presence of hormone, and biochemical fractionation studies following hormone treatment indicate that Ser211-phosphorylated GR is found in the nucleus (3). Thus, Ser211 phosphorylation is a biomarker for activated GR in vivo. An added layer of complexity to GR signaling lies in the ability of multiple isoforms to be generated through both alternative splicing and the use of alternative translation intiation start sites, thus increasing the repertoire of functional signaling homo- and heterodimers (6,7).

Background References

1. Yamamoto, K.R. (1985) *Annu. Rev. Genet* 19, 209-52.
2. Necela, B.M. and Cidlowski, J.A. (2003) *Trends Pharmacol. Sci.* 24, 58-61.
3. Wang, Z. et al. (2002) *J. Biol. Chem.* 277, 26573-80.
4. Rogatsky, I. et al. (1998) *J. Biol. Chem.* 273, 14315-21.
5. Krstic, M. D. et al. (1997) *Mol. Cell. Biol.* 17, 3947-54.
6. Yudt, M.R. and Cidlowski, J.A. (2001) *Mol Endocrinol* 15, 1093-103.
7. Lu, N.Z. and Cidlowski, J.A. (2005) *Mol Cell* 18, 331-42.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

W: Western Blotting **IP:** Immunoprecipitation **IF-IC:** Immunofluorescence (Immunocytochemistry)

Cross-Reactivity Key

H: Human **M:** Mouse **R:** Rat

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Limited Uses