Revision 1

#4880 Store at -20C

Phospho-DBC1 (Thr454) Antibody

Cell Signaling TECHNOLOGY®

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

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source:	UniProt ID:	Entrez-Gene Id:
WB, IP, IF-IC	H	Endogenous	130	Rabbit	#Q8N163	57805

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Immunoprecipitation	1:25
Immunofluorescence (Immunocytochemistry)	1:400

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-DBC1 (Thr454) Antibody detects endogenous levels of DBC1 only when phosphorylated on Thr454.

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic phosphopeptide corresponding to Thr454 of the human DBC1 protein. Antibodies are purified by protein A and peptide affinity chromatography.

Background

Deleted in breast cancer gene 1 protein (DBC1) was originally identified by its localization to a region of chromosome 8p21 that is homozygously deleted in breast cancer (1). DBC1 is a large, nuclear protein with multiple functions in cell survival. It binds directly to the estrogen receptor α (ERα) hormone-binding domain in a ligand-independent manner and may be a key determinant of ligand-independent ERα expression and survival in human breast cancer cells (2). DBC1 can promote p53-mediated apoptosis by binding to and inhibiting the deacetylase activity of SirT1, resulting in increased p53 acetylation levels and activity (3). DBC1 may be an important regulator of heterochromatin formation as it binds SUV39H1 and inhibits its histone methyltransferase activity (4). Caspase-dependent processing activates the pro-apoptotic activity of DBC1 during Tumor Necrosis Factor-α (TNF-α)-mediated cell death signaling (5). This processing of DBC1 in response to TNF-α is an early event in the onset of apoptosis and results in relocalization of DBC1 to the cytoplasm. Overexpression of the processed, cytoplasmic form of DBC1 results in mitochondrial clustering and matrix condensation and sensitizes cells to TNF-α-mediated apoptosis.
The threonine residue at 454 of DBC1 is phosphorylated in an ATM/ATR-dependent manner in response to DNA damage (6,7). Phospho-DBC1 (Thr454) Antibody is directed at a site that was identified at Cell Signaling Technology (CST) using PhosphoScan®, CST's LC-MS/MS platform for modification site discovery. Phosphorylation at Thr454 was discovered using an ATM/ATR substrate antibody and was shown to be induced by UV treatment. Please visit PhosphoSitePlus®, CST's modification site knowledgebase, at www.phosphosite.org for more information.

Background References

1. Hamaguchi, M. et al. (2002) *Proc Natl Acad Sci USA* 99, 13647-52.
2. Trauernicht, A.M. et al. (2007) *Mol Endocrinol* 21, 1526-36.
3. Zhao, W. et al. (2008) *Nature* 451, 587-90.
4. Li, Z. et al. (2009) *J Biol Chem* 284, 10361-6.
5. Sundararajan, R. et al. (2005) *Oncogene* 24, 4908-20.
6. Stokes, M.P. et al. (2007) *Proc Natl Acad Sci USA* 104, 19855-60.
7. Beausoleil, S.A. et al. (2004) *Proc Natl Acad Sci USA* 101, 12130-5.

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

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

Cross-Reactivity Key

H: human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **Mi:** mink **C:** chicken **Dm:** D. melanogaster **X:** Xenopus **Z:** zebrafish **B:** bovine **Dg:** dog **Pg:** pig **Sc:** S. cerevisiae **Ce:** C. elegans **Hr:** horse **GP:** Guinea Pig **Rab:** rabbit **All:** all species expected

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Limited Uses