Revision 1

Store at -20C

#5240

Phospho-ENSA (Ser67)/ARPP19 (Ser62) Antibody

Cell Signaling TECHNOLOGY®

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W	H R	Endogenous	15	Rabbit	#P56211, #O43768	10776, 2029

Product Usage Information

Application	Dilution
Western Blotting	1:1000

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-ENSA (Ser67)/ARPP19 (Ser62) Antibody recognizes endogenous levels of ENSA and ARPP19 proteins only when phosphorylated at Ser67 and Ser62, respectively.

Species predicted to react based on 100% sequence homology

Mouse

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Ser67/Ser62 of human ENSA/ARPP19 protein. Antibodies are purified by protein A and peptide affinity chromatography.

Background

Mitotic control is important for normal growth, development, and maintenance of all eukaryotic cells. Research studies have demonstrated that inappropriate control of mitosis can lead to genomic instability and cancer (reviewed in 1,2). A regulator of mitosis, Greatwall kinase (Gwl), was first identified in *Drosophila melanogaster* (3). Subsequent studies showed that, based on sequence homology and function, microtubule-associated serine/threonine kinase-like (MASTL) is the human ortholog of Gwl (4). Regulation of MASTL/Gwl activation has been shown to be critical for the correct timing of mitosis. Research studies have shown that Gwl is activated by hyperphosphorylation (5). The phosphorylation of human Gwl at Thr194 and Thr207 by active cyclin B1-cdc2 leads to possible autophosphorylation at Ser875 (Ser883 in *Xenopus*), which stabilizes the kinase. Activated Gwl phosphorylates α-Endosulfine (ENSA) and cAMP-regulated phosphoprotein 19 (ARPP19) at Ser67 and Ser62, respectively. Phosphorylated ENSA and ARPP19 inhibit the activity of the B55 subunit-associated form of protein phosphatase 2A (PP2A-B55), allowing for complete phosphorylation of mitotic substrates by cyclin B1-cdc2 and mitotic entry. When Gwl is inactivated, PP2A-B55 reactivates, which leads to dephosphorylation of cyclin B1-cdc2 and mitotic exit (5,6, reviewed in 7).

Background References

1. Eichhorn, P.J. et al. (2009) *Biochim Biophys Acta* 1795, 1-15.
2. Norbury, C. and Nurse, P. (1992) *Annu Rev Biochem* 61, 441-70.
3. Yu, J. et al. (2004) *J Cell Biol* 164, 487-92.
4. Voets, E. and Wolthuis, R.M. (2010) *Cell Cycle* 9, 3591-601.
5. Blake-Hodek, K.A. et al. (2012) *Mol Cell Biol* 32, 1337-53.
6. Vigneron, S. et al. (2011) *Mol Cell Biol* 31, 2262-75.
7. Lorca, T. and Castro, A. (2012) *Oncogene* 32, 537-543.

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

Cross-Reactivity Key

H: Human **R:** Rat

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