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Monoclonal Antibody to 14-3-3 protein zeta/delta (222-240) - Purified

Alternate names: KCIP-1, Protein kinase C inhibitor protein 1, YWHAZ

Catalog No.: AM20301PU-N

Quantity: 0.1 mg

Concentration: 0.5 mg/ml

Background: 14-3-3 zeta is a 245 amino acid containing protein belonging to the 14-3-3 family that mediates signal transduction by binding to phosphoserine containing proteins. It is a highly conserved protein in both plants and mammals. The encoded protein interacts with IRS1 implicating a plausible role in regulating insulin sensitivity. There are several transcript variants, with seven known mammalian isoforms: alpha, beta, gamma, delta, epsilon, zeta and eta. 14-3-3 proteins function in broad regulation of proteins by cytoplasmic sequestration, occupation of interaction domains and import/export sequences, prevention of degradation, and activation/repression of enzyme activity. The protein is highly abundant in brain.

Uniprot ID: P63104

NCBI: NP_001129171.1

GeneID: 7534

Host / Isotype: Mouse / IgG1

Recommended Isotype Controls: SM10P (for use in human samples), SM20P (for use in rat samples), AM03095PU-N

Clone: IMG2E11

Immunogen: Amino acids 222-240 (RDNLTLWTSDTQGDEAEAG) of Human 14-3-3 zeta.
Remarks: The amino acid sequence used as immunogen is 100% homologous in Human (100% zeta/delta; 84% eta; 78% alpha/beta; 74% epsilon; 63% gamma), Bovine, Rat, Mouse, Chimpanzee, Rhesus Monkey, Pig, Chicken and Cat, and 94% homologous in Xenopus.

Format: **State:** Liquid purified IgG fraction
Purification: Protein G Chromatography
Buffer System: PBS containing 0.05% BSA and 0.05% Sodium Azide

Applications: **Western blot analysis:** 1-3 µg/ml.
Immunohistochemistry on Paraffin Sections: 5 µg/ml.
Recommended Positive Control: Brain.
Other applications not tested. Optimal dilutions are dependent on conditions and should be determined by the user.

Specificity:
Recognizes 14-3-3 zeta
Species: Bovine, Cat, Chicken, Chimpanzee, Human, Mouse, Pig, Rat.
Other species not tested.

Storage:
Store the antibody undiluted at 2-8°C for one month or (in aliquots) at -20°C for longer.
Avoid repeated freezing and thawing.
Shelf life: one year from despatch

Product Citations:
Originator or purchased from resellers:
1. Chaker S, Kashat L, Voisin S, Kaur J, Kak I, MacMillan C, et al. Secretome proteins as candidate biomarkers for aggressive thyroid carcinomas. Proteomics. 2013 Mar;13(5):771-87. doi: 10.1002/pmic.201200356. PubMed PMID: 23319340.

General Readings:
1. Murthi P, Fitzpatrick E, Borg AJ, Donath S, Brennecke SP, Kalionis B. GAPDH, 18S rRNA and YWHAZ are suitable endogenous reference genes for relative gene expression studies in placental tissues from human idiopathic fetal growth restriction. Placenta. 2008 Sep;29(9):798-801. doi: 10.1016/j.placenta.2008.06.007. Epub 2008 Aug 5. PubMed PMID: 18684503.
2. Frasor J, Chang EC, Komm B, Lin CY, Vega VB, Liu ET, et al. Gene expression preferentially regulated by tamoxifen in breast cancer cells and correlations with clinical outcome. Cancer Res. 2006 Jul 15;66(14):7334-40. PubMed PMID: 16849584.
3. Heidenblad, M. et al. BMC Med. Genomics 31:3 (2008).
4. 14-3-3 Proteins As Signaling Integration Points for Cell Cycle Control and Apoptosis. Alexandra K. Gardino, Michael B. Yaffe Semin Cell Dev Biol. Author manuscript; available in PMC 2012 November 27. Published in final edited form as: Semin Cell Dev Biol. 2011 September; 22(7): 688–695. Published online 2011 September 14. doi: 10.1016/j.semcdb.2011.09.008
5. Lynn EG, McLeod CJ, Gordon JP, Bao J, Sack MN. SIRT2 is a negative regulator of anoxia-reoxygenation tolerance via regulation of 14-3-3 zeta and BAD in H9c2 cells. FEBS Lett. 2008 Aug 20;582(19):2857-62. doi: 10.1016/j.febslet.2008.07.016. Epub 2008 Jul 18. PubMed PMID: 18640115.
6. 14-3-3 zeta is a molecular target in guggulsterone induced apoptosis in Head and Neck cancer cells. Muzafar A Macha, Ajay Matta, SS Chauhan, KW Michael Siu, Ranju Ralhan. BMC Cancer. 2010; 10: 655. Published online 2010 November 30. doi: 10.1186/1471-2407-10-655 PMCID: PMC3002356
7. Proteomic analysis of 14-3-3 zeta binding proteins in the mouse hippocampus. Maura Heverin, Gary P Brennan, Christian J Koehler, Achim Treumann, David C Henshall. Int J Physiol Pathophysiol Pharmacol. 2012; 4(2): 74–83. Published online 2012 June 23. PMCID: PMC3403563
8. Brennan GP, Jimenez-Mateos EM, McKiernan RC, Engel T, Tzivion G, Henshall DC. Transgenic overexpression of 14-3-3 zeta protects hippocampus against endoplasmic reticulum stress and status epilepticus in vivo. PLoS One. 2013;8(1):e54491. doi: 10.1371/journal.pone.0054491. Epub 2013 Jan 24. PubMed PMID: 23359526.

Pictures:

Western blot analysis of 14-3-3 zeta using AM20301PU-N 14-3-3 zeta antibody at 1 µg/ml. HRP Goat anti-Mouse Ig secondary antibody and PicoTect ECL substrate solution were used for this test. A) Human brain lysate B) Mouse brain lysate C) Rat brain lysate D) recombinant 14-3-3 zeta protein