OriGene Technologies Inc.

9620 Medical Center Drive, Ste 200
Rockville, MD 20850
UNITED STATES
Phone: +1-858-888-7900
Fax: +1-858-888-7904
US-info@acris-antibodies.com

OriGene EU

Acris Antibodies GmbH
Schillerstr. 5
32052 Herford
GERMANY
Phone: +49-5221-34606-0
Fax: +49-5221-34606-11
info@acris-antibodies.com

Monoclonal Antibody to AKT1 / PKB pSer473 - Purified

Alternate names:	Akt-1, C-AKT, Protein kinase B, RAC-PK-alpha, RAC-alpha serine/threonine-protein kinase
Catalog No.:	SM7001P
Quantity:	0.1 mg
Concentration:	0.5 ml/ml
Background:	Akt, protein kinase B (PKB), is a serine/threonine kinase which is involved in many cellular signaling pathways and acts as a transducer of many functions initiated by growth factor receptors that activat phosphtidylinositol 3-kinase (PI 3-kinase). The major activity of Akt/PKB is to mediate cell survival. Akt/PKB is also believed to be a critical factor in the genesis of cancer as the tumor suppressor PTEN was found to antagonise PI-3 kinase and Akt/PKB kinase activity. Akt/PKB phosphorylation is critical for it activity. The major phosphorylation sites required for Akt activation has been identified as threoinine 308 and serine 473. Serine 473 is phosphorylated by MAPKAP kinase 2.
Uniprot ID:	P31749
NCBI:	NP_001014431.1
GeneID:	207
Host / Isotype:	Mouse / IgG1
Recommended Isotype Controls:	SM10P (for use in human samples), AM03095PU-N
Clone:	104A282
Immunogen:	Synthetic peptide containing phosphorylated serines at amino acid residues 473 of human Akt1 **Remarks:** The sequence in this region is identical in Human, Mouse, Chicken, Frog and Zebrafish.
Format:	**State:** Liquid purified IgG fraction **Purification:** Protein G Chromatography **Buffer System:** PBS **Preservatives:** 0.05% Sodium Azide **Stabilizers:** 0.05% BSA
Applications:	**Western blot:** 1-2 µg/ml. **Immunoprecipitation.** **Immunocytochemistry/Immunofluorescence.** ***Recommended Positive Control :*** PDGF treated NIH 3T3. Other applications not tested. Optimal dilutions are dependent on conditions and should be determined by the user.

Specificity: Clone 104A282 detects specifically phosphorylated form of Akt1 expression in PDGF treated cells.

Species Reactivity: **Tested:** Human, Mouse.
Expected from sequence similarity: Chicken, Frog, Zebrafish.

Storage: Store 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. Nair AS, Shishodia S, Ahn KS, Kunnumakkara AB, Sethi G, Aggarwal BB. Deguelin, an Akt inhibitor, suppresses IkappaBalpha kinase activation leading to suppression of NF-kappaB-regulated gene expression, potentiation of apoptosis, and inhibition of cellular invasion. J Immunol. 2006 Oct 15;177(8):5612-22. PubMed PMID: 17015749.
2. Shakibaei M, John T, Schulze-Tanzil G, Lehmann I, Mobasheri A. Suppression of NF-kappaB activation by curcumin leads to inhibition of expression of cyclo-oxygenase-2 and matrix metalloproteinase-9 in human articular chondrocytes: Implications for the treatment of osteoarthritis. Biochem Pharmacol. 2007 May 1;73(9):1434-45. Epub 2007 Jan 7. PubMed PMID: 17291458.
3. Luty WH, Rodeberg D, Parness J, Vyas YM. Antiparallel segregation of notch components in the immunological synapse directs reciprocal signaling in allogeneic Th:DC conjugates. J Immunol. 2007 Jul 15;179(2):819-29. PubMed PMID: 17617572.
4. Elamin MH, Shinwari Z, Hendrayani SF, Al-Hindi H, Al-Shail E, Khafaga Y, et al. Curcumin inhibits the Sonic Hedgehog signaling pathway and triggers apoptosis in medulloblastoma cells. Mol Carcinog. 2010 Mar;49(3):302-14. doi: 10.1002/mc.20604. PubMed PMID: 20025076.
5. Juengel E, Engler J, Natsheh I, Jones J, Mickuckyte A, Hudak L, et al. Combining the receptor tyrosine kinase inhibitor AEE788 and the mammalian target of rapamycin (mTOR) inhibitor RAD001 strongly inhibits adhesion and growth of renal cell carcinoma cells. BMC Cancer. 2009 May 27;9:161. doi: 10.1186/1471-2407-9-161. PubMed PMID: 19473483.
6. Wedel S, Hudak L, Seibel JM, Juengel E, Tsaur I, Wiesner C, et al. Inhibitory effects of the HDAC inhibitor valproic acid on prostate cancer growth are enhanced by simultaneous application of the mTOR inhibitor RAD001. Life Sci. 2011 Feb 28;88(9-10):418-24. doi: 10.1016/j.lfs.2010.12.017. Epub 2010 Dec 27. PubMed PMID: 21192952.
7. Wedel S, Hudak L, Seibel JM, Juengel E, Oppermann E, Haferkamp A, et al. Critical analysis of simultaneous blockage of histone deacetylase and multiple receptor tyrosine kinase in the treatment of prostate cancer. Prostate. 2011 May 15;71(7):722-35. doi: 10.1002/pros.21288. Epub 2010 Oct 15. PubMed PMID: 20954195.

General Readings:

1. Alessi DR, Andjelkovic M, Caudwell B, Cron P, Morrice N, Cohen P, et al. Mechanism of activation of protein kinase B by insulin and IGF-1. EMBO J. 1996 Dec 2;15(23):6541-51. PubMed PMID: 8978681.
2. Paul Ferrigno and Pamela A Silver Regulated nuclear localization of stress-responsive factors: how the nuclear trafficking of protein kinases and transcription factors contributes to cell survival. Oncogene 1 November 1999, Volume 18, Number 45, Pages 6129-6134.
3. Kandel ES, Hay N. The regulation and activities of the multifunctional serine/threonine kinase Akt/PKB. Exp Cell Res. 1999 Nov 25;253(1):210-29. PubMed PMID: 10579924.
4. Lewis C. Cantley and Benjamin G. Neel. New insights into tumor suppression: PTEN suppresses tumor formation by restraining the phosphoinositide 3-kinase/AKT pathway. PNAS 1999 96 (8) 4240-4245; doi:10.1073/pnas.96.8.4240.
5. Franke TF, Kaplan DR, Cantley LC. PI3K: downstream AKTion blocks apoptosis. Cell. 1997 Feb 21;88(4):435-7. PubMed PMID: 9038334.

Pictures:

Western blot analysis of phospho AKT using phospho AKT antibody at 2 µg/ml against untreated (Lane 1) and PDGF treated (Lane 2) NIH-3T3 lysate. HRP conjugated secondary antibody and ECL substrate solution were used for this test.