PRODUCT INFORMATION

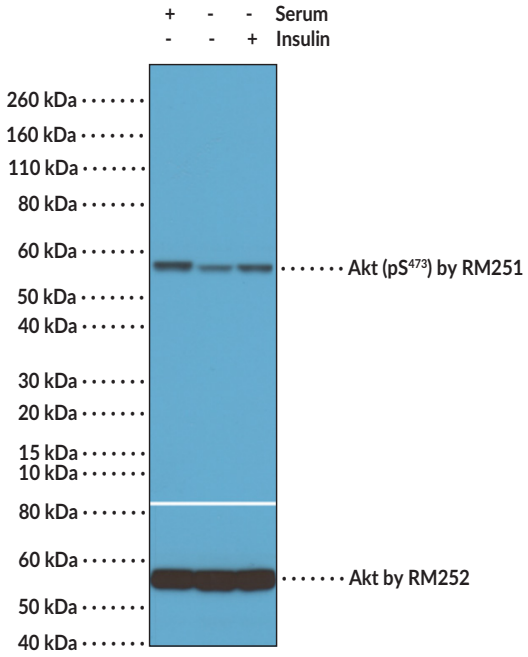
Akt (Phospho-Ser^{473}) Rabbit Monoclonal Antibody (Clone RM251)

Item No. 42814

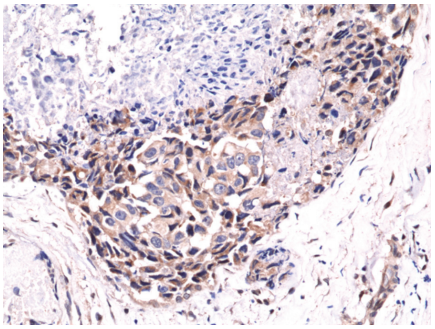
Overview and Properties

Contents:	This vial contains 100 µl of protein A-affinity purified monoclonal antibody.
Synonyms:	PKB, Protein Kinase B, RAC Serine/threonine-protein Kinase, RAC-PK
Immunogen:	A phosphopeptide corresponding to human Akt (phospho-Ser^{473})
Cross Reactivity:	(+) Akt1/2/3 (phospho-Ser^{473}); (-) Unmodified Akt
Species Reactivity:	(+) Human, mouse, rat, bovine
Molecular Weight:	56 kDa
Form:	Liquid
Storage:	-20°C (as supplied)
Stability:	≥1 year
Storage Buffer:	PBS with 50% glycerol, 1% BSA, and 0.09% sodium azide
Clone:	RM251
Isotype:	IgG
Applications:	Immunohistochemistry (IHC) and Western blot (WB); the recommended starting dilution for IHC is 1:200-1:500 and 1-1,000-1:2,000 for WB. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

Images



WB of serum-fed, serum-starved, or insulin-treated 293 cell lysates using Akt (Phospho-Ser^{473}) Rabbit Monoclonal Antibody (Clone RM251) at a dilution of 1:1,000 and Akt1 RM252 at a dilution of 1:1,000.



Immunohistochemical staining of formalin-fixed and paraffin-embedded human breast cancer tissue sections using Akt (Phospho-Ser^{473}) Rabbit Monoclonal Antibody (Clone RM251) at a dilution of 1:400.

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Description

Akt, also known as protein kinase B (PKB), is a serine/threonine kinase belonging to the AGC kinase family and has three isoforms in mammals: Akt1, Akt2, and Akt3.[1,2] Akt kinases function downstream of activated tyrosine kinases and PI3K to regulate a variety of cellular processes, including cell size, growth, proliferation, and survival, as well as genome stability, glucose metabolism, and neovascularization.[2] Akt is composed of an N-terminal pleckstrin homology (PH) domain, which binds to phosphatidylinositol-(3,4,5)-triphosphate (PIP_3) and phosphatidylinositol-(3,4)-diphosphate (PIP_2), a kinase domain, and a C-terminal regulatory hydrophobic motif. Akt1 and Akt2 are ubiquitously expressed whereas Akt3 is primarily expressed in the placenta, ovary, and spleen, and each isoform shows distinct subcellular localizations: Akt1 in the cytoplasm, Akt2 in the mitochondria, and Akt3 in the nucleus and nuclear membrane.[3,4] Akt is activated following phosphorylation at threonine 308, 309, and 305 and serine 473, 474, and 472 for Akt1, -2, and -3, respectively.[4] Hyperactivation of Akt *via* mutations, amplification, or overexpression is associated with various cancers.[2] Cayman's Akt (Phospho-Ser^{473}) Rabbit Monoclonal Antibody (Clone RM251) can be used for immunohistochemistry (IHC) and Western blot (WB) applications. The antibody recognizes Akt (phospho-Ser^{473}) at 56 kDa from human, mouse, rat, and bovine samples.

References

1. Dummler, B. and Hemmings, B.A. Physiological roles of PKB/Akt isoforms in development and disease. *Biochem. Soc. Trans.* **35(Pt 2),** 231-235 (2007).
2. Bellacosa, A., Kumar, C.C., Di Cristofano, A., *et al.* Activation of AKT kinases in cancer: Implications for therapeutic targeting. *Adv. Cancer Res.* **94**, 29-86 (2005).
3. Masure, S., Haefner, B., Wesselink, J.J., *et al.* Molecular cloning, expression and characterization of the human serine/threonine kinase Akt-3. *Eur. J. Biochem.* **265(1)**, 353-360 (1999).
4. Santi, S.A. and Lee, H. The Akt isoforms are present at distinct subcellular locations. *Am. J. Physiol. Cell Physiol.* **298(3)**, C580-C591 (2010).

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