# PRODUCT INFORMATION

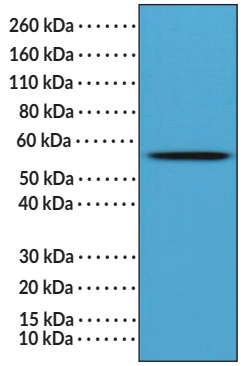
## Akt1 PH Domain Rabbit Monoclonal Antibody (Clone RM316)

*Item No. 32258*

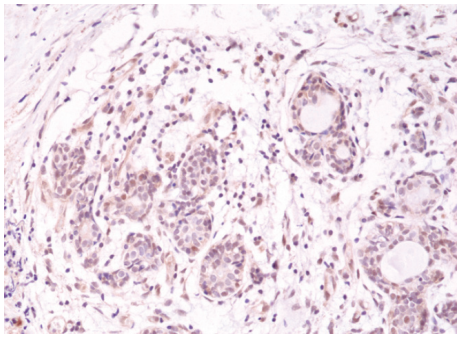
### Overview and Properties

| | |
|---|---|
| **Contents:** | This vial contains 100 µl of protein A-affinity purified monoclonal antibody. |
| **Synonyms:** | Protein Kinase Bα, PKBα |
| **Immunogen:** | Peptide corresponding to the PH domain of human Akt1 |
| **Cross Reactivity:** | (+) Akt1 PH domain |
| **Species Reactivity:** | (+) Human |
| **Form:** | Liquid |
| **Storage:** | -20°C (as supplied) |
| **Stability:** | ≥1 year |
| **Storage Buffer:** | PBS with 50% glycerol, 1% BSA, and 0.09% sodium azide |
| **Clone:** | RM316 |
| **Host:** | Rabbit |
| **Isotype:** | IgG |
| **Applications:** | Immunohistochemistry (IHC) and Western blot (WB); the recommended starting dilution is 1:200-1:500 for IHC and 1:5,000-1:10,000 for WB. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically. |

### Images




WB of HEK293 cell lysate using Akt1 PH Domain Rabbit Monoclonal Antibody (Clone RM316) at a 1:10,000 dilution.



Immunohistochemical staining of formalin-fixed and paraffin-embedded human breast cancer tissue using Akt1 PH Domain Rabbit Monoclonal Antibody (Clone RM316) at a 1:500 dilution.



CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM

# PRODUCT INFORMATION

## Description

Akt1, also known as protein kinase Bα (PKBα), is a serine/threonine kinase belonging to the AGC kinase family and one of three Akt isoforms in mammals.[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] Akt1 is composed of an N-terminal pleckstrin homology (PH) domain, a kinase domain, and a C-terminal regulatory hydrophobic motif.[3] The Akt PH domain is required for membrane localization and activation of Akt.[4] It binds phosphatidylinositol-(3,4,5)-triphosphate ($PIP_3$) and phosphatidylinositol-(3,4)-diphosphate ($PIP_2$) generated by PI3K, which is activated by a variety of growth factors, recruiting Akt to the plasma membrane where it is phosphorylated at threonine 308 and serine 473, resulting in its activation.[2] A glutamic acid-to-lysine substitution at glutamic acid 17 (E17K) in the Akt1 PH domain leads to constitutive Akt1 membrane localization and activation and has been found in tumors isolated from patients with breast, colorectal, or ovarian cancer.[5] Cayman's Akt1 PH Domain Rabbit Monoclonal Antibody (Clone RM316) can be used for immunohistochemistry (IHC) and Western blot (WB) applications.

## 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. McKay, J.A., Douglas, J.J., Ross, V.G., *et al.* Cyclin D1 protein expression and gene polymorphism in colorectal cancer. *Int. J. Cancer.* **88(1)**, 77-91 (2000).
4. Sun, M., Wang, G., Paciga, J.E., *et al.* AKT1/PKBα kinase is frequently elevated in human cancers and its constitutive activation is required for oncogenic transformation in NIH3T3 cells. *Am. J. Pathol.* **159(2)**, 431-437 (2001).
5. Carpten, J.D., Faber, A.L., Horn, C., *et al.* A transforming mutation in the pleckstrin homology domain of AKT1 in cancer. *Nature* **448(7152)**, 439-444 (2007).



CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM