

Phospho-Keratin 17 (Ser44) Antibody



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For Research Use Only. Not for Use in Diagnostic Procedures.

Applications: W, FC-FP	Reactivity: H	Sensitivity: Endogenous	MW (kDa): 49	Source/Isotype: Rabbit	UniProt ID: #Q04695	Entrez-Gene Id: 3872
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Product Usage Information

Application

Western Blotting
Flow Cytometry (Fixed/Permeabilized)

Dilution

1:1000
1:50

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-Keratin 17 (Ser44) Antibody detects endogenous levels of keratin 17 only when phosphorylated on Ser44.

Species predicted to react based on 100% sequence homology

Monkey

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic phosphopeptide corresponding to amino acids surrounding Ser44 of human keratin 17. Antibodies are purified by Protein A and peptide affinity chromatography.

Background

Keratins (cytokeratins) are intermediate filament proteins that are mainly expressed in epithelial cells. Keratin heterodimers composed of an acidic keratin (or type I keratin, keratins K9-K28) and a basic keratin (or type II keratin, keratins K1-K8 and K71-K80) assemble to form filaments. Keratin isoforms demonstrate tissue- and differentiation-specific profiles that make them useful as research and clinical biomarkers (1,2).

Dysregulation/mutations in keratin genes can lead to a variety of disorders affecting the skin, hair, nails, and other epithelial tissues (3). While expression of keratins can be variable, immunohistochemical staining of keratins is widely used to help in the identification and classification of epithelial tumors, and may also provide prognostic information.

Keratins 8 and 18 (K8/K18) are expressed in simple epithelia of normal tissue, as well as in adenocarcinomas of the breast, lung, ovary, and gastrointestinal tract. Keratin 17 is expressed in basal keratinocytes of stratified epithelia, hair follicles, and sebaceous glands. Onset of keratin 17 expression coincides with the definition of major epithelial lineages during skin development (4). Keratin 14 (K14) is expressed in basal cells of stratified epithelia, and in basal-like subtypes of breast cancer and squamous cell carcinomas. Keratin 19 (K19) is expressed in glandular epithelia, including the liver, gallbladder, and pancreas, as well as in adenocarcinomas of the breast, thyroid, and bile duct. Keratin 20 (K20) is expressed in gastrointestinal epithelium, urothelium, and Merkel cells in the skin, as well as in colorectal carcinomas and some urothelial carcinomas. Keratin 5/6 (K5/6) is expressed in basal cells of stratified epithelia, including the skin, prostate, and breast, as well as in basal-like breast cancers, squamous cell carcinomas, and some lung carcinomas. Keratin 7 (K7) is expressed in glandular epithelia, such as those in the lung, breast, and female reproductive tract, as well as in adenocarcinomas of the lung, breast, and ovary (5,6).

Keratins, particularly K8, K18, and K19, serve as biomarkers for identification of circulating tumor cells (CTCs) (5).

Post-translational modifications, including phosphorylation, acetylation, ubiquitylation, sumoylation, glycosylation, and transamidation, have been shown to affect the functions of keratins in normal and disease states (6). Understanding the molecular mechanisms underlying these PTMs may provide insights into cancer pathogenesis.

Keratin 17 has been shown to be involved in wound healing, a process that requires rapid remodelling of the cytoskeleton (7). Another process that requires cytoskeletal remodelling is cell growth. It has been shown that in keratin 17 keratinocytes that signaling through the Akt/mTOR pathway fails to

produce an increase in translation, cell size or growth, and that this defect is associated with abnormal localization of 14-3-3 σ . Since in normal cells, 14-3-3 σ associates with keratin 17, a model has been proposed whereby signaling through Akt/mTOR produces a sequestration of 14-3-3 σ in the cytosol via its interaction with keratin 17, and this sequestration by keratin 17 is required for translation and cell growth. Phosphorylation of keratin 17 on Ser 44 is thought to provide a docking site for 14-3-3 σ binding (8).

Background References

1. Chang, L. and Goldman, R.D. (2004) *Nat Rev Mol Cell Biol* 5, 601-13.
2. Schweizer, J. et al. (2006) *J Cell Biol* 174, 169-74.
3. Sarma, A. (2022) *Int J Biol Macromol* 219, 395-413.
4. McGowan, K.M. and Coulombe, P.A. (1998) *J Cell Biol* 143, 469-86.
5. Werner, S. et al. (2020) *Mol Aspects Med* 72, 100817.
6. Dmello, C. et al. (2019) *J Biosci* 44, 33.
7. Paladini, R.D. et al. (1996) *J Cell Biol* 132, 381-97.
8. Kim, S. et al. (2006) *Nature* 441, 362-5.

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 **FC-FP:** Flow Cytometry (Fixed/Permeabilized)

Cross-Reactivity Key

H: Human

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