

# Cytokeratin 12 (H-60): sc-25722

## BACKGROUND

Cytokeratins comprise a diverse group of intermediate filament proteins (IFPs) that are expressed as pairs in both keratinized and non-keratinized epithelial tissue, where they constitute up to 85% of mature keratinocytes in the vertebrate epidermis. Cytokeratins play a critical role in differentiation and tissue specialization and function to maintain the overall structural integrity of epithelial cells. The  $\alpha$ -helical, coiled-coil dimers associate laterally end-to-end to form 10 nm diameter filaments. Cytokeratins are useful markers of tissue differentiation, and Cytokeratin 12 is a distinct marker of tissue differentiation in the developing cornea. Cytokeratin 12 and Cytokeratin 3 are expressed in the corneal epithelium, where Cytokeratin 12 provides structural integrity to an otherwise fragile cornea. Human Cytokeratin 12 gene mutations cause Meesmann's corneal dystrophy, an autosomal dominant disorder characterized by corneal epithelia fragility and intra-epithelial microcysts.

## REFERENCES

1. van der Velden, L.A., et al. 1993. Cytokeratin expression in normal and (pre) malignant head and neck epithelia: an overview. *Head Neck* 15: 133-146.
2. Liu, C.Y., et al. 1993. Cornea-specific expression of K12 keratin during mouse development. *Curr. Eye Res.* 12: 963-974.
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4. Fuchs, E. 1995. Keratins and the skin. *Annu. Rev. Cell Dev. Biol.* 11: 123-153.
5. Quillien, V., et al. 1995. Serum and tissue distribution of a fragment of Cytokeratin 19 (CYFRA 21-1) in lung cancer patients. *Anticancer Res.* 15: 2857-2863.
6. Mukhopadhyay, T. and Roth, J.A. 1996. Functional inactivation of p53 by antisense RNA induces invasive ability of lung carcinoma cells and down-regulates cytokeratin synthesis. *Anticancer Res.* 16: 1683-1689.
7. Kao, W.W., et al. 1996. Keratin 12-deficient mice have fragile corneal epithelia. *Invest. Ophthalmol. Vis. Sci.* 37: 2572-2584.
8. Nishida, K., et al. 1997. Isolation and chromosomal localization of a cornea-specific human Keratin 12 gene and detection of four mutations in Meesmann corneal epithelial dystrophy. *Am. J. Hum. Genet.* 61: 1268-1275.

## CHROMOSOMAL LOCATION

Genetic locus: KRT12 (human) mapping to 17q21.2.

## SOURCE

Cytokeratin 12 (H-60) is a rabbit polyclonal antibody raised against amino acids 1-60 of Cytokeratin 12 of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.

## APPLICATIONS

Cytokeratin 12 (H-60) is recommended for detection of Cytokeratin 12 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Cytokeratin 12 siRNA (h): sc-43306, Cytokeratin 12 shRNA Plasmid (h): sc-43306-SH and Cytokeratin 12 shRNA (h) Lentiviral Particles: sc-43306-V.

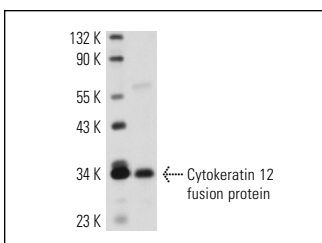
Molecular Weight of Cytokeratin 12: 54 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200 or human colon extract: sc-363757.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker<sup>™</sup> compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz<sup>™</sup> Mounting Medium: sc-24941.

## DATA



Cytokeratin 12 (H-60): sc-25722. Western blot analysis of human recombinant Cytokeratin 12 fusion protein.

## SELECT PRODUCT CITATIONS

1. Miyashita, H., et al. 2008. A novel NIH/3T3 duplex feeder system to engineer corneal epithelial sheets with enhanced cytokeratin 15-positive progenitor populations. *Tissue Eng. Part A* 14: 1275-1282.
2. Omoto, M., et al. 2009. The use of human mesenchymal stem cell-derived feeder cells for the cultivation of transplantable epithelial sheets. *Invest. Ophthalmol. Vis. Sci.* 50: 2109-2115.

## STORAGE

Store at 4° C, \*\*DO NOT FREEZE\*\*. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.