SANTA CRUZ BIOTECHNOLOGY, INC.

Cytokeratin 3/2p (AE5): sc-80000

BACKGROUND

Cytokeratins comprise a diverse group of intermediate filament proteins that are expressed as pairs in both keratinized and non-keratinized epithelial tissue. The Cytokeratin proteins play a critical role in differentiation, as well as tissue specialization and function, to maintain the overall structural integrity of epithelial cells. Cytokeratins are also useful markers in identifying the origin of metastatic tumors. There are two types of Cytokeratins: types I and II. Type I Cytokeratins are acidic proteins, whereas type II Cytokeratins are neutral or basic proteins. Cytokeratin 3 is a type II Cytokeratin expressed in the corneal epithelium along with Cytokeratin 12. Dominant-negative mutations in the Cytokeratin 3 and Cytokeratin 12 genes cause Meesmann corneal dystrophy (MCD), an autosomal dominant disease that is characterized by weakness of the anterior corneal epithelium. Cytokeratin 2p (also designated Keratin 76) is a type II Cytokeratin expressed in palate epithelium. Cytokeratin 2p and Cytokeratin 3 proteins share significant sequence identity at the amino acid level.

CHROMOSOMAL LOCATION

Genetic locus: KRT3/KRT76 (human) mapping to 12q13.13; Krt76 (mouse) mapping to 15 F3.

SOURCE

Cytokeratin 3/2p (AE5) is a mouse monoclonal antibody raised against corneal epithelial Cytokeratin of rabbit origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Cytokeratin 3/2p (AE5) is available conjugated to agarose (sc-80000 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-80000 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-80000 PE), fluorescein (sc-80000 FITC), Alexa Fluor® 488 (sc-80000 AF488), Alexa Fluor® 546 (sc-80000 AF546), Alexa Fluor® 594 (sc-80000 AF594) or Alexa Fluor® 647 (sc-80000 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-80000 AF680) or Alexa Fluor® 790 (sc-80000 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

Cytokeratin 3/2p (AE5) is recommended for detection of Cytokeratin 3 of corneal epithelium and Cytokeratin 2p of palate epithelium of mouse, rat, human, rabbit and bovine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500); useful as a marker to study corneal epithelial differentiation.

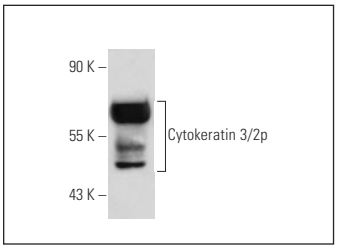
Molecular Weight of Cytokeratin 3/2p: 64 kDa.

Positive Controls: bovine eye tissue extract.

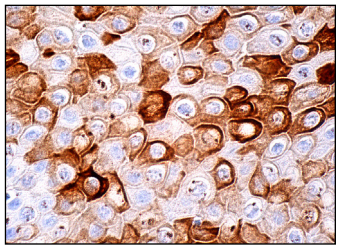
STORAGE

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

DATA



Cytokeratin 3/2p (AE5): sc-80000. Western blot analysis of Cytokeratin 3/2p expression in bovine eye tissue extract.



Cytokeratin 3/2p (AE5): sc-80000. Immunoperoxidase staining of formalin fixed, paraffin-embedded human oral mucosa tissue showing cytoplasmic staining of squamous epithelial cells.

SELECT PRODUCT CITATIONS

1. Hayashi, R., et al. 2010. Validation system of tissue-engineered epithelial cell sheets for corneal regenerative medicine. Tissue Eng. Part C Methods 16: 553-560.
2. Li, J., et al. 2011. S100A expression in normal corneal-limbal epithelial cells and ocular surface squamous cell carcinoma tissue. Mol. Vis. 17: 2263-2271.
3. Nakajima, R. and Takeda, S. 2013. The efficient fabrication of corneal epithelial cell sheets by controlling oxygen concentration. Exp. Eye Res. 116: 434-438.
4. Nakajima, R. and Takeda, S. 2014. Fabrication of corneal epithelial cell sheets maintaining colony-forming cells without feeder cells by oxygen-controlled method. Exp. Eye Res. 118: 53-60.
5. Nakajima, R., et al. 2015. Fabrication of transplantable corneal epithelial and oral mucosal epithelial cell sheets using a novel temperature-responsive closed culture device. J. Tissue Eng. Regen. Med. 9: 637-640.
6. Jiang, D., et al. 2016. Mitochondrial transfer of mesenchymal stem cells effectively protects corneal epithelial cells from mitochondrial damage. Cell Death Dis. 7: e2467.
7. Gouveia, R.M., et al. 2017. Controlling the 3D architecture of self-lifting auto-generated tissue equivalents (SLATEs) for optimized corneal graft composition and stability. Biomaterials 121: 205-219.
8. Miyashita, H., et al. 2017. Long-term homeostasis and wound healing in an *in vitro* epithelial stem cell niche model. Sci. Rep. 7: 43557.
9. Kethiri, A.R., et al. 2019. Inflammation, vascularization and goblet cell differences in LSCD: validating animal models of corneal alkali burns. Exp. Eye Res. 185: 107665.

RESEARCH USE

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