SANTA CRUZ BIOTECHNOLOGY, INC.

μ-crystallin (F-11): sc-376687

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Crystallins are divided into two classes: taxon-specific, or enzyme, and ubiquitous. The ubiquitous crystallins constitute the major proteins of the vertebrate eye lens, where they maintain the transparency and refractive index of the lens. The taxon-specific crystallins, also designated phylogenetically-restricted crystallins, include λ-, μ-, and ζ-crystallin, which all share homology to various enzymes. λ-crystallin is best described in rabbit, where it shares homology with L-3-hydroxyacyl-CoA dehydrogenase from porcine. The human μ-crystallin gene maps to chromosome 16p12.2, and encodes a protein that is expressed in neural tissue, muscle, and kidney. Unlike other crystallins, μ-crystallin does not perform a structural role in lens tissue, but rather it binds NADPH and thyroid hormone, which indicates that it may have other regulatory or developmental functions. ζ-crystallin/quinone reductase is present at low levels in human lens tissue. It has NADPH-dependent quinone reductase activity distinct from other known quinone reductases, and may play a role as a pH response element-binding protein.

CHROMOSOMAL LOCATION

Genetic locus: CRYM (human) mapping to 16p12.2; Crym (mouse) mapping to 7 F2.

SOURCE

μ-crystallin (F-11) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 45-85 near the N-terminus of μ-crystallin of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

μ-crystallin (F-11) is available conjugated to agarose (sc-376687 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-376687 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376687 PE), fluorescein (sc-376687 FITC), Alexa Fluor® 488 (sc-376687 AF488), Alexa Fluor® 546 (sc-376687 AF546), Alexa Fluor® 594 (sc-376687 AF594) or Alexa Fluor® 647 (sc-376687 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376687 AF680) or Alexa Fluor® 790 (sc-376687 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-376687 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

APPLICATIONS

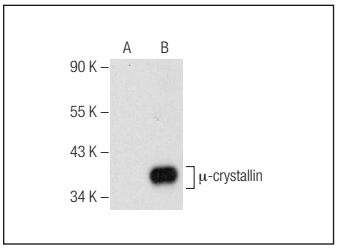
μ-crystallin (F-11) is recommended for detection of μ-crystallin of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for μ-crystallin siRNA (h): sc-40466, μ-crystallin siRNA (m): sc-40467, μ-crystallin shRNA Plasmid (h): sc-40466-SH, μ-crystallin shRNA Plasmid (m): sc-40467-SH, μ-crystallin shRNA (h) Lentiviral Particles: sc-40466-V and μ-crystallin shRNA (m) Lentiviral Particles: sc-40467-V.

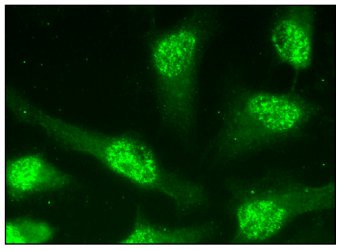
Molecular Weight of μ-crystallin: 36 kDa.

Positive Controls: rat kidney extract: sc-2394, Jurkat whole cell lysate: sc-2204 or μ-crystallin (m): 293T Lysate: sc-127847.

DATA



μ-crystallin (F-11): sc-376687. Western blot analysis of μ-crystallin expression in non-transfected: sc-117752 (**A**) and mouse μ-crystallin transfected: sc-127847 (**B**) 293T whole cell lysates.



μ-crystallin (F-11): sc-376687. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear localization.

SELECT PRODUCT CITATIONS

1. Serrano, M., et al. 2014. Adipose tissue μ-crystallin is a thyroid hormone-binding protein associated with systemic Insulin sensitivity. J. Clin. Endocrinol. Metab. 99: E2259-E2268.
2. Chai, H., et al. 2017. Neural circuit-specialized astrocytes: transcriptomic, proteomic, morphological, and functional evidence. Neuron 95: 531-549.e9.
3. Octeau, J.C., et al. 2018. An optical neuron-astrocyte proximity assay at synaptic distance scales. Neuron 98: 49-66.e9.
4. Homann, G., et al. 2020. Elimination of "voltage noise" of poly (ethylene oxide)-based solid electrolytes in high-voltage lithium batteries: linear versus network polymers. iScience 23: 101225.
5. Matsushima, A., et al. 2020. Combinatorial developmental controls on striatonigral circuits. Cell Rep. 31: 107778.
6. Kinney, C.J., et al. 2021. μ-crystallin in mouse skeletal muscle promotes a shift from glycolytic toward oxidative metabolism. Curr. Res. Physiol. 4: 47-59.

RESEARCH USE

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