

# $\alpha$ B-crystallin (F-10): sc-137129

## BACKGROUND

Crystallins are the major proteins of the vertebrate eye lens, where they maintain the transparency and refractive index of the lens. Crystallins are divided into  $\alpha$ ,  $\beta$  and  $\gamma$  families, and the  $\beta$ - and  $\gamma$ -crystallins also compose a superfamily. Crystallins usually contain seven distinct protein regions, including four homologous motifs, a connecting peptide, and N- and C-terminal extensions.  $\alpha$ -crystallins consist of three gene products,  $\alpha$ A-,  $\alpha$ B- and  $\alpha$ C-crystallin, which are members of the small heat shock protein family (HSP 20).  $\alpha$ -crystallins act as molecular chaperones by holding denatured proteins in large soluble aggregates. However, unlike other molecular chaperones,  $\alpha$ -crystallins do not renature these proteins. Expression of  $\alpha$ A-crystallin is restricted to the lens and defects of this gene cause the development of autosomal dominant congenital cataracts (ADCC). The human  $\alpha$ B-crystallin gene product is expressed in many tissues, including lens, heart and skeletal muscle. Elevated expression of  $\alpha$ B-crystallin is associated with many neurological diseases, and a missense mutation in this gene has co-segregated in a family with a Desmin-related myopathy.

## REFERENCES

1. Neuffer, P.D., et al. 1996. Differential expression of B-crystallin and HSP 27 in skeletal muscle during continuous contractile activity. Relationship to myogenic regulatory factors. *J. Biol. Chem.* 271: 24089-24095.
2. Litt, M., et al. 1998. Autosomal dominant congenital cataract associated with a missense mutation in the human  $\alpha$ -crystallin gene CRYAA. *Hum. Mol. Genet.* 7: 471-474.

## CHROMOSOMAL LOCATION

Genetic locus: CRYAB (human) mapping to 11q23.1; Cryab (mouse) mapping to 9 A5.3.

## SOURCE

$\alpha$ B-crystallin (F-10) is a mouse monoclonal antibody raised against amino acids 1-175 representing full length  $\alpha$ B-crystallin of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

$\alpha$ B-crystallin (F-10) is available conjugated to agarose (sc-137129 AC), 500  $\mu$ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-137129 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-137129 PE), fluorescein (sc-137129 FITC), Alexa Fluor<sup>®</sup> 488 (sc-137129 AF488), Alexa Fluor<sup>®</sup> 546 (sc-137129 AF546), Alexa Fluor<sup>®</sup> 594 (sc-137129 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-137129 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-137129 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-137129 AF790), 200  $\mu$ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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## STORAGE

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

## APPLICATIONS

$\alpha$ B-crystallin (F-10) is recommended for detection of  $\alpha$ B-crystallin of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

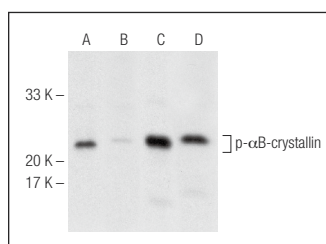
Suitable for use as control antibody for  $\alpha$ B-crystallin siRNA (h): sc-40432,  $\alpha$ B-crystallin siRNA (m): sc-40433,  $\alpha$ B-crystallin shRNA Plasmid (h): sc-40432-SH,  $\alpha$ B-crystallin shRNA Plasmid (m): sc-40433-SH,  $\alpha$ B-crystallin shRNA (h) Lentiviral Particles: sc-40432-V and  $\alpha$ B-crystallin shRNA (m) Lentiviral Particles: sc-40433-V.

Molecular Weight (predicted) of  $\alpha$ B-crystallin: 20 kDa.

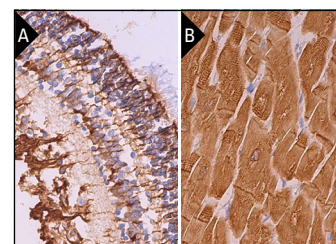
Molecular Weight (observed) of  $\alpha$ B-crystallin: 22-30 kDa.

Positive Controls: rat heart extract: sc-2393, Y79 cell lysate: sc-2240 or rat kidney extract: sc-2394.

## DATA



Western blot analysis of  $\alpha$ B-crystallin phosphorylation in untreated (**A,C**) and lambda protein phosphatase (sc-200312A) treated (**B,D**) rat heart tissue extracts. Antibodies tested include p- $\alpha$ B-crystallin (F-1): sc-365884 (**A,B**) and  $\alpha$ B-crystallin (F-10): sc-137129 (**C,D**).



$\alpha$ B-crystallin (F-10): sc-137129. Immunoperoxidase staining of formalin fixed, paraffin-embedded human fetal eye tissue showing nuclear, cytoplasmic and membrane staining of cells in ganglion cell layer and inner and outer nuclear layers (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human heart muscle tissue showing intercalated disc, cytoplasmic and nuclear staining of myocytes (**B**).

## SELECT PRODUCT CITATIONS

1. Gomez-Pastor, R., et al. 2017. Abnormal degradation of the neuronal stress-protective transcription factor HSF1 in Huntington's disease. *Nat. Commun.* 8: 14405.
2. Pagano, C., et al. 2021. Association of  $\alpha$ B-crystallin expression with tumor differentiation grade in colorectal cancer patients. *Diagnostics* 11: 896.
3. Nguyen, L.K.C., et al. 2021. Transmembrane protein 168 mutation reduces cardiomyocyte cell surface expression of Nav1.5 through  $\alpha$ B-crystallin intracellular dynamics. *J. Biochem.* 170: 577-585.
4. Limbad, C., et al. 2022. Senolysis induced by 25-hydroxycholesterol targets CRYAB in multiple cell types. *iScience* 25: 103848.

## RESEARCH USE

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