

# p- $\alpha$ B-crystallin (hSer 59)-R: sc-22509-R

## 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 distinctive 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). They are induced by heat shock, and act as molecular chaperones by holding denatured proteins in large soluble aggregates. However, unlike other molecular chaperones,  $\alpha$ -crystallins do not renature these proteins.  $\alpha$ A-crystallin is preferentially restricted to the lens. Defects in the gene encoding  $\alpha$ A-crystallin cause autosomal dominant congenital cataract (ADCC). The human  $\alpha$ B-crystallin gene encodes a protein that is present 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. The p38 MAPK substrate, MAPKAPK-2 phosphorylates  $\alpha$ B-crystallin on Ser 59.

## 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.
3. Haley, D.A., et al. 1998. The small heat-shock protein,  $\alpha$ B-crystallin, has a variable quaternary structure. *J. Mol. Biol.* 277: 27-35.
4. Bova, M.P., et al. 1999. Mutation R120G in  $\alpha$ B-crystallin, which is linked to a Desmin-related myopathy, results in an irregular structure and defective chaperone-like function. *Proc. Natl. Acad. Sci. USA* 96: 6137-6142.
5. Wang, K., et al. 2000.  $\alpha$ -crystallin prevents irreversible protein denaturation and acts cooperatively with other heat-shock proteins to renature the stabilized partially denatured protein in an ATP-dependent manner. *Eur. J. Biochem.* 267: 4705-4712.
6. Armstrong, S.C., et al. 2000. Differential translocation or phosphorylation of  $\alpha$ B-crystallin cannot be detected in ischemically preconditioned rabbit cardiomyocytes. *J. Mol. Cell Cardiol.* 32: 1301-1314.

## CHROMOSOMAL LOCATION

Genetic locus: CRYAB (human) mapping to 11q23.1.

## SOURCE

p- $\alpha$ B-crystallin (hSer 59)-R is an affinity purified rabbit polyclonal antibody raised against a peptide mapping to phosphorylated Ser 59 of  $\alpha$ B-crystallin of  $\alpha$ B-crystallin of human origin.

## STORAGE

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

## PRODUCT

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

Blocking peptide available for competition studies, sc-22509 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

p- $\alpha$ B-crystallin (hSer 59)-R is recommended for detection of Ser 59 phosphorylated  $\alpha$ B-crystallin of human and rat 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  $\alpha$ B-crystallin siRNA (h): sc-40432,  $\alpha$ B-crystallin shRNA Plasmid (h): sc-40432-SH and  $\alpha$ B-crystallin shRNA (h) Lentiviral Particles: sc-40432-V.

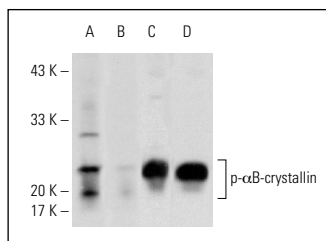
Molecular Weight of p- $\alpha$ B-crystallin: 23.5 kDa.

Positive Controls: Y79 cell lysate: sc-2240.

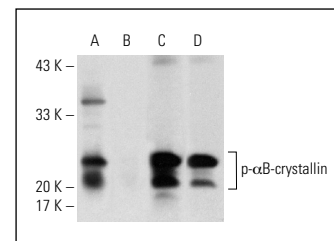
## RECOMMENDED SECONDARY REAGENTS

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™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent) and Western Blotting Luminol Reagent: sc-2048. 2) 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™ Mounting Medium: sc-24941.

## 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 extract. Antibodies tested include p- $\alpha$ B-crystallin (hSer 59)-R: sc-22509-R (**A,B**) and  $\alpha$ B-crystallin (F-10): sc-137129 (**C,D**).



Western blot analysis of  $\alpha$ B-crystallin phosphorylation in untreated (**A,C**) and lambda protein phosphatase (sc-200312A) treated (**B,D**) rat kidney tissue extract. Antibodies tested include p- $\alpha$ B-crystallin (hSer 59)-R: sc-22509-R (**A,B**) and  $\alpha$ B-crystallin (F-10): sc-137129 (**C,D**).

## RESEARCH USE

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