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Antibodies to Eye Lense Proteins (Crystallins)

beta Crystallin S antibodies (BxtlS-201AP and BxtlS-212AP)

Crystallins are group of structural water soluble proteins that constitute 90% of the vertebrate lens. There are 4 distinct classes of crystallins, alfa-, beta-, gamma- and delta-crystallins. The mammalian lens does not express delta-crystallins and it confined to birds lens. The human eye lenses at birth contain at least 14 distinct lenses specific proteins called crystallins, 12 of which are full length proteins are 2 are truncated ranging in molecular weight from 20-30 kDa. The relative proportional expression of alfa and beta crystallins in human eye lenses during the 2-300 days is in integral proportion indicating a molar relationship between these proteins. During early development the ratios of alfaA and beta B2 crystallin change proportionally to the logarithm of age during the first year with alfa A decreasing and beta B2 decreasing in equimolar ratios. Though the functional significance of the reciprocal decrease in alfaA and an increase in betaB2 is not fully known, the beta crystalline may be substituting the alfa crystalline in later part of life (1). Two major determinants of the transparency of the lens are protein-protein interactions and stability of the crystallins, the structural proteins in the lens. betaB2 is the most abundant beta-crystallin in the human lens and is important in formation of the complex interactions of lens crystallins. Certain post translational modifications and formation of homo and heterodimers also pay an important role in the over all transparency of the eye lenses. The thermodynamic and kinetic stabilities of the eye lens proteins, beta-gamma-crystallins are important in the etiology of senile cataract by controlling the chance of proteins unfolding, which can lead to aggregation and loss of transparency. betaB2-Crystallin orthologs are of low stability and comprise two typical beta-gamma-crystallin domains, although, uniquely, the N-terminal domain has a cysteine in one of the conserved folded beta-hairpins. Most of crystalline genes are located on the human chromosome 2 except gamma S crystalline, located on chromosome 3.

Numerous post-translational changes take place in crystalline polypeptide including deamidation, cleavage, oxidation, during maturation and ageing of the lens. The nucleotide sequence of the cDNA of eye lens beta s-crystallin has been determined and the amino acid sequence has been confirmed by amino acid compositions and partial sequences of the tryptic peptides of this monomeric protein. beta s-Crystallin has a length of 178 residues, corresponding to a mol. wt. of 21 kDa. The crystalline S has a blocked N-terminal serine. Comparison of beta s with the known sequences of other beta- and gamma-crystallins shows beta s to be more closely related to the monomeric gamma-crystallins than to the oligomeric beta-crystallins. The computer assisted molecular modeling of beta S crystallin suggested similarities with the gamma-crystallins which supports its monomeric behavior (3). The water soluble beta crystalline S also are substrate for lens transglutaminase which catalyze the formation of epsilon and gamma glutamyl-lysine isopeptides cross links between polypeptides (3).

The anti-beta S crystalline antibodies were generated using cyclic peptide methodology. The anti-crystallin S antibodies are generated in rabbits using KLH conjugated immunogenic peptides representing two distinct epitopes on the beta crystalline S protein. The antibodies were affinity purified and stabilized in our proprietary formulated antibody stabilization buffer. FabGennix International Inc., will conjugate these antibodies to fluorophores or secondary enzymes for a nominal charge. Western blot positive controls (PC-BxtlS) in ready-to-use buffer is available for this antibody. Limited quantities of antigenic blocking peptides are also available. FabGennix International Inc., has made a number of antibodies related to eye research, for a complete listing please visit www.fabgennix.com.

Catalog #	Host Species	Nature	Cross reactivity	Quantity	volume
BxtlS-201AP	Rabbit	Affinity purified Beta Crystallin S N-terminal antibodies	R, M, H	100 ξ g	150ul
BxtlS-212AP	Rabbit	Affinity purified Beta Crystallin S C-terminal antibodies	R, M, H	100ug	150ul
P-Bxtl200	n/a	Antigenic blocking peptide for BxtlS-201AP	n/a	250 ug	100ul
P-Bxtl210	n/a	Antigenic blocking peptide for BxtlS-212AP	n/a	250 ξ g	100ul
PC-Bxtl	synthetic	Western blot positive control for BxtlS	n/a	for 5 appl	inquire

R = rat; M = mouse; H = human; C = chicken; monk = monkey ; * not all variants are labeled equally

Immunogen: Synthetic cyclic peptide specific for amino-terminal epitope (aa: 19-37) for antibody BxtlS-201AP and synthetic peptide specific for C-terminal epitope(aa: 153-162).

Concentration: BxtlS-201AP and BxtlS-212AP IgG concentration 0.75-1.25 mg/ml in antibody stabilization buffer.

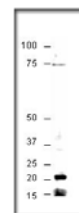
Applications: Antibodies BxtlS-201AP and BxtlS-212AP are ideal for W B applications at 1:500 dilutions. Antibody BxtlS-212AP can be used for IHC and cell labeling experiments. Other applications for these antibodies have not been determined. The dilutions for these antibodies are for reference only, investigators are expected to determine the optimal conditions for specific assay. Recommended dilutions: WB 1:500; IMM and & i.p pull-down assays: 1:200-250

Reactivity: The antibody BxtlS-201AP and BxtlS-212AP both recognize a 21 kDa strong band in western blot positive control samples for Beta crystalline S (PC-BxtlS) sample and in rat lens extract.

Notes: Now Western blots can be stripped and recycle using our specially formulated StripBuffer (Cat # FGI-1989). This stripping buffer does not require heating or have any pungent smell. It is guaranteed to have no background, and signal to noise ratio will improve with each stripping.

References:

- Robinson NE, Lampi KJ, Speir JP, Kruppa G, Easterling M, Robinson AB. Quantitative measurement of young human eye lens crystallins by direct injection Fourier transform ion cyclotron resonance mass spectrometry. Mol Vis. 2006 Jun 21;12:704-11.
- Quax-Jeuken Y, Driessen H, Leunissen J, Quax W, de Jong W, Bloemendal H. beta s-Crystallin: structure and evolution of a distinct member of the beta gamma-superfamily. EMBO J. 1985 Oct;4(10):2597-602.
- Berbers GA, Feenstra RW, van den Bos R, Hoekman WA, Bloemendal H, de Jong WW. Lens transglutaminase selects specific beta-crystallin sequences as substrate. Proc Natl Acad Sci U S A. 1984 Nov; 81(22): 7017-7020.



Western blot of BxtlS-212AP with PC-BxtlS. Antibody dilution 1:500 in diluBuffer. MW of beta crystalline S is 21 kDa

* For users who may require large amounts of BxtlS-201AP and BxtlS-212AP antibodies, please enquire about bulk material discounts.
This Product is for Research Use Only and is NOT intended for use in humans or clinical diagnosis.

121906-0020SF1001Z-rev10.00

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