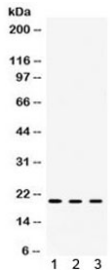
Alpha A Crystallin Antibody / Molecular Chaperone Antibody (R32408)

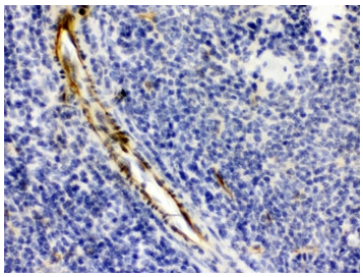
Catalog No.	Formulation	Size
R32408	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

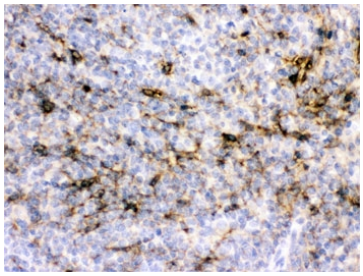
Availability	1-3 business days
Species Reactivity	Human, Mouse, Rat
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Antigen affinity
Buffer	Lyophilized from 1X PBS with 2.5% BSA and 0.025% sodium azide
UniProt	P02489
Localization	Nuclear, cytoplasmic
Applications	Western blot: 0.1-0.5ug/ml Immunohistochemistry (FFPE): 0.5-1ug/ml Flow cytometry: 1-3ug/million cells
Limitations	This Alpha A Crystallin Antibody / Molecular Chaperone Antibody is available for research use only.



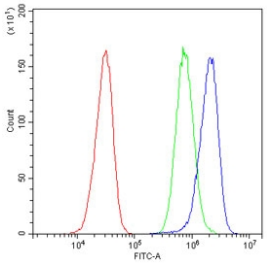
Alpha A Crystallin Antibody Human, Mouse, Rat WB. Western blot analysis of Alpha A Crystallin expression was performed using anti-Alpha A Crystallin (CRYAA) antibody. Lane 1: rat spleen lysate. Lane 2: mouse eye lysate. Lane 3: human SMMC-7721 cell lysate. Alpha A Crystallin is a small heat shock protein and ATP-independent molecular chaperone that maintains protein homeostasis by preventing protein aggregation and protecting cells from stress-induced damage. A specific immunoreactive band is detected at approximately 20â€“23 kDa in all samples, consistent with the expected molecular weight of Alpha A Crystallin. These results demonstrate cross-species reactivity and support the utility of Alpha A Crystallin Antibody for studies of molecular chaperone function, protein homeostasis, ocular biology, and cellular stress responses.



Alpha A Crystallin Antibody Mouse Spleen IHC. IHC staining of FFPE mouse spleen with Alpha A Crystallin antibody demonstrated cytoplasmic staining in scattered splenic cells. Alpha A Crystallin (CRYAA) is a small heat shock protein and ATP-independent molecular chaperone that protects cells from protein aggregation, oxidative stress, and apoptosis while maintaining protein homeostasis. Although best known as a major structural protein of the ocular lens, Alpha A Crystallin is also expressed in selected non-lenticular tissues where it contributes to cellular stress responses and cytoprotection. HIER was performed by boiling tissue sections in pH 6, 10 mM citrate buffer for 20 minutes followed by cooling prior to staining. These results support the utility of Alpha A Crystallin Antibody for studies of molecular chaperone function, protein homeostasis, and cellular stress responses.



Alpha A Crystallin Antibody Rat Spleen IHC. IHC staining of FFPE rat spleen with Alpha A Crystallin antibody demonstrated cytoplasmic staining in scattered splenic cells. Alpha A Crystallin (CRYAA) is a small heat shock protein and ATP-independent molecular chaperone that protects cells from protein aggregation, oxidative stress, and apoptosis while maintaining protein homeostasis. Although predominantly expressed in the ocular lens, Alpha A Crystallin is also present in selected non-lenticular tissues where it contributes to cellular stress responses and cytoprotection. HIER was performed by boiling tissue sections in pH 6, 10 mM citrate buffer for 20 minutes followed by cooling prior to staining. These results support the utility of Alpha A Crystallin Antibody for studies of molecular chaperone function, protein homeostasis, and cellular stress responses.



Alpha A Crystallin Antibody Human HepG2 Flow Cytometry. Flow cytometric analysis of human HepG2 cells using Alpha A Crystallin antibody demonstrated a clear rightward shift in fluorescence intensity (blue) compared with the isotype control (green) and unstained cells (red), indicating specific detection of Alpha A Crystallin expression. Alpha A Crystallin (CRYAA) is a small heat shock protein and ATP-independent molecular chaperone that protects cells from protein aggregation, oxidative stress, and apoptosis while maintaining protein homeostasis. HepG2 cells were incubated with Alpha A Crystallin antibody at 1 ug/10^6 cells following goat serum blocking. These results support the utility of Alpha A Crystallin Antibody for flow cytometric studies of molecular chaperone function, protein homeostasis, and cellular stress responses.

Description

Alpha A Crystallin Antibody / Molecular Chaperone Antibody recognizes Alpha A Crystallin (CRYAA), a major structural protein of the vertebrate eye lens and a member of the small heat shock protein family. Alpha A Crystallin functions as an ATP-independent molecular chaperone that binds partially unfolded proteins, preventing their aggregation and preserving lens transparency throughout development and aging. As one of the most abundant proteins in lens fiber cells, it is essential for maintaining optical clarity, protein stability, and long-term lens integrity. In addition to its structural role, Alpha A Crystallin protects cells from oxidative stress, apoptosis, and protein misfolding, making it a critical regulator of protein homeostasis and cellular survival. Because of its conserved chaperone activity and abundant expression within the lens, Alpha A Crystallin is widely used as a marker of lens differentiation, ocular development, and cataract research.

Although predominantly associated with the eye, Alpha A Crystallin is also expressed in the retina, skeletal muscle, heart, brain, and several epithelial tissues, where it performs important cytoprotective functions. As a molecular chaperone, CRYAA stabilizes damaged proteins, reduces protein aggregation, and supports proper protein folding during oxidative stress, heat shock, inflammation, and other cellular insults. These activities help preserve mitochondrial function, inhibit apoptosis, and promote cell survival under adverse physiological conditions. Consequently, Alpha A Crystallin has become an important marker for studies of protein quality control, stress adaptation, neuroprotection, and tissue regeneration.

Mutations in the CRYAA gene are a well-established cause of congenital cataracts and have also been linked to age-related cataracts, microphthalmia, and additional inherited ocular disorders. Altered Alpha A Crystallin expression has further been associated with retinal degeneration, glaucoma, cardiovascular disease, and several human cancers, where dysregulated chaperone activity can influence cellular proliferation, migration, therapeutic resistance, and survival. Growing evidence indicates that Alpha A Crystallin contributes to maintenance of stem cell viability and protection against neurodegenerative processes, expanding its importance beyond ophthalmic research into neuroscience and regenerative medicine.

Alpha A Crystallin Antibody / Molecular Chaperone Antibody is an excellent tool for investigations of lens biology, molecular chaperone function, protein homeostasis, oxidative stress, apoptosis, neuroprotection, cataract mechanisms, and ocular disease. Researchers also use Alpha A Crystallin Antibody / Molecular Chaperone Antibody to study cellular stress responses, tissue regeneration, protein quality control, and diseases characterized by protein aggregation. Its diverse biological functions and highly conserved expression make Alpha A Crystallin an important biomarker for both basic and translational biomedical research.

Explore our Cell Biology Antibodies page to learn more about proteins that regulate molecular chaperone activity, protein homeostasis, cellular stress responses, and protein quality control.

Application Notes

Optimal dilution of the Alpha A Crystallin Antibody / Molecular Chaperone Antibody should be determined by the researcher.

Immunogen

Amino acids M1-S173 from the human protein were used as the immunogen for the Alpha A Crystallin antibody.

Storage

After reconstitution, the Alpha A Crystallin antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

Alternate Names

Alpha A Crystallin antibody, CRYAA antibody, Alpha Crystallin A antibody, Crystallin Alpha A antibody, Lens Structural Protein antibody, Small Heat Shock Protein antibody

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