

## EYA2 (F-18): sc-100325

### BACKGROUND

A gene on chromosome 20q13.12 encodes EYA2 (eyes absent). EYA2 is one of four members of the eyes absent family. A 271 amino acid domain at the carboxy-terminal is highly conserved amongst the members of the eyes absent family, while the PST (proline-serine-threonine)-rich amino-terminal is highly divergent. EYA2 is expressed relatively late in development in the cytoplasm of extensor tendons and ligaments of the phalangeal elements of the limb, cranial placodes, branchial arches, central nervous system and the developing eye. Pax-3 induces the expression of EYA2 in a cascade that is necessary and sufficient for myogenesis. EYA2, like EYA1, acts as a transcriptional activator in connective tissue patterning through its PST domain, which functions as a transactivation domain. EYA2 is translocated to the nucleus by Six proteins, which interact through their domain and homeodomain with EYA2. EYA2 carboxy-terminal interacts with the  $G_{\alpha_z}$  and  $G_{\alpha_{i-2}}$  proteins. This interaction prevents Six proteins from translocating EYA2 to the nucleus.

### REFERENCES

- Xu, P.X., et al. 1997. Mouse EYA homologues of the *Drosophila* eyes absent gene require Pax-6 for expression in lens and nasal placode. *Development* 124: 219-231.
- Xu, P.X., et al. 1997. Mouse EYA genes are expressed during limb tendon development and encode a transcriptional activation function. *Proc. Natl. Acad. Sci. USA* 94: 11974-11979.
- Abdelhak, S., et al. 1997. A human homologue of the *Drosophila* eyes absent gene underlies branchio-oto-renal (BOR) syndrome and identifies a novel gene family. *Nat. Genet.* 15: 157-164.
- Duncan, M.K., et al. 1997. Eyes absent: a gene family found in several metazoan phyla. *Mamm. Genome* 8: 479-485.
- Ohto, H., et al. 1999. Cooperation of Six and EYA in activation of their target genes through nuclear translocation of EYA. *Mol. Cell. Biol.* 19: 6815-6824.
- Xu, P.X., et al. 1999. EYA1-deficient mice lack ears and kidneys and show abnormal apoptosis of organ primordia. *Nat. Genet.* 23: 113-117.
- Fan, X., et al. 2000. The  $\alpha$  subunits of  $G_2$  and  $G_i$  interact with the eyes absent transcription cofactor EYA2, preventing its interaction with the Six class of homeodomain-containing proteins. *J. Biol. Chem.* 275: 32129-32134.
- Ridgeway, A.G. and Skerjanc, I.S. 2001. Pax-3 is essential for skeletal myogenesis and the expression of Six1 and EYA2. *J. Biol. Chem.* 276: 19033-19039.

### CHROMOSOMAL LOCATION

Genetic locus: EYA2 (human) mapping to 20q13.12.

### SOURCE

EYA2 (F-18) is a mouse monoclonal antibody raised against recombinant EYA2 of human origin.

### RESEARCH USE

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

### PRODUCT

Each vial contains 100  $\mu$ g IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

### APPLICATIONS

EYA2 (F-18) is recommended for detection of EYA2 of human 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 EYA2 siRNA (h): sc-41948, EYA2 shRNA Plasmid (h): sc-41948-SH and EYA2 shRNA (h) Lentiviral Particles: sc-41948-V.

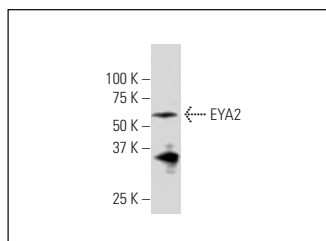
Molecular Weight of EYA2: 59 kDa.

Positive Controls: IMR-32 cell lysate: sc-2409.

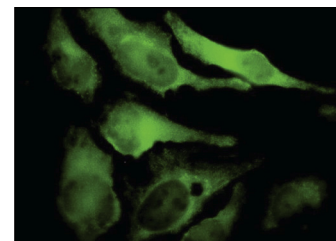
### RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

### DATA



EYA2 (F-18): sc-100325. Western blot analysis of EYA2 expression in IMR-32 whole cell lysate.



EYA2 (F-18): sc-100325. Immunofluorescence staining of paraformaldehyde-fixed HeLa cells showing cytoplasmic localization.

### SELECT PRODUCT CITATIONS

- Liu, Y., et al. 2016. Phosphorylation of H2A.XTyr39 positively regulates DNA damage response and is linked to cancer progression. *FEBS J.* 283: 4462-4473.

### STORAGE

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