

FHL-5 (F-26): sc-101045

BACKGROUND

The four-and-a-half-LIM domain (FHL) proteins include FHL-1 (SLIM1), FHL-2 (SLIM3), FHL-3 (SLIM2), FHL-4 and FHL-5. The signature "half-domain", a single zinc finger domain located in the N-terminal region, differentiates FHLs from other LIM-only proteins, which have numbers of zinc fingers. Specific combinations of FHL proteins elicit selective activation of both CREB and CREM. FHL-5, also known as ACT (activator of CREM in testis), is a testis-specific protein that interacts with CREM (a transcription factor required for spermatid differentiation) via its third LIM domain and can stimulate CREM activity independently of phosphorylation. This suggests that FHL-5 may participate in the regulation of spermatogenesis by acting as a transcriptional coactivator of CREM. During spermatid elongation, FHL-5 is translocated from the nucleus to the cytoplasm by the kinesin motor protein KIF17 thus silencing CREM activity.

REFERENCES

1. Fimia, G.M., et al. 1998. Mechanisms of activation by CREB and CREM: phosphorylation, CBP, and a novel coactivator, ACT. *Cold Spring Harb. Symp. Quant. Biol.* 63: 631-642.
2. Morgan, M.J. and Whawell, S.A. 2000. The structure of the human LIM protein ACT gene and its expression in tumor cell lines. *Biochem. Biophys. Res. Commun.* 273: 776-783.
3. Palermo, I., et al. 2001. Cloning and expression of activator of CREM in testis in human testicular tissue. *Biochem. Biophys. Res. Commun.* 283: 406-411.
4. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 605126. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
5. Mistry, A.C., et al. 2004. FHL-5, a novel Actin-binding protein, is highly expressed in eel gill pillar cells and responds to wall tension. *Am. J. Physiol. Regul. Integr. Comp. Physiol.* 287: R1141-R1154.
6. Kotaja, N., et al. 2004. Abnormal sperm in mice with targeted deletion of the ACT (activator of cAMP-responsive element modulator in testis) gene. *Proc. Natl. Acad. Sci. USA* 101: 10620-10625.
7. Kimmins, S., et al. 2004. A specific programme of gene transcription in male germ cells. *Reprod. Biomed. Online* 8: 496-500.
8. Hogeveen, K.N. and Sassone-Corsi, P. 2006. Regulation of gene expression in post-meiotic male germ cells: CREM-signalling pathways and male fertility. *Hum. Fertil.* 9: 73-79.

CHROMOSOMAL LOCATION

Genetic locus: FHL5 (human) mapping to 6q16.1.

SOURCE

FHL-5 (F-26) is a mouse monoclonal antibody raised against recombinant FHL-5 of human origin.

RESEARCH USE

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

PRODUCT

Each vial contains 100 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

FHL-5 (F-26) is recommended for detection of FHL-5 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg 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 FHL-5 siRNA (h): sc-95151, FHL-5 shRNA Plasmid (h): sc-95151-SH and FHL-5 shRNA (h) Lentiviral Particles: sc-95151-V.

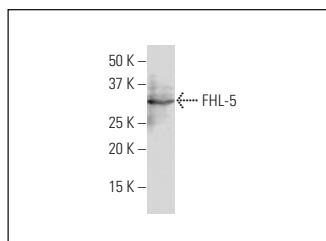
Molecular Weight of FHL-5: 33 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227 or PC-3 cell lysate: sc-2220.

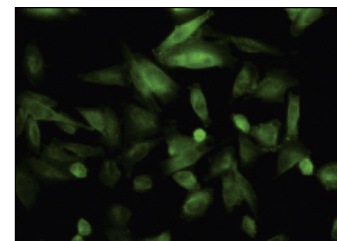
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended:
 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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



FHL-5 (F-26): sc-101045. Western blot analysis of FHL-5 expression in Hep G2 whole cell lysate.



FHL-5 (F-26): sc-101045. Immunofluorescence staining of paraformaldehyde-fixed Hep G2 cells showing nuclear and cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Bao, J., et al. 2018. The arginine methyltransferase CARM1 represses p300•ACT•CREM τ activity and is required for spermiogenesis. *Nucleic Acids Res.* 46: 4327-4343.

STORAGE

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