SANTA CRUZ BIOTECHNOLOGY, INC.

LIF (K-16): sc-48575

BACKGROUND

Embryonic stem (ES) cells are the focus of much research and represent great therapeutic potential as they can be propagated indefinitely in an undifferentiated state while possessing the ability to differentiate into all embryonic germ layers (endoderm, ectoderm and mesoderm) both *in vivo* and *in vitro*. LIF (leukemia inhibitory factor), also known as MLPLI (melanoma-derived LPL inhibitor), HILDA, DIA or CDF, is a 202 amino acid secreted protein and lymphoid factor that participates in the maintenance of ES cell pluripotency by suppressing spontaneous ES cell differentiation. Secreted LIF precursor is further processed into a biologically active glycoprotein. Expressed by a wide variety of cells including activated T lymphocytes, monocytes, mast cells and neuronal cells, LIF is suggested to promote survival and growth of axons *in vitro* and is involved in immune tolerance at the maternal-fetal interface. LIF may also participate in fat and bone metabolism and regulate epithelial conversion during kidney development.

REFERENCES

1. Gough, N.M., Gearing, D.P., King, J.A., Willson, T.A., Hilton, D.J., Nicola, N.A. and Metcalf, D. 1988. Molecular cloning and expression of the human homologue of the murine gene encoding myeloid leukemia-inhibitory factor. Proc. Natl. Acad. Sci. USA 85: 2623-2627.
2. Patterson, P.H. 1994. Leukemia inhibitory factor, a cytokine at the interface between neurobiology and immunology. Proc. Natl. Acad. Sci. USA 91: 7833-7835.
3. Barasch, J., Yang, J., Ware, C.B., Taga, T., Yoshida, K., Erdjument-Bromage, H., Tempst, P., Parravicini, E., Malach, S., Aranoff, T. and Oliver, J.A. 1999. Mesenchymal to epithelial conversion in rat metanephros is induced by LIF. Cell 99: 377-386.
4. Pera, M.F., Reubinoff, B. and Trounson, A. 2000. Human embryonic stem cells. J. Cell Sci. 113: 5-10.
5. Hu, W., Feng, Z., Teresky, A.K. and Levine, A.J. 2007. p53 regulates maternal reproduction through LIF. Nature 450: 721-724.
6. Niwa, H., Ogawa, K., Shimosato, D. and Adachi, K. 2009. A parallel circuit of LIF signalling pathways maintains pluripotency of mouse ES cells. Nature 460: 118-122.

CHROMOSOMAL LOCATION

Genetic locus: LIF (human) mapping to 22q12.2; Lif (mouse) mapping to 11 A1.

SOURCE

LIF (K-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of LIF of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-48575 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

LIF (K-16) is recommended for detection of LIF of mouse, rat and 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).

LIF (K-16) is also recommended for detection of LIF in additional species, including canine, bovine and porcine.

Suitable for use as control antibody for LIF siRNA (h): sc-37222, LIF siRNA (m): sc-37223, LIF siRNA (r): sc-156093, LIF shRNA Plasmid (h): sc-37222-SH, LIF shRNA Plasmid (m): sc-37223-SH, LIF shRNA Plasmid (r): sc-156093-SH, LIF shRNA (h) Lentiviral Particles: sc-37222-V, LIF shRNA (m) Lentiviral Particles: sc-37223-V and LIF shRNA (r) Lentiviral Particles: sc-156093-V.

Molecular Weight of LIF precursor: 22 kDa.

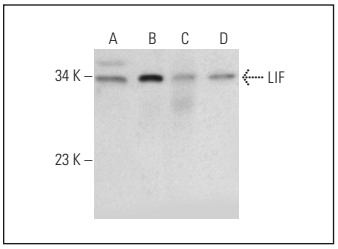
Molecular Weight of mature glycosylated LIF: 40-45 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227, Raji whole cell lysate: sc-364236 or JAR cell lysate: sc-2276.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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 donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



LIF (K-16): sc-48575. Western blot analysis of LIF expression in JAR (**A**), Hep G2 (**B**), Raji (**C**) and SH-SY5Y (**D**) whole cell lysates.

STORAGE

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

RESEARCH USE

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