Datasheet

Cat. No. PM2019

Recombinant Mouse LIF, Tag Free

Information

Accession #	P09056
Alternate Names	leukemia inhibitory factor; LIF;CDF; D Factor; DIA; differentiation inhibitory activity
Source	Human embryonic kidney cell, HEK293-derived mouse LIF protein
Protein sequence	Pro25-Phe203
M.Wt	20 kDa
Appearance	Solution protein
Stability & Storage	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. 3 years from date of receipt, -20 to -70°C as supplied.
Concentration	0. 2 mg/mL
Formulation	Dissolved in sterile PBS buffer.
Reconstitution	We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. This solution can be diluted into other aqueous buffers.
Biological Activity	The EC50 for this effect is 0.05-0.2 ng/mL. Measured by its ability to induce IL-6 secretion by M1 mouse myeloid leukemia cells.
Shipping Condition	Shipping with dry ice.
Handling	Centrifuge the vial prior to opening.
Usage	For Research Use Only! Not to be used in humans.

Quality Control

Purity	> 95%, determined by SDS-PAGE.
Endotoxin	<0.010 EU per 1 ug of the protein by the LAL method.

Description

Recombinant mouse LIF (leukemia inhibitory factor) is commonly used in cell culture to maintain the pluripotency of stem cells. LIF is a widely expressed pleiotropic member of the IL-6 family of cytokines [1-3]. Mature mouse LIF is expressed as a highly and variably glycosylated 32-62 kDa monomer that shares 78%, 91%, 80%, 76%, and 78% aa sequence identity with human, rat, canine, bovine, and porcine LIF, respectively [4]. LIF functions through a heterodimeric receptor complex containing a ligand-binding subunit, LIF R alpha /CD118, and a signal transducing subunit, gp130 [2, 4, 5]. gp130 also serves as a subunit of the receptor complexes for Oncostatin M, Cardiotrophin-1, CNTF, IL-6, IL-11, and IL-27 [2, 5]. A soluble form of mouse LIF R alpha can be generated by alternative splicing [6]. Depending on the cells and their context, LIF either opposes or favors differentiation [2, 7]. LIF produced by the uterine

endometrium supports successful implantation of the embryo, promotes proliferation and maintenance of pluripotency in embryonic stem cells, and favors proliferation of progenitor cell types such as hematopoietic stem cells [2, 5, 7]. LIF can also function as an autocrine growth factor in some pancreatic cancers, but it induces differentiation in the myeloid leukemic cell line M1 [1, 8]. Tumor cell-derived LIF can also induce formation of immunosuppressive tumor-associated macrophages [9]. LIF promotes endometrial remodeling and differentiation of adipocytes and cardiac smooth muscle cells [2, 3, 10]. It promotes regulatory T cell and inhibits Th17 cell differentiation, thus down-regulating inflammation and contributing to immune tolerance during pregnancy and in the nervous system [2, 3, 5, 7].

Reference

[1]. Moreau, J.F. et al. (1988) Nature 336:690.

[2]. Trouillas, M. et al. (2009) Eur. Cytokine Netw. 20:51.

[3]. Metcalfe, S.M. (2011) Genes Immun. 12:157.

[4]. Gearing, D.P. et al. (1987) EMBO J. 6:3995.

[5]. Cheng, J.G. et al. (2001) Proc. Natl. Acad. Sci. USA 98:8680.

[6]. Tomida, M. et al. (1993) FEBS lett. 334:193.

[7]. Paiva, P. et al. (2009) Cytokine Growth Factor Rev. 20:319.

[8]. Kamohara, H. et al. (2007) Int. J. Oncol. 30:977.

[9]. Duluc, D. et al. (2007) Blood 110:4319.

[10]. Zouein, F.A. et al. (2013) Eur. Cytokine Netw. 24:11