LIGHT/TNFSF14 Protein, Human (HEK293, hFC-Myc)

Cat. No.:	HY-P72033
Synonyms:	Herpes virus entry mediator ligand; HVEM-L; Herpesvirus entry mediator ligand; CD258; HVEML; LIGHT; UNQ391; PRO726;
Species:	Human
Source:	HEK293
Accession:	O43557 (D74-V240)
Gene ID:	8740
Molecular Weight:	Approximately 46.7 kDa

PROPERTIES

AA Sequence	D G P A G S W E Q L I Q E R R S H E V N P A A H L T G A N S S L T G S G G P L L W E T Q L G L A F L R G L S Y H D G A L V V T K A G Y Y Y I Y S K V Q L G G V G C P L G L A S T I T H G L Y K R T P R Y P E E L E L L V S Q Q S P C G R A T S S S R V W W D S S F L G G V V H L E A G E K V V V R V L D E R L V R L R D G T R S Y F G A F M V
Biological Activity	Measured by its binding ability in a functional ELISA. Immobilized TNFRSF14 at 0.5 μg/mL can bind TNFSF14 at 0.1525-20000 ng/mL, the EC_{50} is 3.488-13.38 ng/mL.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 μm sterile filtered PBS, 6% Trehalose, pH 7.4.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH_2O.
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US;may vary elsewhere.

DESCRIPTION

Background	LIGHT/TNFSF14 is a type II transmembrane protein produced by activated T cells, belongs to tumor necrosis factor (TNF) family. LIGHT/TNFSF14 is a TNFRSF14/HVEM (herpesvirus entry mediator) ligand, engages the receptor for the LTalphabeta heterotrimer but does not form complexes with either secreted lymphotoxin alpha (LTalpha) or LTbeta[1]. LIGHT/TNFSF14 is predominantly expressed in the spleen but also found in the brain. It is weakly expressed in peripheral lymphoid tissues and in heart, placenta, liver, lung, appendix, and kidney, and no expression seen in fetal tissues, endocrine

glands, or nonhematopoietic tumor lines[1].
LIGHT/TNFSF14 has a transmemberane, thus it can be leaved into 2 chains: membrane form and soluble form. The soluble form of isoform 1 derives from the membrane form by proteolytic processing.
In tumor immunology, TNFSF14/LIGHT also serves as a novel immune checkpoint molecule for glioblastoma multiforme (GBM), as well as lung carcinoma, breast carcinoma, cervical cancer, and prostate cancer. TNFSF14/LIGHT can stimulate NK cells to produce IFNγ via nuclear factor-κB (NFκB) RelA/p50 signaling. TNFSF14/LIGHT sustains the function of $CD8^+$ effector T cells, trigger apoptosis of various tumor cells[2].
In cell signaling, TNFSF14/LIGHT binds to lymphotoxin-β receptor (LTβR) and HVEM for activating both of them, and disrupts the HVEM-BTLA complex in surface-bound form, and facilitates HVEM-BTLA complex formation in the soluble form[2].
TNFSF14/LIGHT promotes an inflammatory esophageal fibroblast in vitro via a LTβR-NIK-p52 NF-κB dominant pathway with promoting inflammatory gene expression and down-regulating homeostatic factors including WNTs, BMPs and type 3 semaphorins[3].
Beside that, TNFSF14/LIGHT protein is a costimulatory factor for the activation of lymphoid cells and as a deterrent to infection by herpesvirus. TNFSF14/LIGHT also prevents tumor necrosis factor alpha mediated apoptosis in primary hepatocyte[4][5].

REFERENCES

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