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Lin28 Antibody [1G9H9]

Catalog # ASC12018

Product Information

Application	WB, E
Primary Accession	Q9H9Z2
Other Accession	NP_078950, 13375938
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Isotype	IgG2b
Clone Names	1G9H9
Calculated MW	22743
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	Lin28 antibody can be used for detection of Lin28 by Western blot at 0.5 - 1 g/mL.

Additional Information

Gene ID	79727
Other Names	Protein lin-28 homolog A, Lin-28A, Zinc finger CCHC domain-containing protein 1, LIN28A, CSDD1, LIN28, ZCCHC1
Target/Specificity	LIN28A; At least two isoforms of Lin28 are known to exist; this antibody will detect both. Lin28 antibody will not cross-react with Lin28 Homolog B.
Reconstitution & Storage	Lin28 Monoclonal antibody can be stored at 4℃ for three months and -20℃, stable for up to one year.
Precautions	Lin28 Antibody [1G9H9] is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	LIN28A
Synonyms	CSDD1, LIN28, ZCCHC1
Function	RNA-binding protein that inhibits processing of pre-let-7 miRNAs and regulates translation of mRNAs that control developmental timing, pluripotency and metabolism (PubMed:21247876). Seems to recognize a common structural G-quartet (G4) feature in its miRNA and mRNA targets (Probable). 'Translational enhancer' that drives specific mRNAs to polysomes and increases the efficiency of protein synthesis. Its association with the translational machinery and target mRNAs results in an increased number of initiation events per molecule of mRNA and, indirectly, in mRNA stabilization.

	Binds IGF2 mRNA, MYOD1 mRNA, ARBP/36B4 ribosomal protein mRNA and its own mRNA. Essential for skeletal muscle differentiation program through the translational up- regulation of IGF2 expression. Suppressor of microRNA (miRNA) biogenesis, including that of let-7, miR107, miR-143 and miR-200c. Specifically binds the miRNA precursors (pre-miRNAs), recognizing an 5'-GGAG-3' motif found in pre-miRNA terminal loop, and recruits TUT4 and TUT7 uridylyltransferases (PubMed:18951094, PubMed:19703396, PubMed:22118463, PubMed:22898984). This results in the terminal uridylation of target pre-miRNAs (PubMed:18951094, PubMed:19703396, PubMed:22118463, PubMed:22898984). Uridylated pre-miRNAs fail to be processed by Dicer and undergo degradation. The repression of let-7 expression is required for normal development and contributes to maintain the pluripotent state by preventing let-7-mediated differentiation of embryonic stem cells (PubMed:18951094, PubMed:19703396, PubMed:22118463, PubMed:22898984). Localized to the periendoplasmic reticulum area, binds to a large number of spliced mRNAs and inhibits the translation of mRNAs destined for the ER, reducing the synthesis of transmembrane proteins, ER or Golgi lumen proteins, and secretory proteins. Binds to and enhances the translation of mRNAs for several metabolic enzymes, such as PFKP, PDHA1 or SDHA, increasing glycolysis and oxidative phosphorylation. Which, with the let-7 repression may enhance tissue repair in adult tissue (By similarity).
Cellular Location	Cytoplasm. Rough endoplasmic reticulum {ECO:0000250|UniProtKB:Q8K3Y3}. Cytoplasm, P-body. Cytoplasm, Stress granule. Nucleus, nucleolus {ECO:0000250|UniProtKB:Q8K3Y3}. Note=Predominantly cytoplasmic (PubMed:22118463). In the cytoplasm, localizes to peri-endoplasmic reticulum regions and detected in the microsomal fraction derived from rough endoplasmic reticulum (RER) following subcellular fractionation May be bound to the cytosolic surface of RER on which ER-associated mRNAs are translated (By similarity). Shuttle from the nucleus to the cytoplasm requires RNA-binding (PubMed:17617744). Nucleolar localization is observed in 10-15% of the nuclei in differentiated myotubes (By similarity). {ECO:0000250|UniProtKB:Q8K3Y3, ECO:0000269|PubMed:17617744, ECO:0000269|PubMed:22118463}
Tissue Location	Expressed in embryonic stem cells, placenta and testis. Tends to be up-regulated in HER2-overexpressing breast tumors

Background

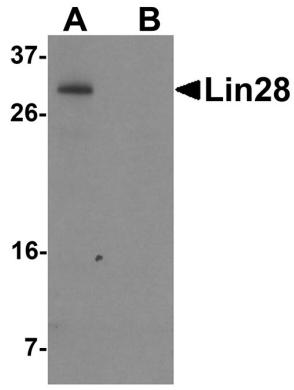
Lin28 Monoclonal Antibody: Lin28 is a transcription factor that was first identified through its key role in the pathway of developmental timing in C. elegans. The role of Lin28 in development suggested that it might be useful in the creation of stem cells that might be beneficial in cell replacement therapies in the treatment of several degenerative diseases. Artificial stem cells, termed induced pluripotent stem (iPS) cells, can be created by expressing Lin28 in addition to the transcription factors POU5F1, Sox2, and NANOG in mouse fibroblasts. More recently, experiments have demonstrated that iPS cells could be generated using expression plasmids expressing Lin28, Sox2, POU5F1 and c-Myc, eliminating the need for virus introduction, thereby addressing a safety concern for potential use of iPS cells in regenerative medicine.

References

Ambros V. A hierarchy of regulatory genes controls a larva-to-adult developmental switch in C. elegans. Cell 1989; 57:49-57.
Carpenter MK, Rosler E, and Rao MS. Characterization and differentiation of human embryonic stem cells. Cloning Stem Cells 2003; 5:79-88.
Tyu J, Vodyanik MA, Smuga-Otto K, et al. Induced pluripotent stem cell lines derived from human somatic cells. Science 2007; 318:1917-20

Okita K, Nakagawa M, Hyenjong H, et al. Generation of mouse induced pluripotent stem cells without viral vectors. Science 2008; 322:949-53.

Images



Western blot analysis of Lin28 in Raji cell lysate with Lin28 antibody at 0.5 µg/mL in (A) the absence and (B) the presence of blocking peptide.

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