LIN28B (lin-28 homolog B (C. elegans))

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Identity
Other names: CSDD2, FLJ16517, Lin28.2
HGNC (Hugo): LIN28B
Location: 6q16.3

Note
Size: 146.72 kb. Orientation: plus strand.

DNA/RNA
Description
The gene spans over 125 kb on plus strand; 4 exons.

Transcription
The gene is mainly expressed in fetal tissues and not expressed in adult tissue and reexpressed in cancer tissue.

Protein
Description
Lin28B is an oncofetal RNA-binding protein. Lin-28B protein consists of two domains that contain RNA-binding motif: the N-terminal cold shock domain and a pair of retroviral-type CCHC zinc fingers. It inhibits biosynthesis of let-7 microRNA through binding to the 5'-GGAG-3' motif in the terminal loop of pre-let-7 and promoting terminal uridylation of let-7 precursor by TUTase4. Uridylated pre-let-7 miRNAs fail to be processed by Dicer and undergo degradation.

Expression
Cytoplasm.

Function
It inhibits biosynthesis of let-7 microRNA through promoting terminal uridylation of let-7 precursor by TUTase4.

Homology
Lin28

Mutations
Note
No somatic mutation of Lin28B was identified in cancer.

Implicated in
Hepatocellular carcinoma
Note
Lin28B expression is more frequently noted in high-grade hepatocellular carcinoma with high alpha-fetoprotein levels. Knockdown of Lin28B by RNA interference in the HCC cell line suppressed proliferation in vitro and reduced in vivo tumor growth in NOD/SCID mice. In contrast, overexpression of Lin28B in the HCC cell line enhanced tumorigenicity. Overexpression of Lin28B also induced epithelial-mesenchymal transition in HA22T cells and hence, invasion capacity.

Colorectal cancer
Note
Lin28B is overexpressed in colorectal cancer. It promotes cell migration, invasion and transforms...
immortalized colonic epithelial cells. In addition, constitutive LIN28B expression increases expression of intestinal stem cell markers LGR5 and PROM1 in the presence of let-7 restoration.

**Ovarian cancer**

**Note**

Lin28B is overexpressed in high grade serous ovarian cancer. Pleomorphism in Lin28B promoter region is associated with susceptibility to epithelium ovarian cancer. Patients with high Lin28B ovarian cancer had shorter progression-free and overall survival than those with low Lin28B ovarian cancer.

**Age at menarche**

**Note**

A sequence variation in Lin28B is identified as the SNP most significant associated with age at menarche in one genome wide study. Besides, a meta-analysis of 32 genome-wide association studies in 87802 women found polymorphism of Lin28B is strongly associated with age at menarche. Knockout mice of Lin28B also show delay in puberty onset.

**Body height**

**Note**

A LIN28B SNP, rs314277, is associated with final body height.

**References**


This article should be referenced as such: