FAM57A (family with sequence similarity 57, member A)

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Identity

Other names: CT120, FLJ22282
HGNC (Hugo): FAM57A
Location: 17p13.3

DNA/RNA

Description
Gene size: 2145 bp in length, ORF 774 bp.
Full-length cDNA of CT120/FAM57A contains 2145 base pairs and encodes a protein with 257 amino acids.

Transcription
The CT120 contains two isoforms in human: one isoform identified was termed CT120A; another isoform (AAH26023.1) was named CT120B, which consists of four exons and encodes a protein with 225 amino acids (the fourth exon in CT120A is spliced).

Protein

Description
- CT120: 257 aa; 29 kDa.
- CT120B: 225 aa; 25 kDa.

Expression
CT120 is universally expressed in different human normal tissues and in various human tumor cell lines.

Localisation
CT120 is a novel plasma membrane-associated gene.

Function
CT120 may assume very essential physiological functions involving in amino acid transport and glutathione metabolism through interaction with SLC3A2 and GGTL3B.

Homology
Homology comparison revealed that CT120 is highly conserved during biological evolution.

Implicated in

Lung cancer

Prognosis
CT120A protein was a potential molecular target for treatment of lung cancers. CT120A was overexpressed in 15 cases of the 16 primary lung cancer specimens. Knockdown of CT120A by small hairpin RNA in the human lung adenocarcinoma cell line SPC-A-1 cells resulted in a reduced cell growth rate in vitro and decrease of the capacity for anchorage-independent growth and tumorigenicity in nude mice.
The suppression of CT120A expression also sensitized cells to ultraviolet-induced apoptosis. Atlas cDNA expression array revealed that the expressions of several apoptosis- and growth-associated genes were altered underlying the molecular mechanisms of these cell biological behaviors.
Oncogenesis

CT120 ectopic expression could promote cell proliferation activity of NIH3T3 cells, and two major signaling pathways involved in cell proliferation, cell survival and anti-apoptosis were overexpressed and activated in response to CT120: one is the Raf/MEK/Erk signal cascades and the other is the PI3K/Akt signal cascades, suggesting that CT120 might contribute, at least in part, to the constitutively activation of Erk and Akt in human lung cancer cells. In addition, some tumor metastasis associated genes cathepsin B, cathepsin D, cathepsin L, MMP-2/TIMP-2 were also upregulated by CT120, upon which CT120 might be involved in tumor invasiveness and metastasis.

In addition, CT120 might play an important role in tumor progression through modulating the expression of some candidate "lung tumor progression" genes including B-Raf, Rab-2, BAX, BAG-1, YB-1 and Cdc42.

References


Pan DN, Li JJ, Wei L, Yao M, Wan DF, Gu JR. Inhibitory effect of CT120B, an alternative splice variant of CT120A, on lung cancer cell growth. Acta Biochim Biophys Sin (Shanghai). 2005 Sep;37(9):588-92


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