

Gene Section

Short Communication

SYK (spleen tyrosine kinase)

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Published in Atlas Database: February 2002

Online updated version : <http://AtlasGeneticsOncology.org/Genes/SYKID394.html>

DOI: 10.4267/2042/37844

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Identity

HGNC (Hugo): SYK

Location: 9q22

DNA/RNA

Transcription

2639 mRNA complete codons.

Protein

Description

635 amino acids, 72 kDa in the long isoform; contains in N-term 2 tandem SH2 (SRC homology 2) domains separated by an interdomain A, an interdomain B, and a protein kinase domain in C-term; contains a number of autophosphorylation sites on tyrosines; the short form, 612 amino acids, lacks part of interdomain B.

Expression

Wide.

Function

Non-receptor type protein-tyrosine kinase; tyrosine phosphorylation of many proteins; role in signaling pathways; SYK is activated by oxidative stress; putative tumor suppressor; role in the differentiation of B-cells and many other cell types.

Mutations

Somatic

ETV6-SYK hybrid gene can be created by t(9;12) translocation (see below); SYK can also be inactivated by epigenetic modifications (i.e. hypermethylation).

Implicated in

t(9;12)(q22;p12)

Disease

Found in a case of myelodysplastic syndrome.

Oncogenesis

ETV6-SYK is constitutively tyrosine phosphorylated.

Breast cancer

Oncogenesis

SYK has been found inactivated in a subset of breast cancers.

References

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This article should be referenced as such:

Huret JL. SYK (spleen tyrosine kinase). *Atlas Genet Cytogenet Oncol Haematol*. 2002; 6(2):121.