

Familial /sporadic gastrointestinal stromal tumors (GISTs)

(updated: old version not available)

Identity

Note a recently described familial cancer syndrome characterized by development of multiple GISTs in different family members

Inheritance autosomal dominant

Clinics

Phenotype and clinics symptoms are attributable to development of benign and malignant GISTs
hyperpigmentation and mast-cell disease may be associated
etiology : GISTs originate from the CD34+/KIT+ interstitial cells of Cajal (ICCs) which development depends on the SCF/KIT interaction; germline/somatic KIT mutations in familial/solitary GISTs
pathology : mesenchymal tumours developed in the gastrointestinal wall mainly characterized by positivity for both KIT and CD34; precursor tumour cells are likely ICCs that are located in and near the circular muscle layer of the stomach, small intestine and large intestine

Genes involved and Proteins

Gene Name [KIT](#)

Location 4q12

DNA/RNA

Description 21 exons

Protein

Description transmembrane SCF/MGF receptor with tyrosine kinase activity; binding of ligand (SCF) induces receptor dimerization, autophosphorylation and signal transduction via molecules containing SH2- domains

Mutations

Note see diagram [Gain-of-function mutations](#)

Germinal small deletion of one of two consecutive valine residues (codon 559 or 560, GTTGTT)

Somatic simple in frame deletions, point mutations, deletion and point mutations are mainly clustered in exon 11 (from codon 550 to 584), but

a few have been also identified in exon 9 and exon 13; all mutations are predicted to lead to constitutive phosphorylation and kinase activation
the percentage of GISTs positive for c-kit mutations in exon 11 has been estimated to be 57%
use of c-kit mutation as unfavourable prognostic marker is under debate

External links

[GeneCards](#) [KIT](#)

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[OMIM](#) [164920](#)

[HGMD](#) [120117](#)

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