

Gene Section

Mini Review

TPM4 (tropomyosin)

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Identity

HGNC (Hugo): TPM4

Location: 19p13.1

DNA/RNA

Transcription

Alternate transcripts.

Protein

Description

248 amino acids, 29 kDa. Coiled-coil structure.

Function

Tropomyosins are actin-binding proteins; component of cytoskeletal microfilaments; tropomyosins mediate the effect of Ca²⁺ on the myosin-actin interaction in skeletal muscles, but their function in smooth muscles and other tissues is yet unknown.

Homology

Other tropomyosins: TPM1 (alpha) located in 15q22, TPM2 (beta), located in 9q13, and TPM3 located in 1q25.

Implicated in

Inflammatory myofibroblastic tumors with t(2;19)(p23;p13.1)

Disease

Rare soft tissue tumour found in children and young adults.

Prognosis

Good prognosis.

Hybrid/Mutated gene

5' CLTC - 3' ALK.

Abnormal protein

221 N-term amino acids from TPM4 fused to the 562 C-term amino acids from ALK (i.e. the entire cytoplasmic portion of ALK with the tyrosine kinase domain); homodimerization of the fusion protein.

Oncogenesis

TPM4-ALK is constitutively activated.

References

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