

Gene Section

Mini Review

RAP2B (RAP2B, member of RAS oncogene family)

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Identity

HGNC (Hugo): RAP2B

Location: 3q24



Probe(s) - Courtesy Mariano Rocchi, Resources for Molecular Cytogenetics.

DNA/RNA

Description

The gene contains 1 coding exon only covering 644 bp.

Protein

Description

Rap2 is a member of the Ras superfamily of monomeric GTPases, closely related to Ras. There are two isoforms, Rap2A and Rap2B that share 90%

identity and are encoded by two different genes. Rap2 proteins share 50% identity with Ras proteins, including the regions involved in GDP/GTP binding (hence Rap2A has very similar biochemical properties to Ras), C-terminal CAAX domain leading to prenylation (farnesylation for Rap2A and geranylgeranylation in the case of Rap2B) and palmitoylation. The effector region of Rap2 is very similar to that of Ras proteins, yet Ras and Rap2 do not seem to share effectors.

Expression

Ubiquitous; higher in brain and hemopoietic tissues (especially rich in platelets and neutrophils).

Localisation

plasma and/or intracellular membranes (endoplasmic reticulum).

Function

Unknown.

Homology

90% identical to Rap2A, 60% identical to Rap1, 50% to Ras proteins.



G1 - G5 : domains involved in GDP/GTP binding and hydrolysis
G1 + G3 : involved in binding beta and gamma phosphates of GTP
G4 + G5 : involved in interaction with the guanine base
G2: involved in interaction with effectors, and with Mg²⁺ ion
M1: polybasic or palmitoylation site
M2: prenylation site

Mutations

Germinal

Unknown.

Implicated in

No implication in pathologies characterized so far.

To be noted

Note

See also RAP family.

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