

Gene Section

Mini Review

TSPAN1 (tetraspanin 1)

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Identity

Hugo: TSPAN1

Other names: 9030418M05Rik; NET-1; RP11-322N21.1; TSPAN-1

Location: 1p34.1

DNA/RNA

Description

The TSPAN1 gene is located on chromosome 1 in a 5419 bp sequence (46418799..46424217). The gene contains 10 exons.

Transcription

mRNA: 1297 nucleotides in length.

Protein

Description

241 amino acids, 26.2 kDa protein.

The 241 amino acid sequence is:

```
1  mqcfsfikt  milfnllfl  cgaallavgi  wvsidgasfl  kifgplsssa
mqfvnvgyfl;
61  iaagvfvfal  gflgcygakt  eskcalvtff  fillifiae  vaaavvaly
ttmaehfltl;
121 lvvpaikkdy  gsqedftqvw  nttmglkcc  gftnytdfed  spyfkensaf
ppfccndnvt;
181 ntanetctkq  kahdqkveg  fnqlydirt  navtvggvaa  gigglelaam
ivsmlycnl;
241 q
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Expression

Widely expressed.

Localisation

Plasma membrane.

Function

The protein encoded by this gene is a member of the transmembrane 4 superfamily, also known as the

tetraspanin family. These are cell-surface proteins that are characterized by the presence of four hydrophobic domains. The proteins mediate signal transduction events that play a role in the regulation of cell development, activation, growth and motility.

Homology

Holomogy with Pan troglodytes (100%); Canis lupus familiaris (89%); Mus musculus (82%), Rattus norvegicus (82%), Gallus gallus (70%).

Mutations

Note: TSPAN1 is subject to the following misense mutations :

Source ID	rs2234266	rs2234267	rs2234268	rs1047216
Wild type nucleotide	A	C	G	A
Wild type amino acid	M	S	V	K
Variant nucleotide	G	T	A	G
Variant amino acid	V	F	M	E
Amino Acid Position	0	37	86	188

Implicated in

Cervical cancer

Disease

Cervical cancer is a malignant carcinoma of the cervix, typically composed of squamous cells. Most studies

have found that human papillomavirus (HPV) infection is responsible for virtually all cases of cervical cancer.

Prognosis

Prognosis depends on the stage of the cancer. The 5 year survival rate with treatment is 80 to 90% in patients with stage I disease and 50 to 65% in patients with stage II disease. 25 to 35% of women with stage III cancer and 15% or fewer of those with stage IV cancer are alive after 5 years. Prognosis drops dramatically with tumour metastasis. Thirty-five percent of patients with invasive cervical cancer have persistent or recurrent disease after treatment.

Hepatocellular carcinoma

Disease

Hepatocellular carcinoma (HCC) is a malignancy of the liver. Most cases of HCC are secondary to either a hepatitis B or C infection or cirrhosis.

Prognosis

The prognosis of HCC is dependent on many factors, including tumour size, tumour staging, the involvement of liver vessels, the presence of extrahepatic metastases and the vascularisation of the tumor.

References

Wollscheid V, Kühne-Heid R, Stein I, Jansen L, Köllner S, Schneider A, Dürst M. Identification of a new proliferation-associated protein NET-1/C4.8 characteristic for a subset of high-grade cervical intraepithelial neoplasia and cervical carcinomas. *Int J Cancer* 2002;99(6):771-775.

Chen L, Wang Z, Zhan X, Li DC, Zhu YY, Zhu J. Association of NET-1 gene expression with human hepatocellular carcinoma. *Int J Surg Pathol* 2007;15(4):346-353.

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