ESRP1 and 2 bind FGFR2 pre-mRNA to promote FGFR2b maturation and expression

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Introduction

Reactome is open-source, open access, manually curated and peer-reviewed pathway database. Pathway annotations are authored by expert biologists, in collaboration with Reactome editorial staff and cross-referenced to many bioinformatics databases. A system of evidence tracking ensures that all assertions are backed up by the primary literature. Reactome is used by clinicians, geneticists, genomics researchers, and molecular biologists to interpret the results of high-throughput experimental studies, by bioinformaticians seeking to develop novel algorithms for mining knowledge from genomic studies, and by systems biologists building predictive models of normal and disease variant pathways.

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Literature references

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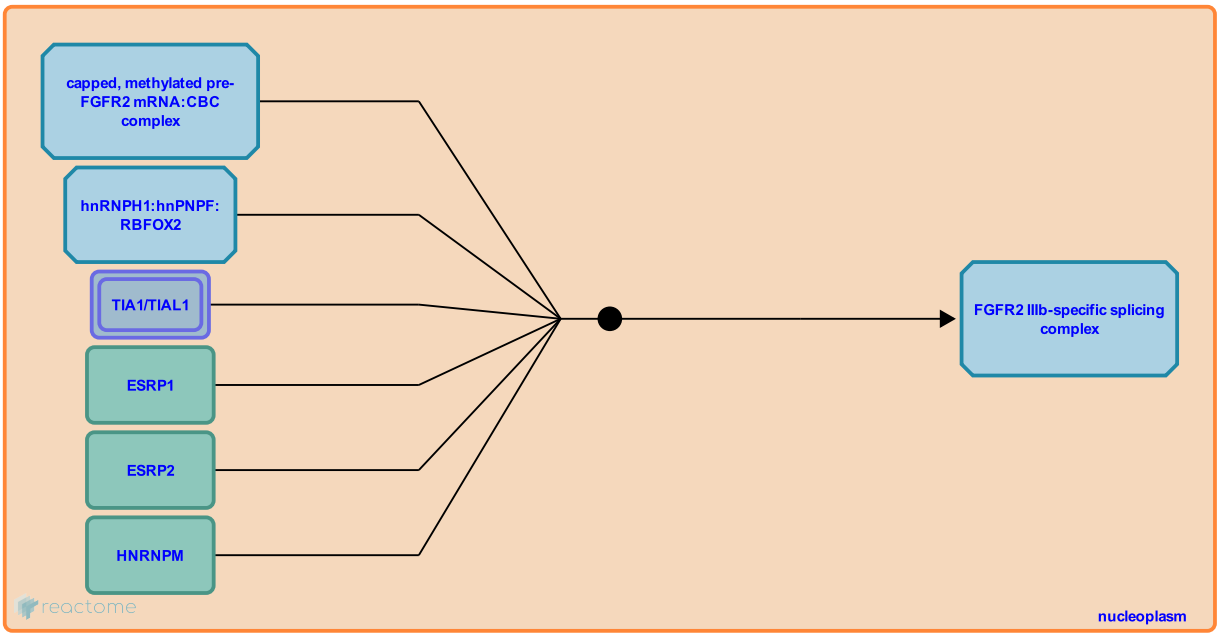
Stable identifier: R-HSA-6803527

Type: binding

Compartments: nucleoplasm



Expression of FGFR2 IIIb splice variant is characteristic of epithelial cells. A number of cis-acting elements have been identified in the FGFR2 pre-mRNA that are required for correct expression of the IIIb isoform and repression of the mesenchymal IIIc form (Muh et al, 2002; Hovhannisyan and Carstens, 2005; Hovhannisyan et al, 2006). These include the ISAR and ISE/ISS elements 1-3 in the region between exon 8 and exon 9 of the pre-mRNA. ESRP1 and ESRP2 are RNA-binding mRNA splicing factors that promote epithelial-specific IIIb splicing by binding to the ISE/ISS-3 sequence (Warzecha et al, 2009). A complex of RBFOX2, hnRNPH1 and hnRNPF may cooperate with the ESRP proteins to stimulate IIIb-specific splicing by binding to adjacent exonic GGG motifs (Baraniak et al, 2006; Mauger et al, 2008). This RBFOX2-hnRNP complex appears to compete with the IIIc-promoting trans-acting factor ASF/SF2 for binding to these exonic sites (Mauger et al, 2008). Other factors that appear to contribute to IIIb-specific splicing include hnRNPM, TIA1 and TIAL1, although their precise roles remain to be elucidated (Hovhannisyan and Carstens, 2007; Del Gatto-Konczak et al, 2000; Newman et al, 2006).

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Editions

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