HMGCR gene 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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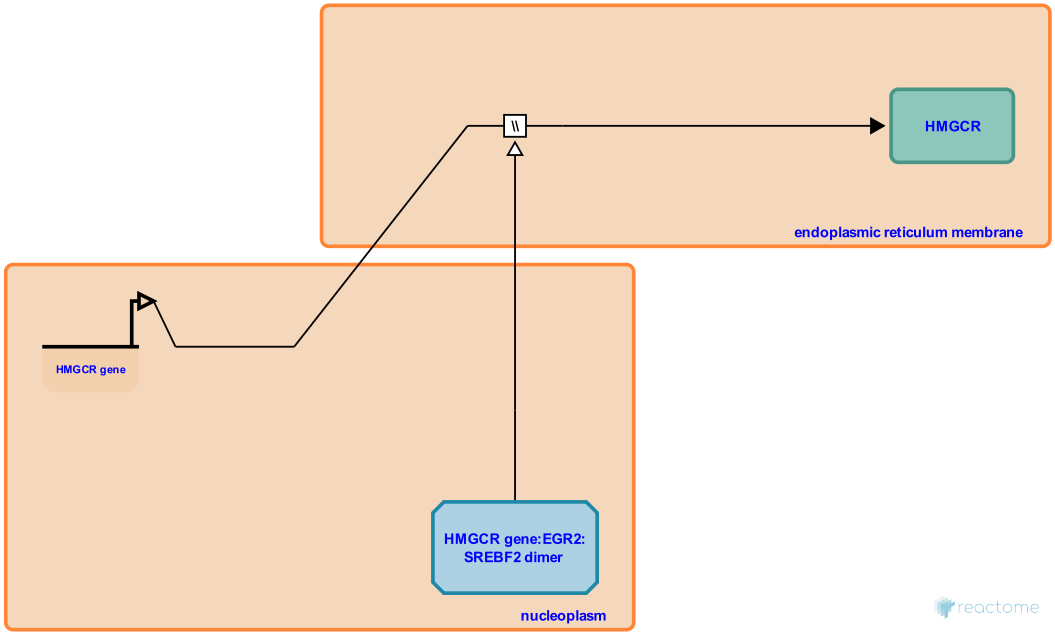
Stable identifier: R-HSA-9621410

Type: omitted

Compartments: nucleoplasm, endoplasmic reticulum membrane



Cholesterol is highly enriched in the Schwann cell membrane and it plays an essential role in the maturation of MPZ, a key protein component of the compact myelin sheath (Saher and Simons, 2010). The cholesterol of the myelin sheath is synthesized within the Schwann cells, rather than being absorbed from the blood (Jurevics and Morell, 1994; Jurevics et al, 1998). Consistent with this, a number of genes involved in the cholesterol biosynthesis pathway are upregulated during the myelination program, including HMG synthase and HMG coenzyme-A reductase (HMGCR) (Nagarjan et al, 2001; Verheijen et al, 2003; Le Blanc et al, 2005; Jang et al, 2010; Kim et al, 2016; reviewed in Camargo et al, 2009). Myelin-specific expression of HMGCR depends on binding of sterol response binding factor 2 (SREBF2) to its cognate SRE site in the HMGCR promoter (Vallett et al, 1996; Pai et al, 1998; LeBlanc et al, 2005). SREBF2-dependent expression of HMGCR is increased with co-expression of EGR2, suggesting that the transcription factors synergistically activate expression (LeBlanc et al, 2005).

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Editions

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