



F10 gene

coagulation factor X

Normal Function

The *F10* gene provides instructions for making a protein called coagulation factor X. Coagulation factors are a group of related proteins that are involved in the coagulation system, which is a series of chemical reactions that form blood clots. After an injury, clots seal off blood vessels to stop bleeding and trigger blood vessel repair.

Coagulation factor X is made primarily by cells in the liver. The protein circulates in the bloodstream in an inactive form until the coagulation system is turned on (activated) by an injury that damages blood vessels. When coagulation factor X is activated, it interacts with other coagulation factors to convert an important coagulation protein called prothrombin to its active form, thrombin. Thrombin then converts a protein called fibrinogen into fibrin, which is the material that forms blood clots.

Health Conditions Related to Genetic Changes

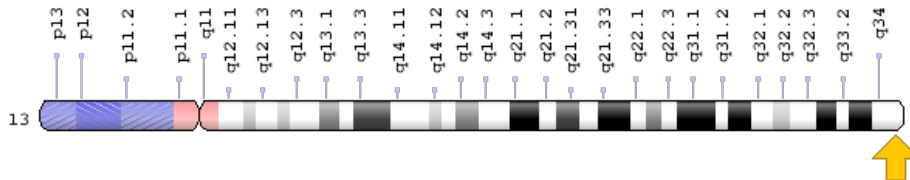
Factor X deficiency

At least 130 mutations in the *F10* gene have been found to cause a rare bleeding disorder called factor X deficiency. This disorder commonly causes nosebleeds, easy bruising, bleeding under the skin, bleeding of the gums, blood in the urine (hematuria), and prolonged or excessive bleeding following surgery or trauma. Some *F10* gene mutations that cause factor X deficiency reduce the amount of coagulation factor X in the bloodstream, resulting in a form of the disorder called type I. Other *F10* gene mutations result in the production of a coagulation factor X protein with impaired function, leading to type II factor X deficiency. Reduced quantity or function of coagulation factor X prevents blood from clotting normally, causing episodes of abnormal bleeding that can be severe.

Chromosomal Location

Cytogenetic Location: 13q34, which is the long (q) arm of chromosome 13 at position 34

Molecular Location: base pairs 113,122,799 to 113,149,529 on chromosome 13 (Homo sapiens Updated Annotation Release 109.20190905, GRCh38.p13) (NCBI)



Credit: Genome Decoration Page/NCBI

Other Names for This Gene

- autoprothrombin III
- prothrombinase
- Prower factor
- Stuart factor
- Stuart-Prower factor

Additional Information & Resources

Educational Resources

- Biochemistry (fifth edition, 2002): Blood-Clotting Cascade (image)
<https://www.ncbi.nlm.nih.gov/books/NBK22589/?rendertype=figure&id=A1401>

Scientific Articles on PubMed

- PubMed
<https://www.ncbi.nlm.nih.gov/pubmed?term=%28coagulation+factor+X%5BTIAB%5D%29+AND+%28%28Genes%5BMH%5D%29+OR+%28Genetic+Phenomena%5BMH%5D%29%29+AND+english%5Bla%5D+AND+human%5Bmh%5D+AND+%22last+1080+days%22%5Bdp%5D>

Catalog of Genes and Diseases from OMIM

- COAGULATION FACTOR X
<http://omim.org/entry/613872>

Research Resources

- Atlas of Genetics and Cytogenetics in Oncology and Haematology
http://atlasgeneticsoncology.org/Genes/GC_F10.html
- ClinVar
<https://www.ncbi.nlm.nih.gov/clinvar?term=F10%5Bgene%5D>
- HGNC Gene Symbol Report
https://www.genenames.org/data/gene-symbol-report#!/hgnc_id/HGNC:3528
- Monarch Initiative
<https://monarchinitiative.org/gene/NCBIGene:2159>
- NCBI Gene
<https://www.ncbi.nlm.nih.gov/gene/2159>
- UniProt
<https://www.uniprot.org/uniprot/P00742>

Sources for This Summary

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