



## Coagulation factors

Coagulation factors are proteins in the blood that help control bleeding. You have several different coagulation factors in your blood. When you get a cut or other injury that causes bleeding, your coagulation factors work together to form a blood clot. The clot stops you from losing too much blood. This process is called the coagulation cascade.

Coagulation factor tests are blood tests that check the function of one or more of your coagulation factors. Coagulation factors are known by Roman numerals (I, II, VIII, etc.) or by name (fibrinogen, prothrombin, hemophilia A, etc.). If any of your factors are missing or defective, it can lead to heavy, uncontrolled bleeding after an injury. Other names: blood clotting factors, factor assays, factor assay by number (Factor I, Factor II, Factor VIII, etc.) or by name (fibrinogen, prothrombin, hemophilia A, hemophilia B, etc.)

### What is it used for?

A coagulation factor test is used to find out if you have a problem with any of your coagulation factors. If a problem is found, you likely have a condition known as a **bleeding disorder**. There are different types of bleeding disorders. Bleeding disorders are very rare. The most well-known bleeding disorder is hemophilia. Hemophilia is caused when coagulation factors VIII or IX are missing or defective.

You may be tested for one or more factors at a time.

### Why do I need a coagulation factor test?

You may need this test if you have a family history of bleeding disorders. Most bleeding disorders are **inherited**. That means it is passed down from one or both of your parents.

You may also need this test if your health care provider thinks you have a bleeding disorder that is *not* inherited. Although uncommon, other causes of bleeding disorders include:

- **Liver disease**
- **Vitamin K deficiency**
- **Blood-thinning medicines**

In addition, you may need a coagulation factor test if you have symptoms of a bleeding disorder. These include:



- Heavy bleeding after an injury
- Easy bruising
- Swelling
- Pain and stiffness
- An unexplained blood clot. In some bleeding disorders, the blood clots too much, rather than too little. This can be dangerous, because when a blood clot travels in your body, it can cause a heart attack, stroke, or other life-threatening conditions.

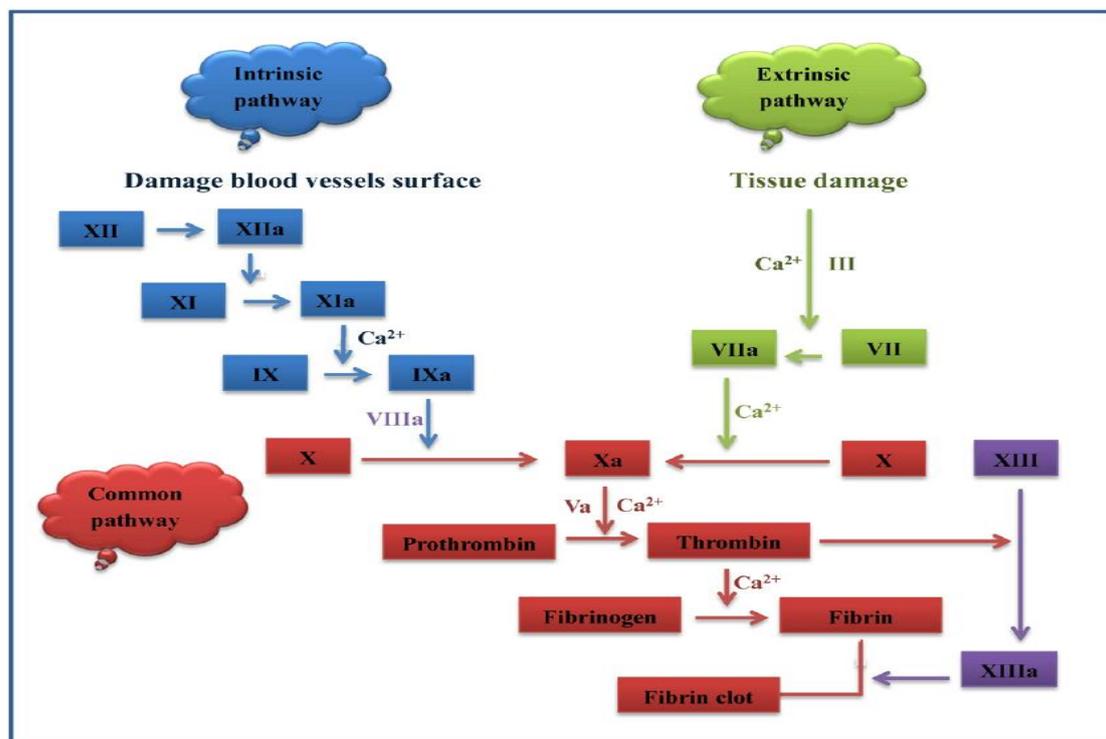


Figure-1 Coagulation pathway

## References

1-Laposata, M. (2014). *Laboratory Medicine Diagnosis of Disease in Clinical Laboratory 2/E*. McGraw-Hill Education.

2- Hoffbrand AV, Steensma DP. Hoffbrand's essential haematology. John Wiley and Sons; 2019 Dec 31.



| الوظيفة   | المصدر            | الاسم   | الرقم |
|---|-------------------|---|-------|
| مصدر الفايبرين  | الكبد             | Fibrinogen                                    | I     |
| - مصدر الثرومبين<br>- تحويل الفايبرونجين<br>إلى فايبرين       | الكبد             | Prothrombin                                   | II    |
| ينشط العامل VII   | النسج الوعائي     | Thromboplastin                                | III   |
| - ينشط العامل VII<br>- يتحد مع X ليكون<br>منشط البروثرومبين   | الكبد             | Proaccelerin                                  | V     |
| ينشط العامل X في<br>المسار الخارجي                            | الكبد             | Proconvertin                                  | VII   |
| ينشط العامل X في<br>المسار الداخلي                            | الكبد             | Antihemophilic<br>«factor A»                  | VIII  |
| ينشط العامل VIII  | الكبد             | Antihemophilic factor<br>B «Christmas factor» | IX    |
| يتحد مع العامل V<br>ليكون منشط<br>البروثرومبين                | الكبد             | «Thrombokinase<br>power-Stuart «factor»       | X     |
| ينشط العامل IX  | الكبد             | Antihemophilic factor C                       | XI    |
| - ينشط العامل XI<br>والبلازمين<br>- يساعد على إذابة<br>الجلطة | الكبد والصفائح    | Hageman factor                                | XII   |
| تكوين الشبكة الليفية<br>وتثبيت الجلطة                         | الصفائح والبلازما | Fibrinase                                     | XIII  |

(\*) العامل IV هو الكالسيوم والعامل VI هو العامل V النشط.  
فيتامين ك يلعب دوراً هاماً في تصنيع العوامل II و VII و IX و X.