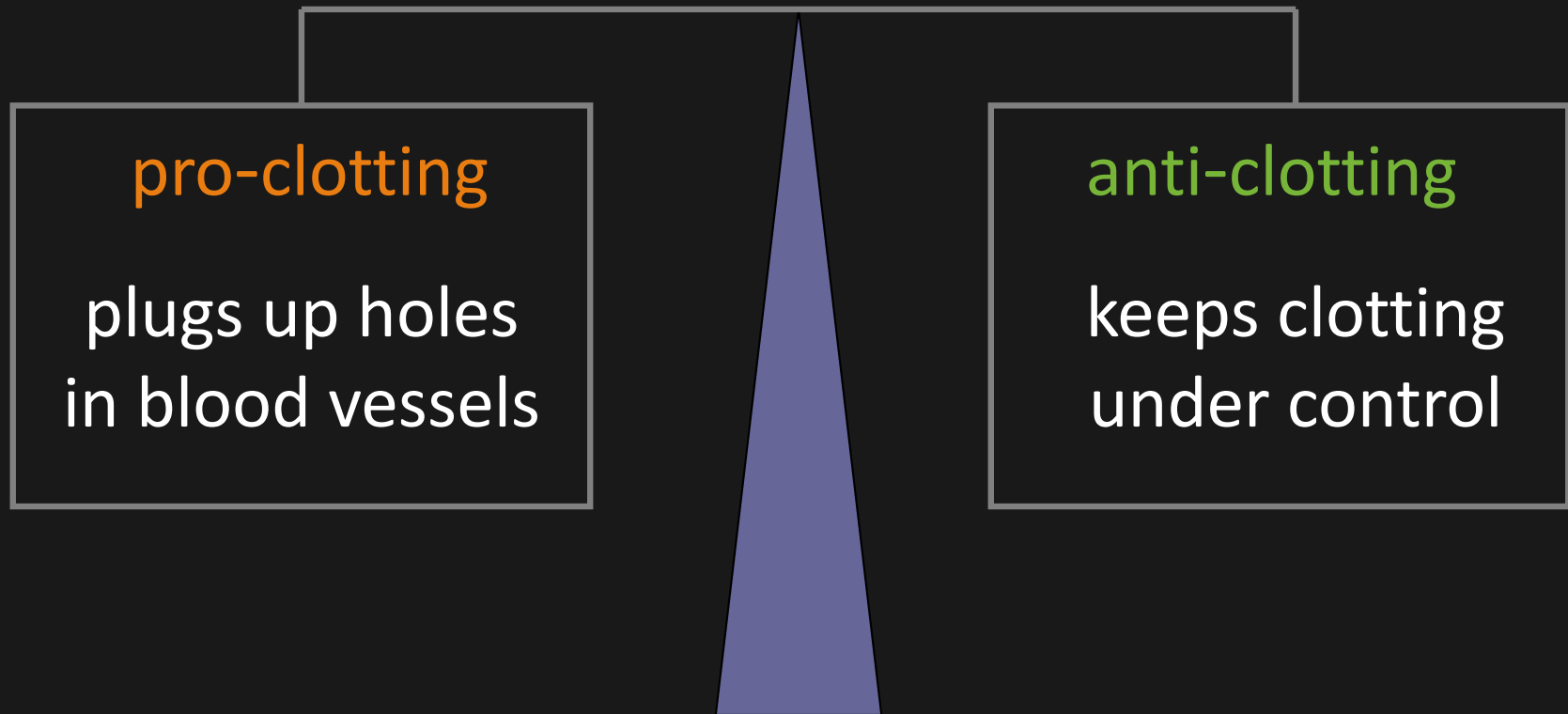


A photograph showing the lower legs and feet of a person wearing black high-heeled shoes with red soles. The person is walking on a light-colored, patterned carpet. The background is dark, with a vertical wooden element visible. The text is overlaid on the right side of the image.

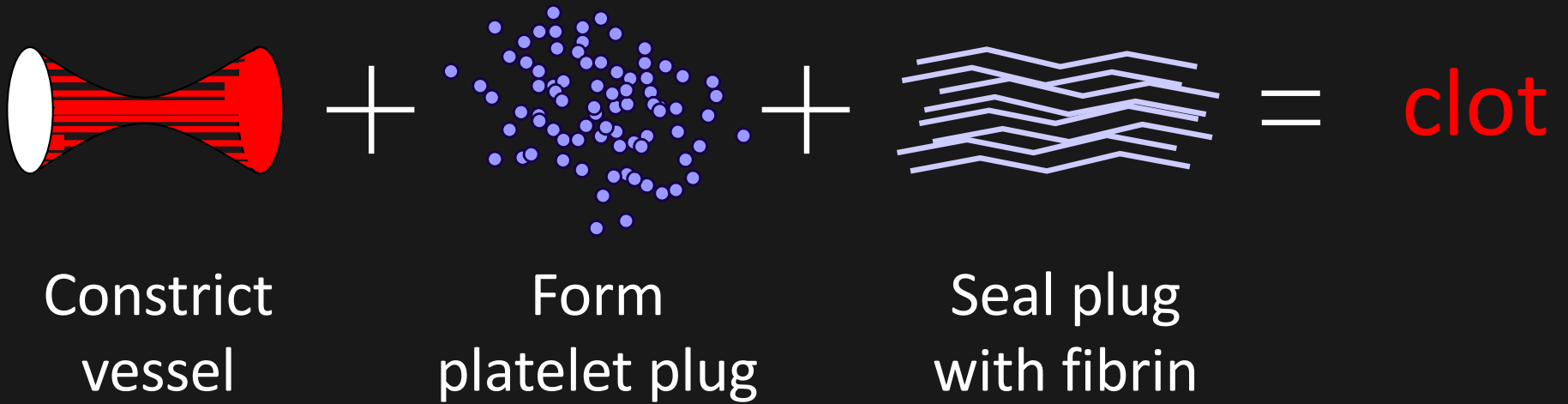
General Principles of Hemostasis

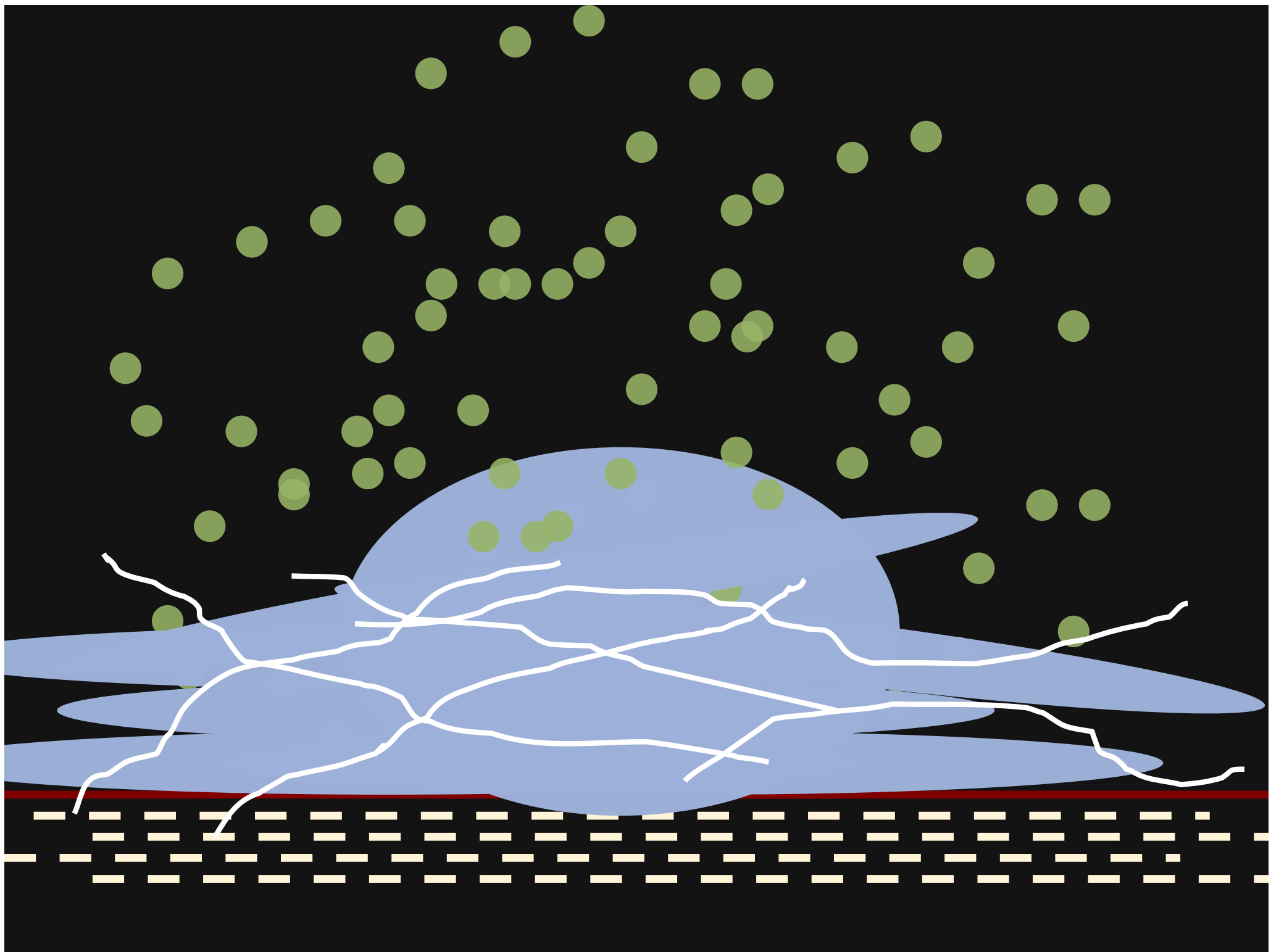
Kristine Krafts, M.D.

Hemostasis is a balancing act!



How to make a clot

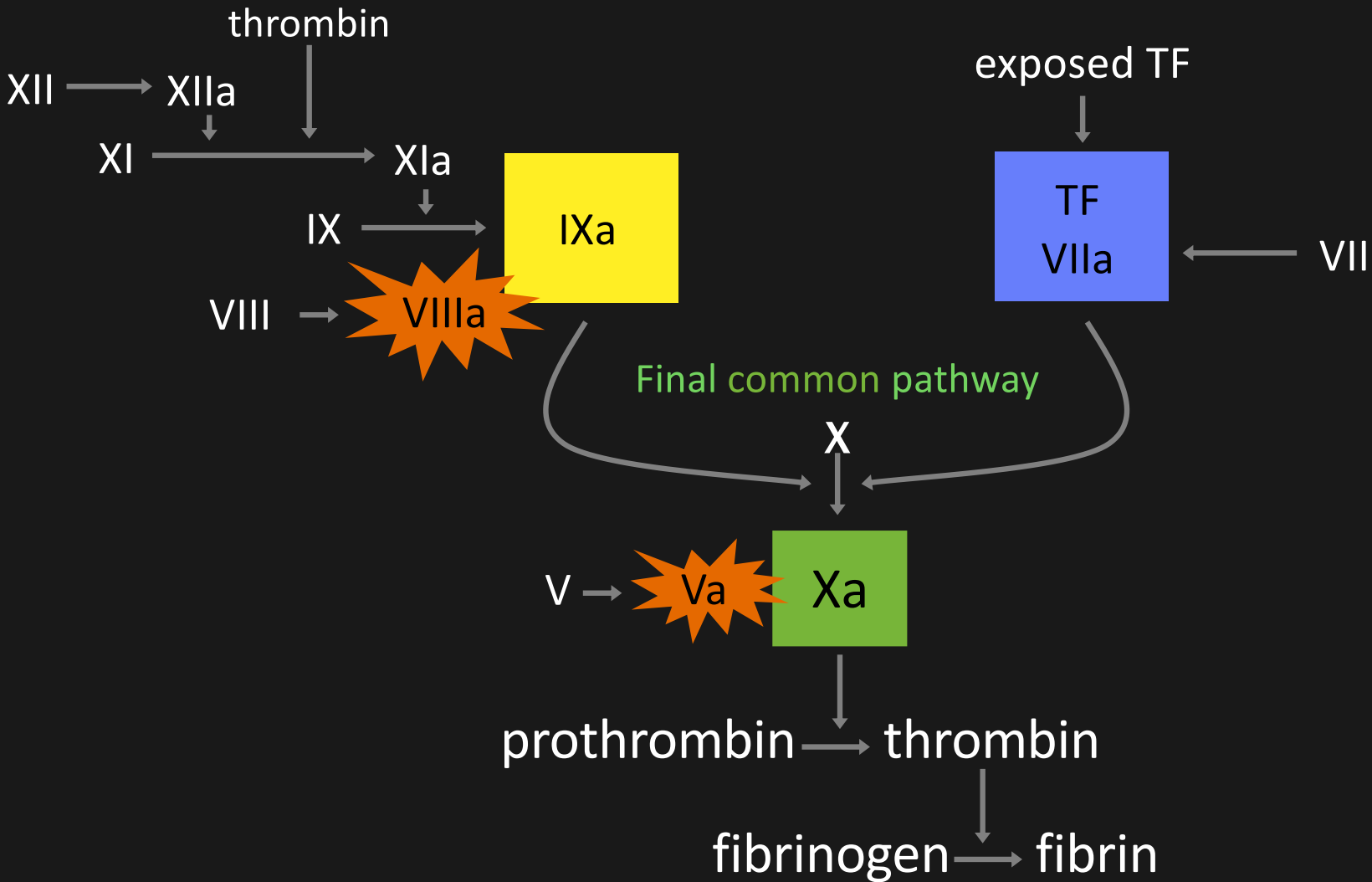




Coagulation Cascade

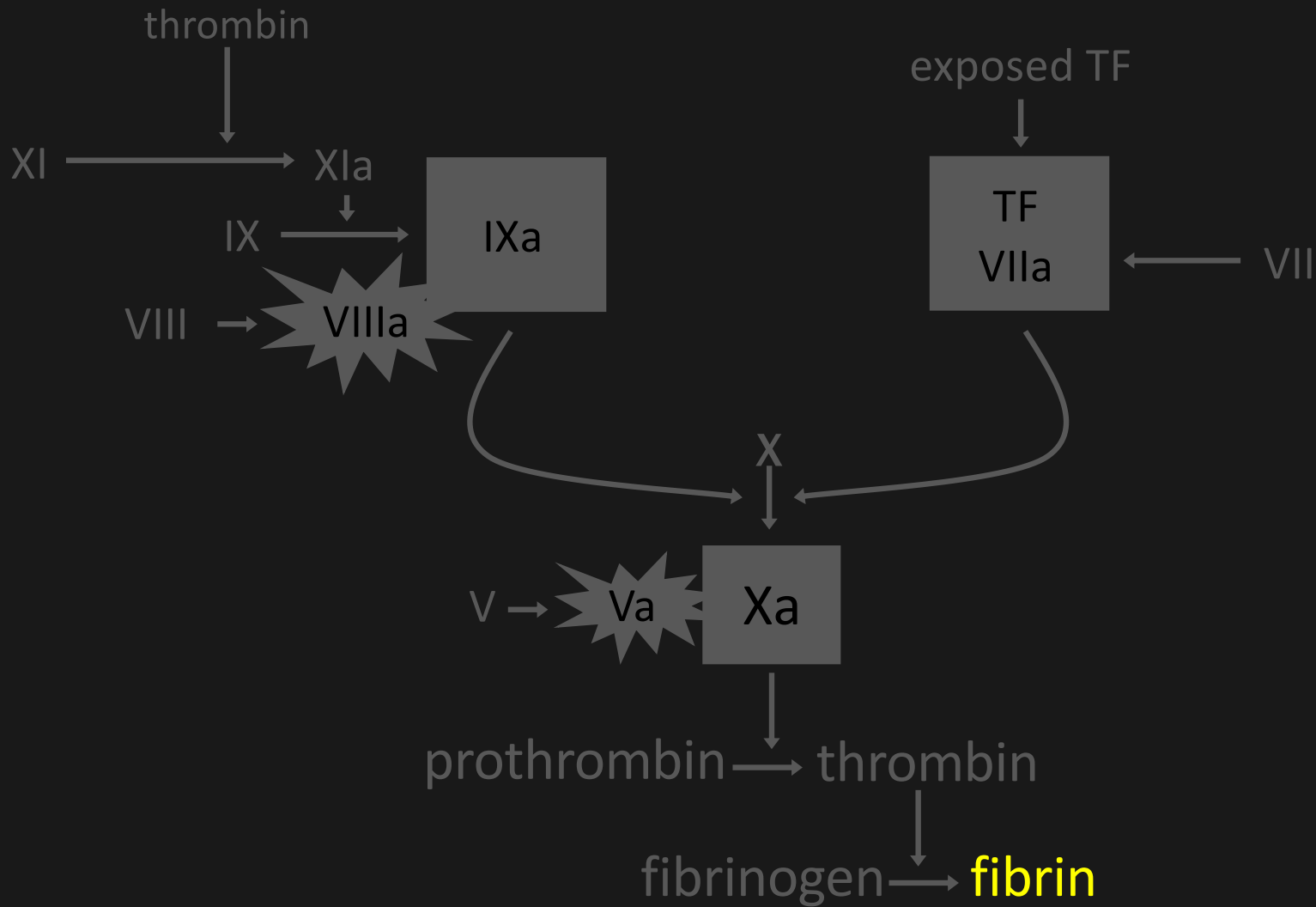
Intrinsic

Extrinsic



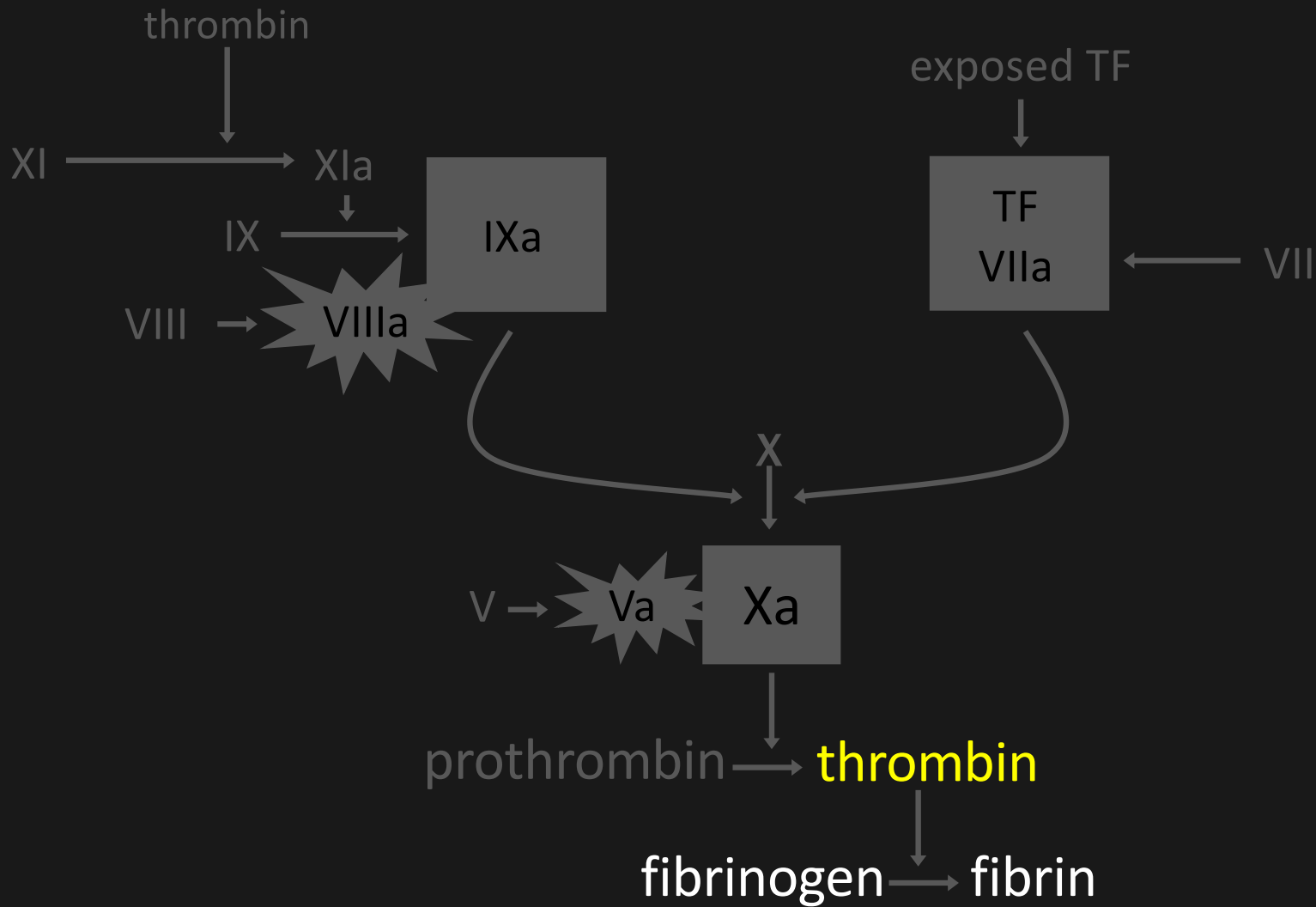
Intrinsic

Extrinsic



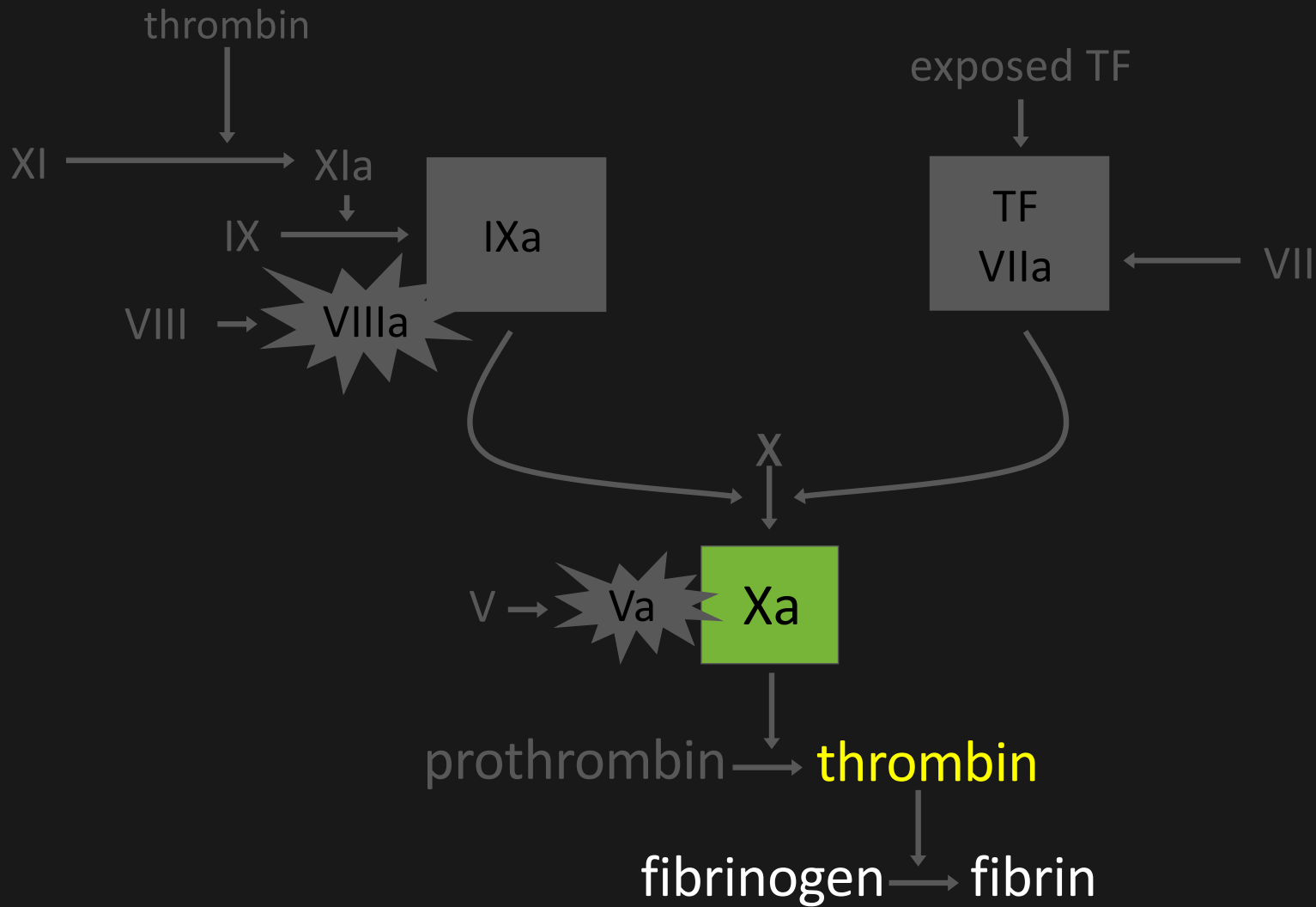
Intrinsic

Extrinsic



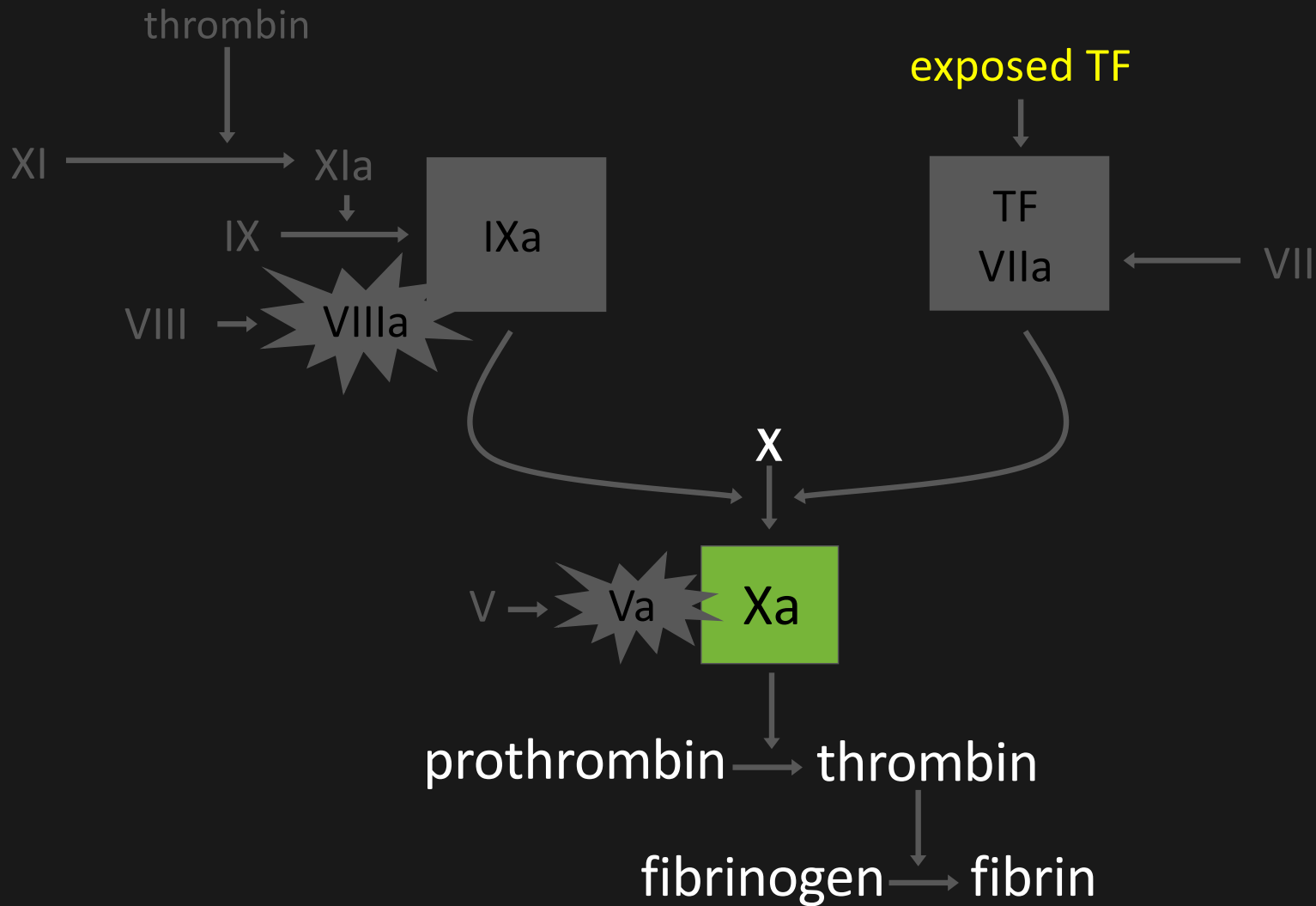
Intrinsic

Extrinsic



Intrinsic

Extrinsic

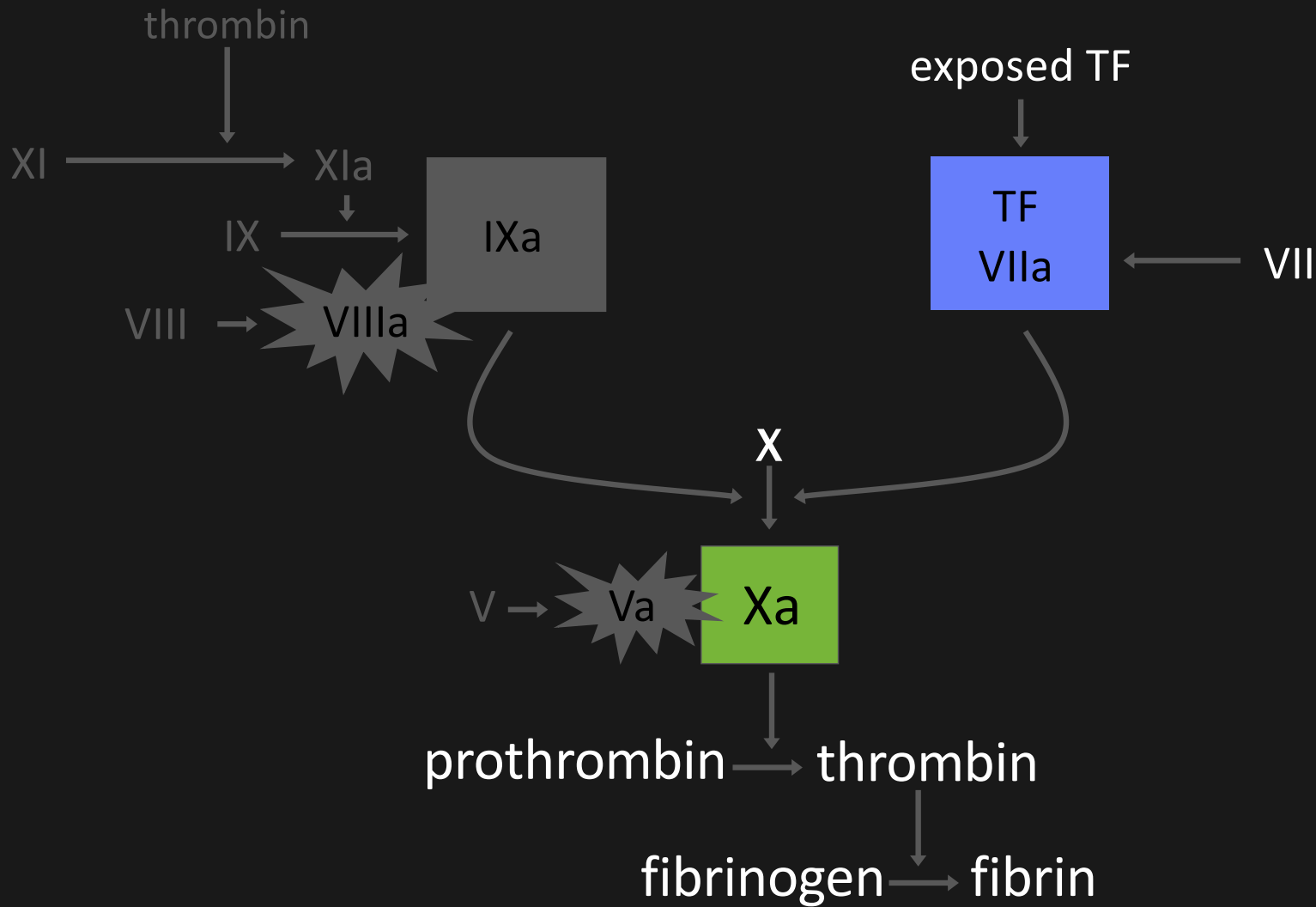


Where does tissue factor come from?

- “Hidden” cells exposed during injury
- Microparticles floating in blood
- Endothelial cells and monocytes (during inflammation)

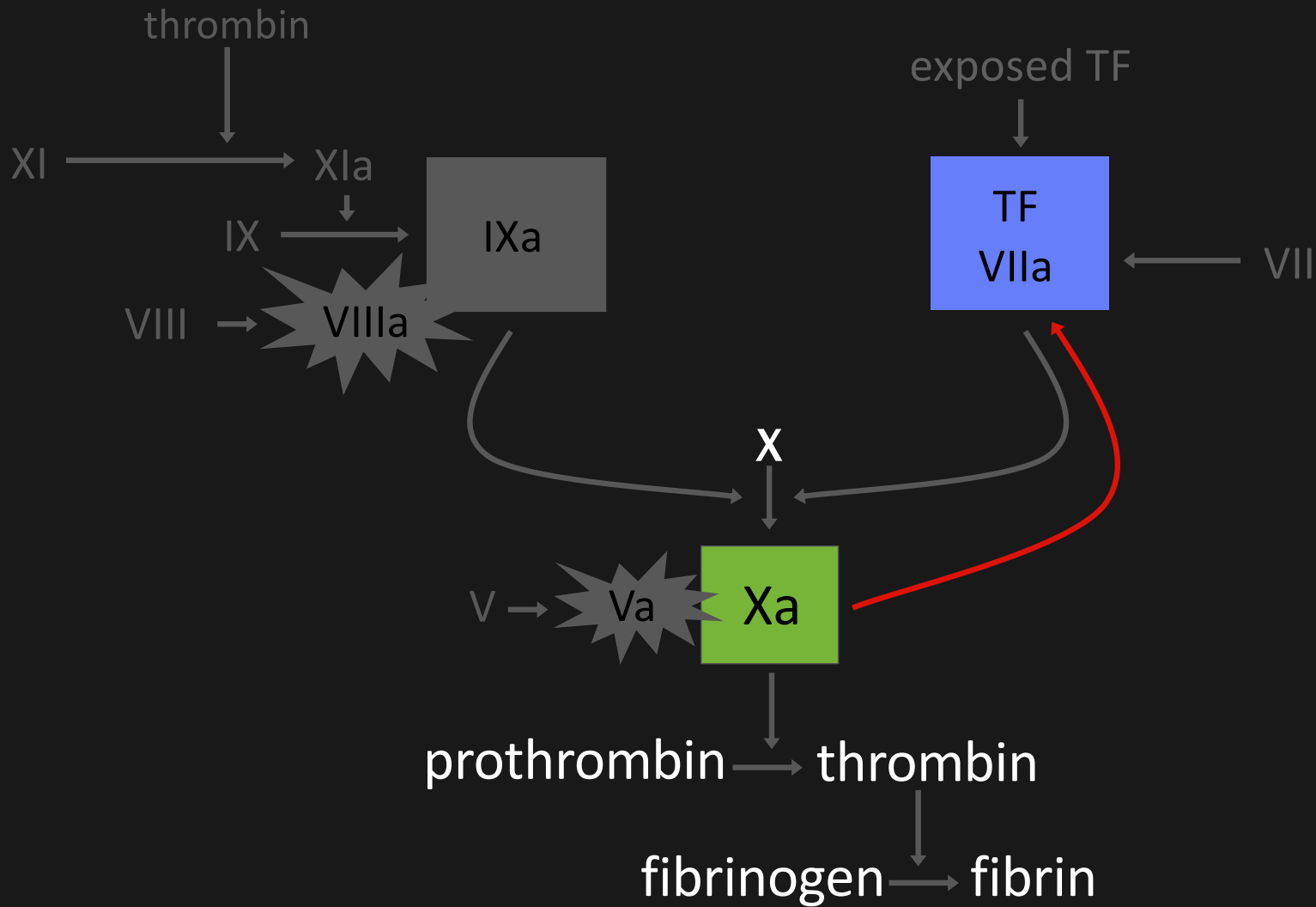
Intrinsic

Extrinsic



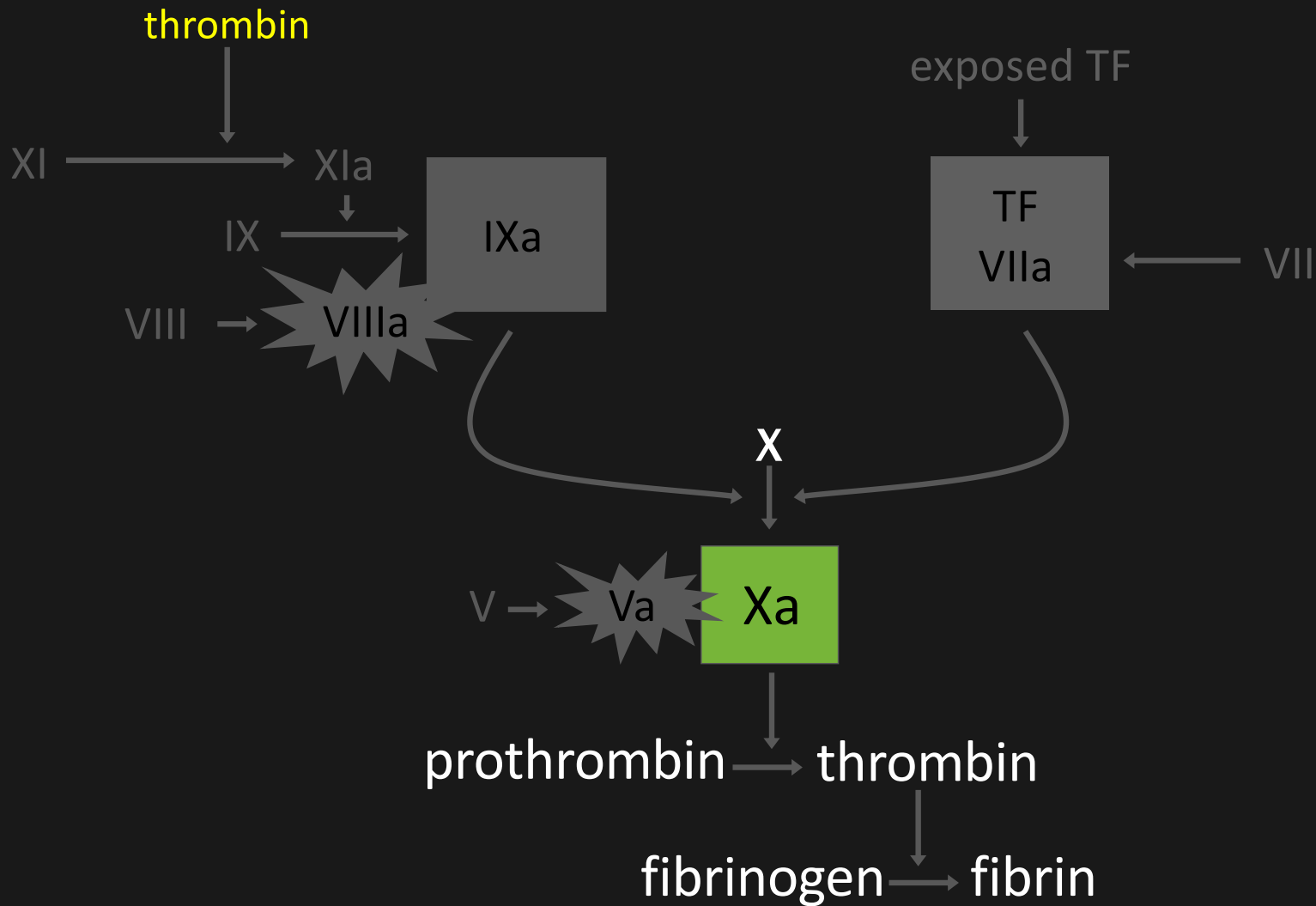
Intrinsic

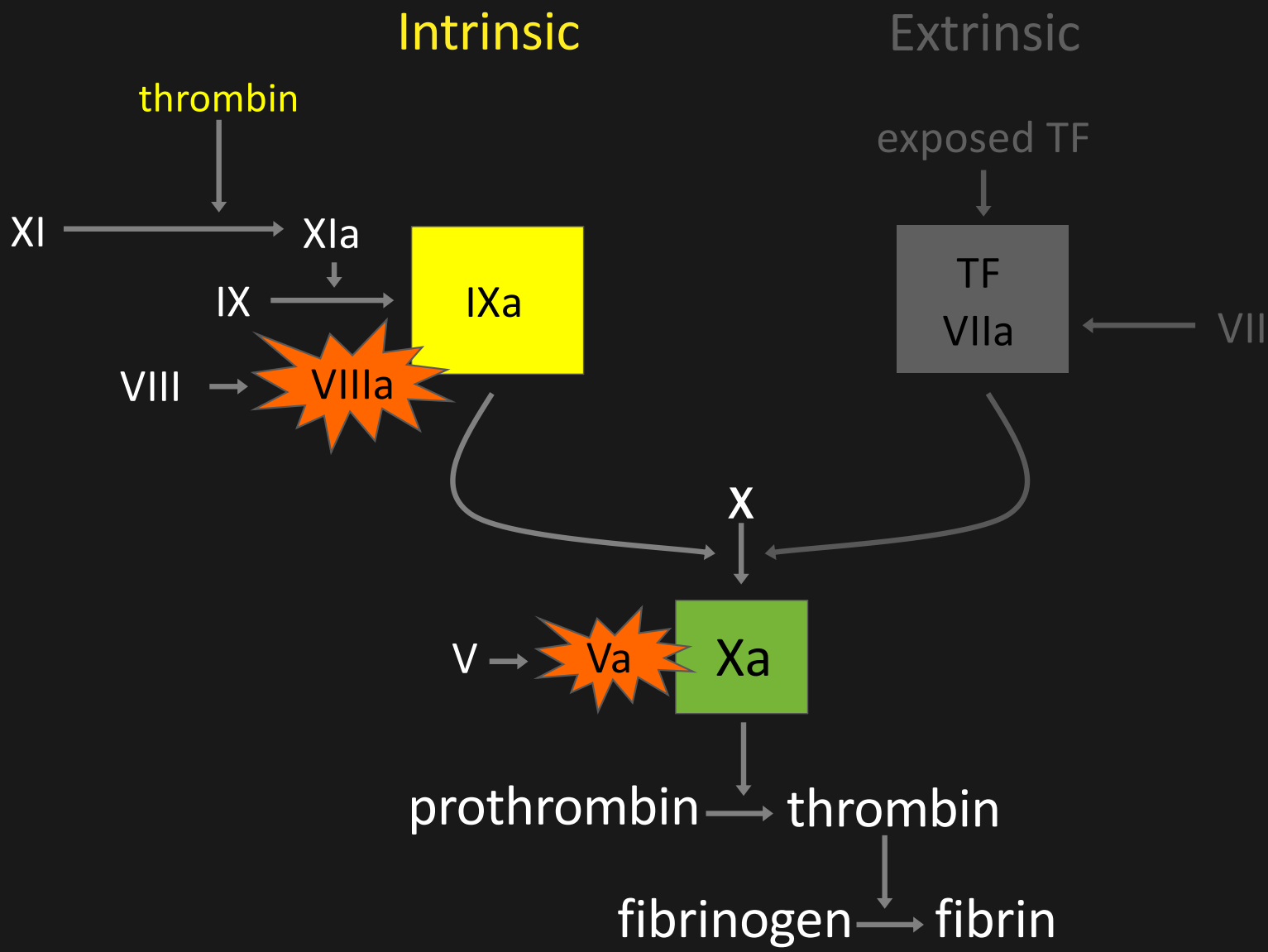
Extrinsic



Intrinsic

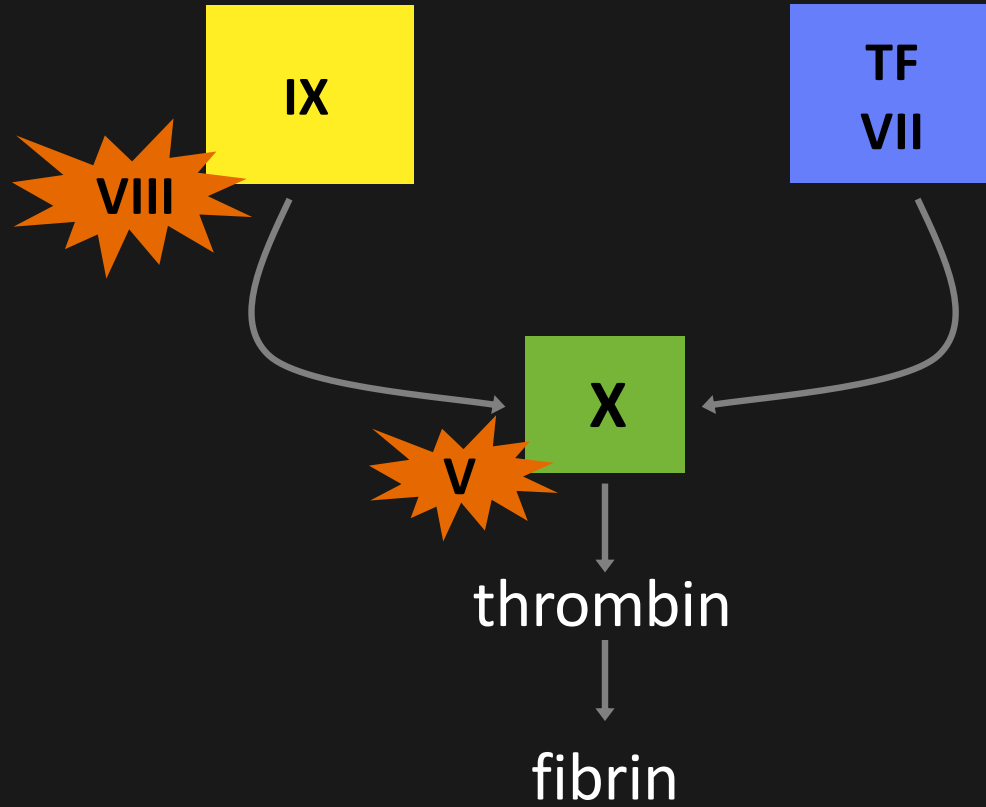
Extrinsic





Intrinsic

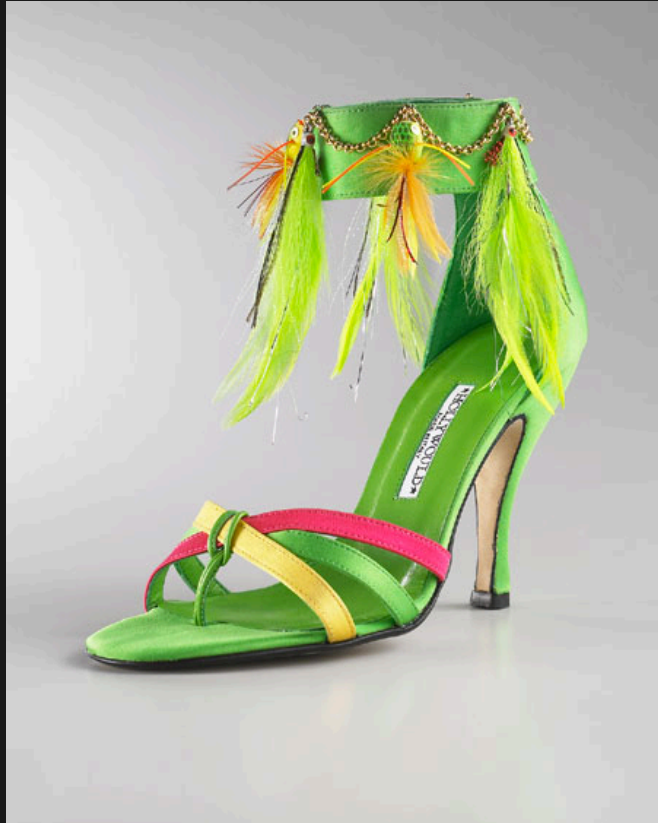
Extrinsic



tissue factor



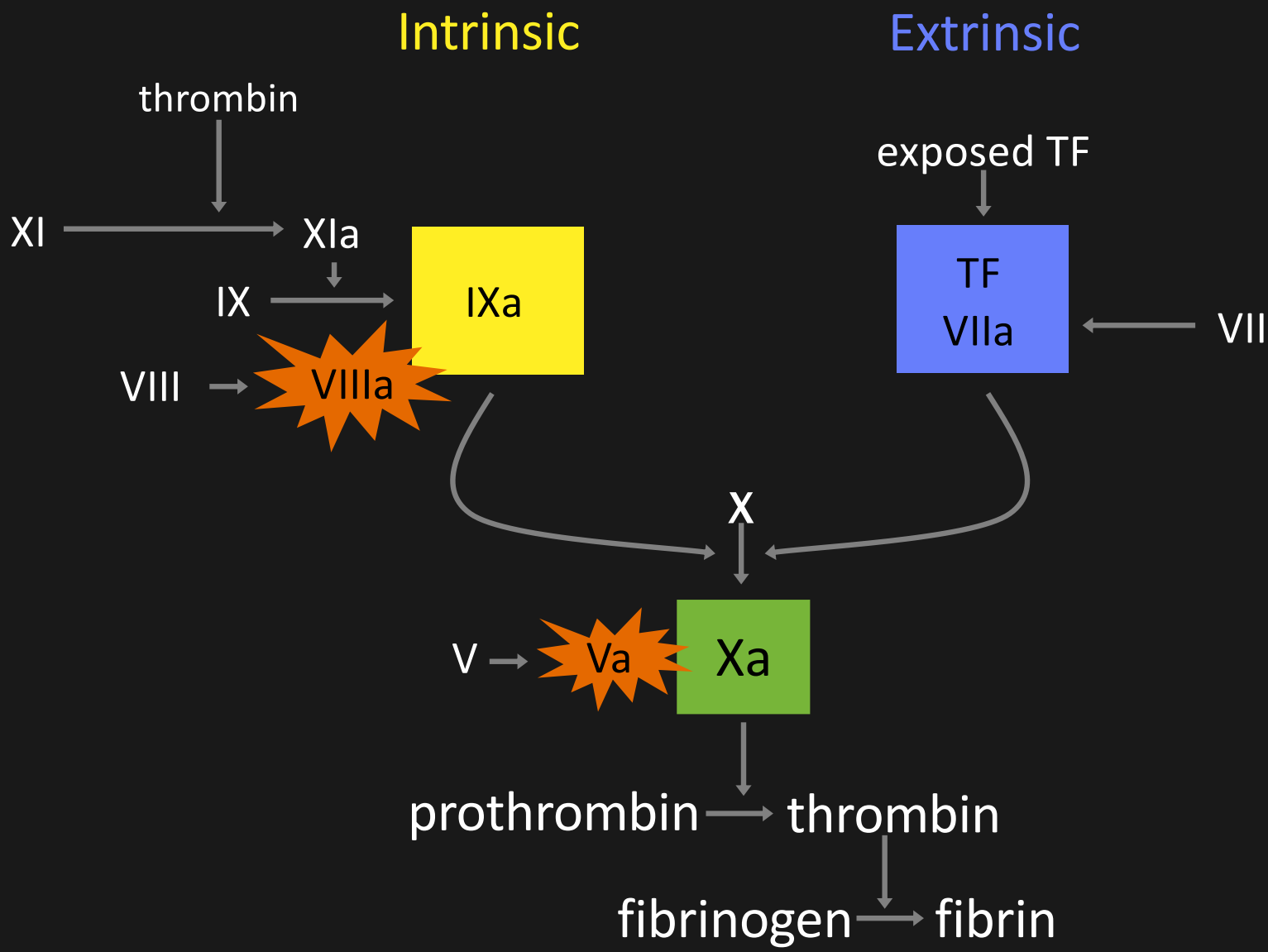
fibrin



busy
distracting
sinful

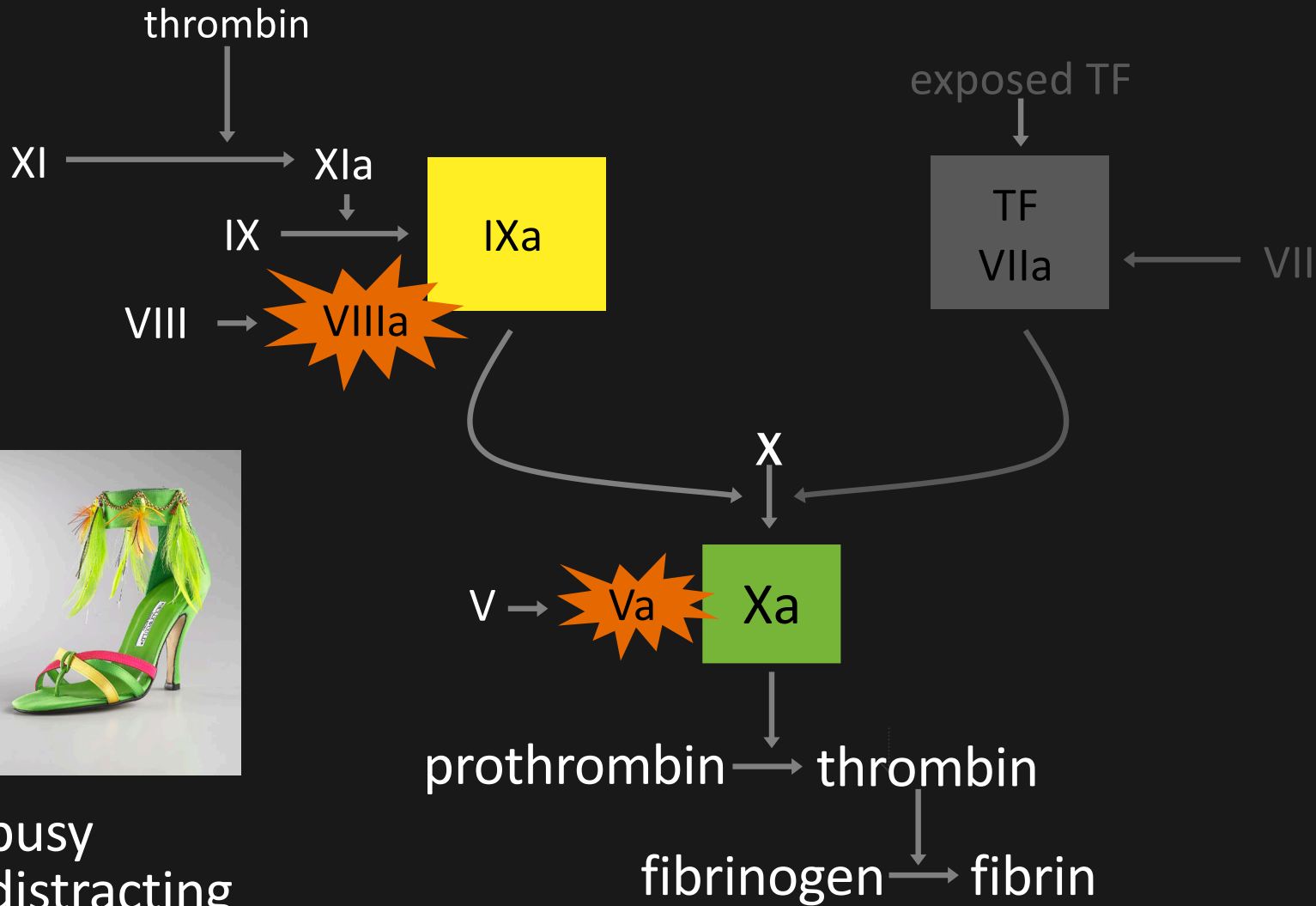


simple
riveting
sexy



SINtrinsic

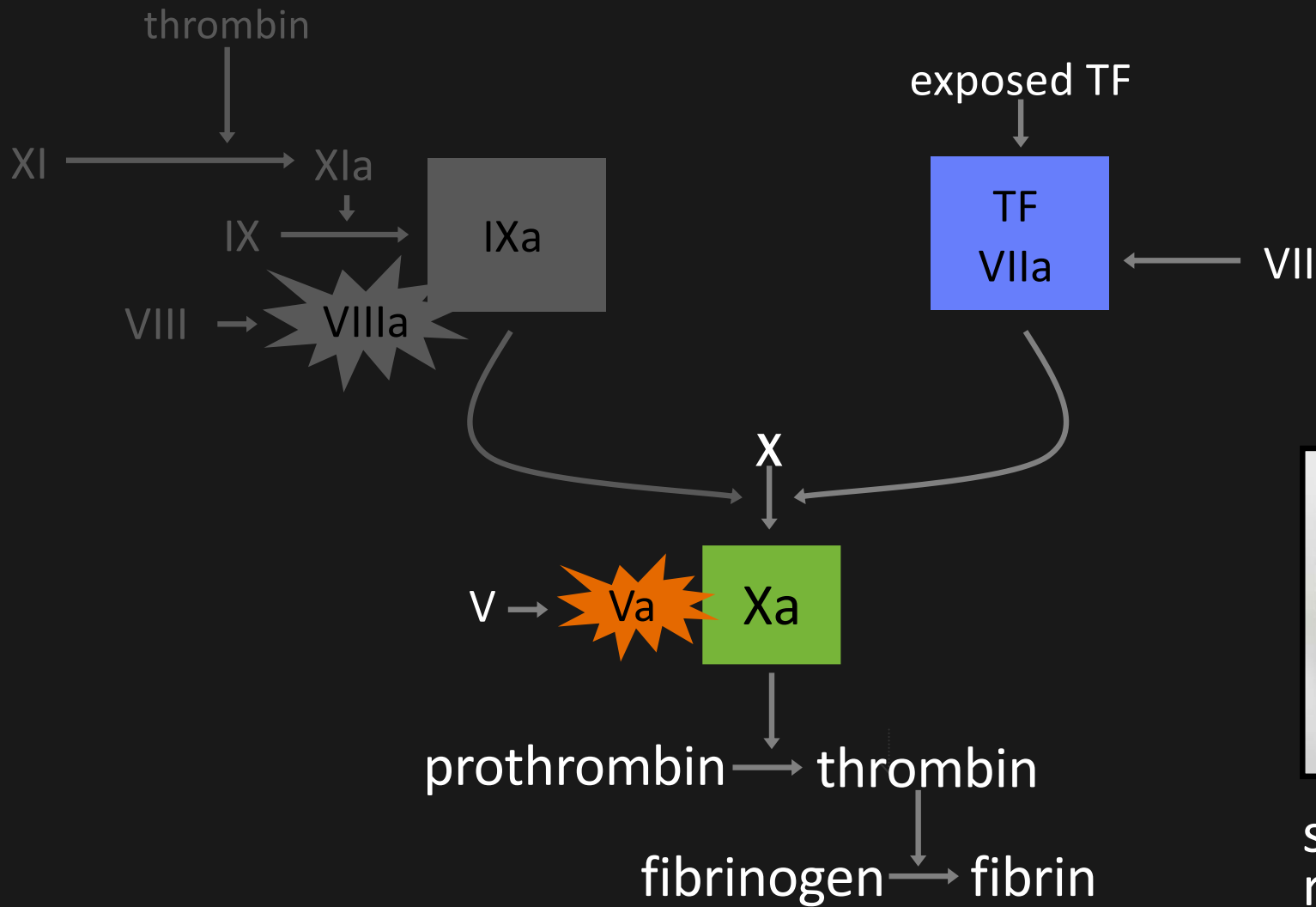
Extrinsic



busy
distracting
sinful

Intrinsic

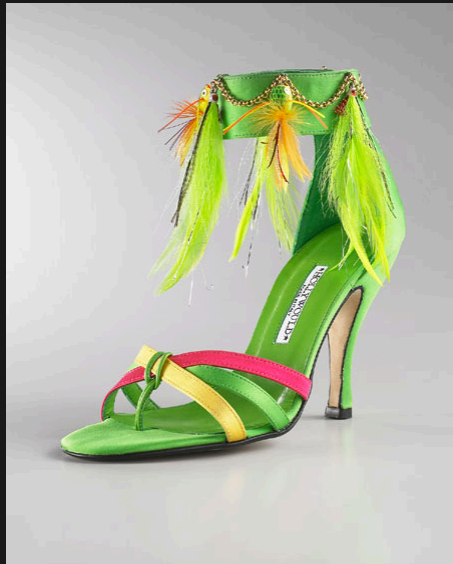
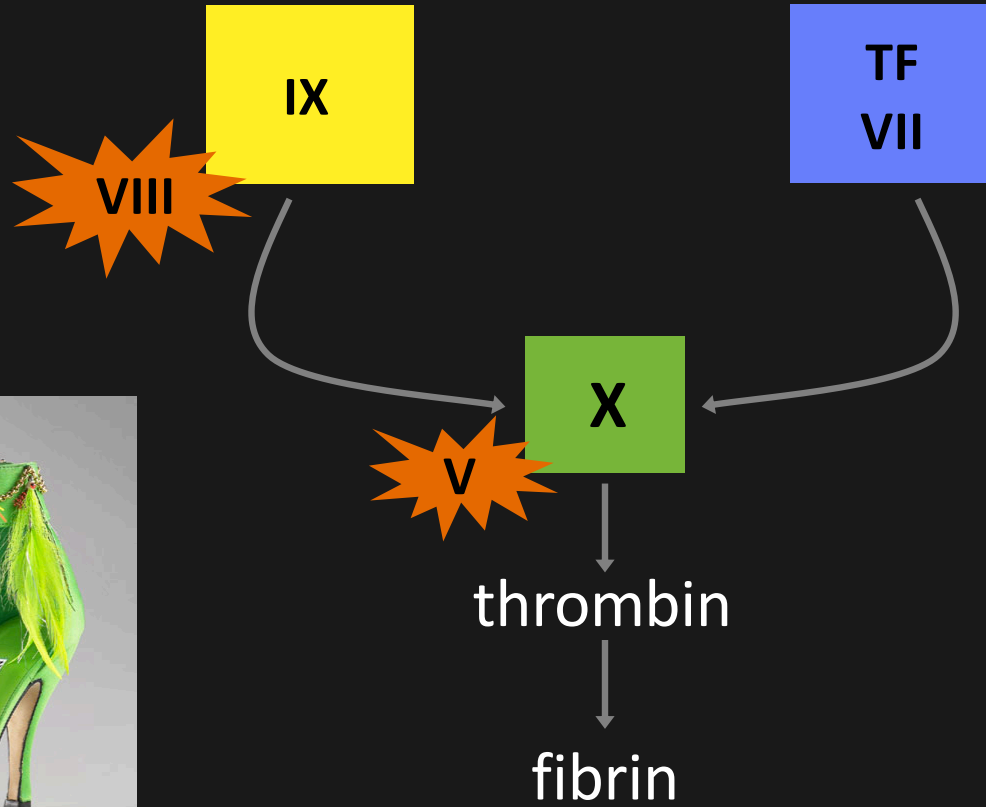
~~SEX~~ Extrinsic



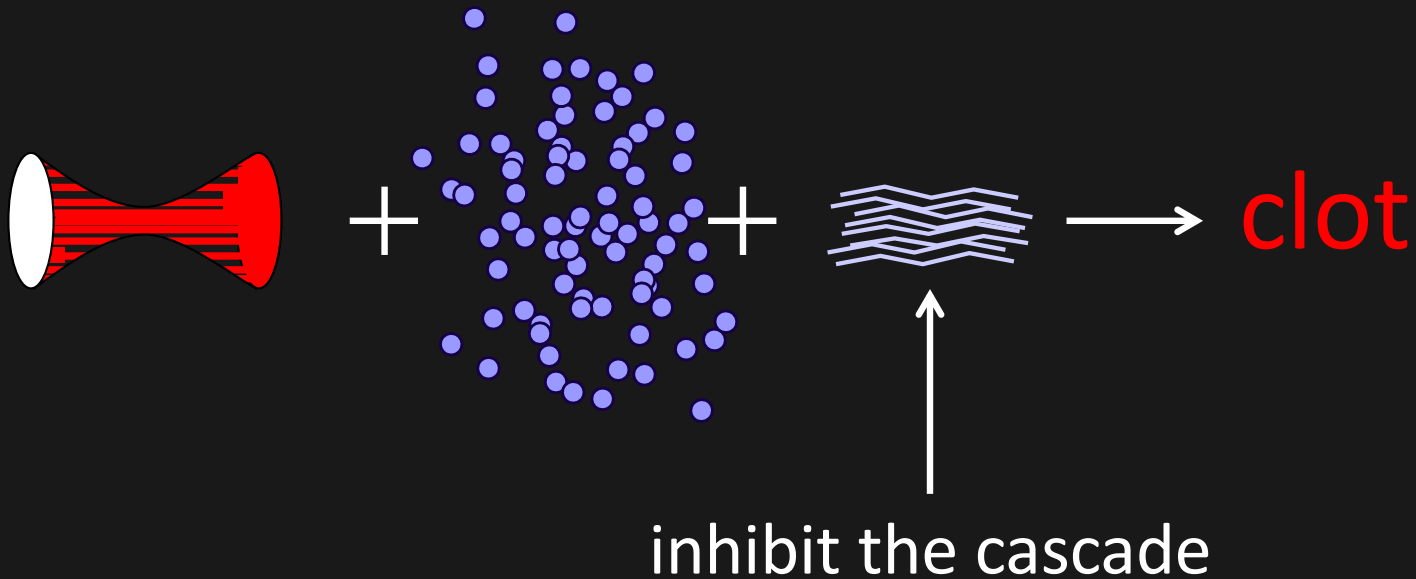
simple
riveting
sexy

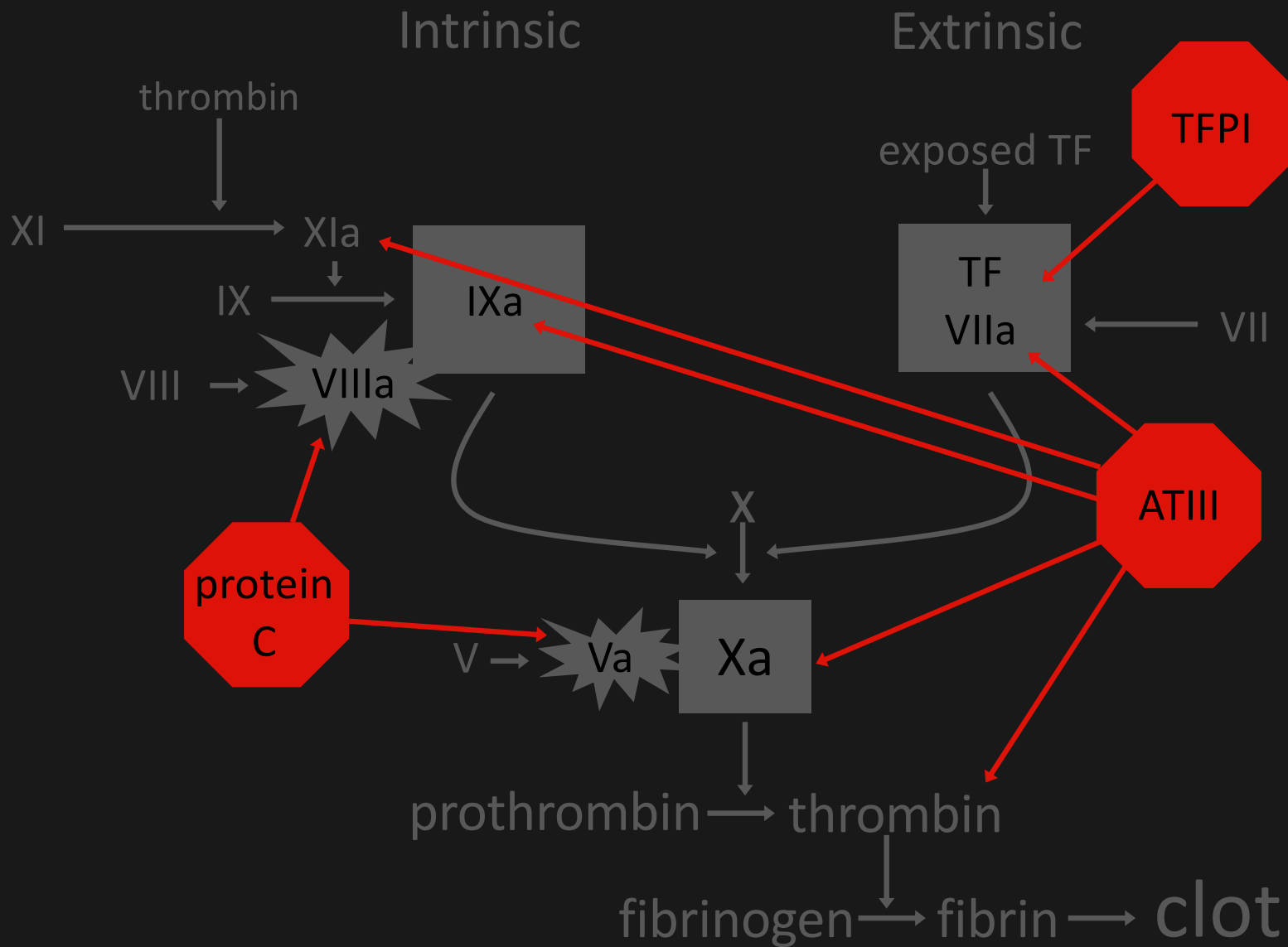
SIN_{trinsic}

SEX_{trinsic}

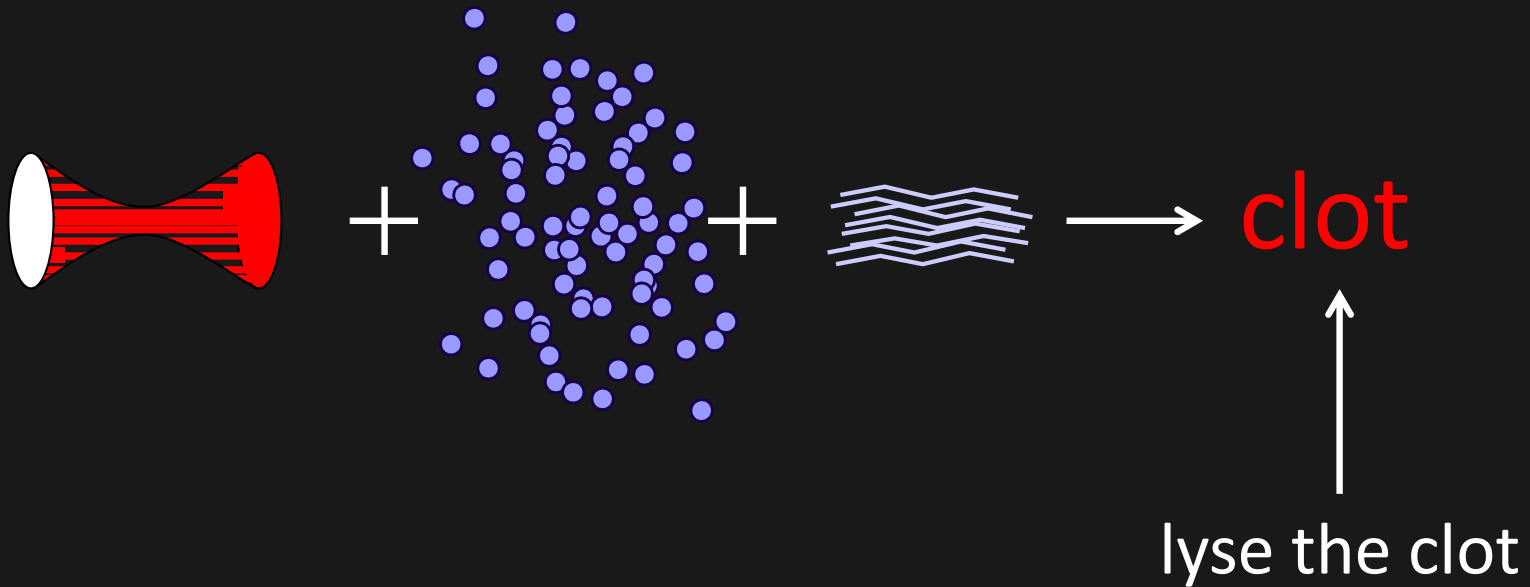


How to keep clotting under control





How to keep clotting under control



Tissue plasminogen activator (t-PA)

plasminogen → plasmin

clot

fibrin degradation
products (FDPs)



Hemostasis Outline

- The big picture
- Laboratory tests

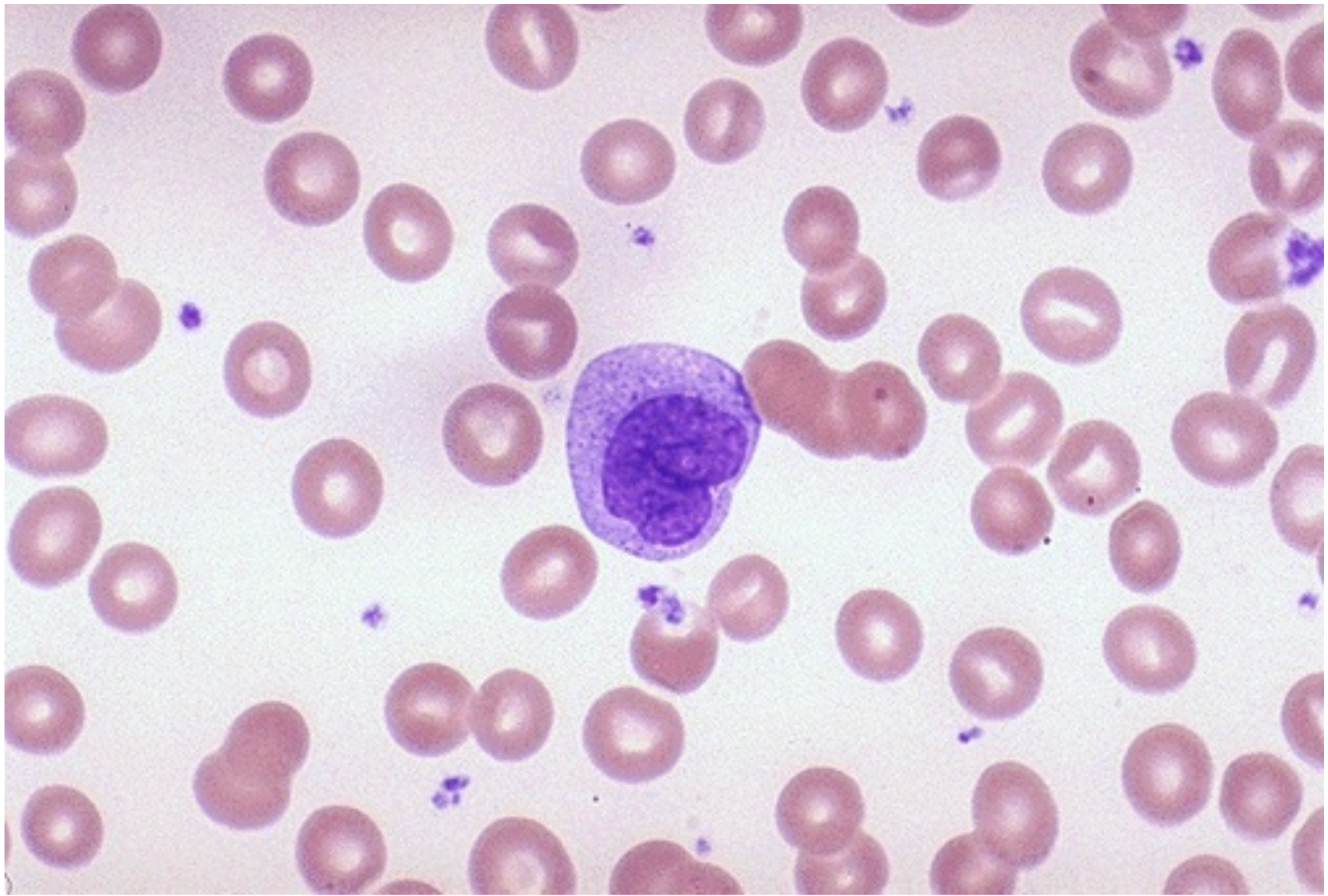
Platelet Lab Tests

Count

- Done by particle counter
- $150 - 450 \times 10^9/L$

Morphology

- Size
- Granulation



Platelets

Bleeding Time

Why?

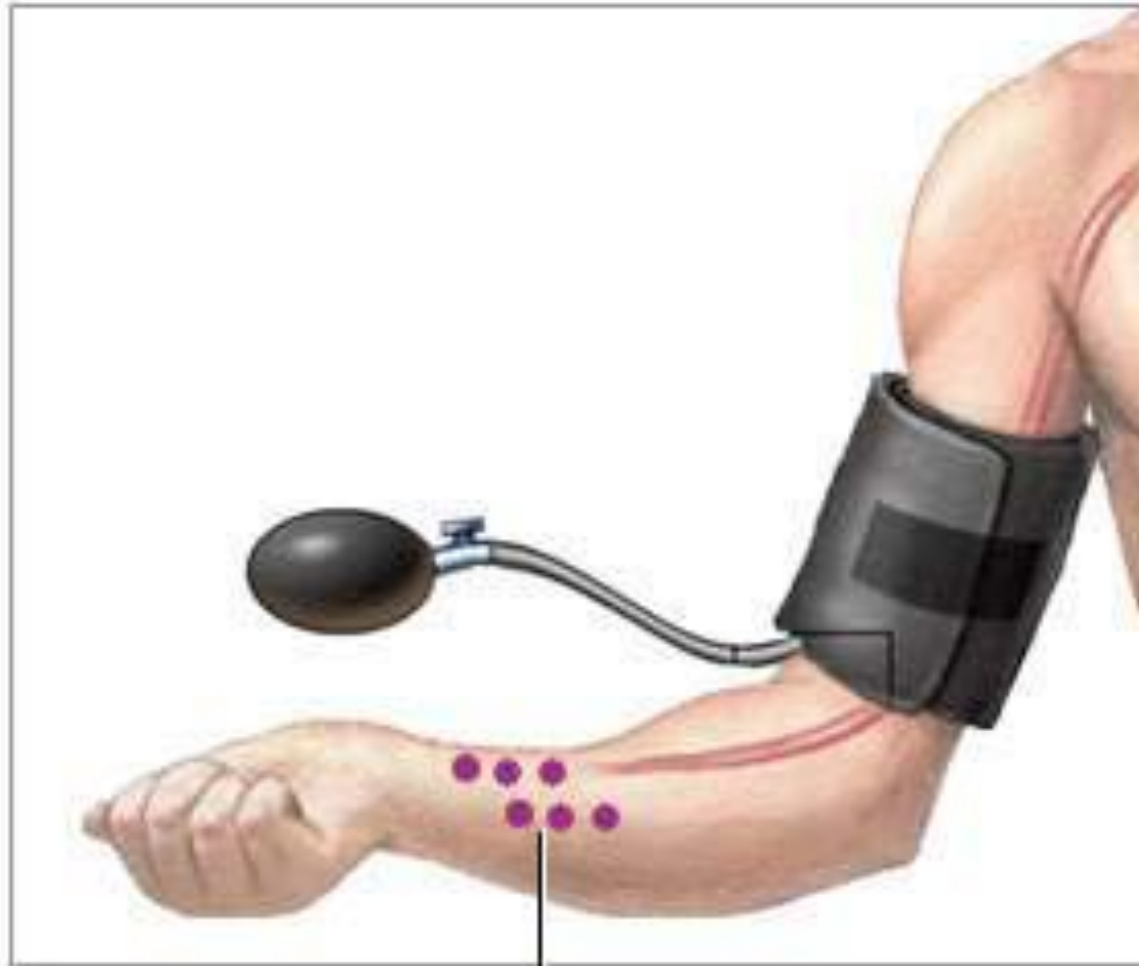
- Evaluate platelet response to vascular injury
- Some platelet disorders have a long bleeding time

How?

- Inflate blood pressure cuff
- Make incision
- Time how long it takes to stop bleeding

Careful!

- Lots of things affect the test!
- Some consider the test unreliable.



Two incisions are made
and the time for clotting
to occur is recorded

Coagulation Lab Tests

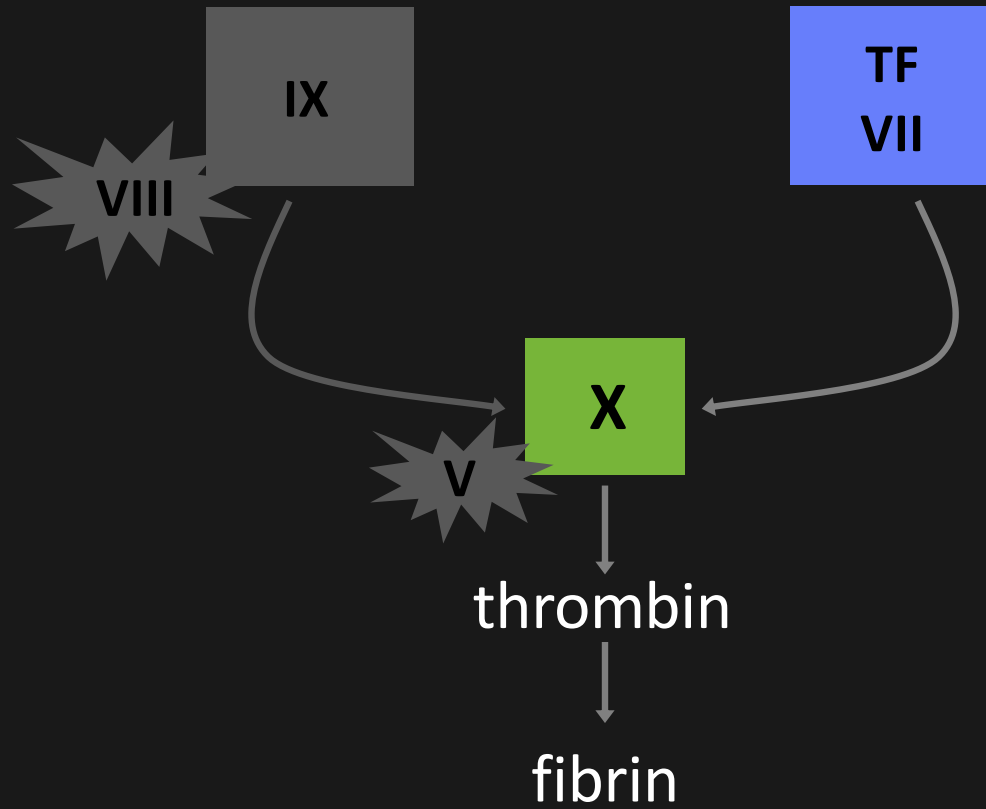
- Draw blood into citrate tube
- Spin tube, decant plasma
- Add reagents to plasma
- Watch for formation of fibrin

Prothrombin Time

- Plasma + thromboplastin
- Measures extrinsic pathway
- INR = a “corrected” PT

Intrinsic

SEX_{tr}insic

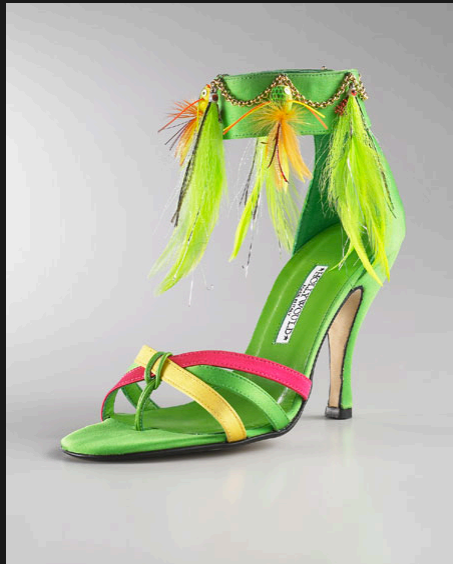
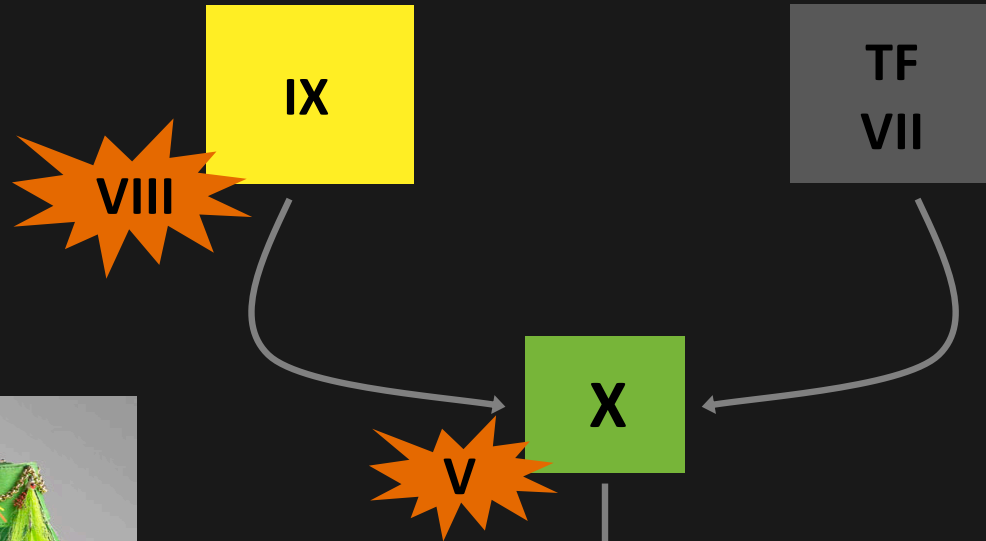


Partial Thromboplastin Time

- Plasma + phospholipid
- Measures intrinsic pathway

SIN_{trinsic}

Extrinsic



thrombin

fibrin

clot

Fibrin Degradation Product Assay

- Measures FDPs
- VERY, VERY sensitive test
- Best used to rule OUT a thrombus!

