- ✓ **Inactivated by: Protein C**
- ✓ Deficiencies is involved in bleeding and symptoms associated with hemophilia A.
- ✓ Deteriorates more rapidly than the other factors in stored blood
- ✓ Thawed component of plasma: level drops to approximately 50% after 5 days
- ✓ **Females** are **carrier of Hemophila A**
- ✓ **Males** expresses the condition
- ✓ **Hemophilia B deficiency** is Factor IX deficiency

NOMENCLATURE FOR FACTOR VIII	
VIII/vWF	Refers to the entire molecule as it circulates in the plasma, composed of VIII:C and VIII:vWF
VIII:vWF	The portion of the molecule responsible for binding to endothelium and supporting normal platelet adhesion and function
VIII:C	The portion of molecule acting in the intrinsic system as cofactor to factor IXa
VIIIC: Ag	Antigenic property of procoagulant portion as measured by immunologic monoclonal antibody techniques
VIIIR: Ag	Factor VIII-related antigen, which is a property of the large vWF portion of the molecule and measured by immunologic techniques
VIII: RCo	Ristocetin cofactor activity, which is factor VIII-related activity required for aggregation of human platelets with ristocetin in in vitro aggregation studies

Von Willebrand Factor

- ✓ **Acute phase protein (as with FVIII)**
- ✓ Produced in **ECs** and **megakaryocytes**
- ✓ Functions: **platelet adhesion and transports the procoagulant FVIIII**
- ✓ Cleaved by ADAMTS13 because if not, there will be large fractions of VWF leading to Thrombocytic Thrombocytopenic Purpura.
- ✓ Stored in the alpha-granules in platelets and in Weibel-Palade bodies in ECs.
- ✓ **Levels vary by ABO blood type.**
  - **Group O** have lower levels of vWF

Fibrinogen (FI)

- ✓ The most concentrated of all the plasma procoagulants.
- ✓ Function: Primary substrate of thrombin
- ✓ Fibrinogen -> Fibrin monomer -> Polymerized Fibrin clot
- ✓ Essential for platelet aggregation: links the activated platelets through their GPIIb/IIIa platelet fibrinogen receptor
- ✓ Platelet alpha-granules absorb, transport, and release abundant fibrinogen.
- ✓ Produced in the liver and alpha granules contain by platelets.

Fibrinogen Molecule

- ✓ **Mirror-image dimer,** each half consisting of three non-identical polypeptides: A-alpha, B-beta, and gamma.
- ✓ They are united by several **disulfide bonds**
- ✓ **1E domain: six N-terminals** assemble to form a bulky central region. (positively charged)
- ✓ **2D domains: three carboxyl terminals** on each outer end of the molecule. (negatively charged)
- ✓ In between, we have **coiled region**
- ✓ When acted upon by thrombin:
  1. Cleaves fibrinopeptides A and B – fibrin monomer
     - Marker for thrombin generation
  2. Protruding N-termini of each of the two A and B chains of fibrinogen
  3. Exposed fibrin monomers A and B chain ends (E domain) have an immediate affinity for portions of the D domain of neighboring monomers, spontaneously polymerizing to form fibrin polymer.