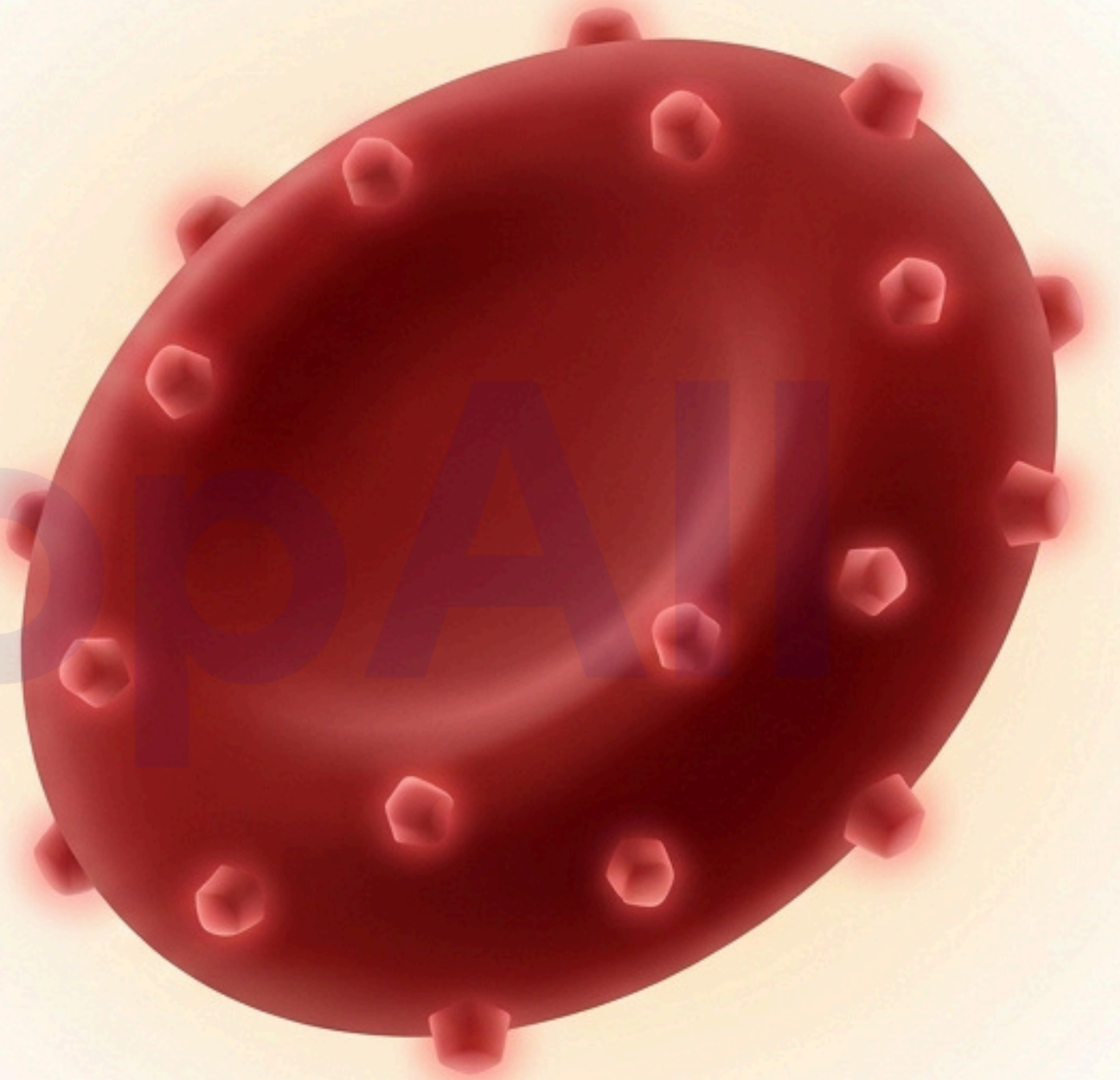


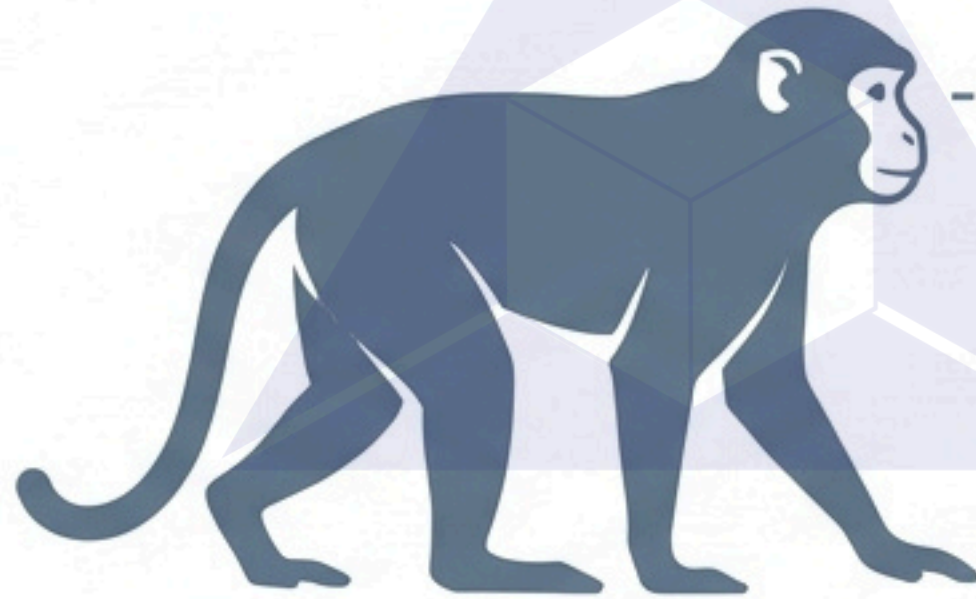
The Blood Factor That Matters in Pregnancy

Understanding Rh Grouping, Immunological Incompatibility, and the Science of Safe Deliveries.



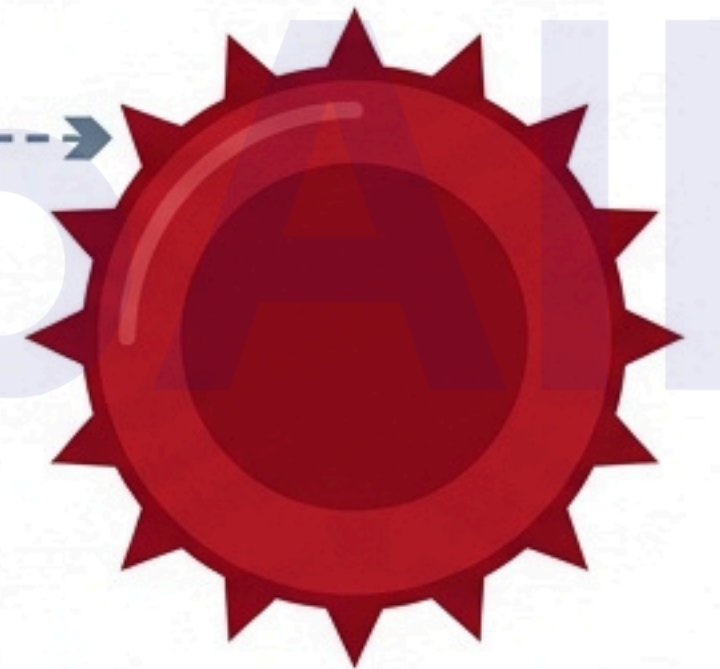
The Evolutionary Origin of the Rh Factor

The Discovery



The Rh antigen was first observed in the Rhesus monkey, giving the blood factor its 'Rh' designation.

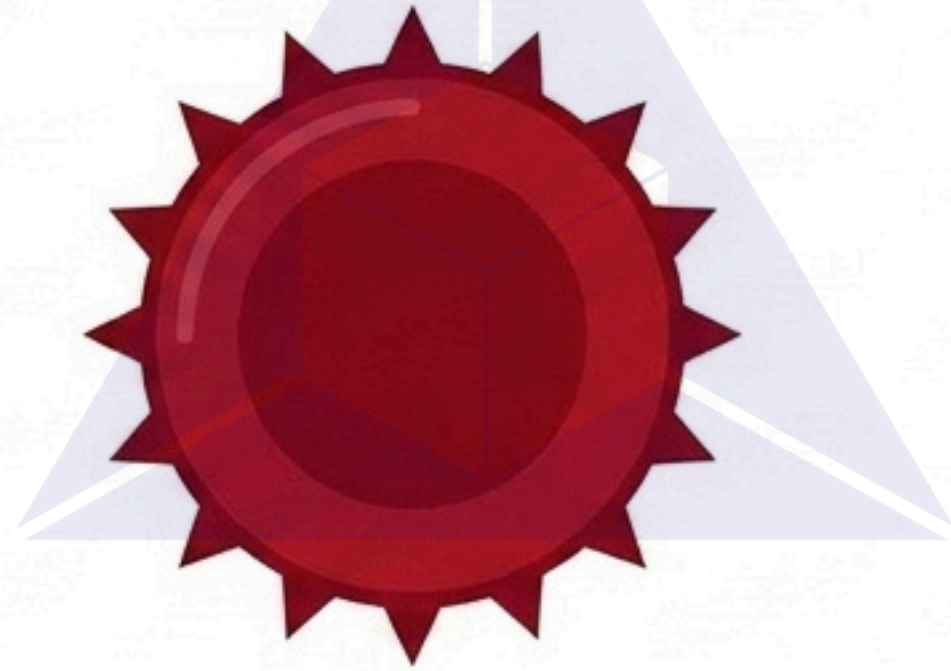
The Human Link



In human biology, the Rh Antigen is a specific protein observed on the surface of Red Blood Cells.

The Population Split: Rh+ vs. Rh-

Rh Positive (Rh+)



~80% of humans.

Possesses the Rh surface protein.

Rh Negative (Rh-)



~20% of humans.

Lacks the Rh surface protein.

This structural difference is the foundation of blood grouping compatibility.



You've Learned the Theory. Let's Test Them Now.

$$E=mc^2$$



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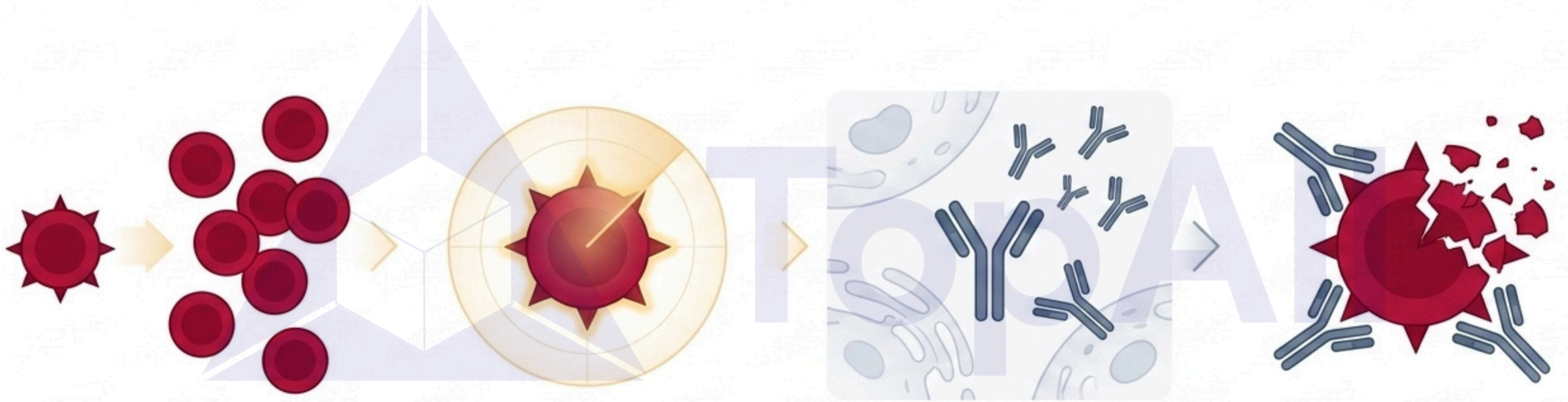
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The Immune Alarm: Why Mismatching is Dangerous



1. Exposure

Rh+ blood cells enter the bloodstream of an Rh- individual.

2. Recognition

The Rh- immune system scans the blood, identifying the Rh antigen as a foreign invader.

3. Response

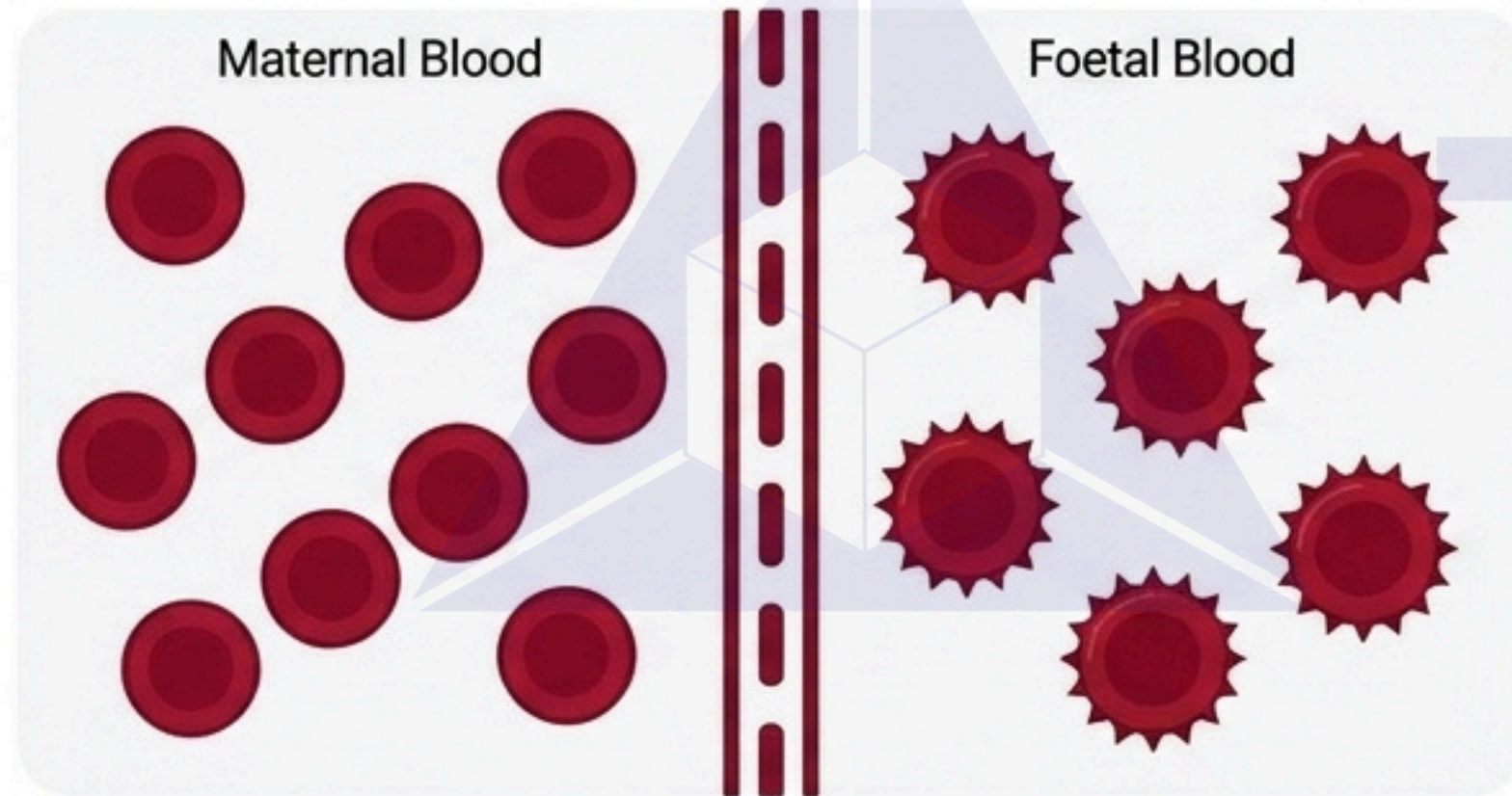
The Rh- body synthesizes specific Anti-Rh antibodies.

4. Destruction

Antibodies lock onto the antigens of the Rh+ RBCs, destroying the foreign cells.

The First Pregnancy: The Placental Barrier

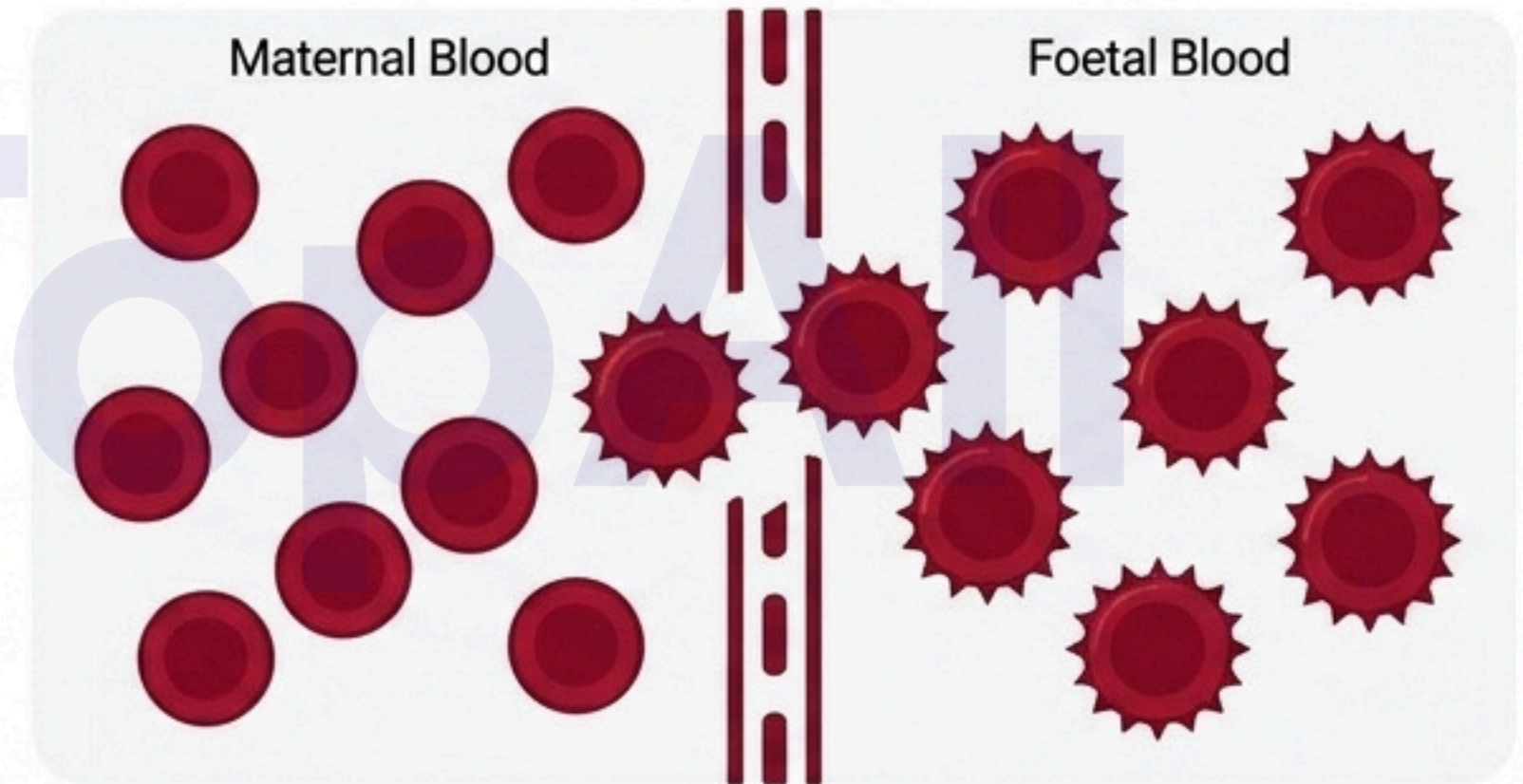
Phase 1: Gestation



Placental Barrier

Bloodstreams are safely separated during the first pregnancy. The mother's immune system remains unexposed to the foetal Rh+ antigens.

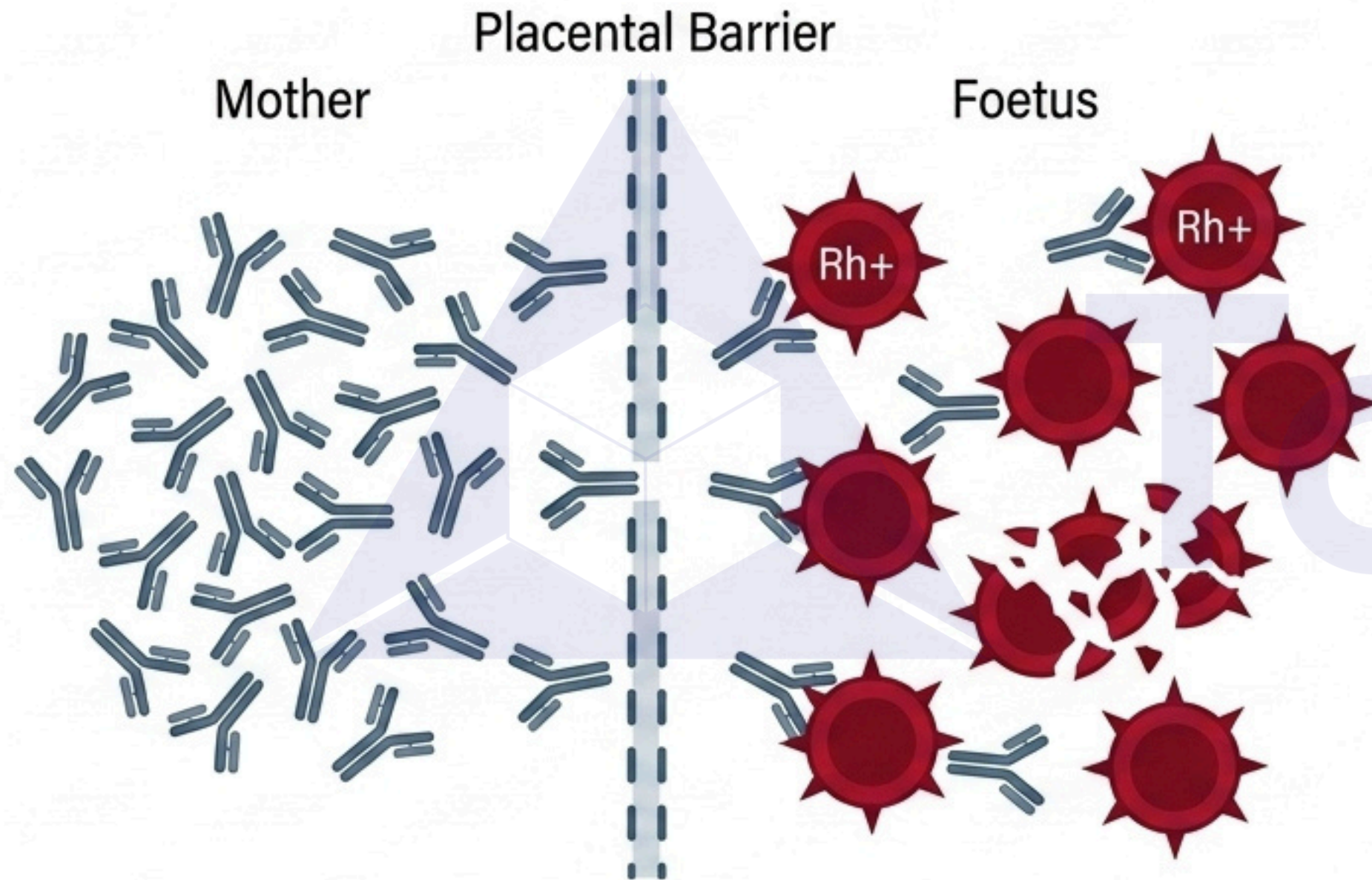
Phase 2: Delivery



Placental Barrier

During birth, maternal blood is exposed to small amounts of foetal Rh+ blood. The mother's immune system begins preparing specific Anti-Rh antibodies.

The Escalation: Subsequent Pregnancies

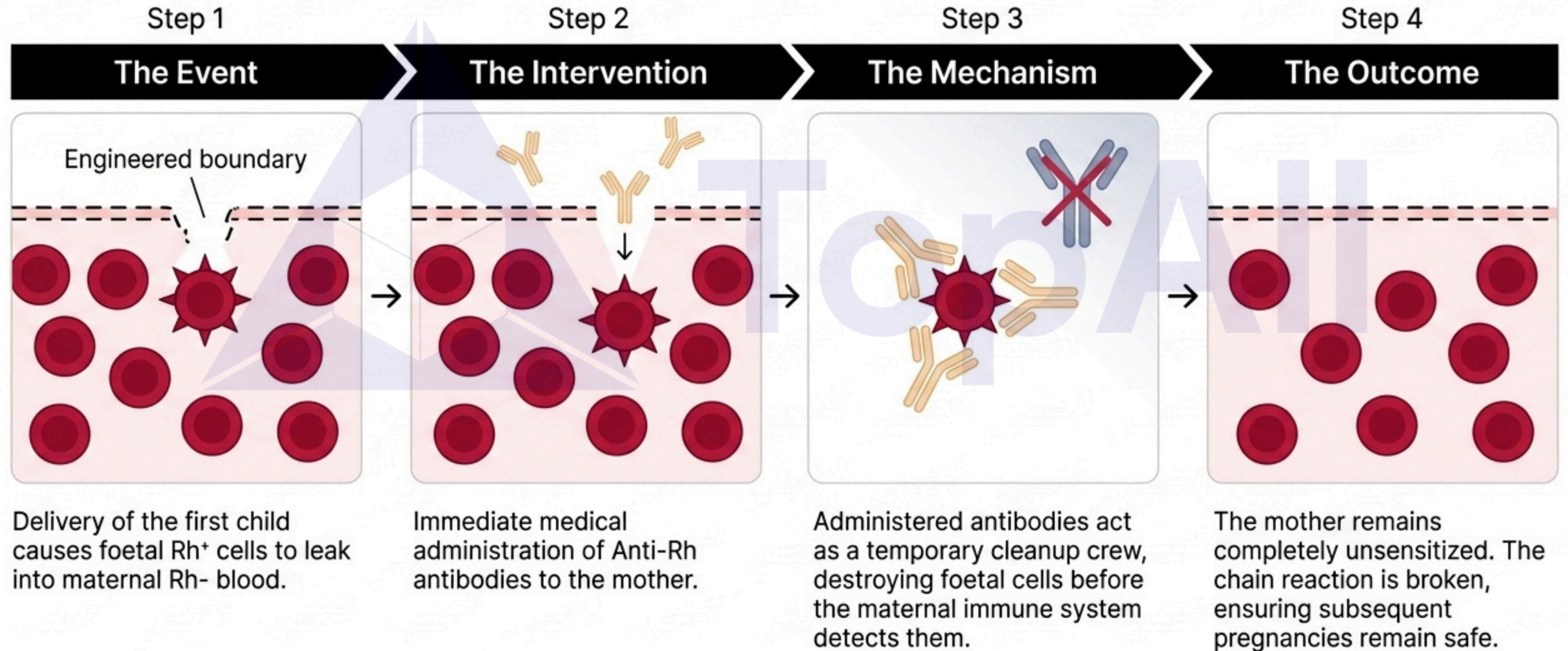


Erythroblastosis Foetalis

- Causes severe anaemia in the baby.
- Induces severe jaundice.
- Can be fatal to the foetus.

Maternal antibodies from the sensitized mother cross the placenta and destroy foetal red blood cells in utero.

The Medical Triumph: Breaking the Chain Reaction



The Rh Factor Synthesis

	Foetus Rh+	Foetus Rh-
Mother Rh+	Safe (No foreign antigens)	Safe (No foreign antigens introduced to mother)
Mother Rh-	Risk of Incompatibility (Requires immediate intervention)	Safe (No antigens present at all)

Rh incompatibility is a highly predictable and entirely preventable immunological conflict. Timely administration of anti-Rh antibodies ensures maternal and foetal safety across multiple pregnancies.



You've Learned the Theory.

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