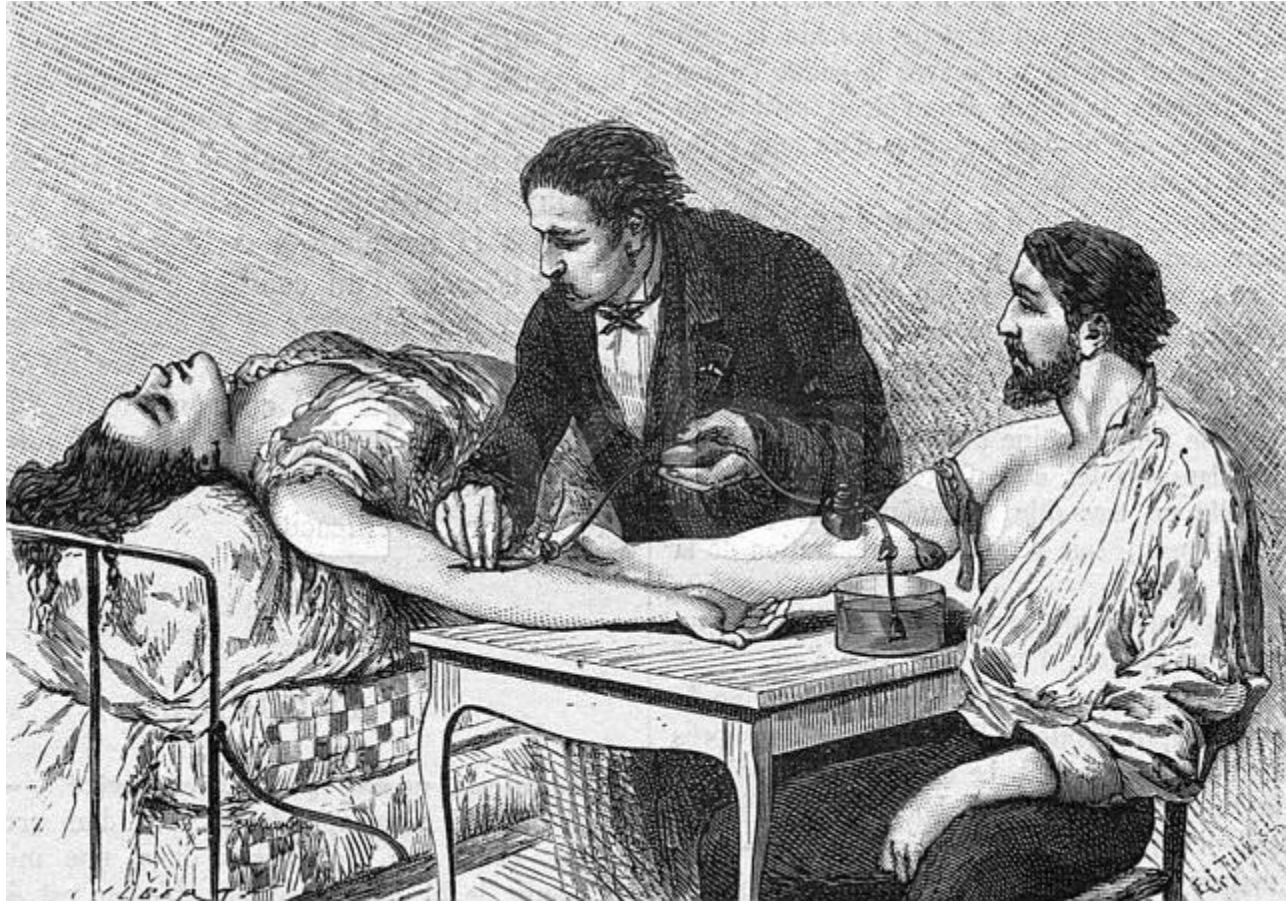
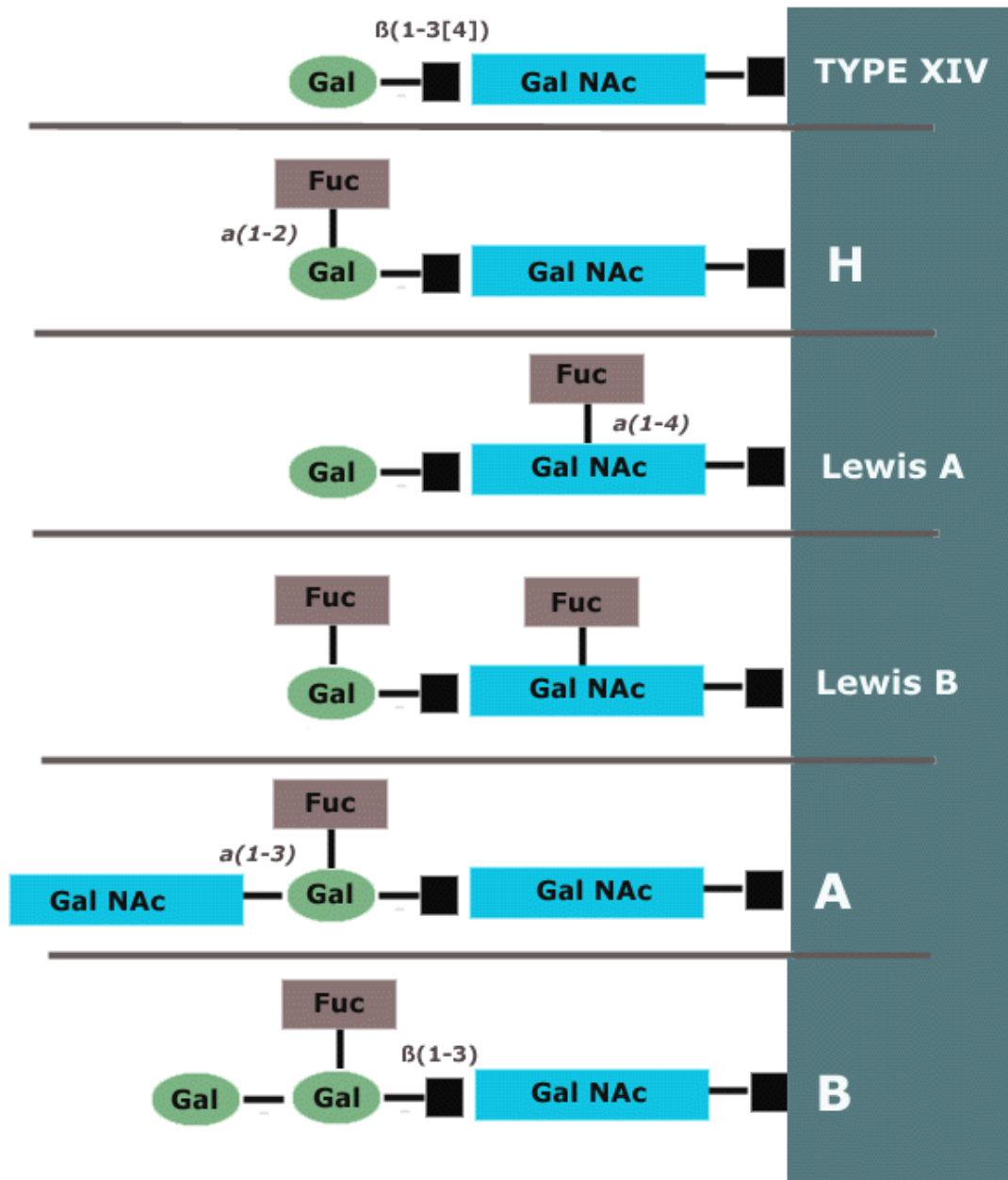


Blood transfusion immunology



Polysaccharide antigens of blood groups

- Most important: ABO system.
- Antigens may be present in secretions and on surface of many endothelial and epithelial cells.
- H substance - is a core structure of ABO antigens. Extremely rare are patients of Bombay phenotype - no H substance is present.
- Antibodies are of IgM isotype, they are present even without antigen stimulation.
- Minor blood groups: Le/le (Lewis)



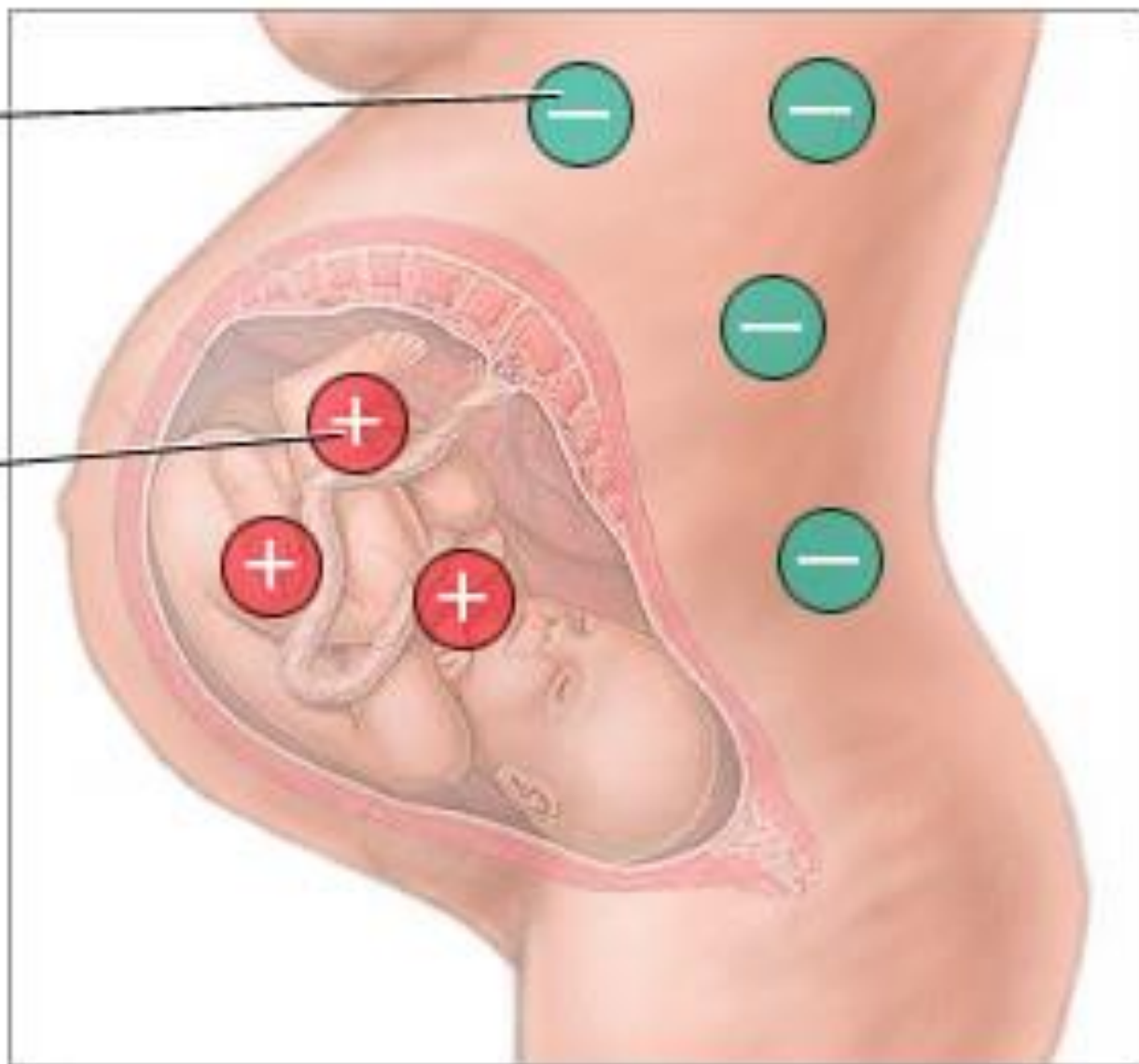
Phenotype (blood type)	Genotype	Antibodies in serum
A	AA or AO	Anti-B
B	BB or BO	Anti-A
AB	AB	None
O	OO	Anti-B and Anti-A

Proteine antigens of blood groups

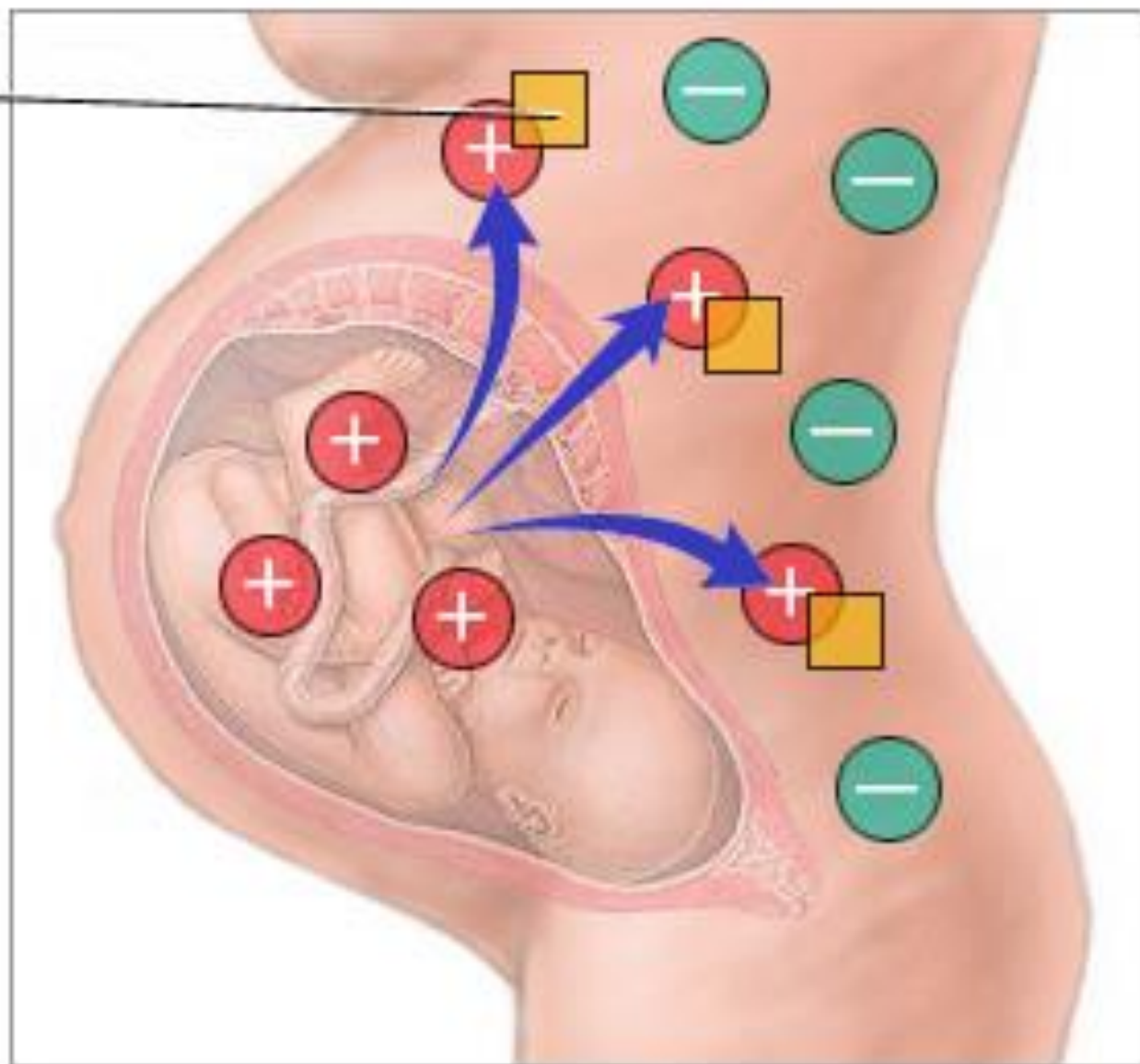
- The most important is Rh system
- Antibodies are of IgG isotype. They develop only after antigenic stimulus.
- “Small“ protein blood groups: MN, Ss. Kell, Duffy

Rh negative
blood cell

Rh positive
blood cell



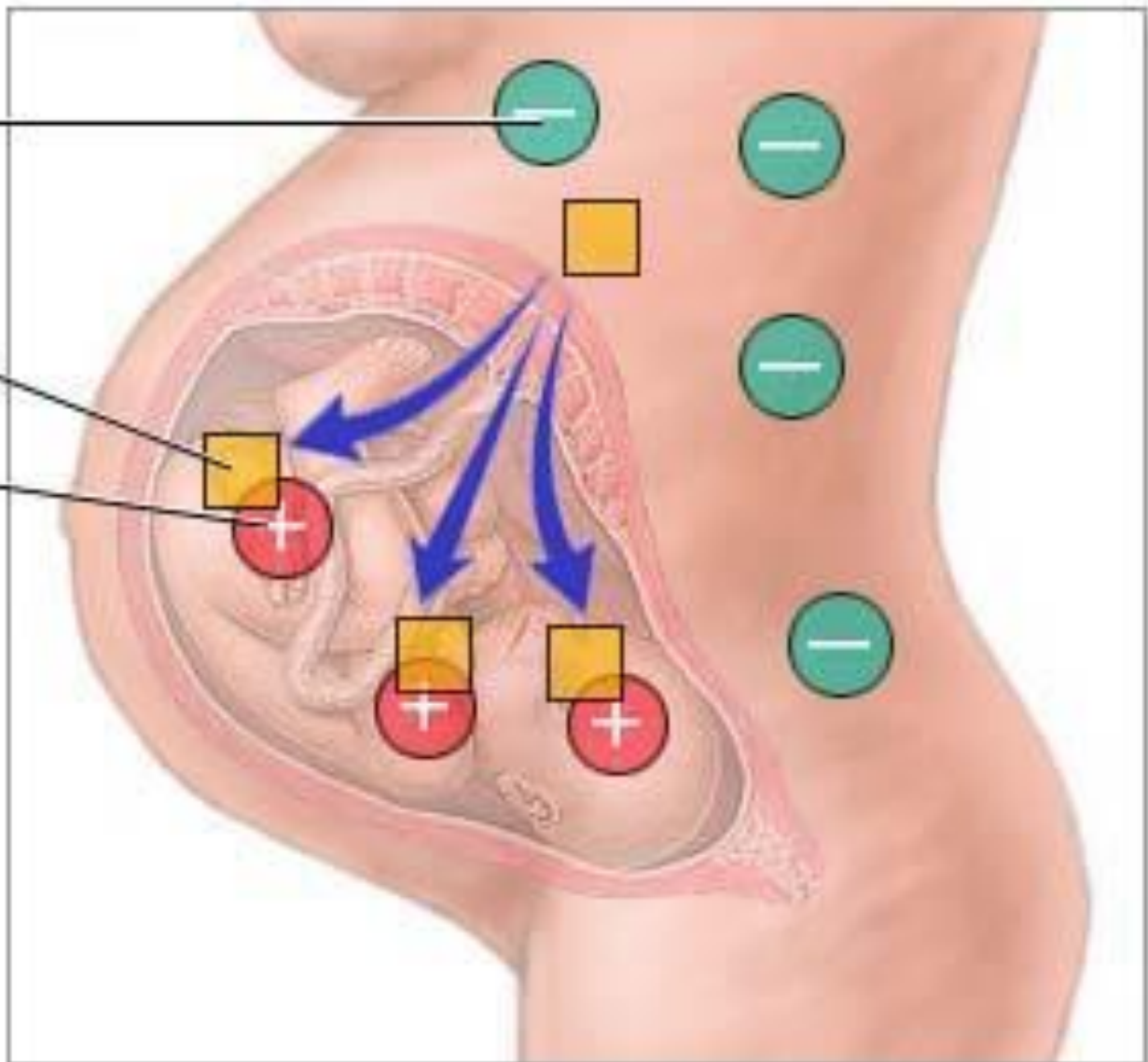
Antibody



Rh negative
blood cell

Antibody

Rh positive
blood cell



Adverse reactions associated with transfusion

- Hemolytic: headache, myalgia, nausea, fever. Hemoglobin casts are responsible for kidney failure. Shock may develop.
- Febrile – antibodies against minor blood groups.
- Allergic: urticaria, sometimes bronchospasm, anaphylactic shock in the most severe cases.
- TRALI syndrome: dyspnoea, cough soon after transfusion. Caused by thrombocyte aggregates in the lungs.