



- In pregnancy, there are what is known as tolerance mechanisms (materno-fetal tolerance) because we don't want the mother's body to recognize the fetus as a foreign body and direct her immune responses against him. Therefore, regulatory T-cells suppress maternal allo-responses targeted against the fetus.
- **Helper T-cells:**
 - **Notice that IL-10 produced by helper T-cells has an anti-abortive effect.**
 - **There are two types of helper T-cells:**
 - ✓ **TH-1:** mediating rejection phenomenon by TNF and IFN.
 - ✓ **TH-2:** for immunological tolerance.
- **There is a local immunosuppression at the placenta and adjacent tissues:**
 - Through estrogen and progesterone which are secreted by the placenta.
 - Reduced macrophage function.
 - Cells and toxic cells inhibition: HLA-G differs from HLA-1 in:
 - ✓ Limited polymorphism.
 - ✓ A tissue-restricted distribution.
- **Types of vaccines:**
 - **Killed organisms:** examples include
 - ✓ Polio (salk: injection).
 - ✓ Rabies.
 - ✓ Influenza.
 - ✓ Pertussis.
 - ✓ Typhoid.
 - ✓ Cholera.
 - ✓ Plague.
 - **Living organisms:** examples include
 - ✓ MMR: Mumps, Measles, Rubella.
 - ✓ Polio (sabin: oral).
 - ✓ Yellow fever.
 - ✓ Tuberculosis.
 - **Toxoids:** examples include
 - ✓ Tetanus.
 - ✓ Diphtheria.
 - **DNA vaccine:**
 - ✓ B-cell response.
 - ✓ Gene of pathogen.
- **Safe and unsafe vaccines during pregnancy:**

Safe (killed or inactivated organisms)	<ul style="list-style-type: none"> • Influenza (all pregnant women in flu season). • Hepatitis B (pre and post exposure). • Hepatitis A (pre and post exposure). • Pneumococcus (only high-risk women). • Meningococcus (in unusual outbreaks). • Typhoid (not routinely recommended).
Unsafe (live attenuated organisms)	<ul style="list-style-type: none"> • MMR: Mumps, Measles, Rubella. • Polio. • Yellow fever. • Varicella.