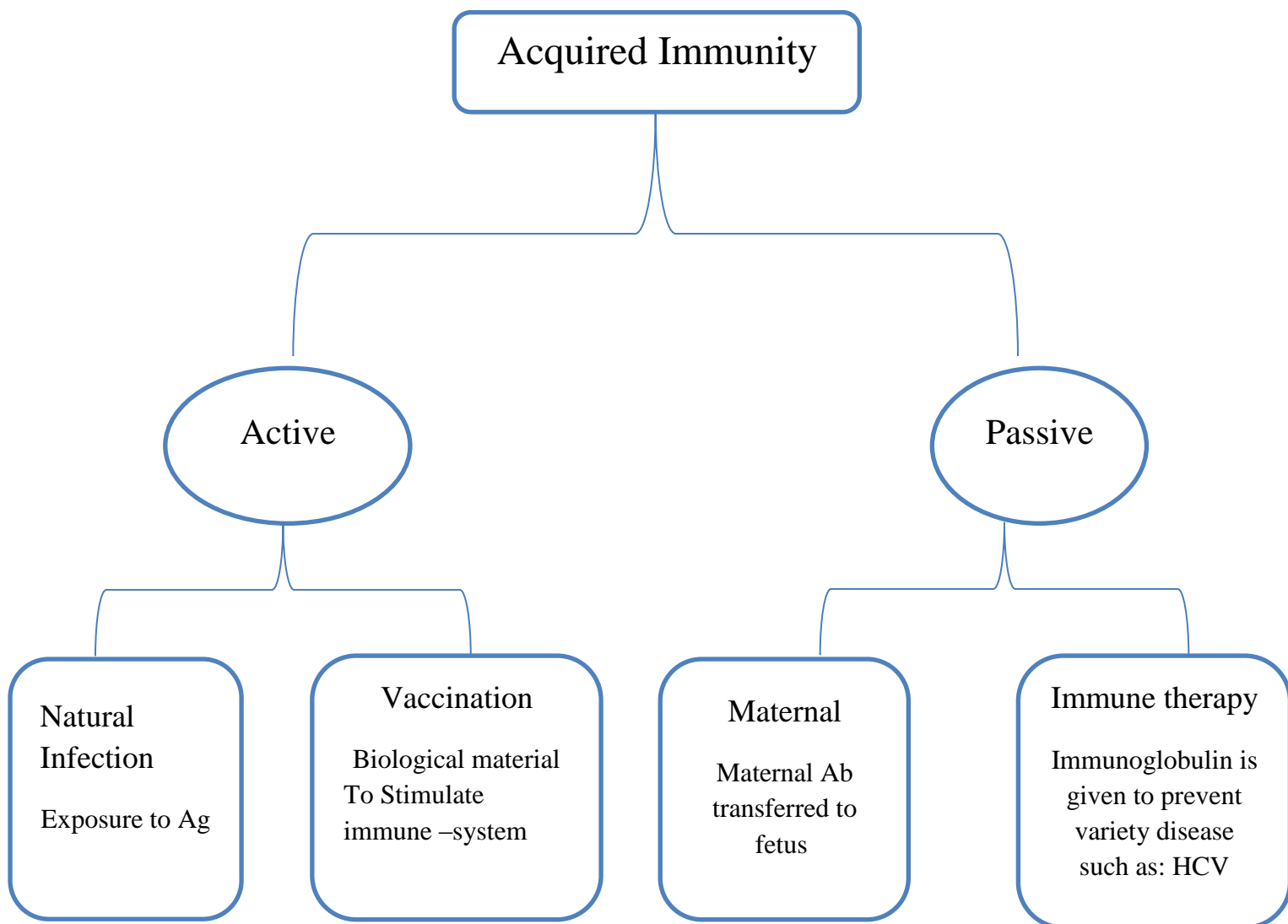


## Vaccine and Sera (Lab 1)

**Vaccine:-** Is biological substances that stimulates or provide active acquired immunity for certain disease. Vaccine is made from attenuated or killed microorganism, its toxin or its surface protein.

**Vaccination:-** is the administration of antigenic material to stimulate an individual s immune system to develop adaptive immunity to a pathogen.



**❖ Requirement for good vaccine**

1. Safe compounds (non –toxic and no side effect )
2. Highly antigenic (gives good titter of Abs when injected into body).
3. Has no ability to retrieve its activity
4. Economic (Low coast)
5. Not contaminated

**❖ General procedure of vaccine production**

1. Production starts with growing viruses or bacteria .Each microorganism requires specific condition to multiply
  - Bacteria multiply by them –self ,but need to be put in the right media
  - Viruses need a living host to multiply ( in cells)
2. Second, bacteria or viruses are harvested.
3. Purification
4. Kill or inactive the microorganisms, it is critical step **.Why?**

❖ Because in this step it has the ability to destroying pathogens that cause diseases, and making sure they will still be able to produce immune response.

5. Fill the vials with vaccine

- Some vaccine are not stable in the liquid form, therefore, freeze-drying is used to make the vaccine in powder form.
- Each vial undergoes to routine inspection. The quality of both vaccine and container are scrutinized.

6. The produced vaccine is then sored at certain temperature (Usually from 2C to 4C), and prevented from exposing to the light.

**Why**

Because the vaccine loses the effectiveness when it is exposed to light.