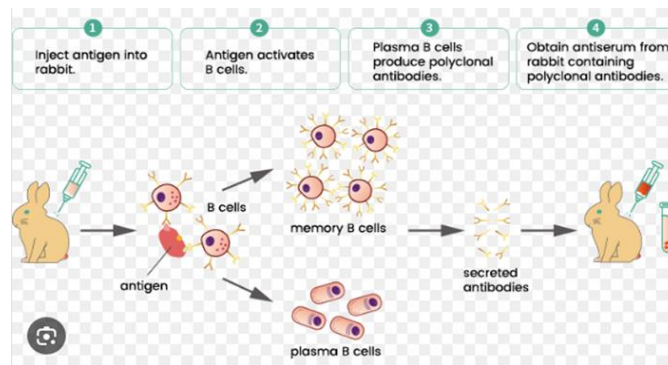


## Laboratory Animals (Injections, Marking, and Mice Anatomy)

- A laboratory model animal refers to any experimental animal species that is used in research and drug development processes to simulate human anatomy, physiology, and diseases.
- These model animals play a crucial role in understanding basic biological mechanisms, assessing drug efficacy and safety, and developing new treatment methods.
- The aim of injection: To form protective antibodies in the serum and these antibodies are preserved by memory cells.



## Classification of experimental animals

- ✓ **Rodents** (Mice, Rats, Guinea pigs, Hamster... etc.)
- ✓ **Non - Rodents** (Rabbit, Dog, Cat, Monkey.....etc.)



## Characteristic of lab Animals use in injection:

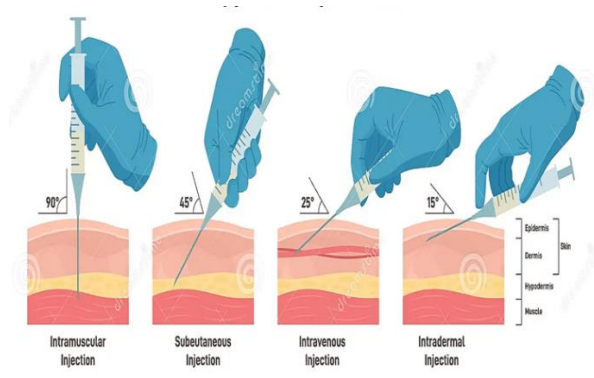
1. Empty of infection (healthy )
2. Specific weight , age and type
3. Genetically pure

## The purpose of using Laboratory animals

- To study immunological and pathological process of disease.
- For production of antibodies.
- To study the antigenicity of vaccines.
- Source of Blood (erythrocytes , serum , plasma).

## Injections and blood collecting methods in the laboratory animals

- Intra muscular injection.
- Intra cerebral injection
- Intra venous injection.
- Intra peritoneal injection.
- Intra dermal Injection.
- Intra nasal injection.
- Subcutaneous injection.
- Intra foot-pad injection.
- Intra thymic injection.



## Conditions of injections in laboratory animals:

1. Sterile cleaned syringe.
2. Clean area by alcohol 70%.
3. No bubbles in the syringe.

## Injection in rodent animals:

- Intra muscular injection.
- Intra dermal Injection.
- Intra peritoneal injection.
- Subcutaneous injection

## Injection in non- rodent animals:

- Intra muscular injection.
- Intra venous injection.
- Intra peritoneal injection.
- Intra dermal Injection.
- Subcutaneous injection

## Blood collecting in the laboratory animals:

Collection blood from laboratory animals is frequently necessary for a variety of experimental uses such as antibody production.

### Type of Blood collecting:

- Cardiac puncture
- Orbital puncture
- Orbital plexus
- Orbital venous sinus
- The tail
- Central auricular artery

### Blood collecting in rodent animals:

- Orbital plexus.
- Cardiac puncture.
- The tail.

### Blood collecting in non- rodent animals:

- Central auricular artery.
- Cardiac puncture

## Marking of animals

### Temporary marking:

1. Cage marking.
2. Dye marking.
3. Hair clipping.
4. Neck bands

### Permanent marking:

1. Natural marking.
2. Ear punching.
3. Toes clipping.
4. Brand



## **Mice Anatomy (Field Mouse Dissection)**

The field mouse is a small mammal that has many anatomical structures that are similar to human structures, however much smaller because the mouse is a mammal like humans, it is warm blooded and has a four---chambered heart.

### **Steps for Dissecting a Mouse:**

#### **1. Preparation**

- Gather necessary tools: scissors, forceps, scalpel, dissection board, gloves.
- Ensure a clean and safe working environment.

#### **2. Positioning the Mouse**

- Place the mouse on the board, securing the legs with tape if needed.

#### **3. Opening the Abdominal Cavity**

- Use the scalpel to make a small incision in the abdominal area.
- Gently widen the incision to access internal organs.

#### **4. Examining the Organs**

- Liver: Identify its location and examine its size and color.
- Lungs: Observe them and ensure they are healthy.
- Heart: Check it by making an incision in the chest area.
- Stomach and Intestines: Examine their location and condition.

#### **5. Inspecting the Nervous System**

- Carefully remove the skull to examine the brain.
- Identify different areas of the brain.

#### **6. Cleaning the Area**

- Use water or saline solution to clean the internal organs if necessary.

#### **7. Documentation**

- Record observations about each organ and note any abnormalities.

#### **8. Re-dissecting (if necessary)**

- If needed, further examinations can be performed or tissue samples can be taken.

#### **9. Disposing of Waste**

- Dispose of the mouse and dissection materials safely according to health guidelines.

