

# Immunology

## Practical Immunology

### Lecture 4

## Laboratory Animals & Biomedical Research-Part 2

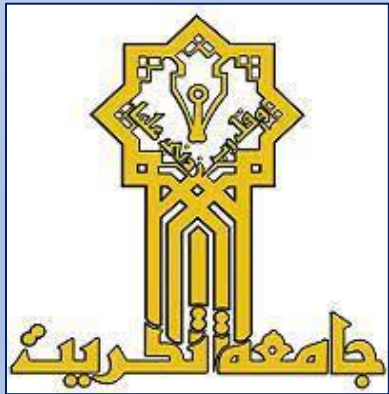
Tikrit University

College of Veterinary Medicine

Department of Microbiology

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## **Steps of Handling the mouse(Double handed restraint)**

Step 1: The mouse lifted by the base of tail and placed on the lid of the cage with the preferred hand and The tail gently pull back

Step 2: Gently, Quickly and Firmly by the scruff of the neck behind the ears with the thumbs and index of the other hand .

Step 3: The tail is transferred from the preferred hand to between palm and little finger of the other hand and then held firmly .

Step 4: The mouse now is restrained .

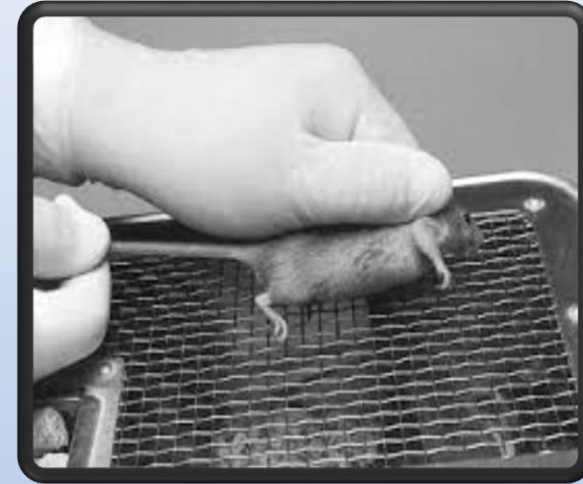
\*Please see the pictures related to the steps above in the next slide.

## Steps of Handling the mouse(Double handed restraint)

Step 1



Step 2



Step 3



Step 4



## Routes of administrations for Laboratory animals

- 1- Intraperitoneal (I.P.) Injection
- 2- Subcutaneously (S,C,.) Injection
- 3- Intravenously (I.V.) Injection
- 4- Intraperitoneal (I.P.) Injection
- 5- Retro-Orbital Injection
- 6-Intranasal Administration (inhalationan)
- 7- Intrarectally Administration
- 8- Intradermally Injection
- 9-Inramammary Injection
- 10-Intragastric Administration
- 11-Intracerebral injection

\*We use the following for drugs administration

- Insulin syringes for some types of injections with using the appropriate guage.
- Oral gavage for intragastric administration .
- Micropipette Pipette for intranasal administration .

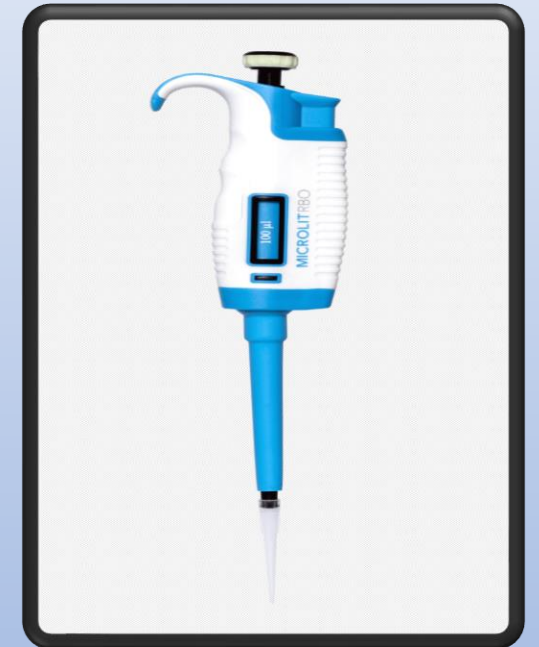
## Routes of administrations for Lab animals



**Insulin Syringe  
(I.M., I.V.,S.C.)**



**Oral gavage  
(Intragastric )**



**Micropipette  
(Intranasal administration )**



**Intramuscular Injection(I.M.)  
into the leg muscle of the  
mouse**



**Intraperitoneal Injection (I.P.)**



**Retro-Orbital Injection**

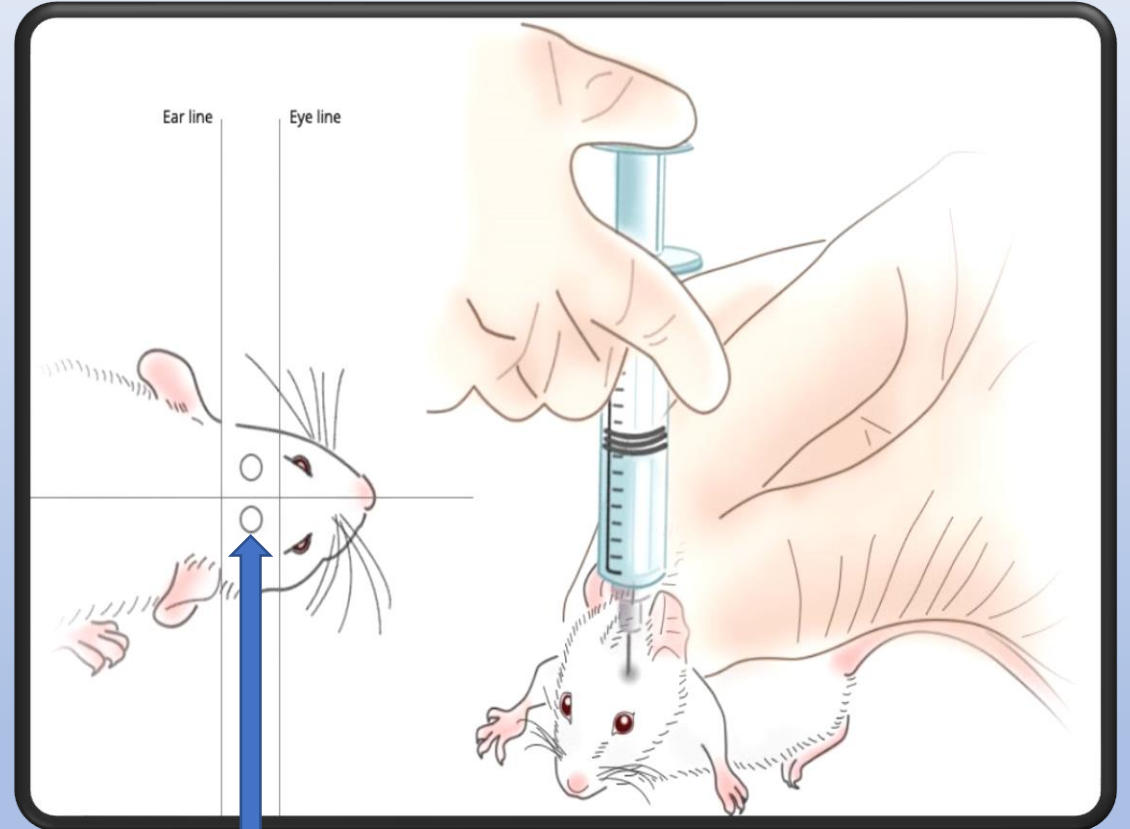


**Intraperitoneal Injection (I.P.)**

**Dr. Muthanna A. Sultan**  
**Biomedical sciences-Immunology & Microbiology**



**Intra-Cerebral Injection**



**Site of Injection**





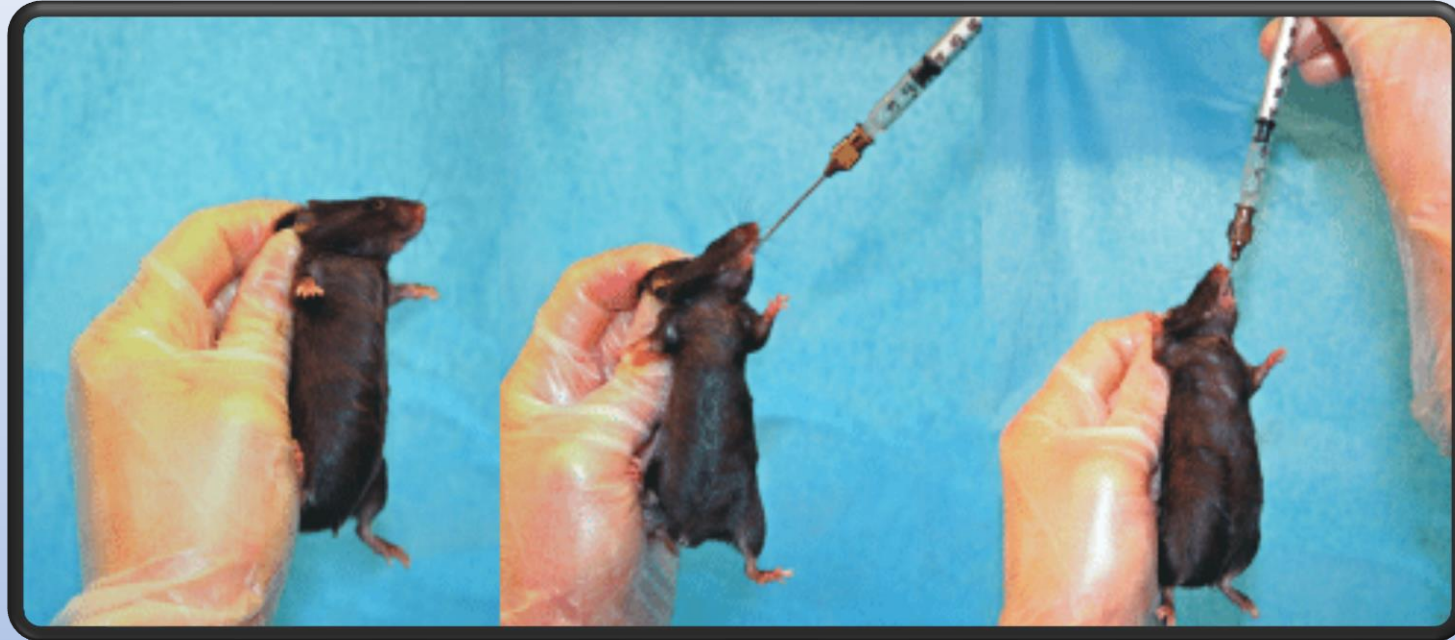
**Intra Nasal (I.N.) Administration**



**Intraperitoneal Injection (I.P.)**



**Tail vein Injection (I.P.)**



**Oral administration-Intragastric  
administration by using oral gavage**

## General Considerations that should be taken while dealing with Laboratory animals

### 4- Provider or Source of mice

The providers for laboratory animals should always be consistent, and the animals coming from trusted institutions and well monitored in terms of all health, breeding and Management access

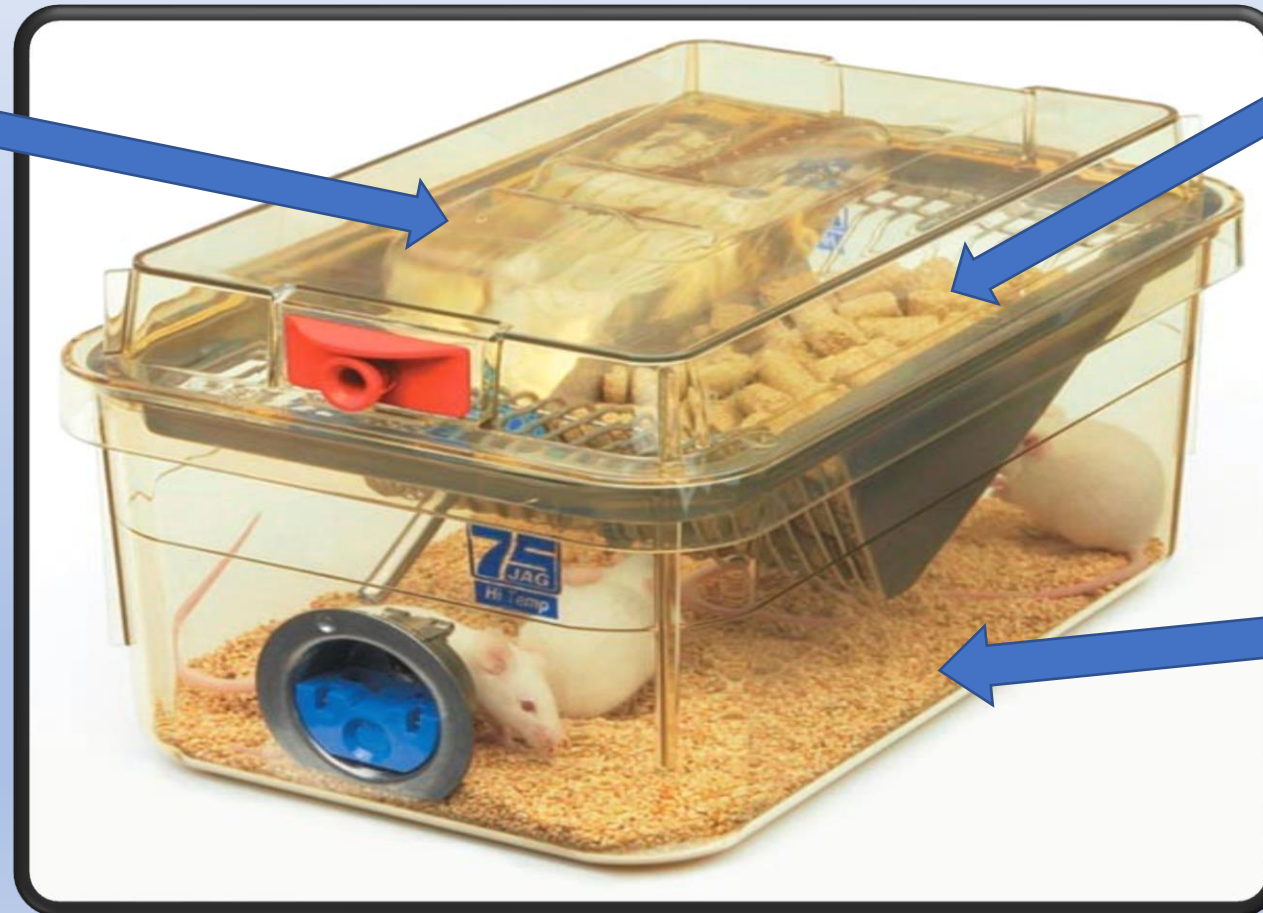


## Typical Cage for laboratory mice

Water's Bottle

Food

Bedding



Best  
Wishes!

The image features the phrase "Best Wishes!" written in a bold, black, cursive script. The text is set against a white, rectangular background that is tilted at an angle. The words "Best" and "Wishes!" are stacked vertically. The word "Best" is written in a classic cursive style with a prominent loop on the 'B'. "Wishes!" is written in a more fluid, modern cursive style with a long, sweeping underline that extends under the word. The entire text is surrounded by several small, five-pointed gold stars of varying sizes, scattered around the letters. The background of the tilted rectangle is a light cream or off-white color, which contrasts with the solid blue background of the overall image.