

## **Care and handling of laboratory animals**

Experimental animals which are commonly used in the laboratory are rabbits, guinea pigs, mice and poultry. Other animals may be required for special work. These animals are used for antisera production, as a source of complement, skin reactions, blood collection, anaphylactic shock and pathogenicity tests

## **Features uses of experimental animals**

- 1- Rabbits: Three to four months old healthy albino rabbits weighing about 2 kg are preferred for most of the laboratory work.
- 2- Guinea pigs: Young adult guinea pigs about 2 to 2.5 months old and weighing about 200 to 250 gram.
- 3- Mice: Albino mice weighing 15 to 20 gram and about 6 to 8 weeks of age.

## **Handling of laboratory animals**

Rabbits are mostly handled by their ears, mice by their tails and guinea pigs by the hand grip around their back. Chickens are handled by their wings or legs.

## **Methods of injections in animals**

### **Important notes during the injection**

1. Appropriate size and sterilized syringes are required for injecting animals
2. The inoculum should be free from solid particles
3. There are no air bubbles in the syringe at the time of inoculation

4. The area of injection should be clean and sterilized with 70% alcohol.
5. The injection should be given slowly

**There are various routes of injection:**

1. Intradermal
2. Subcutaneous
3. Intramuscular
4. Intraperitoneal
5. Intravenous

**1-Intradermal injections**

Usually made on the back using small needle

**Procedure**

- 1- Clip the hairs and sterilize the area of the skin with 70% alcohol.
- 2- Hold the skin between the thumb and forefinger and inject 0.1ml quantity in between the two folds of the skin. A correct injection will form a pea sized white anaemic nodule at the site.

**2-Subcutaneous injection**

This injection is usually made on the back, abdomen, or in the groin.

**Procedure**

- 1- Clip the hairs and sterilize the area of the skin with 70% alcohol.
- 2- Hold the skin between the thumb and forefinger
- 3- Insert the needle under the skin into the loose subcutaneous tissues and inject the fluid

### **3-Intramuscular injection**

The injection is made into the posterior muscles of the thigh

#### **Procedure**

- 1- Clip the hairs and sterilize the area of the skin with 70% alcohol.
- 2- Insert the needle into the muscle and inject the fluid

### **4-Intraperitoneal injection**

This injection is usually made below the umbilicus in the median line

#### **Procedure**

- 1- Clip the hairs and sterilize the area of the skin with 70% alcohol.
- 2- Insert the needle the skin, penetrate the abdominal muscles and the peritoneum then inject the fluid

### **5-Intravenous injection**

A-In rabbit this injection is made in marginal ear vein

#### **Procedure**

1. Clip the hairs and sterilize the area of the skin with 70% alcohol with slight rubbing. This will make the ear vein prominent.
2. Insert the needle in the vein directing toward the base of the ear and inject the inoculum slowly

B-In guinea pig this injection is made in superficial vein

## **Procedure**

1. Clip the hairs on the dorsal and inner aspect of the hind leg and sterilize the part with 70%.
2. Insert the needle in the vein and inject the inoculum slowly

C-In mice this injection is made in tail vein

## **Procedure**

- 1- Dip the ventral part of the tail with water to make the vein prominent.
- 2- Insert the needle in the tail vein keeping it nearly parallel to the tail with point directed towards the animal and inject the liquid.

D-Intravenous injection in chickens is given in the wing vein.

## **Methods of obtaining blood from laboratory animals**

Laboratory animals are bled to obtain **whole blood, plasma** or **serum**.

## **Rabbits can be bled by the ear vein or from the heart**

A-Bleeding from the ear vein

## **Procedure**

- 1- Clip the hairs of the area over the marginal ear vein and sterilize with 70% alcohol.
- 2- Take a small piece of cotton dipped in xylol and rub on the tip of the ear or on the inner aspect of the ear vein. This will produce a mild inflammation making the blood vessels more prominent.

3- With the help of a sharp razor blade, make a small longitudinal slit through the skin and the vein causing the blood to ooze out drop by drop which is then collected in a wide mouth test tube.

4- When desired amount of blood has been collected press the puncture wound by a sterile cotton till bleeding stops.

#### B-Bleeding from the heart

1- Tie the animal securely on its back

2- Clip the hair over the sternum about 1.5 inches in diameter.  
Sterilize the part with 70% alcohol.

3- Insert the needle through the intercostal space at area is slightly towards the left of the midway of the sternum and the needle is directed straight towards the right shoulder.

4- 30-50 ml blood can be collected without killing the rabbit.