

Laboratory Animals

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An animal which has more or less similar physiological and body composition with various biological systems as human beings, which are tiny, easy to handle, less expensive and co-operative are called as laboratory animals.

Types of Laboratory animals:

Mice, Rats, Hamster, Guinea Pigs, Rabbits, Monkeys and Transgenic Fly are popular Laboratory animals.

Classification of Laboratory animals:

❖ Conventional animals: -

Animals derived and grown in general environment but free from diseases communicable to human like mycobacteria, Dermatophytic fungi, Pasteurella and Sarcoptes Scabiei.

❖ Gnotobiotic animals: -

Animals with known microbes such as virus, bacteria, fungi and protozoa is said to be gnotobiotic animals. This animal has to be bred in controlled environment in the equipment called isolator. They are foundation stocks for producing specific pathogen free animals. Gnotobiotic rats & mice are used to study carcinogenesis, immunology, toxicology, nutrition etc.

❖ **Specific Pathogen Free Animals: -**

An animal which is made free from specific or particular microbe is known as SPF animals.

❖ **Germ free animals: -**

An animal which don't have any demonstrable microbe is known as germ free animal. This can be achieved by killing the mother with cervical dislocation and removing the foetus by hysterectomy without any anaesthetic in an isolator.

Young ones must be reared in a isolator in germ free environment. The feed and water also must be provided after sterilisation.

These animals are useful:

- To study role of microbes in nutrition.
- To study physiology without infection.
- To conduct biological, toxicological & microbiological assays.

Mice: -

They are smaller in size, early puberty, high fecundity, short gestation, high position in evolutionary scale. Due to these specialties about 60-70% laboratory animals are used as mice.



Rat: -

Nearly 2-3 times bigger in size than mice, short gestation, prolific breeder, early puberty and high fecundity.



Guinea Pig: -

- It is prolific breeder, easy to rear and breed in captivity.
- Gestation period is comparatively little bit longer than Rat & Mice.
- It needs supplementation of Vit. C in the diet and
- More susceptible to T.B. & Anaphylactic shock.



Hamster: -

- Syrian and Chinese are two popular varieties of hamster used in various research specifically Riboflavin and Vit. E deficiencies.
- Chinese hamster are commonly used in research on diabetes due to high incidence of diabetes mellitus in them.
- It has low (22) chromosomal No. Due to which they are useful in cytological study, tissue culture, genetics & radiation research.



Transgenic Fly: -

These flies bred quickly and have short life time of about 15 days. To carry out biological assay in fly is much cheaper as compared to other laboratory animals.



Rat	Mice
Fur of rat is coarse.	Fur is Smooth
Tail of rat is thicker and well serrated (notches on edge)	Thinner and non-serrated
Skin of rat is thick	Thin
Rat is bigger in size and heavy in weight	Mice is smaller and light in weight