EXPERIMENT NO.: 6 **DATE:**

AIM: STUDY OF DIFFERENT ROUTES OF DRUGS ADMINISTRATION IN MICE/RATS

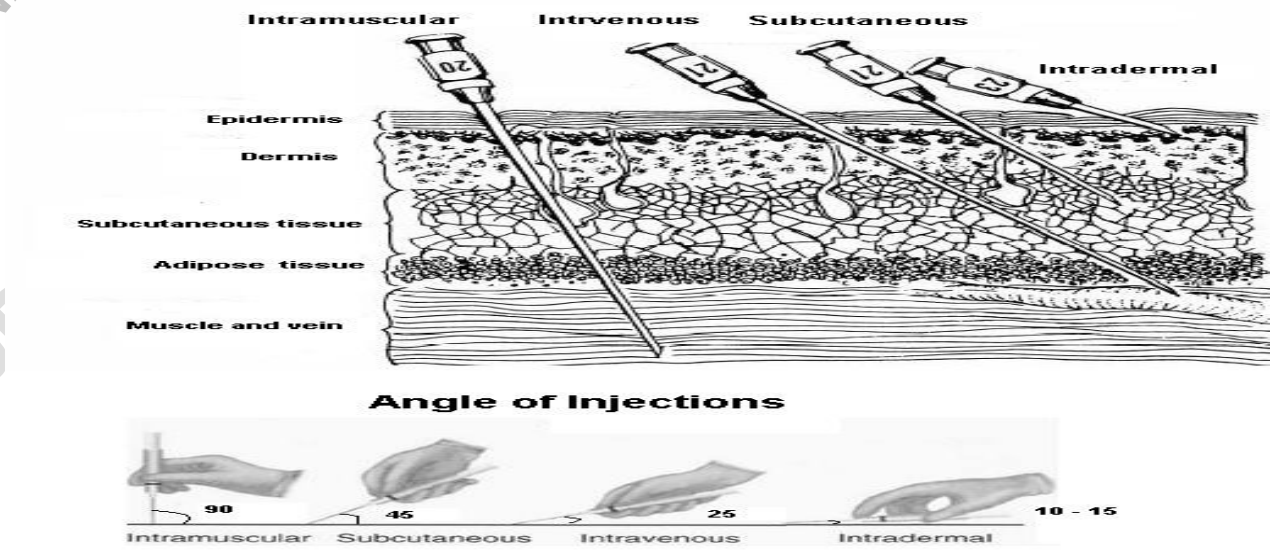
Drugs substance can be administrated to the experimental animals by different routes of administration as

Gastrointestinal

- Oral (per os) - through the mouth - Care to be taken. The administered material should not enter the respiratory tract. Accidental entry of the material in respiratory tract is traced by appearance of material in nasal cavity and violent striving by the animal.
- Gavage - into the stomach via a tube or gavage needle
- Rectal (per rectum) - into the rectum via the anus
- NPO (nil per os) - nothing by mouth. Usually prescribed prior to general anesthesia.

Parenteral

- Intravenous (IV) - directly into the venous bloodstream
- Intraperitoneal (IP) - into the abdominal cavity
- Subcutaneous (SC) - under the skin
- Intramuscular (IM) - into a muscle
- Intradermal (ID) - into or between layers of skin
- Intrathecal (IT) - into the subarachnoid space of the spinal cord
- Intracranial (IC) - into the substance of the brain



The route selected for drug administration is governed by the nature of the agent being administered, the animal, the purpose of administration, and other factors. The techniques for

each route vary from species to species, but all require a general understanding of local anatomy at the injection site.

The investigator should know the physiological properties of the substance to be injected because considerable tissue damage and discomfort can be caused by irritating vehicles or drugs. For example, the rabbit foot pad should not be used as an injection site; sodium pentobarbital should be administered only intravenously or intraperitoneally, not subcutaneously or intramuscularly, because of its irritating properties.

NEEDLE SIZES AND RECOMMENDED INJECTION VOLUMES

SPECIES	Intravenous	Intraperitoneal	Intramuscular	Subcutaneous
Mouse	Lateral tail vein; 0.2 ml; ~ 25 ga	2-3 ml; ~ 25 ga	**NR** Quadriceps/posterior thigh; 0.05 ml; ~ 25 ga	Scruff; 2-3 ml; ~20 ga
Rat	Lateral tail vein; 0.5 ml; ~ 23 ga	5-10 ml; ~ 21 ga	**NR** Quadriceps/posterior thigh; 0.3 ml; ~23-25 ga	Scruff; 5-10 ml; ~ 20 ga
Hamster	Femoral / jugular vein (cut down); 0.3 ml; ~ 25 ga	3-4 ml; ~21 ga	**NR** Quadriceps/posterior thigh; 0.1 ml; ~ 25 ga	Scruff; 3-4 ml; ~ 20 ga
Guinea Pig	Ear vein, saphenous vein; 0.5 ml; ~ 23 ga	10-15 ml; ~ 21 ga	Quadriceps/posterior thigh; 0.3 ml; ~ 21 ga	Scruff; 5-10 ml; ~ 20 ga
Rabbit	Marginal ear vein; 1-5 ml (slowly); ~21 ga	50-100 ml; ~ 20 ga	Quadriceps/posterior thigh, lumbar muscles; 0.5-1 ml; ~ 20 ga	Scruff, flank; 30-50 ml; ~ 20 ga
Cat	Cephalic vein, 2-5 ml (slowly); ~21 ga	50-100 ml; ~ 20 ga	Quadriceps/posterior thigh; 1 ml; ~ 20 ga	Scruff, back; 50-100 ml; ~20 ga
Dog	Cephalic vein; 10-15 ml (slowly); ~ 21 ga	100-200 ml; ~ 18 ga	Quadriceps/posterior thigh; 2-5 ml; ~ 20 ga	Scruff, back; 100-200 ml; ~ 20 ga
Primate (Squirrel/Owl monkey, galago)	Femoral vein; 0.5-1 ml (slowly); ~ 21 ga	10-15 ml; ~ 21 ga	Quadriceps/posterior thigh; 0.3-0.5 ml; ~ 21 ga	Scruff, 5-10 ml,~ 20 ga
Primate* (Rhesus, Cyno, Snow)	Cephalic, recurrent tarsal, or jugular veins; 5-10 ml (slowly); ~ 20 ga	25-50 ml; ~ 20 ga	Quadriceps/ posterior thigh, triceps; 1-3 ml; ~ 20 ga	Scruff; 10-30 ml; ~ 20 ga
Primate* (Baboon)	Cephalic, recurrent tarsal, and jugular veins; 10-20 ml (slowly); ~ 20 ga	50-100 ml; ~ 18 ga	Quadriceps/ posterior thigh, triceps; 1-3 ml; ~ 20 ga	Scruff, 10-30 ml per site; 60-100 total; ~ 20 ga

* Must be chemically restrained

NR = Not recommended. Requires extreme care.

IV INJECTION SITES

SITE	SPECIES
Jugular vein	Cat, sheep, dog, goat, rabbit, horse, cow
Cephalic vein (Fore limb)	Dog, cat, large primates
Saphenous vein (Hind limb)	Monkey, dog, guinea pig (difficult)
Tail vein	Rat, mouse
Marginal ear vein	Rabbit, pig
Alar vein (Wing vein)	Bird
Femoral vein	Monkey, cat

TEACHER'S SIGNATURE