

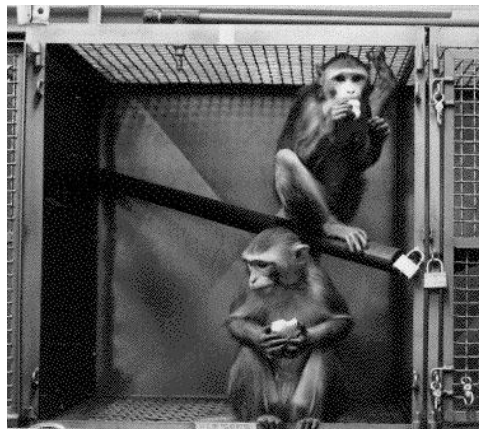
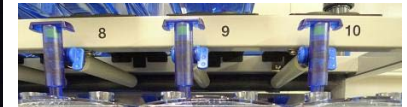
Mice as Animal Model

Basics



Animal models

- *Drosophila melanogaster*
- *C. elegans*
- Zebrafish
- Mice (C57BL6, Balb/c, nude mice)
- Rat (Wistar rat, Lewis rat, Long-Evans rat, etc)
- Rabbits
- Dogs
- Pigs
- Primats



Advantages

- Economical
- Easy to manipulate and to maintain in the laboratory
- Similar to human in anatomy, physiology and genetics
- Short generation time and accelerated lifespan
- Easy to manipulate mouse genetics (great availability of transgenic and knock-out mice)



Colony planing

- Mating: pair, trio or rotating male
- Reproductive age: 6 – 8 weeks
- Gestation: 19-21 days
- Wean age: 21-28 days
- Litter size: 2-12 pups per female
- Breeding schemes: (m^{-/-} x f^{-/-}) (m^{+/-} x f^{-/-}) (m^{+/-} x f^{+/-})
- Timed matings: house male for 2 weeks alone, add 1 or 2 females in late afternoon, check for vaginal plugs next morning



Animal care

- Light cycle: 12 hours dark /light
- 18-23 °C with 40 – 60 % humidity
- Diet: Dry pellets, commercially available with a defined amount of nutrients, water must be available at all times
- Bedding has to be changed 1-2 times per week
- Injections: Intraperitoneal, Intravenous, subcutaneous
- Euthanasia: compressed CO₂, injectable and inhalable anesthetics

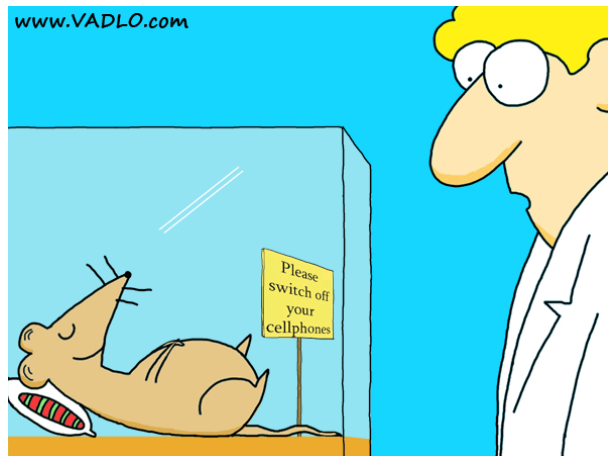


Disease models

- Diabetes type 2: spontaneous (eg: TALLYHO/JngJ), inducible (eg: NONcNZO10/LtJ)
- Arthritis: Induced (DBA1 mice) , spontaneous (TNF transgenic mice)
- Multiple sclerosis: induced after immunization with MOG
- Tumors: Jackson offers a wide range of mice that form tumors spontaneously
- Neurological diseases: neurological mutant mice can develop diseases



Thank you for you attention!



"At first I was happy I made smart transgenic mice.."



"At least we can sleep at night!"