McGill Integrated Core for Animal Modeling

Platform to generate new genetically modified animal models as well as several support services to help manage their existing lines.

- Crispr/Cas9 technology to create mice and rodent models
- Cryopreservation of gametes
- In Vitro Fertilization (IVF)
- Gene-targeting – generating chimeric mice from Embryonic Stem Cells
- Generation of mice or rats from frozen embryos
Timelines

**KO mice (Indels or Exon deletion)**

- Week 1: Design Model
- Week 2: Order gRNAs
- Week 3-4: MI
- Week 6-7: Pups born
- Week 12: F0 Mice screened
- ~4-5 months
- Average cost 5000-6000$

**KIs: Point Mutations or Small Insertions**

- Week 1: Design Model
- Week 5: screen gRNAs
- Week 6: Order donor template
- Week 7-9: MI
- Week 12: Pups born
- Week 18-20: F0 Mice screened
- ~5-6 months
- Average cost 5500-6500$

**Large KIs: Conditional loxP mice or Large Inserts**

- Week 1: Design Model
- Week 5-7: screen gRNAs
- Week 9: Order donor template
- Week 13-14: Receive donor templates
- Week 18-21: MI
- Week 23-25: Pups born
- Week 30-36: F0 Mice screened
- ~9 months
- Average cost 8000-9000$
Steps and Timeline involved in making a HDR GM model using Crispr/Cas9

1. **Project Design**: 1-2 weeks
2. **Design and order guide RNAs**
3. **Test gRNAs by MI into embryos**: 1-6 weeks depending on size of donor template
4. **DNA extraction, PCR, & sequencing of embryo DNA**: 2-4 weeks
5. **Microinjection**: 2-4 weeks
6. **Design and order Donor Template**: 2-4 weeks
7. **Pups born**: 4-6 weeks
8. **Screen FO Pups**: 3-4 weeks

**Turn-Key Service**: 27-30 weeks to generate an FO founder model

**À la carte**:
Micro-injection
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