Rat Pronuclear Microinjection Training Syllabus

Purpose:
To provide all knowledge and hands-on experience necessary to perform pronuclear injection of fertilized rat eggs and to produce transgenic rat. Trainees are invited to provide a transgene.

Overview:
Training is divided into three phases:
1. Discussion and lab on superovulation, preparation of pseudopregnant females, egg collection and transfer to pseudopregnant female rats.
2. Discussion and lab experience in microinjection of rat embryos and transfer to pseudopregnant female rats.
3. Follow-up on pregnancies and genotyping

Preparation:
1. Trainees will read and be familiar with the following articles:
2. Practice in the fabrication of glass instruments used in transgenic rat production.
3. Practice in the use of mouth pipettor and transfer pipets used to move rat eggs.

Schedule:
Day 1  8:00 - 5:00 fabrication of glass micro-instruments.
Day 1  8:00 - 5:00 collect eggs and transfer eggs to recipients
Day 2  8:00 - 5:00 workstation orientation, collect and microinject eggs
Day 3  8:00 - 5:00 collect eggs, microinject, and transfer injected eggs to recipients
Day 4  8:00 - 5:00 collect eggs, microinject, and transfer injected eggs to recipients
Day 5  8:00 - 5:00 collect eggs, microinject, and transfer injected eggs to recipients

In order to derive the maximum benefit from this training, trainees should plan to spend a at least a full day (8 hours) in the Transgenic Core on the scheduled days.

Follow-up:
Egg transfer surgeries from will be evaluated in terms of the number of pregnancies and implantations that occur. Trainees will prepare tail DNA from any rats born from their microinjected eggs and determine if they are transgenic. Transgenic founders will be transferred to the trainee, at his/her request. This information will provide the means to evaluate the effectiveness of the training.
Discussion Papers

