

Biology 1200 – Biotechnology Field Trip

This is a field trip to tour a UBC genetics lab to supplement the biotechnology part of the course, and show students the practical applications of methods they use in the molecular DNA lab.

The destination is the Moerman Lab at the University of British Columbia, otherwise known as the Gene Knockout Laboratory. This is a description of the Gene Knockout Project from the website: <http://zoology.ubc.ca/lalorch/research1.htm>:

The UBC *C. elegans* Gene Knockout Laboratory is part of an international consortium, working to produce null mutations in identified and predicted genes in the *C. elegans* genome. Our gene targets include those with human homologs, many of which may be implicated in human genetic diseases, as well as a set that are nematode specific. These latter genes are important from a human health perspective and because nematodes are major agricultural pests. Determining the function of genes specific to nematodes could offer the pharmaceutical industry new target proteins for nematicide development.

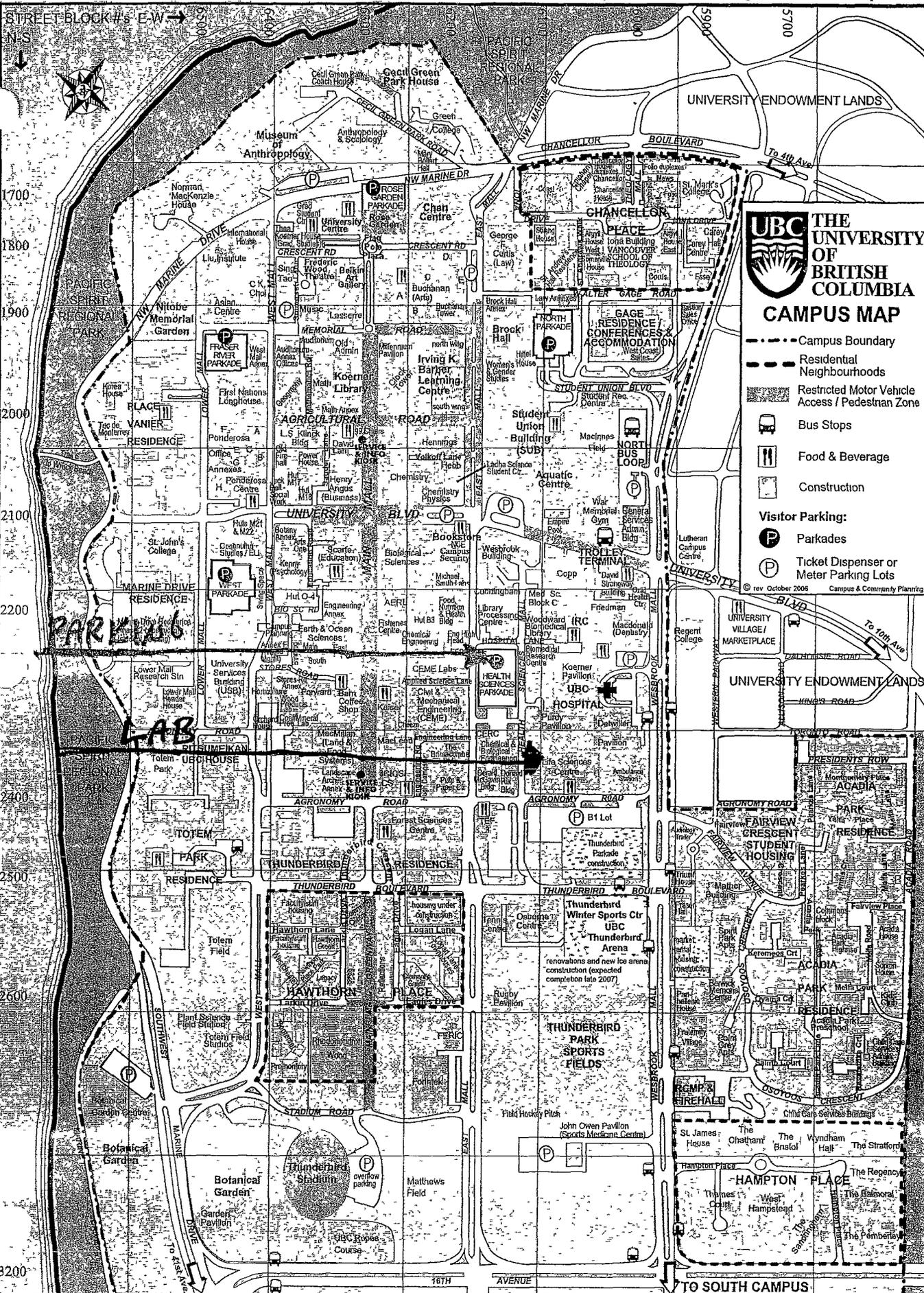
Gene inactivation is accomplished by two methods. The majority of screening is done using a PCR-based reverse-genetics method. More recently we have pioneered the use of oligonucleotide array comparative genomic hybridization (oaCGH) as a tool for deletion discovery.

Complete determination of the *C. elegans* DNA sequence makes possible the targeting of all genes in this organism, which in turn will help elucidate the detailed information necessary to build a worm. Significant conservation between nematode and human genes may provide answers to vexing biological and genetic questions in our own species.

On the following page are questions you should try to answer during the tour.

Questions (The instructor will decide whether there is to be a short hand-in assignment or a discussion)

1. Why is *C. Elegans* such an excellent species for genetic studies?
2. How many cells does it have? Why is the # of cells important?
3. How large is its genome?
4. What is the purpose of the gene knockout?
5. Why must the identification of the mutated gene be a matter of elimination?



CAMPUS MAP

- Campus Boundary
- Residential Neighbourhoods
- Restricted Motor Vehicle Access / Pedestrian Zone
- Bus Stops
- Food & Beverage
- Construction
- Visitor Parking:**
 - Parkades
 - Ticket Dispenser or Meter Parking Lots

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PARKING

LAB

HAWTHORN

Botanical Garden

Botanical Garden

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