

- Introductions
- 20.109 Philosophy
- Semester-Long Workflow
- Day-to-Day Workflow
- Lab Safety
- Self-/Guided Lab Tour

The two pillars of 20.109

1. authentic investigation

* design

2. constructive feedback (lots!)

* revision

* your energy and investment are needed to make it work

20.109 = collaboration b/w us all

Semester-long workflow

- Work in pairs *(shared drawer)*
- Broader community collaboration
- Assessments
 - Major: reports and presentations
 - Minor: HW, quizzes, notebooks, participation
 - **Ask if something is unclear** *20109.talk@gmail.com*
 - Available over email, occasional OH *private 16-319*
 - **Plan ahead and manage your time** *group 16-336*
a few days before reports

Day-to-day workflow

- Hand in current HW, get old HW back
- Announcements and/or HW discussion
- Quiz 1:10 sharp 2-3Q, 5-10 min.
- Pre-lab lecture
- Lab work
 - See wiki
- Hand in notebook pages before leaving

From protocol to lab notebook

1. Begin by adding the correct amount of water to a 200 μ l PCR tube. Add that amount +1 μ l to a second PCR tube.
2. Next add the primers to each reaction. Be sure to change tips between additions.
3. Next add template to the first reaction tube.
4. Finally add PCR Master Mix to each tube, pipetting up and down to mix. Leave your tubes on ice until the entire class

Statement of purpose: Today we will design primers to delete 32 bp from the 5' end of GFP and flank the sequence with new restriction sites. Then we will prepare truncated GFP by PCR as an insert for later cloning.

Design primers for GFP insert (M1D1 Part 1)

See attached Word document.

PCR to make GFP insert (M1D1 Part 2)

Added 27 μ L H₂O to expt'l, 28 μ L H₂O to control sample.

Added [1 μ L] primer and [20 μ L] Master Mix (last) to both samples, and 1 μ L template to expt'l only!

Rxn ready at 3 pm \rightarrow on ice \rightarrow thermal cycler started at 4 pm.

Lab notebook alternatives

- All include statement of purpose, conclusion, etc.
- Differ in treatment of protocols section
 - (1) Cite protocols and write out only unique numbers/conditions
 - (2) Write out summary protocol by hand (must include all numbers, but not lab tips, etc.)
 - (3) Print out protocol and below/to side of section write out unique numbers/conditions
 - (4) Some hybrid of the above that works for you!

Lab Safety

- Protection: gloves, glasses, coat *clothing rules*
- Just in case... eyewashes, shower
- Hazards: materials / *chemical (toxic, caustic, ...)*; *irritant*
biological (infectious, ...)
- Waste disposal

sharps bin biohazard barrels

- bio and non-bio
- broad definition
- no solids, liquids,
paper, gloves



- non-sharp
- biohazard waste
- solids ok.

chem. liquids → fume hood biohazard liquids → bleached, sink

Time for demo and tour!