Research Progress Report I
Safety Contract, Online Courses, Scientific Writing

Functional Genomics Research Stream • Freshman Research Initiative • by Dr. Patrick J. Killion

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Section I - Research Fundamentals

IA - Safety Contract

Safety procedures relative to the handling and care of both laboratory equipment and reagents will be covered in significant detail once we begin working in the lab. This is referred to as site-specific training.

Independent of equipment and reagents, the laboratory has general safety policies:

1. Students must be supervised while working in the laboratory. If the research stream staff (mentors, faculty) are not available or in the lab, no work can be performed.
2. Accidents must be immediately reported to onsite staff and to the research stream RE.
3. Gloves must be worn at all times while working with any type of equipment or reagent.
4. Closed toe shoes and long pants must be worn (as opposed to sandals and shorts) in the lab.
5. No food or beverages are allowed in the laboratory at any time. They can be stored in backpacks but must never be taken out during work in the lab. Additionally, do not dispose of food waste of any kind in the lab as this too is a violation of university safety policy.
6. Do not store book bags, backpacks, or any personal objects on the lab benches (always place them under desks, in drawers, or in available cabinets that have no other reagents or laboratory equipment).
7. All waste (including glass, sharps, needles, caustic chemicals, and biological waste) must be discarded concordant with taught safety and disposal standards.
8. All glassware and equipment must be fully cleaned immediately after use. It is very important that on a daily basis you leave the laboratory environment a small bit better than when you arrived.
9. All stored reagents and tubes must be appropriately marked and dated.
10. Students must immediately comply with equipment and reagent directives that come from research staff working in the laboratory environment.
11. The laboratory is a professional yet informal environment. Conversation, volume, and word selection should be appropriate at all times. Respect, courtesy, and clear communication with research staff and your peers will serve you well.
12. Safety policies may be amended and supplemented at any time. They will always be posted in the laboratory and should be reviewed on a regular basis.

I have read the above laboratory safety and communication requirements and agree to abide by their standards. I understand that my continued participation in the Freshman Research Initiative and my course grade are directly tied to my adherence to these directives.

EID: _____________ Signed: _______________________________ Date: _________________
**IB - Research Background**

The eukaryotic cell cycle is a regulated temporal set of events that controls cellular division. There are distinct phases and points of control implemented such that progress from one phase to another is both controlled and internally checked.

If successful, a eukaryotic cell will increase in size, divide its nuclear DNA, and perform cytokinesis to divide from one cell into two daughter cells.

At this time you should consult any resources desired to further engage knowledge of the cell cycle. Consider your textbooks, Wikipedia, online journals or other sources of information. Your goal at this point is to gather enough information so that you can both understand and communicate the processes that occur at each step of the cycle.

**Section II - Research Practical Skill Assessment**

There are no research methods that will be assessed at this time.

**Section III - Research Progress & Productivity**

**IIIA - Online Safety Courses**

Completion of required safety courses is necessary for you to begin research in the lab.

You must complete the following safety courses this week:

1. **OH 101 Hazard Communication**
   
   [https://www.utexas.edu/safety/ehs/train/courses.html#oh101](https://www.utexas.edu/safety/ehs/train/courses.html#oh101)

2. **OH 201 Laboratory Safety**
   
   [https://www.utexas.edu/safety/ehs/train/courses.html#oh201](https://www.utexas.edu/safety/ehs/train/courses.html#oh201)

3. **OH 202 Hazardous Waste Management**
   
   [https://www.utexas.edu/safety/ehs/train/courses.html#oh202](https://www.utexas.edu/safety/ehs/train/courses.html#oh202)

4. **CW 512 Recombinant DNA Technology**
   
   [https://utdirect.utexas.edu/cts/class.WBX?s_course_comp=0&s_course_prefix=CW&s_course_number=0512](https://utdirect.utexas.edu/cts/class.WBX?s_course_comp=0&s_course_prefix=CW&s_course_number=0512)

Complete all of these online courses.

When you have completed all of them, print off your training record via the “View training history” link:

[https://utdirect.utexas.edu/txclass/index.WBX](https://utdirect.utexas.edu/txclass/index.WBX)

This printout must be stapled to this assignment and handed in on the due date.
IIIB - Research Background

Introduction

Your ability to pen and present your writing is how you address your research colleagues. It quickly becomes one of the most important methods by which you advertise both your accomplishments and your potential to peers, future employers, and the public at large.

Section IB of this Research Progress Report entails you researching the eukaryotic cell cycle. It is now time to write. You will now present a short synopsis of the biological concepts therein. You are encouraged to use and cite any materials at your disposal: your textbook(s) from other courses, Google, Wikipedia, and one of many online tutorials on the subject.

This section of the assignment is focused upon an understanding of the cell cycle, its phases, and the general requirements a cell must fulfill therein. Research and review journal articles will be focused on the mechanistic details of how cells implement these controls - which genes are involved and which other genes they might regulate, for example. For this research report - this would be too much detail.

Your goal (for now) will be to describe the steps that define each of the phases. A good example would be the Phases section of the Wikipedia page on the subject. Do not plagiarize, however!

What To Do

- You will write two drafts of the synopsis.
  - The first draft will be in your scientific voice.
  - The second draft will be in your non-scientific voice.
    This draft should have errors bolded and described as in the example below.
  - Each draft will be approximately a page in length (1.5 spacing).
  - Include an introductory sentence or two, a main paragraph on the cell cycle phases, and then a closing or concluding set of sentences that states why the cell cycle is studied.

Print both copies and staple them to this document (you will be handing this packet in). In additional to hard-copy submission you will also be posting each of these drafts online. See the next section - IIIC.

Example scientific voice draft:

MicroRNAs are members of a family of non-coding RNAs that regulate gene expression in a post-transcriptional, sequence-specific manner [1]. Originally believed to be few in number, limited in biological function, and phylogenetically non-conserved, microRNAs have now been identified within nearly all metazoan genomes, including D. melanogaster, C. elegans, A. thaliana, and H. sapiens.

MicroRNAs is (1) members of a family of a really large number (2) of non-coding RNAs that control the process of how many genes are either turned on or turned off or finely tuned (3) in a post-transcriptional, sequence-specific manner. MicroRNAs (7) were a long time ago (4) believed to be small (5), limited in biological function, and phylogenetically non-conserved, microRNAs have now been identified within nearly all metazoan genomes, including D. melanogaster, C. elegans, A. thaliana, and H. sapiens.

1 - subject/verb agreement
2 - inappropriate adverb
3 - sentence length, too many words
4 - casual, informal word choice
5 - vague word choice, multiple meanings possible
6 - no citations?
7 - need to vary sentence structure

This version is essentially be the same content as the scientific version. It includes flaws that demonstrate inattention to the details and requirements of scientific writing. Use the technique demonstrated to call out the mistakes or flaws that make the sentence or word choice not appropriate for scientific writing.

Plagiarism

Please pay close attention to plagiarism - do not copy materials you reference. Digest information from many sources and the present the process in your own words. You must also provide your references. This can be done informally - you will not be evaluated on correct formatting of references. Simply provide the name of each source as well as publication date and pages numbers if each is relevant.

IIIC - Results Central Communication

Introduction

You will post only the scientific-voice draft to the Functional Genomics Research Stream - Results Central. See the course website for a protocol that details how to interact with Results Central called Working with Results Central. I have posted an example draft to Results Central - this should guide you in both how to post and my expectations.

What To Do

- Post the first draft (scientific voice) to the Category “Research Progress Report I”. Be very sure that you select this category before you publish your post - this is how posts are organized!
- Read at least three other posts and comment professionally on all three them. A professional comment would be one that suggests areas, phrases or sentences that could be improved. Please always be polite and respectful in your communications on Results Central.
IIID - Background Information Survey

Introduction

On *Results Central* you will see a post entitled *Background Survey*. This post contains a link to a Google Docs survey. This information is critical to the research staff understanding the background and interests of the students who are part of the stream this year.

What To Do

- Find the *Background Survey* post on *Results Central*.
- Complete the survey (this will take just a few minutes of your time).

Research Report Submission Guidelines

*Note:* This *Research Progress Report* is the only one that will be completed in totality outside of the laboratory environment. Starting next week you will be in the lab! We have to make sure you have the proper safety certifications first, however. Completion of this *Research Progress Report* will count for 6 hours of laboratory credit (the first week of laboratory hours).

Be sure that you have addressed the following issues before you submit this *Research Progress Report*.

Have You:

- _______ Signed the safety contract?
- _______ Taken the online safety courses?
- _______ Printed and stapled your training history?
- _______ Printed and stapled both drafts of your Cell Cycle Overview?
- _______ Posted your scientific draft to *Results Central*?
- _______ Professionally commented on three other drafts on *Results Central*?
- _______ Complete the background information survey?