

GUIDELINES FOR LABORATORY ROTATIONS

MS LABORATORY OPTION

**THE DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR GENETICS
UNIVERSITY OF LOUISVILLE SCHOOL OF MEDICINE**

I. Rotation Selection Procedures

- A. Meet with faculty you are interested in working with. You are required to talk to at least 4 faculty before your first rotation.
 - 1. Use this opportunity to learn about various faculty members' research interests and ask questions.
 - a. How do they train MS students?
 - b. What are their expectations for you ?
 - c. What potential projects are available in the lab?
 - 2. Read publications from the lab (it is a good idea to do this before the meeting!) and also be sure to talk to students and postdocs in the lab.
- B. Schedule an advisory meeting with the DGS to discuss possible lab rotations.
- C. Submit your Rotation Director Selection Agreement to the DGS

II. Rotation Schedule

- A. Each rotation lasts approximately 8 weeks, for a minimum of 80 h (2 credit hr).
- B. A written report and departmental research presentation will be due at the end of each rotation.
- C. A timeline for rotations and presentations will be provided at the beginning of each semester.

III. Rotation Reports & Grading

- A. Rotation reports should be submitted to the Rotation Director and DGS on the day of the presentation.
- B. Rotation reports will be critiqued by the DGS and one faculty member. Their comments will be returned to you to provide detailed feedback on your reports.

IV. Guidelines for Lab Rotation Report and Presentation

Organize your report and talk using the format:

Introduction (<1 pg in report, 2-3 slides for the talk):

- State the overall goals of the research in the lab

Appendix A

- Provide a brief background on the field/topic.

For example, if you are working on a nuclear receptor (or membrane receptor, kinase, miRNA etc.) explain the structure/function relationships and summarize the biological significance as it relates to the work in the lab

Project Overview (1-2 pgs in report)

- Background (1-2 slides)
State the purpose of the study (stated hypothesis)
Summarize your project goals and how the project fits in with the overall goals of the lab
If there is any preliminary data that is the basis for your project, briefly summarize the data in the report and present as bullet points in your talk.
Do not show the preliminary data (work others did) in your talk.
- Experimental Approach (1-2 slides)
Describe the design for the experiments and the methods used during your lab rotation.
For example, to determine whether treatment x increased expression of mRNA/protein y, we used qRT-PCR and western blot analysis
- Data Presentation (1-2 slides)

Present a maximum of 2 data figures

Explain what we are looking at – take your time on this section

This is a western blot for protein X. Lane 1 shows.....

This is a graph of the quantitative qRT-PCR data. The white bars are control and dark bars are treatment. With treatment gene x expression increases 2-fold....

If you have more than 2 figures you must select what you want to present and summarize the remaining data in bullet point format.

If you have negative data, show it. If you do not have data to show, explain why. It is helpful to all to learn of technical or other problems encountered (we all have them)

For the report, the data figures should be embedded in the document with a legend. The 2 page limit for this section of the report does not include the figures.

Summary and Conclusions (1-2 slides)

- Provide a data summary
Include comments on your critique of the work/experiment/study
Comment on the strengths and weaknesses
State own conclusions – if you want to present a model at this point, go ahead. I suggest that you also present the model during the introduction.
Address how your work contributed to the project

Appendix A

- State 1-2 additional experiments you would perform next- and why

Acknowledgements

- List PI, lab members, funding

References

A. Written report.

A bibliography is used only for the written report. There is no page limitation for the reference section.

- Use J. Biol. Chem. style

Examples taken from Instructions for Authors

- Cited in text by number and not by author, title, and/or date
- Titles should be included in references
- Numbered consecutively in the order of appearance
- References for journals and books should be in the following styles:
 - List all authors: Last name, initials
 - Journal Name: abbreviate according to Chemical Abstracts <http://www.cas.org/> (the abbreviations are preset in EndNote or Reference Manager)
 - page numbers are inclusive of 1st and last page.
 - Examples

1. MacDonald, G.M., Steenhuis, J.J., and Barry, B.A. (1995) A difference Fourier transform infrared spectroscopic study of chlorophyll oxidation in hydroxylamine-treated photosystem II. *J. Biol. Chem.* **270**, 8420–8428

2. Sambrook, J., Fritsch, E.F., and Maniatis, T. (1989) *Molecular Cloning: A Laboratory Manual*, 2nd Ed., Cold Spring Harbor Laboratory, Cold Spring Harbor, NY

3. *References appearing as e-pubs should be in the following style:* Aphasizheva, I., Aphasizheva, R., and Simpson, L. (April 1, 2004) RNA editing terminal uridylyl transferase 1: identification of functional domains by mutational analysis. *J. Biol. Chem.* 10.1074/jbc.M401234200

You should get EndNote or Reference Manager on your computer.

Go to https://itechxpress.louisville.edu/software/softwaresales/customer/free.php?free_cat=9 and download the free software

B. References on slides for a talk

- always cite the primary source for any data or models used

A common example is using a figure from a review paper for an established pathways or mechanism.

Appendix A

- if you generate your own figure based on concepts that originate from other work, always cite that work

include first author, year, journal, vol., page.

G.M. MacDonald *et.al.* (1995) *J. Biol. Chem.* **270**, 8420.

IV. Timing your talk

You should be prepared to give a 12 minute talk followed by 5 min of Q and A. The above guidelines suggest a maximum of 11 slides, giving you ~ 1 minute per slide. This is good. You should plan on spending more time on the experimental design, data presentation, and summary and conclusions sections. Once you have this section prepared, you can gauge how much time you have to present the introduction and background.

Good luck!

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Approved by the Graduate Executive Committee
Approved by BMB Faculty

Date: 07-29-13
Date:
Date