

## Project assignment 1

# Basics of Cell Biology Literature Reading

September-13-2011

Due: Oct-04-2011 (in class or at Mellon Institute 401)

## 1. Overview

The main purpose of this project is to help you to get familiar with cell biology literature, especially organization of cell biology research papers, and to develop basic skills of reading cell biology literature effectively within a short period of time.

Specifically, this assignment is intended to address the following questions:

- If I am interested in a specific subject in cell biology, where and how to find related research papers? What are the major cell biology journals I should search?
- What are review articles? What are review journals? Why are they useful? What are their limitations? What are differences between research and review articles?
- What are typical formats of cell biology research papers? How can I read papers more effectively based on these formats?
- What type of information do cell biologists present in their papers? How do they present? What are differences, if any, between typical cell biology papers and engineering papers in my own field?

## 2. Instructions

Prepare a project report based on the following instructions.

- (1) Know what Entrez (<http://www.ncbi.nlm.nih.gov/sites/gquery>) is. Familiarize yourself with PubMed (<http://www.ncbi.nlm.nih.gov/sites/entrez?db=pubmed>) by trying different search strategies (e.g. using author name, keyword, etc) and completing PubMed tutorials (<http://www.nlm.nih.gov/bsd/disted/pubmed.html>) that you find relevant.

Perform the following three searches for practice

- Research articles published since 2000 with Tim (Timothy) Mitchison in the list of authors.
- Review articles published by Tim Mitchison since 2000.
- Review articles with “mitosis” as a title word since 2008

Attach the search results at the end of your project report. If the results of any of these searches come in multiple pages, show **only** the first page.

- (2) Summarize different formats of research articles of two journals selected from the following two groups

Group 1: journals that publish short articles (choose only one)

*Science, Nature*

Group 2: journals that publish longer research articles (choose only one)

*Cell, Journal of Cell Biology, Nature Cell Biology*

- (3) Address the following questions in your report

- What, if any, are the differences in format between short articles in Science (or Nature, depending on what you choose) and longer articles in e.g. Journal of Cell Biology (or Cell, or Nature Cell Biology, depending on what you choose)?
- What are supplementary materials (different journals may use slightly different terms)? Why are they necessary? What information goes into supplementary materials?
- Now that we understand the formats of cell biology articles, discuss potential strategies to read more effectively. That is, discuss how to get the most information from a cell biology paper in the shortest time?
- Do you see fundamental differences between articles of the same format, either short or long, in different journals? For example, is a long

format article in the Journal of Cell Biology fundamentally different a long format article in Cell, in terms of what information is presented?

(4) Choose a review article from any of the review journals and compare its format and content to any of the research articles. Comment on strengths and limitations of review articles.

(5) Take a specific cell biology research paper from one of the journals you selected and compare its format and presentation (e.g. figures and figure legends) with those of a typical engineering article in one of the representative research journals in your field or you are familiar with.

### 3. Report format

Page size: letter

Line space: single

Page margins: no less than 1 inch

Font size: 12 point font size for the main text; 10 point font size for listed references

APPENDIX: web addresses of major cell biology journals

**Major review journals (partial list; use the ASCB cell biology research resource link for more information)**

(1) Annual reviews (<http://www.annualreviews.org/>)

- Cell and Developmental Biology
- Biophysics
- Biochemistry

(2) Nature reviews (<http://www.nature.com/reviews/index.html>)

- Molecular Cell Biology
- Cancer

(3) Trends (<http://www.trends.com/>)

- Cell Biology

(4) Current Opinions (<http://www.current-opinion.com/>)

- Cell Biology

**Major cell biology research journals (partial list; use the ASCB cell biology research resource link for more information)**

(1) General audience journals that publish (mostly) short research articles

- Science (<http://www.sciencemag.org/>)
- Nature (<http://www.nature.com/nature/index.html>)

(2) General audience journal that publishes longer cell biology papers

- Proceedings of the National Academy of Sciences (<http://www.pnas.org>)

(3) Major cell biology journals that publish both short and long cell biology papers

- Cell (<http://www.cell.com>)
- Journal of Cell Biology (<http://www.jcb.org>)
- Current Biology (<http://www.cell.com/current-biology/>)

ASCB cell biology research resource webpage

<http://cellbase.ascb.org/index.html>