Current Literature in Glycobiology

MED 246 / BIOM 246 / CMM 246

Fall Quarter
Fridays, 12:00-1:00 PM

Faculty Instructors:
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Kamil Godula, Philip Gordts, Ajit Varki

Course Director: Philip Gordts

Glycobiology Research and Training Center

http://grtc.ucsd.edu
Current Literature in Glycobiology

• One credit elective - Weekly

• Forum for discussing current literature in glycobiology research
  → Current = within last 6 months

• Topics: “Glycobiology-related”

• Hybrid meeting: BRF2 - 4th floor – Room 4103

• Zoom information:
  Time: 12:00 pm - 1:00 pm, every Friday
  Link: https://uchealth.zoom.us/j/81965943821
  Meeting ID: 819 6594 3821
Selecting the right paper for you

1. Select a scientifically high quality paper!!
Selecting the right paper

Article from widely read general or top of the line specialty journal

→ Current = within last 6 months
Selecting the right paper for you

1. Select a scientifically **high quality paper**!!
   [Inside or outside your area of glycan expertise]

2. Consult with your **mentor(s)** (your PI, Postdoc adviser, lab members….) **The assignment really starts here.**
Selecting the right paper for you

1. Select a scientifically high quality paper!!
   [Inside or outside your area of glycan expertise]

2. Consult with your mentor(s) (your PI, Postdoc adviser, lab members…) The assignment really starts here.

3. Use Glycobiology Search Terms
Selecting the right paper for you

1. Select a scientifically **high quality paper**!!
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2. Consult with your **mentor(s)** (your PI, Postdoc adviser, lab members…) **The assignment really starts here.**

3. Use **Glycobiology Search Terms**

4. Follow work from **leaders in the field:**
   - C. Bertozzi, R. Gallo, R. Woods, R. Cummings, L. Baum, P. Wu
   - J. Paulson, N. Dahms, M. Tiemeyer, R. Sachstein, Y. Yamaguchi, M. Boyce
   - H. Freeze, L. Wells, G. Hart, J. Marth, K. Moremen, M. Pratt
   - L. Hsieh-Wilson, K. Hoffmeister, V. Panin, M. Aebi, P. Stanley, C. Lebrilla
Submitting your paper for the class

1. Propose your article choices to Philip Gordts: pgordts@ucsd.edu
   ➞ 10-14 days prior to presentation

2. Email article + supplementary file to Tracy Gilstrap: tgilstrap@ucsd.edu
   ➞ 7 days prior to presentation (Friday before your presentation)

http://grtc.ucsd.edu
Submitting your paper for the class

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Current Literature in Glycobiology

• 40-45 min critical discussion

• Structured:
  • Introduction
  • Hypothesis
  • Specific Aims
  • General Method(s) (if applicable)
  • Results
  • Review assignment → Comments to the authors
Introduction

Short: ~10 minutes

Introduce glycan class / lectin family etc.

http://grtc.ucsd.edu
www.ncbi.nlm.nih.gov/books/NBK310274/
Common Classes of Animal Glycans

Symbol Nomenclature for Glycans (SNFG)

Chapter 1, Figure 6. Essentials of Glycobiology, Third Edition
Synthesis of dolichol-P-P-GlcNAc$_2$Man$_9$Glc$_3$
Introduction

Introduce glycan class / lectin family etc.

Background on context (disease, tissue, organism, etc.)

• What is known?
• What remains unknown?
• What system was selected to answer these questions?
• What is the overall hypothesis?
• What are the Specific Aims?


Make sure that everyone is on the same page, don’t assume!
Critical Discussion: Methods

Present the aims and/or central hypothesis
   (this gets everybody on the same page)

Present general methods first
   (those important to understand the entire article)

Present specific methods together with Results
   (if they are only relevant to explain an individual figure or table)

“Materials and Methods” are very important!
Critical Discussion: Results

For each Figure or Table...

- Pose the question behind the experiment.
  - Why did the authors do the experiment?
  - What did they hope to learn or show?
  - What’s the hypothesis?
  - What were the controls and are they appropriate?

If a Figure or Table leads to a clear conclusion, state it at the bottom of the slide.
ANGPTL3 is essential for redirecting lipids from oxidative to storage tissue
Figure Quality
R925A mutant leads to loss of β-unit

Figure Presentation
Conclusions

Summarize…

• major experimental findings,
• the authors’ conclusions,
• your assessment of their conclusions

Indicate strengths and weaknesses

Indicate what questions remain unanswered and what you think should be done next

Zoom out: What are the broader implications?
Address this assignment as a paper peer-review

Give on unbiased assessment of:
- Degree of novelty and originality
- Relevance of the subject matter
- Study design and approach

Given positive feedback as well as constructive criticism

Indicate:
- Major and minor concerns
- At least 3 comments

Goal: To improve the manuscript
Common, but avoidable mistakes

**Article:**
- Choosing too long a paper
- Choosing a poor paper

**Scientific:**
- Inadequate Introduction
- Failure to provide rationale for experiments
- Poor description of experimental results

**Communication:**
- Incorrect pace
- Communicate ≠ Impress
- Not practicing your presentation
When you are not the one presenting

(Majority of the time!)

- Ask questions
- Actively participate
- Read the paper

Help the presenter by filling out and submitting the Feedback Forms

Help the faculty by filling out and submitting the course evaluation forms