BIOL 485 Assignment: Student-led discussions

Your assignment is to work with your fellow group members (listed at the end of this document) to create a homework assignment and lead a class discussion about the paper for which you signed up (also listed at the end of this document).

The specific milestones to meet prior to your discussion are as follows.

Task	*When?*
Schedule a meeting with Greg.*	As soon as possible.
Meet with Greg as a group.* Discuss drafts of both the homework assignment and the in-class exercises.	I recommend doing this at least one week before your discussion date.* By this point you all should have read the paper and started brainstorming about homework and discussion options.
Send Greg a final copy of the homework assignment to post to the class website.	One class session before your discussion date. That is, if your discussion is on a Monday, you should send me the homework assignment by the previous Wednesday.

**Please note: I will be out of town from the afternoon of Thursday, Aug. 1 until the evening of Tuesday, Aug. 6.*

Additional tips are as follows:

- Your homework assignment should help your fellow students understand the paper better without doing all of the work for them.
- Your in-class discussion should build on the homework assignment to further the understanding of students who have read the paper but may not yet understand it completely.
- Each member of your group should have some defined role to play during the in-class discussion. (You may also assign me [Greg] a particular role if you'd like, but you don't have to.)

Beyond these general guidelines, you are free to stick closely to the formats I have modeled, or to try something rather different. I will not penalize you for going "off the beaten path" as long as you have a reasonable plan and a rationale for doing so.

All members of a group will receive the same grade. The total points of the assignment will be divided equally between the preparatory meeting, the final version of the homework assignment, and the in-class discussion itself. As with your other homework assignments and class participation, your grade will hinge mostly on demonstrating a genuine effort to grapple with the material.

Sign-up list for student-led discussions (filled out in class on 7-1-13)

Day/Date	*Paper (1 per session), student discussion leaders (3 per session), and Greg's notes*
Mon., July 22	Molecular target selection and validation: "*Toxoplasma gondii* calcium-dependent protein kinase 1 is a target for selective kinase inhibitors" (PubMed ID 20436472) 1. Dongwook (Chris) Choe 2. Julia Olson 3. Tracy Ngo Greg's notes on the paper: This is a very cool example of target validation. They proved that their compounds were killing cells through their actions on CDPK1 by mutating one particular CDPK1 residue and showing that the compounds no longer kill the cells. Also, it's a paper about Toxoplasma gondii, which is phylogenetically related to *Plasmodium*. In what ways is *Toxoplasma* a good and not-so-good model for *Plasmodium*?
Wed., July 24	Target-based screening: "High-throughput screening for potent and selective inhibitors of *Plasmodium falciparum* dihydroorotate dehydrogenase" (PubMed ID 15795226) 1. Jennifer Barber 2. Kaiser Valshon 3. Emoniel Isakharov Greg's notes on the paper: This is a nice example of target-based screening that ultimately led to good progress. It's sort of a complement to the Baniecki et al. (2007) paper on cell-based screening.
Mon., July 29	Target-based screening: "Discovery and biochemical characterization of *Plasmodium* thioredoxin reductase inhibitors from an antimalarial set" (PubMed ID 22612231) 1. Daniel Saiku 2. Tyler Bradshaw 3. Chad Sumulong Greg's notes on the paper: This is an attempt to link some cell-active compounds to specific protein targets. The key question is, was the attempt successful?
Wed., July 31	Hit-to-lead progress: "In vitro and in vivo antimalarial activity of peptidomimetic protein farnesyltransferase inhibitors with improved membrane permeability" (PubMed ID 15556768) 1. Courtnee Clough 2.Emily Boevers 3. Avrey Novak Greg's notes on the paper: This exciting work came out of UW about a decade ago. The project was given the Medicines for Malaria Ventures "Project of the Year" award for 2002. What ultimately prevented further progress?
Mon., Aug. 5	No student presentations

Wed., Aug. 7	Hit-to-lead progress: "Triazolopyrimidine-based dihydroorotate dehydrogenase inhibitors with potent and selective activity against the malaria parasite *Plasmodium falciparum*" (PubMed ID 18522386) 1. Graham Stockdale 2. Richard Nguyen 3.Christopher (Chris) Franz Greg's notes on the paper: This is a follow-up to the DHODH paper covered on July 24. What additional progress has been made?
Mon., Aug. 12	Animal models of malaria: "Structure-guided lead optimization of triazolopyrimidine-ring substituents identifies potent *Plasmodium falciparum* dihydroorotate dehydrogenase inhibitors with clinical candidate potential" (PubMed ID 21696174) 1. Kimberly (Ashlyn) Giddings 2. Ripp Cristel 3. Margaret Lanphere Greg's notes on the paper: This is a further follow-up to the DHODH papers covered on July 24 and August 7. What additional progress has been made? Note the heroic use of mice with humanized circulatory systems so that the compounds could be tested against the human parasite (*P. falciparum*) rather than the rodent parasite (*P. berghei*).
Wed., Aug. 14	Human studies: "Two fixed-dose artemisinin combinations for drug-resistant falciparum and vivax malaria in Papua, Indonesia: an open-label randomised comparison" (PubMed ID 17336652) 1.Kristi Dela Cruz 2. Michael Lam 3. Lesley Hammond Greg's notes on the paper: I chose this as an example of what a drug trial (as opposed to a vaccine trial, covered earlier) looks like. Artemisin combination therapies (ACTs) are the current state of the art for malaria treatment.
Mon., Aug. 19	Human studies: "Competitive facilitation of drug-resistant Plasmodium *falciparum* malaria parasites in pregnant women who receive preventive treatment" (PubMed ID 19451638) 1. Jennifer (Jen) Arthur 2. Clementine Foucher 3. Romaisa Asif Greg's notes on the paper: This work was led by a former UW graduate student who gave a very nice talk about it a few years ago. It argues that using drugs to which parasites have grown resistant, rather than simply being ineffective, can actually make things worse.