



Shoreline Community College

16101 Greenwood Avenue North

Shoreline, WA 98133

Biotech Advisory Meeting Minutes

Friday, November 17, 2017

3:00-4:45 pm

Board Room (1010M), Building 1000

Meeting Attendees

Shoreline Community College: Dina Kovarik, Guy Hamilton, Louise Petruzzella, Jan Chalupny, Reitha Weeks, Sandra Porter (also of Digital World Biology), Adhanom Legesse (also of Seattle Genetics), and Jim Schulz

Industry Representatives: Jon Digel, April Lewis, Susan Julien, Mark Parrish, Arthur Castleton, and Nadeem Sheikh

Minutes from the May 11, 2017 Meeting were approved with minor corrections: typo corrected on Page 2, and Jim Schulz noted that the program no longer needs a Clinical Centrifuge with 96-well plate capacity. Chair, Mark Parrish, mentioned the list at the end of the minutes was nice to help re-ignite thoughts from the last meeting.

Board Member Introductions and Introductions of New Members

- Nadeem Sheikh – Dendreon
- Jon Digel – Fred Hutchinson Cancer Research Center

Updates

a. 2016-2017 Cohort – internships and employment opportunities (Dina)

- See Dina's handout (Table at end of minutes).
- Most internships completed – three are still needed.
- A lot of recent graduates are looking for employment. Dina can serve as a reference. Mark asked what the mechanism is for communication. Dina said to email information to her and she can distribute to cohort. You can also email her to request a certain skill set.
- **ACTION:** Dina to inquire with Workforce about job posting via on-campus resources.

b. 2017-2018 Cohort – general update, internships beginning winter/spring (Dina)

- The current cohort is about 15 students (some of whom are attending part-time)
- Some will be ready for internships spring term; the majority will be looking in summer
- There has been a great deal of interest in the program over the past few months and a second cohort in 2018-2019 is possible (8-10 per cohort, one attending in the afternoon, one in the evening), though additional faculty would be needed.

c. PROJECT BIOTECH summer camp update (see flier at www.shoreline.edu/project-biotech) (Reitha)

- Reitha gave an overview of the 2018 summer camps. She will be soliciting sponsors and guest speakers / panelists for the camps. The online application becomes available in February.
- Sponsorships make it possible to provide scholarships for campers with financial need. Current sponsors include Seed IP, Northshore School District and Cascadian Therapeutics

d. Shoreline Biotech Experience (SBE) High School Outreach (Dina)

- Jan is no longer funded by the Amgen Biotech Experience; Shoreline, the new NSF grant and additional funding sources are paying her salary, as well as some of the science kit loan program.
- For sustainability, parts of the science kits are being re-packaged, and some of these elements will be incorporated into Biotech courses (Media & Solutions, Quality Systems)
- **ACTION:** Dina to send out the Shoreline Biotech Experience Mission Document

e. National Science Foundation Grant Update (Dina)

- With the NSF grant, we want to utilize the Biotech Advisory Committee to revise existing courses and create new course; stipends available; many Board members wrote Letters of Commitment for the grant to this effect
 - Model proposed – pair board member with a faculty member; Discuss key learning outcomes, draft, bring to board for feedback
 - Media & Solutions – five week course fall, five winter; to be revised, incorporate science loaner kit prep
 - Quality systems – new course, emphasis on cGMP, Quality Control / Quality Assurance, making some buffers and media but overlay with kit making.
 - Advanced Bioinformatics – focus on immuno-informatics (antibody and T cell receptor genes); Sandy to lead
 - Cancer Biology – Jan to lead
 - Case Studies in Drug Development – seminar, Dina to lead
- Two new high school kits will be developed to parallel cancer biology and infectious disease with a class.
 - Recruit high school science teachers for two curriculum development workshops and one summer curriculum dissemination workshop (per kit).
 - Curricula must align with Next Generation Science Standards (NGSS) to justify curriculum use in classes, etc.
- Resources available on our website.
- More opportunities for students – student led projects; Jan’s class i.e., DNA barcoding and troubleshooting.
- **ACTION:** Dina will be in touch about mentor-faculty match-ups
- **ACTION:** Form a Quality Systems subcommittee at the next Advisory Committee meeting. Subcommittee volunteers include Adhanom. Subcommittee will report back to full committee by fall, 2018.

f. Embi Tec

- The program has deepened its partnership with science equipment manufacturer Embi Tec. The company has provided funds to cover part of Jan Chalupny's salary and the program is collaborating with Embi Tec to incorporate their equipment – designed specifically for use in classrooms – in the new NSF-funded science loaner kits.

Agenda change – Mark swap faculty needs to tour updates (Louise)

- The goal is to provide tours for Biotech students (1-2 per quarter); it's a very enriching experience for them to see real work places
- Susan noted that Seattle Genetics acquired a manufacturing facility in Bothell from ZymoGenetics
- Nadeem noted that there is a clinical immunology lab at Dendreon
- **ACTION:** Louise to follow up with Board members about potential tours, ideally one for winter term and two in spring term.

Faculty Needs (Dina)

- Tissue Culture for April (10 week course)
- Molecular Diagnostics (5 week course, grant funded for revisions, Winter, 2019)
- Quality Systems course – funds available and need content expert (date TBD)
- **ACTION:** Dina to provide course and position description for Tissue Culture to Board for distribution
- **ACTION:** Board to distribute Tissue Culture job description and ask colleagues about interest in Quality Systems and Molecular Diagnostics courses
- **ACTION:** Dina to advertise Tissue Culture position via colleagues, NW Bio, Fred Hutch postdoc listserv

Equipment Needs (Dina)

- EVOS – if you know of anyone who has one to donate, please let us know.
- Clinical centrifuge with 96-well capacity may not be needed.
- Consumables are used a lot in the lab with Biotech students, summer campers, and high school science loaner kits. Donations welcome, even if reagents are expires. Most commonly used consumables are listed below (and in the Agenda):
 - **ZymoResearch Kits:** Genomic DNA isolation kit, Quick DNA Universal Kit, Quick DNA Plant gDNA Isolation Kit, Quick DNA Miniprep kit.
New England Biolabs Kits: Monarch PCR DNA clean up kit, Gel Extraction kit, Plasmid Miniprep Kit
 - **General:** LB media, agarose, LTS pipettes and tips, universal yellow & blue tips

Course Feedback Activity: Tissue Culture and Internship

- **Background:** The current Tissue Culture course at Shoreline currently covers many topics and experimental techniques. Students and employers have reported that graduates of this course lack foundational skills such as splitting and freezing cells.
- **Activity:** Think / Pair / Share. Board members were provided copies of the course Master Course Outline (MCO), which includes a list of Course Outcomes, Assessment Methods, and a topical Outline for the course, as well as the most recent syllabus. Each member was asked to review these documents for 3-5 minutes (Think), Pair with a colleague at the meeting, and, after 10-15 minutes of discussion, Share out with the group those elements of the course that they believe should be retained, and those elements of the course that should be removed.

[Note: Tabled “Internship” part of agenda to continue discussion on Tissue Culture MCO]

- **Discussion:**
1. Overlaps with other courses and thus consider removing:
 - Isolating DNA from chicken embryos (done in Molecular Biology, Recombinant DNA and Molecular Diagnostics)
 - Move FISH to immunology? There is only one scope, which is a limitation. Immunostaining is more important than FISH ... LINK curriculum with the other class
 2. Too much material covered in lab
 - Some topics can be covered in lecture; they do not all need to be done in the lab
 - Arthur noted that the syllabus reads as a Tissue Culture survey course, which can be appropriate in certain circumstances but not if the goal is to gain proficiency
 - Transposable elements could be covered in lecture or in another course
 3. The importance of repeating techniques to gain confidence
 - Grow cells, suspension, expand, basic growing of cells, culture contamination and how to test, and transfect those.
 - Transfection and selecting for what you want – two methods, and analyze, expression of gene
 - Mycoplasma testing Cell reducibility/FTR analysis/looking at identity (sex for sure)
 - Sandy – isolate stem cells from fat tissue (see how long can grow and differentiate them)
 - Keep this a foundational course; for more complex topics, make those other course(s)
 - Dina – they need to be comfortable splitting cell
 - Jan – have to do over and over and over again. Hands on those cells, counting, diluting, etc., so comfortable and needs to be basic
 - Jan – what do employers want?
 - THE METER = EMPLOYABILITY HAS TO BE CONSIDERED – Comfort and Repeatability
 - Mark: first three weeks solid; expand culture contamination and more time on it; Move transposable elements and FISH to a different course.
 - Repetition important – employability, repetition in different ways.
 - Guy - 4 credits 2 and 2 – maybe 1 credit lecture and two labs of three hours each.
 - Guy – too much curriculum –MCO needs to reflect how it is being taught (Guy); hands on, etc.
 - Mark – immunostaining and FISH - take out.

- Looking at cells under the microscope and being able to assess their health.
 - Cell counting with a hemocytometer and an automated cell counter.
 - Dina noted that the automated cell counter has been a bottleneck so they are looking into one or two Bio-Rad TC20s which allow students to read two samples at a time
 - Nadeem – This course needs to be foundational. The course is all over the place now. The focus needs to be on growing cells, counting, cryopreserving, thawing, coaxing back, working with blood and characterizing cells. Cell lines YTS169.4, OKT3 and OKT4. (1) Thaw vial of cells; (2) Grow up cells; (3) Collect supernatant and in different culture conditions seed at X → Week 4, how much protein is present? Test for antibodies.
 - Reitha – Dina’s list includes topics to take out based on this discussion [based on topics listed in the BIOL 49 Spring 2016 syllabus]
 - moving immunostaining and FISH to another class (immunology or cancer biology)
 - Transposable elements
 - Cloning somatic cells
 - Synchronizing the Cell Cycle
 - Transformation
 - Cloning by Dilution
 - Isolation of cells from chick embryos
 - Isolating DNA
 - Determination of Chick Embryo Sex using PCR
 - John Digel was asked to offer any final words, given his expertise in this area: -- tissue culture – T cell therapy – VERY IMPORTANT. Isolate cells, grow them up, maybe MPV transfection, knowing how to use a hemocytometer. Nice to know sterile technique. What we’re looking at in tissue culture are mostly PBMCs.
4. How to make media cheaper?
- Expired media can be used by students, John is able to order media in large amounts.

Action Steps & Networking (Mark)

- See specific action items above: Career Center, Goals to Board Members, Instructor Information and Quality Control Subcommittee.
- The Committee will now meet three times per year, once each quarter (fall, winter and spring). The next meeting will be in February and the third meeting of the year will be in May or June.

Adjournment

Submitted by

Dina Kovarik, MS, PhD
 Program Chair, Biotechnology Lab Specialist Program

Attachments / Meeting Handouts

1. Biotechnology Lab Specialist Program: November, 2017 Student Update

Completing: 2016-2017 Cohort:

Student	Internship	Employment
Esha Afreen	Winter 18	Seeking employment
Denisse Bazan	seeking	Seeking employment
Cole Ditzler	seeking	Seeking employment
Andrew Duffek	seeking	Seeking employment
TE	left program	Working in microbial analysis
KE	Complete	Working PT, Transferring to UW
Adraina Flores	Complete	Working outside of field
Zoie Franklin	In Progress	Seeking employment
KH	Complete	Working at UW
Preethi Jayaraman	In Progress	Seeking employment
Indigo Khoury	In Progress	Seeking employment
PL	unknown	unknown
CM	Complete	Working at UW
TN	Complete	Working at SystImmune
Prabhjot Singh	In Progress	Seeking employment
Anshu Yadav	Winter 18	Seeking employment

Current: 2017-2018 Cohort - 15 'core' plus 5

- AAAS / AAS-T Students: 7 [2 of whom are completing over '2' years (3 yr total)]
- Certificate of Completion Students: 8 [2 of whom are completing over 2 years]
- Other: 5
 - During medical school "gap" year: 2
 - Completing degree at UW: 1
 - Students looking for additional training: 2

Tentative: 2018-2019 Cohort – 13-18

- AAAS / AAS-T Students
 - Currently taking classes at SCC: 7
 - Application rec'd: 2
 - Communications via email: 3
- Certificate of Completion Students
 - Application rec'd: 4
 - Communications via email: 2