Precision Medicine Pathway

Co-Directors:
Tim Schedl (Genetics)
Chris Gurnett (Neurology)
John Welch (Medicine)
Gary Stormo (Genetics)

Goal:
Introduce you to the uses of genomic and genetic information in the diagnosis and treatment of disease, from current concepts and practice to gaps that need to be filled in achieving precision medicine.
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**Purpose:**
- Expand/extend your educational experience in the areas of genetics, genomic & bioinformatics related to medicine. *(need not have any relationship to your thesis research)*
- For some students, make clinical connections related to thesis research.
- Provide career path information, for postdoctoral research areas or alternatives to traditional PI track.
Pathway components

1. Course, fall of 1\textsuperscript{st} and 2\textsuperscript{nd} years
2. Journal club, spring 1\textsuperscript{st} year, year 2
3. Clinical connections, spring 1\textsuperscript{st} year, year 2
4. Retreat (yearly)
1. Genetics & Genomics of Disease course
(Bio 5487) Fall
Monday & Wednesday, 3:00 - 5:00 (Fall)
Round table presentation/discussion

For class topics see
http://pmpathway.wustl.edu/class-information-2019/

Examples:
- Translational medicine & ALS clinical trials - Tim Miller, Neurology
- Single cell RNAseq in AML - Allegra Petti, Medicine

- Ethics panel,
- Career panel,
- Identify likely pathogenic lesion(s) in deidentified patient sequence information (Mendelian case and a cancer case) using the WU Genome Pathology Services analysis platform.
Demonstration of pre-implantation genetic diagnosis at the Washington University Fertility and Reproductive Medicine Center
2. Journal club (meets every two weeks)
   - Attend Human Genetics Journal club
   - spring year 1, fall & spring year 2
   - present in spring year 2
3) Clinical connections

a) Attend recurring clinical conferences (2 per semester)
   - Pediatric Genetics Conference (every Mon)
   - Undiagnosed Disease Network Genomics Board (3rd Fri)
     (Spring 1st year, Fall & Spring of 2nd year)

b) Shadowing a clinician (spring year 1 - year 2)

c) Clinical mentored project (year 2) [Optional]
4) Retreat (November 19, 2020)

- Heidi L. Rehm, PhD, FACMG, Chief Laboratory Director, Laboratory for Molecular Medicine, Partners Healthcare Personalized Medicine; Medical Director, Broad Institute Clinical Research Sequencing Platform

- Presentation by students in the second year of the Pathway (either on Thesis research or Clinical mentored project.)

- Social event with students and faculty who have or will present at the Grove Brewery and Bierhall.
Current & Past Students:

2016 – 2018
Katie Campbell
Umber Dube
Yiran Hou
Emily Lewis
Yang Li
Cody Ramirez
Jimmy Weagley
Wu-Lin Charng

2017 – 2019
Erica Barnell
Kelsy Cotto
Alan Du
Daniel Cui Zhou
Juheon Maeng
Joseph Mosqueda
Gervette Penny
Geralle Powell
Avinash Ramu

2018 – 2020
Paula Godoy
Yize Li
Megan Richters
Fernanda Rodriguez
Peter Ronning
Alina Schmidt
Liang-Bo Wang
Ellie Wilson
Lijun Yao
Details on Eligibility and the Application to the Precision Medicine Pathway can be found on the DBBS Website - Special Emphasis Pathways section.

Application due date, June 15, 2020.

Will accept up to 10 students.
Eligibility:

- Students applying at the end first year of graduate school must be good academic standing.
- Students applying at/or later than the end second year of graduate school should have completed the Program-specific QE.
- Students are strongly encouraged to have completed one or more of the following courses: Genomics (Bio 5488), Advanced Genetics (Bio 5491) or Fundamentals of Mammalian Genetics (Bio 5285)
- All interested students should apply.
Application:
- Name, birth date, address, academic program and year and citizenship.
- Contact information (e-mail and telephone)
- PI in which thesis work is being conducted
- CV or resume (include a list of graduate courses taken and grade)
- Paragraph description of why student is interested in the Pathway
- Paragraph description of thesis research*.
- Assemble these components into a single PDF, and send to <pmpathway@genetics.wustl.edu>
- Two letters of recommendation, one of which is from the thesis advisor*, should be sent directly to <pmpathway@genetics.wustl.edu>

All application material should be submitted by June 15, 2020, to <pmpathway@genetics.wustl.edu>

* If you have not yet joined a thesis laboratory then a rotation lab project and a rotation advisor can be used as a substitute.