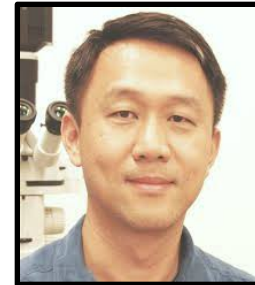


Biomedical Sciences Program

Genetics concentration



Margaret "Peggy"
Wallace, PhD
Professor



Lei Zhou, PhD
Professor

peggyw@ufl.edu, 392-3055 (ARB building)

leizhou@ufl.edu, 273-8169 (CGRC building)

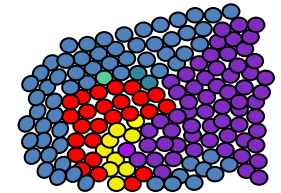
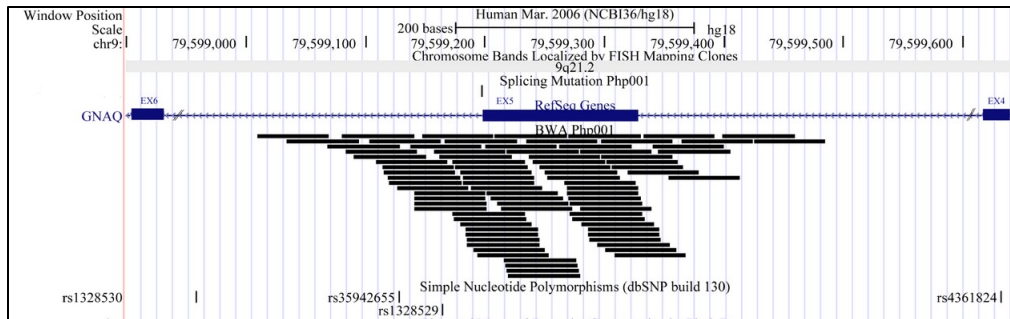
Department of Molecular Genetics and Microbiology
University of Florida, College of Medicine

- Genetics as a **project**

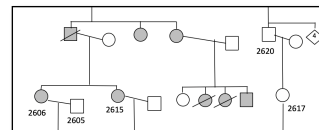
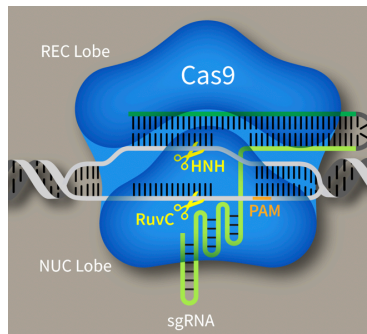
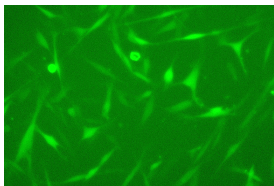
mutants/variants (natural or created) vs “wild type.” Hypothesis-driven or discovery-based.

- Genetics as a **tool**

Omics/computational biology, gene editing, gene delivery, complementation/rescue, genetically modified models (animal, microorganism, cells), population/pedigree/patient studies.



Tissue/tumor heterogeneity



Research areas :

Structure/function (genotype-to-phenotype, RNA biology/function)

Disease model systems (prokaryote, eukaryote)

Molecular disease mechanisms (human, microbe, interaction)

Gene therapy

Epigenetics

Stem cell biology

Cancer genetics

Development

Therapeutics

Applications of
computational
biology

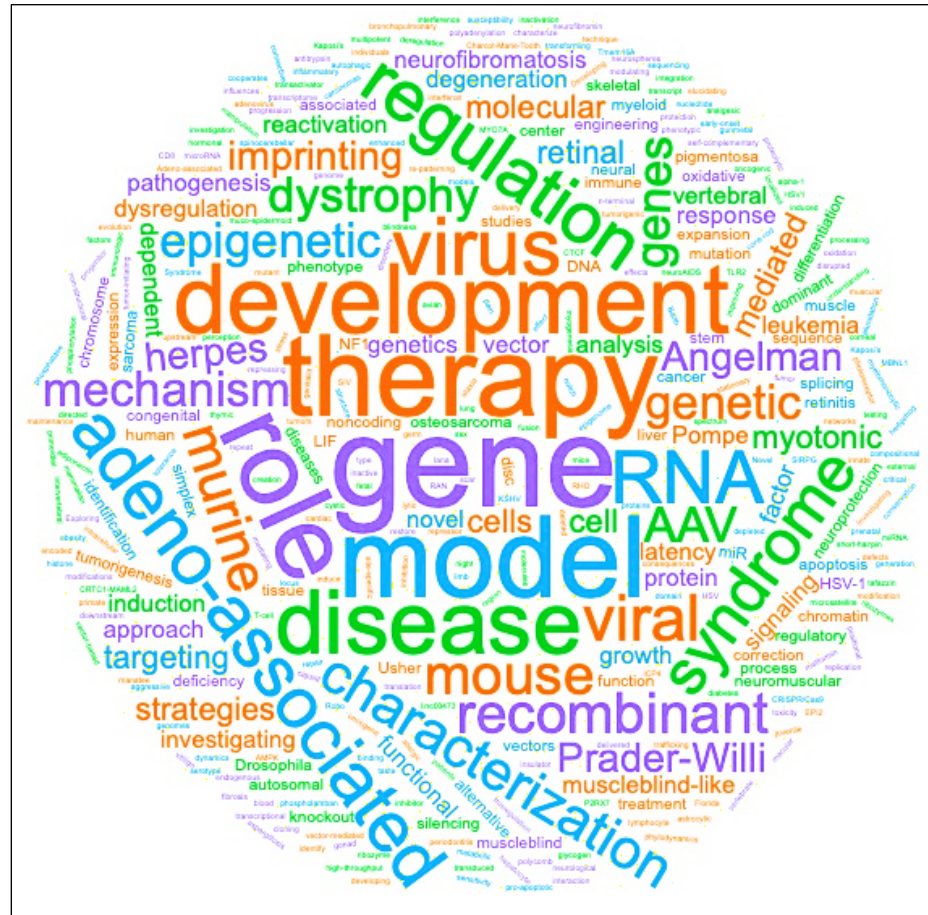
~70 faculty

Publication

averages:

1.7 first author

2.7 co-author



Key word cloud
from Genetics
PhD dissertation
titles through
2019

Genetics concentration curriculum: **flexibility**

Genetics Journal Club fall semester beginning in 2nd year

- choice of any journal club in the spring.
- senior students may present research instead of paper.

Coursework: **ANY** concentration-approved UF graduate-level course (ask coordinators).

Only need 6 graded credit hours after the first year (can be taken at any time, can include the Genetics Grant Writing course and any graded journal clubs).

- Most students opt for *more* than 6 hours.
- Less if graduate credits are transferred in.

Annual visit to a biotech company (not this year).

UF Center for Neurogenetics

Genes and mutation mechanisms in genetic disorders involving
peripheral and central nervous system.

Preclinical and translational research toward clinical trials of therapies.

Cutting-edge technology and bioinformatics.

RNA biology in normal cell function and pathology.

DNA-repeat based disorders: myotonic dystrophy, amyotrophic
lateral sclerosis, spinocerebellar ataxia, Huntington, etc.



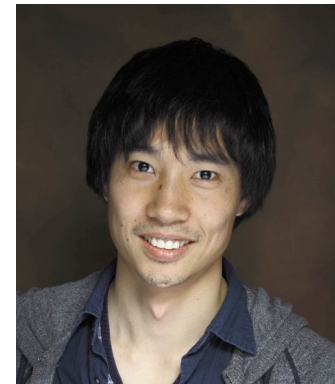
Dr. Laura
Ranum, Director



Dr. Maury
Swanson



Dr. Eric Wang



Dr. Kitaro Fujii

And other affiliated faculty

UF is a leader in AAV development and use in biomedical research including gene therapy

Powell Gene Therapy Center (Director Dr. Barry Byrne).



2019: UF over 40 PubMed AAV publications

>30 BMS faculty - keyword search “AAV” or “gene therapy”

UF has >4000 patents/patent applications, hundreds involve AAV.
Many include graduate students who worked on those projects.

Targets for gene therapy at UF: retinal diseases (including FDA approved), alpha-1-antitrypsin deficiency, cancer, Parkinson's, cardiovascular disease, hemophilia, sickle cell anemia, neuromuscular diseases, diabetes, sepsis.

3 Genetics graduates are board-certified by the American College of Medical Genetics and Genomics, and direct or co-direct cytogenetics and/or molecular diagnostics laboratories



Lee Kaplan,
PhD, FACMG
Astellas Inst. of
Regenerative
Medicine



Christin Collins,
PhD, FACMG
Emory University



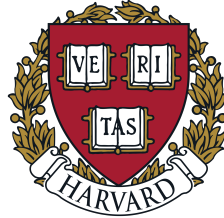
John J. Alexander,
PhD, FACMG
Emory University

Recent graduates – where are they?

Postdoctoral fellows



LINEBERGER
COMPREHENSIVE
CANCER CENTER



Biotechnology/Pharmaceutical



Merck



| Novartis Gene Therapies,

OVERALL: 65% academia (including postdoc), 23% biotech/pharma, 12% other (federal agencies, private institutes, nonprofits)



Graduate Program *in* Biomedical Sciences

College of Medicine

- faculty can associate with >1 concentration
- interdisciplinary research projects and Supervisory Committees
- travel funds for scientific meetings (BMS and UF)
- pay bonus for extramural fellowships (NIH, AHA, other)
- Experience mentoring excellent undergraduate students in lab
- opportunities for honors & awards in BMS and UF overall – science, leadership, service (including international students)
- Network: classmates first year, plus concentration after that.
- Focus on research after first year.
- PhD Candidacy Qualifying Exam (end yr 2 - early yr 3): written proposal on your own research, oral defense with your committee (**no public presentation, no written exams**).
- Grant-writing classes.
- Mentor(s), committee members, BMS office, concentration directors, graduate secretaries all available for guidance.
- fast-track option (on rotation 1 or 2, if you and mentor agree).
- ~90% PhD graduation rate.

Career development support

- UF Health Science Center student/postdoc career development: **GradDev.ufhealth.org**
 - NIH training grants (HSC) - support for >50 predoctoral students.
 - Leadership training opportunities
 - Information about alternative career paths
 - Information about developing Professional skills
- BMS Career Development Seminar (4-8/year)
 - Academia, biotechnology/pharmaceutical, science law, nonprofit medical foundations, science writing/editorial, grants/business administration, etc.
 - Networking
- Additional training and Certificates (most online, may build on courses commonly taken).
<http://graduateschool.ufl.edu/academics/graduate-certificates/>
 - Clinical and Translational science
 - Cancer Biology, Epidemiology, Outcomes, Fed. Policy Internship
 - Teaching
 - Nonprofit leadership
 - Business

The End



uestions?