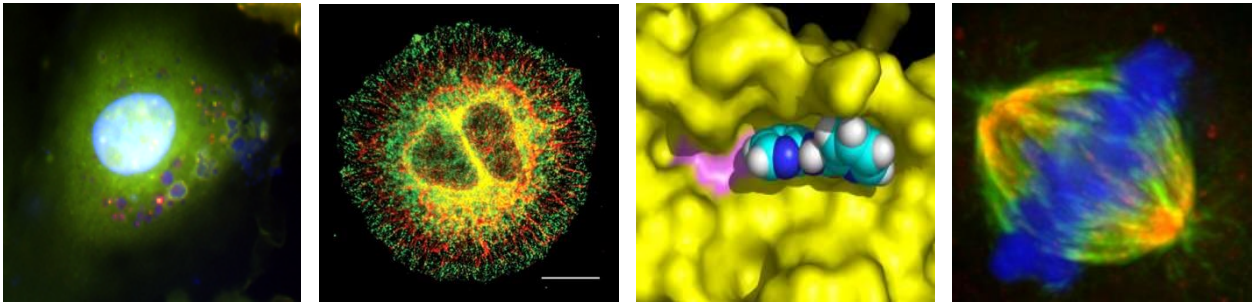


Molecular Cell Biology Guidelines

<http://biomed.med.ufl.edu/about/molecular-cell-biology/>

“There is nothing more remarkable than the cell,” Dr. Regev says. “It’s the basic unit of life. It cannot be reduced to anything simpler — not the DNA, not the genes. It’s this phenomenal entity that knows how to take many different pieces of information, make very quick and sophisticated decisions, act on them and continue on its way.”

Aviv Regev is a Professor of Biology at the MIT Howard Hughes Medical Institute.



The program in Molecular Cell Biology (MCB) prepares students for careers in biomedical research in academia or industry as well as opportunities for students to learn anatomical and cell sciences combined with those teaching skills necessary for careers in education.

MCB Coordinators:

Dr. William A. Dunn, Jr.
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Areas of Research

Structure/Function of Cells, Tissues, and Organs

- Cell Signaling Pathways
- Cell Death Pathways
- Cell Division and Differentiation
- Cell and Organelle Homeostasis
- Cell Movements and Migration
- Cell Transitions to Mesenchymal Stem Cells

Gene Expression and Regulation

- Epigenetics
- Non-coding RNA

Diseases of the Cell and Drug Discovery

- Cancer
- Intracellular Pathogens
- Neurodegenerative Diseases
- Immunological Disorders

Program of Study: Molecular Cell Biology

In addition to the policies below, MCB students should refer to the BMS Student Handbook for additional BMS requirements and deadlines. Students should contact MCB Coordinators (Drs. Bill Dunn and Alexander Ishov) with any questions regarding MCB policies.

Overview

The Advanced Concentration in Molecular Cell Biology (MCB) prepares students for careers in biomedical research in academic or industrial settings. This program also provides opportunities for students to learn anatomical sciences and those teaching skills necessary for careers in pre-professional education. This multidisciplinary program has nearly 60 participating faculty members and offers an extraordinary range of opportunities for advanced study of life at the molecular and cellular levels.

Molecular Cell Biology provides the essential linkage between important basic fields of biomedical sciences, such as genetics, molecular biology, cell biology, developmental biology, immunology, neurobiology and cancer biology. Cell biology has indeed matured from a descriptive discipline into one that is focusing on the elucidation of structure and function at molecular, cellular, tissue, and organ levels. As we identify those coding and non-coding RNAs that encode and regulate gene expression, it will be essential to connect sequence information to cellular functions with the context of tissues and organs.

Cell biology at the University of Florida is a highly interdisciplinary research area, which is undergoing rapid growth in areas such as cell regulation and cancer, manipulation of stem cells, liver pathobiology, and the role of aberrant protein processing and trafficking in disease processes. Therefore, Molecular Cell Biology will be at the center of the new era of biomedical research.

Course Requirements

MCB students must satisfactorily complete the Advanced Cell Biology course (GMS 6421, 4 credit hours) and at least six (6) additional credits of advanced elective graduate courses, including a minimum of three (3) credits of advanced MCB courses. An outside course can be used for an advanced MCB credit with an MCB concentration coordinator's advisement. In addition to the required courses above, MCB students beginning the 2nd year will register for the Journal Club (GMS 6690) and Data Club (GMS 6692) courses each fall and spring semester. Students are exempt from Journal club during the semester of their dissertation defense.

Supervisory Committees

The committee should be selected between 2-3 months after the student's choice of mentor or by the end of the first summer term. Students are required to consult with the MCB director (Dr. Daaka) or coordinators (Drs. Dunn or Ishov) and receive approval prior to finalizing the committee. The requirements for MCB supervisory committees are:

- Committee chair must be a faculty in the MCB concentration
- In addition to the chair, at least one committee member must be from the MCB concentration
- The committee must have at least one external member (outside the MCB concentration)
- The committee must be composed of four to six members (including the committee chair)
- At least one committee member must be a Full Professor
- Excluding the committee chair, the committee must have no more than one additional Assistant Professor

Students are required to consult with the MCB coordinators and receive their approval prior to finalizing their dissertation committee. The committee will be finalized once the "Committee Selection Form" is signed by the committee members, MCB Director, MCB coordinators, and the Associate Dean of Graduate Education.

Supervisory Committee Meetings

Beginning in the 2nd year, MCB students are required to schedule supervisory committee meetings every six months, preferably in the fall and spring semesters. Following committee meetings, two administrative tasks must be completed. The following two tasks must be completed within one week of the committee meeting.

- (A) The student must deliver a completed and committee signed "Committee Meeting Form" to the MCB Graduate Administrator for signatures by the MCB Director and MCB coordinators.
- (B) The mentor must send a meeting summary and student progress report to the supervisory committee and the MCB Graduate Administrator. This summary and progress report should clearly state the committee's assessment of the student's academic and research progress.

One annual supervisory committee meeting may be virtual, if approved by the mentor and committee. For virtual committee meetings, students must provide supporting documents (e.g., PowerPoint presentation, manuscripts, etc.) to committee members at least one day in advance of the virtual meeting. Per BMS policy, a committee member, concentration coordinator, concentration director, or associate dean, has the authority to require, for any reason, that a committee meeting be held in person rather than virtually. The time between face-to-face meetings cannot exceed one calendar year. All committee meeting reports will be kept in the student files by the MCB Graduate Administrator.

PhD Qualifying Examination

The PhD qualifying examination consists of written and oral components. The written component requires the student to write an NIH style F31 grant. The oral component includes a student presentation of the grant application and oral defense of the proposal. Both written and oral components of the PhD qualifying examination must be completed by the end of the fall term of the third year. As stated in the BMS Handbook, the qualifying exam will be given by an examination committee consisting of the supervisory committee plus an MCB coordinator. The examination will be directed by a chair selected from the examination committee. The chair cannot be the primary mentor or MCB coordinator. The chair will take notes, collect input from the examination committee, complete the BMS Qualifying Exam Form, and supervise completion of the UF Qualifying Exam Form. Both forms should be delivered to the MCB Administrator within one day of the examination. Students are responsible for coordinating with MCB coordinators when scheduling the exam.

The following guidelines pertain to outcomes of the Qualifying Exam:

- **Pass:** The student passes both written and oral components of the exam without further recommendations by the committee.
- **Pass with remediation:** The student fails either the written or oral component and with assistance from his/her mentor prepares a remediation plan that must be approved by the examination committee (committee members and an MCB coordinator). The plan will be written and circulated to the committee within one week after the qualifying exam. Completion of remediation will be assessed at the first committee meeting after the exam. An MCB coordinator must attend this meeting to confirm completion of the remediation plan.
- **Fail with option for re-examination:** The student that fails both written and oral components of the exam must, with assistance from his/her mentor, schedule a second qualifying examination. The second qualifying exam must be held before the end of the spring term of the third year of graduate studies.

Final Defense

Students will present a final draft of their dissertation to the committee no later than four weeks before the defense date. The committee then has two weeks to request major changes to the document. This will give the student two weeks to complete the requested revisions to their dissertation before their oral defense. Committee members who do not provide feedback within the two week window waive their right to request major changes to the dissertation on the day of the defense. An MCB coordinator is required to attend the Dissertation Defense. Students are responsible for coordinating with an MCB coordinators when scheduling their final defense.

Graduation Expectations

Keeping in the best interests of the student, the MCB program has the following expectations. By the time of the final defense, MCB students are expected to have at least one first author research paper published or in press (accepted for publication). By the time of graduation, MCB students are expected to present a poster or an oral presentation at one or more national/international conferences.

Medical Guild Competition

The Medical Guild of the College of Medicine holds a yearly competition to honor graduate students who excel in biomedical research. MCB students are strongly encouraged to apply for Graduate Research Awards in the Medical Guild Competition. MCB can nominate one candidate for the Graduate Research Award. In the event that there are more applicants than available nominations, an internal competition will be held to determine who represents the MCB concentration at the Medical Guild Competition.

Advanced MCB Courses

Fall Semester:

- GMS 6635 Organization of Cells and Tissues, 3 credits
- GMS 6647 Transcriptional Control of Growth and Proliferation, 1 credit
- GMS 6061 Nuclear Structure and Dynamics, 1 credit
- GMS 6690 Journal Club, 1 credit
- GMS 6692 Student Data Club, 1 credit
- GMS 7979 Advanced Research
- GMS 7980 PhD Research

Spring Semester:

- GMS 5905 RNA Interference and MicroRNAs, 1 credit
- GMS 6062 Protein Trafficking, 1 credit
- GMS 6063 Mechanisms of Aging, 1 credit
- GMS 6064 Tumor Biology, 1 credit
- GMS 6331 Stem Cell Biology, 1 credit
- GMS 6335 Stem Cell Biology – Regenerative Medicine, 1 credit
- GMS 6336 Stem Cell Biology – Tissue Engineering, 1 credit
- GMS 6421 Advanced Cell Biology, 4 credits
- GMS 6644 Apoptosis, 1 credit
- GMS 6690 Journal Club, 1 credit
- GMS 6692 Student Data Club, 1 credit
- GMS 7979 Advanced Research
- GMS 7980 PhD Research

Summer Semester:

- GMS 6607C Musculoskeletal System (Graduate Gross Anatomy), 4 credits
- GMS 6691 Special Topics – Grant Writing, 2 credit
- GMS 7979 Advanced Research
- GMS 7980 PhD Research