



Graduate Program in Cell and Molecular Biology (CMB)

www.med.umich.edu/cmb/

What is CMB? The CMB Graduate Program is an interdisciplinary PhD-granting program. Funded by NIH for more than 38 years, CMB is dedicated to training students in broad-based research involving cellular and molecular biology. CMB trains students to address biological problems from multiple perspectives through individualized, flexible programs of coursework and research. Over 150 CMB faculty throughout the University in basic science and clinical departments participate in training CMB students. Our graduates continue in excellent postdoctoral positions and have successful careers in academia, biotech and other scientific pursuits.

Research Areas in CMB:

Biochemistry and structural biology, cell biology and physiology
Model systems: yeast, *C. elegans*, *Drosophila*, *Xenopus*, zebrafish, mouse
Genetics and molecular biology, genomics, gene regulation, systems biology
Microbes, viruses, microbial and viral pathogenesis, immunology
Developmental biology, organogenesis, neurobiology, aging
Molecular mechanisms and genetics of disease: cancer, inflammatory, metabolic, neurodegenerative

Coursework in CMB.

A. Basic coursework.

1. Biochemistry, Cell Biology, Genetics: Three credits of coursework in each of these three areas. Note that no specific course is required, and that CMB students can take any of a variety of graduate-level courses to fulfill each of these requirements.
2. Electives: six elective credits based on the student's research interests; 2-3 credits in a quantitative course
3. Research responsibility: one credit (PIBS 501/503).

B. CMB courses

1. CMB Student Seminar (CMB 850). Mondays, 12:00-1:00 pm. (One credit per semester). CMB students present seminars on their research or findings in the literature.
2. Short courses (CMB 630). Minisymposia on topics selected by students, presented by invited leaders in the field (4-5 sessions per semester; students take four of these).

C. Research rotations - at least two semesters of rotations in at least two labs during PIBS year.

Preliminary Exam. Students write an NIH-style research proposal on a problem related to the student's intended dissertation research. The proposal is defended at an oral examination with a committee of four CMB faculty members (two selected by student, two selected by Program). Generally taken in second year.

CMB Program features:

Annual Symposium and Poster Session (Fall) - student poster awards
Annual Retreat (Spring)
Teaching requirement - one semester
Career development workshops
Student mentorship program, Student-oriented, *Esprit de corps*

Distinctive Features of CMB:

Broad based training in cellular and molecular biology.
University-wide choice of labs and ability to take courses throughout the University
Flexible, individualized research training
Faculty dedicated to training graduate students and to collaborative and ground-breaking research

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