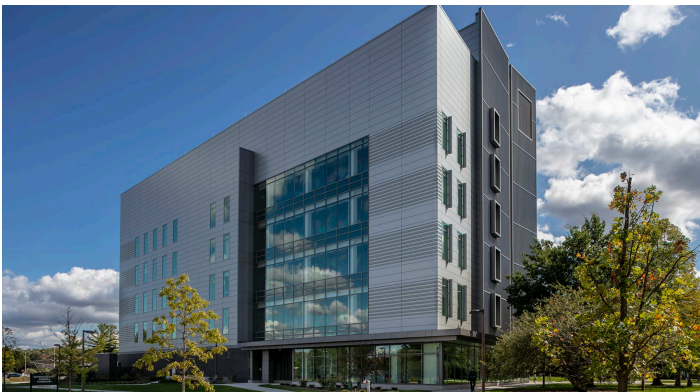




# Cell and Molecular Biology Graduate Program

## Program Description

The Cell and Molecular Biology (CMB) Program at Michigan State University is an interdepartmental Ph.D. program comprised of over 100 faculty members and students who work in many different academic departments and research centers. The research interests of CMB students and faculty address a wide variety of biological questions with an equally diverse array of organisms. However, the ideas and approaches common to cell and/or molecular biology unite the CMB faculty and students whether they are interested in disease resistance in plants, DNA replication in bacteria, inherited disease in companion animals, or tumor development in humans.



*Interdisciplinary Science & Technology Building, on the south part of the MSU campus and home to several labs in the Cell & Molecular Biology program.*

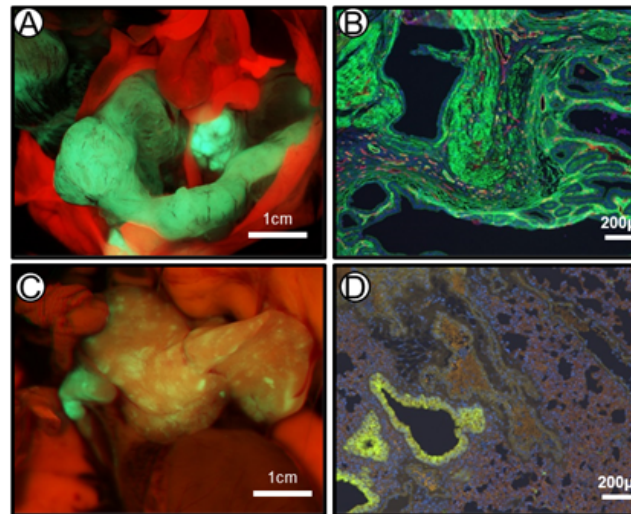
## Training Program

The CMB training program is designed so that students focus on a specific area of research while being exposed to a wide variety of topics in cellular and molecular biology. During the first 1-2 years of the Ph.D. program, CMB students complete core courses in Molecular Biology, Cell Biology and Genetics, and at least 2 elective courses appropriate to their research interests. In later years, students enroll in 3 special topics “seminar” courses in areas of interest. At the beginning of the 3<sup>rd</sup> year, students prepare and defend a thesis research proposal as part of the Comprehensive Exam. The most important requirement for the Ph.D. degree is the completion of this original research project and the publication of the Ph.D. thesis.

The CMB Program emphasizes the importance of high quality research and is designed to assist students achieve their full potential as scientists. CMB students are advised throughout their studies by their major professor as well as a Guidance Committee that includes three or four additional faculty members. Students also participate in journal clubs and seminars that provide opportunities to observe and present cutting-edge science. Generally, about four years beyond the rotation period are required to complete the Ph.D. degree.

## Teaching

CMB students obtain teaching experience during their graduate program, since teaching and communication skills are important to the career development of professional scientists. The typical assignment for CMB students is to serve as teaching assistant for one semester in an undergraduate lecture or laboratory course. However, there are numerous opportunities for students to obtain additional experience and training in college level teaching for those with an interest in this area.



*In vivo model of metastatic endometrial cancer tagged with Green Fluorescent Protein; gross morphology (A, C) and fluorescence microscopy (B, D). Image from the lab of CMB Jaewook Jeong.*

## Professional Development

Multiple opportunities for career development are available to CMB students through the program, the graduate school and the university. These include workshops, courses, and internships in areas including

teaching and learning, mentoring, scientific writing, and career planning.

### ***Financial Support***

CMB students making satisfactory progress towards their degree receive continuous financial support, which may be in the form of training grants, research assistantships, teaching assistantships or fellowships. The current level of support for CMB students is \$30,600 annually, plus up to 9 credits per semester of tuition, fees and personal health insurance.

### ***Admission***

Students are admitted into the CMB Program via the MSU BioMolecular Sciences (BMS) Gateway <https://cmb.natsci.msu.edu/prospective-students/how-to-apply/>. In general, students interested in pursuing their degree in Cell and Molecular Biology should have a broad background in biology, including undergraduate courses in biochemistry, genetics, cell biology and molecular biology. They should have proficiency in written and spoken English, and intend to conduct their thesis research in some area of cellular or molecular biology.



*CMB graduate Sean Ngyuen and postdoc Soo Hyun Ahn enjoying time at their desks in the ISTB building.*



*CMB student Leah Johnson and her Howe lab colleagues present at the Fascination of Plants Day*

### ***Additional Information***

Further information about the CMB program can be found on the program web site: [www.cmb.msu.edu](http://www.cmb.msu.edu).

Questions about the program can be addressed to the program director or secretary:

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