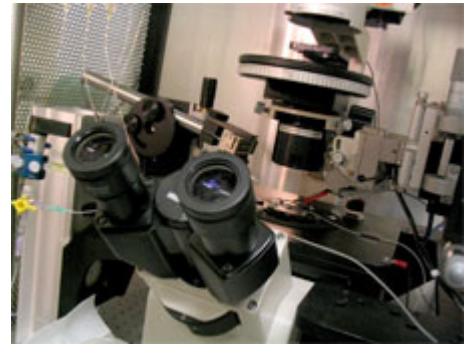


PhD in Cell & Developmental Biology

Welcome! Our program is under the leadership of Theodore F. Taraschi, PhD and we are glad you are considering us! We offer a unique small program environment where instructors, staff and administration work as a team to make your educational experience a memorable and productive one.



Our first-year predoctoral students are offered the opportunity to begin their training during the summer preceding registration for their first semester of classes. Prior to registration for the first academic year, each first-year graduate student meets with the Program Director to determine an initial course of study. The curriculum consists of an interdisciplinary core of courses that each student is required to successfully complete and additional graduate courses, deemed necessary by the student's research committee, available from among all course offerings through this and other graduate programs (see College of Graduate Studies Catalog for more detail). Minimal requirements of the Graduate College are the successful completion of 180 total graduate credits including research, with no less than 54 course credits of graduate course work, 18 of which must be outside the area of Cell and Developmental Biology.

Courses Offered

Core Curriculum	Course Name	Credits
CB 570	Pathological Aspects of Disease	3
CB 611	Advanced Topics in Cell Biology	3
CB 625	Principles of Molecular & Cell Development	3
CB 616, 626, 636	Current Topics in MCB I,II, III	1
CB 710, 720, 730	Seminar I,II,III	1
CB 910, 920, 930	Research	Variable
BI 525	Biochemistry & Molecular Biology- G.I.T.	3
GC 550	Foundations in Biomedical Sciences	10
GC 640	Research Ethics: Responsible Conduct	1
GC 660	Statistical Methods for Data Analysis	3
Recommended Electives		
AN 530	Neuroanatomy	4
BI 624	Extracellular Matrix Proteins & Complex	2
CB 615	Developmental Biology & Teratology	3
GE 636	Regulation of Cell Cycle & Apoptosis	3
GE 637	Advanced Mammalian Genetics	3
IMP 505	Fundamentals of Immunology	3
IMP 685	Advanced Topics in Virology & Neurovirology	3
MI 530	Microbial Pathogenesis of Disease	2
NS 700	Introduction to Neuroscience	4
NS 705	Developmental Neurobiology	3
NS 725	Advanced Topics in Neurobiology	2
PR 680	Molecular Pharmacology	3
PS 631	Membrane and Cell Physiology	2
PS 651	Special Topics in Cell Signal Transduction	2
PS 652	Special Topics in Ion Channel Biophysics	2

Year 1

Course Name	Fall (Credits)	Spring I (Credits)	Spring II (Credits)	Summer (Credits)
Foundations in Biomedical Sciences	GC 550 (10)			
Current Topics in Cell and Developmental Biology I, II, III	CB616 (1)	CB 626 (1)	CB 636 (1)	
Seminar I, II, III	CB 710 (1)	CB 720 (1)	CB 730 (1)	
Research*	CB 910 (8)	CB 920 (9)	CB 930 (7-10)	(7)
Advanced Topics in Cell Biology			CB 611 (3)	
Principles of Molecular and Cellular Development		CB 625 (3)		
Pathological Aspects of Disease				CB 570 (3)
Statistical Methods of Analysis**			GC 660 (2)	
Biochemistry and Molecular Biology II. Genetic Information		BI 525 (3)		
Electives		(3)	(3 - 6)	

* - research credits should be selected so that total credits = 20 for fall, 30 for spring I + spring II and 10 for summer

** - can be taken YEAR 1 or YEAR 2

Year 2

Course Name	Fall (Credits)	Spring I (Credits)	Spring II (Credits)	Summer (Credits)
Current Topics in Cell and Developmental Biology I, II, III	CB616 (1)	CB 626 (1)	CB 636 (1)	
Seminar I, II, III	CB 710 (1)	CB 720 (1)	CB 730 (1)	
Statistical Methods of Analysis**			GC 660 (2)	
Elective	(3 - 6)	(3 - 6)	(3 - 6)	
Ethics	GC 640 (1)***	GC 640 (1)***		
Research	CB 910 (11-15)	CB 920 (11-15)	CB 930 (10-13)	(10)

*** - Option to select this course in the Fall or Spring I semester

Suggested Elective Courses

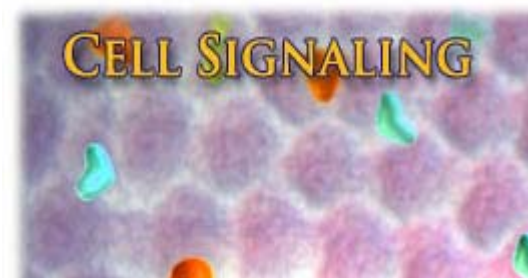
BI535	Metabolism	3 cr
BI624	Extracellular Matrix Proteins and Complex Carbohydrates	2 cr
CB615	Developmental Biology and Teratology	3 cr
GE636	Cell Cycle, Growth Factors and Oncogenes	3 cr
GE637	Advanced Human Genetics	3 cr

IM505	Fundamentals of Immunology	4 cr
IM622	Tumor Immunology	3 cr
MI530	Pathogenesis of Disease	2 cr
MI611	Molecular Virology	2 cr
MI685	Neurovirology	3 cr
NS700	Introduction to Neuroscience	4 cr
NS705	Developmental Neurobiology	3 cr
NS725	Advanced Topics in Neuroscience	2 cr
PS650	Special Topics in Signal Transduction	2 cr
PS631	Membrane/Cell Physiology	2 cr
PS652	Special Topics in Ion Channel Biophysics	2 cr
PR680	Molecular Pharmacology	3 cr

Note: Total course Credits (excluding research rotation and research) must total 54 to receive the PhD degree

Certain components of the Core Curriculum may be modified or waived to account for the individual experience and background of the student. Any modifications must be approved by the Program Director. In addition to the required courses, the graduate program and College offer a wide range of additional introductory and upper level courses which are available to students. Additional elective graduate courses are available from among all course offerings within the Graduate College. The student, in consultation with his/her research advisor, may thus select course offerings that meet specific objectives and/or needs.

Areas of Interest



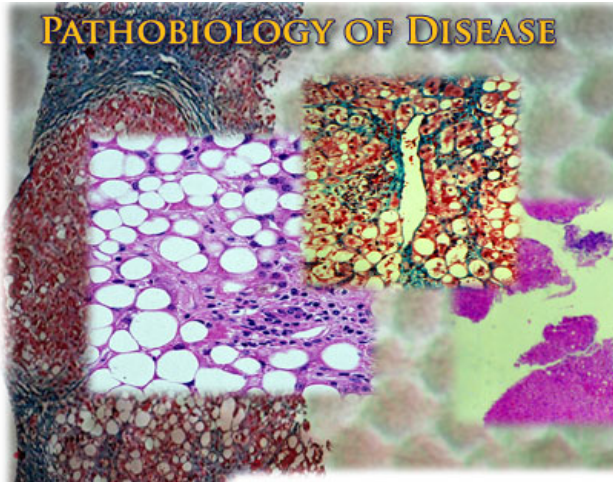
Cell signaling is an underlying theme of research conducted by faculty in the CDB program. Their research programs include the study of calcium signaling and metabolism, ion channel structure and function, mitochondrial function and energy metabolism, receptor-mediated signaling and signaling pathways in cell growth, differentiation and disease.

Faculty for Cell Signaling: *Barsotti, Cahill, Covarrubias, Ellingson, Farber, Grunwald, Hajnoczky, Herrick, Hoek, Horn, Iozzo, Joseph, Kholodenko, Lankford, Menko, Pastorino, R. Rubin, Schwaber, Slater, Van Bockstaele, Wedegaertner, Winter*

CDB faculty has a strong interest in mechanisms of cell differentiation and tissue development. Much of their research is focused on cell adhesion and signaling molecules and their role in regulating the transition between the undifferentiated and differentiated state. While a large number of systems are being investigated our strengths are in ocular, bone, cartilage, and neural development.

Faculty for Developmental Biology: *Birk, Eisenman, Fenderson, Grunwald, Iacovitti, Iwamoto, Enomoto-Iwamoto, Jaynes, Mazo, Menko, Pacifici, Philp, San Antonio, Schick*

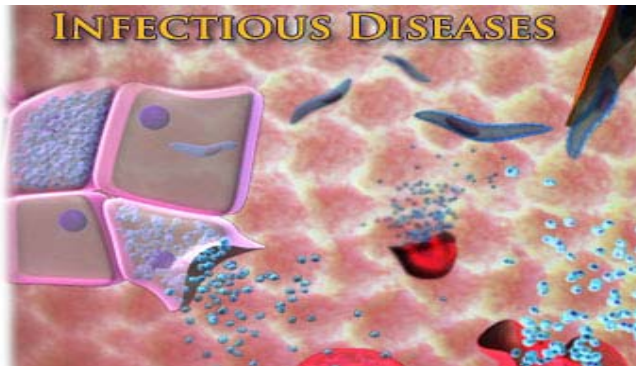




Slater, Uitto, Van Bockstaele

Faculty in the MCB Program are engaged in studies of the Pathobiology of Disease, many with a focus on age-related diseases. Investigators examine the role of cell adhesion molecules in disease, the effects of alcohol on cell function and its role in disease, the regulation of cell death pathways, the role of signaling pathways in cell growth and disease. There is also research strength in the pathobiology of degenerative diseases including Parkinson's Disease, Alzheimer's Diseases, cataract, and retinal degeneration.

Faculty for Pathobiology of Disease: *Anni, Cahill, Ellingson, Farber, Feitelson, Gonye, Grunwald, Hoek, Iacovitti, Iozzo, Iwamoto, Enomoto-Iwamoto, Menko, Merry, Pacifici, Pastorino, Ponnappa, R. Rubin, Schneider,*



Research in infectious diseases within the CDB program includes investigators using molecular and cell biological techniques to study HIV, hepatitis B and C, and malaria. These research programs seek to utilize information from basic science to develop chemotherapeutics and vaccines for disease treatment.

Faculty for Infectious Disease: *Feitelson, Strayer, Taraschi*

Our website contains the contact information for faculty along with individual biosketchs and specific research interests. www.tju.edu