



Graduate School

250 University Hall
230 North Oval Mall
Columbus, OH 43210-1366

January 11, 2013

Phone (614) 292-6031
Fax (614) 292-3656

Jeff Parvin, Joanna Groden
Co-Graduate Studies Chairs

Biomedical Sciences Graduate Program

Jeff and Joanna,

The Graduate School Curriculum Committee (GSCC) met on January 10th and considered the proposal to change the name of two specializations in the Biomedical Sciences Graduate Program. These were:

Biomedical and Molecular Basis of Disease → Molecular Basis of Disease
Molecular Pharmacology, Pharmacogenomics and Therapeutics → Experimental Therapeutics

The committee approved these changes. The committee had only one comment for your consideration. As it now reads, the overview description of the Experimental Therapeutics specialization describes each portion of the subject matter (molecular pharmacology, pharmacogenomics, and therapeutics) without actually defining “experimental therapeutics”. Further, therapeutics seems to be given the least weight in the description.

The proposal will next be presented to the Graduate Council for their approval and subsequently to the Council of Academic Affairs (CAA). You will likely be invited by CAA to attend the meeting in which this proposal becomes an agenda item.

Don't hesitate to contact me with questions or clarifications.

Many thanks,

A handwritten signature in black ink that reads 'Scott Herness'.

Scott Herness
Associate Dean

THE OHIO STATE UNIVERSITY
**GRADUATE
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Wexner
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Biomedical Sciences Graduate Program
1170 Graves Hall
333 West 10th Avenue
Columbus, Ohio 43210-1239
Phone: 614.292.0857 / Fax: 614.292.6226

College of Medicine

November 5, 2012

Dr. Scott Herness
Associate Dean, Graduate School
The Ohio State University
250 University Hall, 230 North Oval Mall
Columbus, OH 43210-1366

Dear Dr. Herness:

We are writing to request your assistance in modifying the titles of two Subplans for the Biomedical Sciences Graduate Program (IBGP-PH):

1. Changing Biochemical and Molecular Basis of Disease to **Molecular Basis of Disease**
2. Changing Molecular Pharmacology, Pharmacogenomics and Therapeutics to **Experimental Therapeutics**

These title changes were approved unanimously by the Biomedical Sciences Graduate Studies Committee. The reason for this request is to make the titles more attractive and easy to use for student recruiting purposes and also to bring them in line with the current language used in science. The curriculum requirements for these Subplans will not change from the current requirements, however, we have included this information for your reference.

Please contact Jeff Parvin at parvin.4@osu.edu or 292-0523 with any questions or if you need additional information. Thank you.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Joanna Groden'.

Joanna Groden, Ph.D.
Associate Dean for Graduate Studies
Professor and Co-Director, IBGP

A handwritten signature in black ink, appearing to read 'Jeffrey Parvin'.

Jeffrey Parvin, M.D., Ph.D.
Professor and Co-Director, IBGP



Wexner
Medical
Center

November 2, 2012

Dr. Scott Herness
Associate Dean, Graduate School
The Ohio State University
250 University Hall, 230 North Oval Mall
Columbus, OH 43210-1366

RE: Title Changes for IBGP-PH Areas of Research Emphasis (Subplans)

Dear Dr. Herness:

We wish to update the titles for the following subplans for transcript designation for IBGP-PH students:

1. Change Biochemical and Molecular Basis of Disease to Molecular Basis of Disease
2. Change Molecular Pharmacology, Pharmacogenomics and Therapeutics to Experimental Therapeutics.

This request has the full support of the College of Medicine. As the accompanying material will detail, these Subplans allow students to obtain specialized training in these content areas and will add value in terms of making students more marketable for employment in research support positions in biotech industry and in consulting.

Thank you for your attention to this matter.

Sincerely,

A handwritten signature in black ink, appearing to read 'Charles J. Lockwood'.

Charles J. Lockwood, MD, MHCM
Dean, College of Medicine
Vice President for Health Sciences
Professor, Obstetrics and Gynecology
Leslie H. and Abigail S. Wexner Dean's Chair in Medicine

Molecular Pharmacology, Pharmacogenomics and Therapeutics
(Proposed New Name: Experimental Therapeutics)

Andrej Rotter, Ph.D.

Faculty Liaison

Overview

Molecular pharmacology deals with the biochemical and biophysical characteristics of interactions between drug molecules and those of the cell. It is molecular biology applied to pharmacologic and toxicologic questions. The methods of molecular pharmacology include precise mathematical, physical, chemical and molecular biological techniques to understand how cells respond to hormones or pharmacologic agents, and how chemical structure correlates with biological activity. Research in this area includes (but are not limited to): drug receptor-effector coupling and its regulation (e.g. receptor- structure and function, G proteins, kinases, phosphatases, and second messenger synthesis and degradation), voltage- and ligand-gated ion channels, antimicrobial and antineoplastic drug action, steroid and growth factor receptors, gene regulation, and identification of molecular targets for drugs.

Pharmacogenomics is the study of how an individual's genetic inheritance affects the body's response to drugs. The term comes from the words pharmacology and genomics and is thus the intersection of pharmacology and genetics. Pharmacogenomics holds the promise that drugs might one day be tailor-made for individuals and adapted to each person's own genetic makeup. Environment, diet, age, lifestyle, and state of health all can influence a person's response to medicines, but understanding an individual's genetic makeup is thought to be the key to creating personalized drugs with greater efficacy and safety. Pharmacogenomics combines traditional sciences such as biochemistry with annotated knowledge of genes, proteins, and single nucleotide polymorphisms. Read an article from Nature Magazine about pharmacogenomics.

Therapeutics represents the translation of principles of molecular pharmacology, biology, biochemistry, physiology and genetics into discovery and application of new drug treatments. The use of quantitative methods, including pharmacokinetics, pharmacodynamics, and biomathematical and computer sciences underlies the elements of therapeutics.

Recommended Curriculum

Required Courses

In addition to the core curriculum, for a student to receive the transcript designation Molecular Pharmacology, Pharmacogenomics and Therapeutics, he/she must complete a minimum of 6 additional credit hours of approved didactic course work. In keeping with the spirit of Biomedical Sciences, a student with the approval of his/her Graduate Advisory Committee may take any graduate course offered on campus to fulfill course

credit requirements and enrich research activity. The following is a list of courses that are highly relevant and should be considered.

Pharmacology 7250 - Pharmacogenomics. Introduction to the role of genetics/genomics in drug discover, development, and clinical applications.

Pharmacology 8824 - Neuropharmacology. Provides an overview of the cellular and functional properties of various neuronal systems and of the drugs that affect these systems. Emphasis is given to the mechanism of drug action, and to how drugs can be used to unmask molecular mechanisms associated with neurotransmitter systems.

Pharmacology 8300 - Molecular Pharmacology and Human Disease. Expand the cellular signaling mechanisms that underlie conventional and unconventional drug actions associated with current therapeutic treatments. The focus of the course will be to showcase the intricacy of cellular signaling and how this can be manipulated in order to affect whole body physiological responses.

Elective Courses

IBGP 7300 - Biomedical Informatics I. Introduces students to basic topics of bioinformatics including sequence analyses, proteomics, microarrays, regulatory networks, sequence and protein databases.

Pharmacology 5600 or 5600D (Distance Learning) - General Pharmacology. Introduction to the general principles of pharmacology, drug classification, and the sites and mechanisms of drug action.

Pharmacy 8020 - Advanced Pharmacokinetics. The analysis of the absorption, distribution, and elimination of drugs, and the mathematical characterization of these processes, with emphasis on theory and application.

Pharmacy 8700 - Theoretical and Experimental Pharmacology. Theoretical basis of pharmacologic sciences including signal transduction, dose-response curves and drug-receptor interactions.

Biochemical and Molecular Basis of Disease
(Proposed New Name: Molecular Basis of Disease)
Sung-Ok Yoon, Ph.D.
Faculty Liaison

Overview

With the entire human genome sequenced, it has become easier than it was decades ago to identify the genes that are causally linked to particular diseases. Unfortunately, identification of the gene responsible for a disease does not lead necessarily to a cure. To develop a therapy or cure, we need to understand where and when the particular gene is expressed, and more importantly, how the gene functions in normal as well as in affected cells. The goal of the Biochemical and Molecular Basis of Disease Area of Research Emphasis is to train students to understand the molecular mechanisms by which disease genes function, regardless of the type of disease. Our experimental approaches are mechanistic, employing a variety of techniques that include basic molecular, biochemical, and cell biological techniques, in addition to state of the art live imaging, proteomics, and structural analyses. Our experimental systems also vary in basis from cell cultures to yeasts, mice and human specimens.

Recommended Curriculum

Elective Courses

In addition to the core curriculum, students must take one of the following courses in order to receive the transcript designated as Biochemical and Molecular Basis of Disease.

MOLBIOC 7823 (2 units)
Control of Cell Growth and Proliferation
MOLBIOC 7828 (2 units)
Signaling Pathways and Human Diseases
MOLBIOC 7831 (2 units)
Eukaryotic Genome: Structure and Expression
MOLBIOC 7807 (3 units)
Gene Expression: Post-Transcriptional Control
MOLBIOC 6850 (1 unit)
Research in Progress Seminars