

## *Department of Physiology and Pharmacology*

### **Faculty Members for Graduate Supervision (by Research Interest)**

For more information on our department go to: <http://www.uwo.ca/physpharm/index.html>

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#### **Cardiovascular Science**

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*Role of gap junctions in cardiac arrhythmias*  
*Complications of obesity and type 2 diabetes*  
*Regulation of G protein signaling by receptors and RGS proteins*  
*Gender differences in peripheral and central neural mechanisms in experimental hypertension*  
*Heart Development*  
*Adrenergic receptors, adenylyl cyclase, G-proteins, and hypertension*  
*Nitric oxide and heart failure*  
*Molecular pharmacology and imaging of G Protein-coupled receptor regulation and signal transduction*  
*G-protein coupled receptors and control of blood pressure*  
*The physiological and pharmacological roles of nucleoside and nucleobase transporters in cell homeostasis and chemotherapeutic drug actions*  
*Experimental cardiac physiology; cardiac arrhythmias; heart failure*  
*Cellular and molecular basis for cardiac hypertrophy and heart failure*  
*Pulmonary surfactant system*  
*Role of GABA receptors in stroke*  
*Cellular and molecular mechanisms of stroke*  
*Regulation of transmembrane calcium fluxes and heart function in health, aging and disease*  
*Pulmonary surfactant in experimental lung pathology*

#### **Chemical Metabolism, Drug and Environmental Safety**

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*Environmental influences on drug metabolism*  
*Clinical pharmacology and mechanisms involved in regulation of drug disposition*  
*Development of new therapeutic approaches for prevention and treatment of human disease; prevention of toxic effects of drugs in susceptible individuals*  
*Mechanisms of action of herbal medicines and herb-drug interactions*  
*Immunopharmacology and toxicity of reactive drug metabolites*  
*Pharmacokinetics, drug metabolism & drug interactions*  
*Pharmacokinetics and drug metabolism in the setting of kidney disease*

## Chemotherapy and Molecular Oncology

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*Molecular regulation of G protein-coupled receptor signaling in breast cancer*  
*E2F factors in cell growth and differentiation, and in tissue remodeling*  
*Growth factors in carcinogenesis and cellular differentiation*  
*The physiological and pharmacological roles of nucleoside and nucleobase transporters in cell homeostasis and chemotherapeutic drug actions*  
*Metals and treatment resistance in human tumours*

## Fetal and Neonatal Health, Endocrinology, Reproduction and Developmental Biology

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*Molecular and cellular endocrinology*  
*Molecular control of bone growth*  
*Epigenetic control of cell differentiation and development*  
*Complications of obesity and type 2 diabetes*  
*E2F factors in cell growth and differentiation, and in tissue remodeling*  
*Growth factors in carcinogenesis and cellular differentiation*  
*Heart development*  
*Cellular mechanisms of brain injury*  
*Metabolic syndrome and fetal development*  
*Stem cell biology and roles in diabetes*  
*Pancreatic islet cell growth and differentiation, and diabetes*  
*Reproductive physiology: mechanisms of gametogenesis and embryogenesis*  
*Molecular events leading to pancreatic development and disease*  
*Altered fetal development, adaptation and later life diseases*  
*development of the brain and its circulation*  
*Developmental biology*  
*Biology of stanniocalcin in metabolism, reproduction, and development*  
*Development of human pancreas, beta-cell regeneration and islet transplantation*  
*Gene expression underlying mammalian preimplantation embryogenesis*  
*Molecular mechanisms of fetal growth restriction and fetal origins of central obesity*

## Gap Junctions

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*Gap junction mutation in human diseases. Synaptic transmission in hippocampus*  
*Cardiac physiology; cardiac arrhythmias; heart failure*  
*Reproductive physiology: mechanisms of gametogenesis and embryogenesis*  
*Gap junctions in health, cancer and inherited diseases*

## Neurosciences

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*Synaptic transmission in hippocampus*  
*Developmental neurobiology; wiring the mammalian nervous system*  
*Gender differences in peripheral and central neural mechanisms in experimental hypertension*  
*Neural control of orienting movements*  
*Neurodegeneration and stem cell regeneration*  
*Molecular pharmacology and imaging of G Protein-coupled receptor regulation and signal transduction*  
*Cellular mechanisms of brain injury*  
*Epilepsy, neural plasticity and neural oscillations*  
*Neural control of hearing and vision*  
*Function of GABA receptors in neural and non-neural tissues*  
*Cellular communication in the nervous system*  
*Amyloid protein processing in neurodegenerative disorders*  
*GABAergic neurotransmission in epilepsy and neurodegenerative diseases*  
*Neurobiology of cognitive disorders and prion protein functions*  
*Neurobiology and development of animal models of neurological disorders*  
*Neurochemical communication in the nervous system in health, aging and disease*  
*Control of ionic channels: smooth muscle, osteoclasts, and cardiac myocytes in heart failure*  
*Interactions and transformations for perception and action*

## Skeletal Development and Remodeling

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*Molecular control of bone growth, signaling in skeletal development and osteoarthritis*  
*Cellular physiology of bone and cartilage*  
*Signal transduction in connective tissue - growth factors, fibroblasts and fibrosis*  
*Stem cells and development*  
*Control of ionic channels in connective tissue*

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