

Master of Biomedical Sciences Program
KCOM / ATSU
Research Advisors and Research Topics
2010-2011

Last Updated: July 1, 2010

FACULTY MEMBER	POTENTIAL RESEARCH TOPICS
Anatomy Department	
Peter Kondrashov pkondrashov@atsu.edu 660-626-2771	Musculoskeletal adaptations to various modes of locomotion Microstructure of bone using scanning electron microscopy
Raja Rachakatla, BVSc, Ph.D. rrachakatla@atsu.edu 660-626-2468	Human umbilical cord matrix stem cells and cancer research
Biochemistry Department	
James Cox, Ph.D. jcox@atsu.edu 660-626-2466	Gene studies in cancer Proteases in tumor metastasis
Richard Fleschner, Ph.D. cfleschner@atsu.edu 660-626-2761	Description of the biochemical structure and function of ocular lens plasma membrane in health and cataract
Pandurangan Ramaraj, Ph.D pramaraj@atsu.edu 660-626-2338	Hormone-mediated differentiation of murine mesenchymal multipotent cells Signaling pathways in steroid hormone actions
Microbiology and Immunology Department	
Neal Chamberlain, Ph.D. nchamberlain@atsu.edu 660-626-2474	Mechanisms of pathogenicity of <i>Staphylococcus aureus</i> and <i>S. epidermidis</i> Mechanisms of antibiotic survival of <i>S. epidermidis</i> in biofilms
Neil Sargentini, Ph.D. nsargentini@atsu.edu 660-626-2474	Genetic regulation associated with osteopathic manipulative medicine in a rat model for nociceptive pain Mechanistic studies on <i>E. coli</i> DNA repair protein RadA Gene expression in x-irradiated <i>Escherichia coli</i>
Melissa Stuart, Ph.D. mstuart@atsu.edu 660-626-2474	Assessment of RadA-heterologous protein interactions during DNA repair Assessment of ganglioside-protein interactions in the ocular lens Production of monoclonal antibodies for use as research tools
Vineet Singh, Ph.D. vsingh@atsu.edu 660-626-2474	Molecular pathogenesis of <i>Staphylococcus aureus</i> infections Global gene expression profiling of staphylococci under stress Identification of novel <i>S. aureus</i> gene targets for therapy

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Pharmacology Department	
<p>Yingzi Chang, M.D., Ph.D. ychang@atsu.edu 660-626-2327</p>	<p>Mechanisms of insulin-enhanced restenosis after angioplasty in type II diabetes</p> <p>Interaction between insulin and TNF-α on vascular injury-induced neointima formation</p> <p>Involvement of protein tyrosine phosphatase 1B in insulin-enhanced vascular injury-induced neointima formation</p>
<p>Keith Elmslie, Ph.D. kelslie@atsu.edu 660-626-2384</p>	<p>Determine the interaction of ω-conopeptides with neuronal calcium channels that is important for the treatment of neuropathic pain</p> <p>Understand the molecular determinants of calcium channel gating</p> <p>Examine the effects of cell membrane lipids on ion channel gating</p> <p>Identify novel tri-substituted purines that specifically affect ion channel gating</p> <p>Determine the mechanisms controlling excitability of the exercise pressor reflex to better understand how this reflex regulates the cardiovascular systems under physiological and pathophysiological conditions</p>
<p>David Middlemas, Ph.D. dmiddlemas@atsu.edu 660 988 1940</p>	<p>Neuropharmacology of brain-derived neurotrophic factor (BDNF)</p> <p>The role of brain derived neurotrophic factor (BDNF) and its receptor, TrkB, in drug action</p> <p>The role of neurogenesis in anti-depressant drug action</p>
<p>Robert Theobald, Ph.D. rtheobald@atsu.edu 660-626-2316</p>	<p>Autonomic smooth muscle pharmacology of the lower urinary tract of the cat; particularly the roles of ATP, nitric oxide, hormones, and cannabinoid agents on the regulation of cat bladder smooth muscle function</p> <p>Effect of cannabinoids in the periaqueductal gray (PAG) area on lower urinary tract function of the cat</p> <p>Study of the role of estrogen in the lower urinary tract, and the interaction of estrogen with other regulatory agents</p>

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Physiology Department	
Robert Baer, Ph.D. rbaer@atsu.edu 660-626-2322	Chemokine signaling in melanoma migration, invasion, adhesion, proliferation, and apoptosis Transendothelial migration of melanoma Signaling in vascular and vascular-like network formation (angiogenesis and vasculogenic mimicry)
George Carlson, Ph.D. ccarlson@atsu.edu 660-626-2328	Pathogenesis of muscular dystrophy – role of Ca ²⁺ and NFkappaB Developing new treatments for muscular dystrophy using drugs that modulate cell signaling pathways
Timothy Geisbuhler, Ph.D. tgeisbuhler@atsu.edu 660-626-2315	Impact of anoxia, estrogen, and phytoestrogens on NFkB in heart Calcium traffic across heart cell membranes Nucleotide metabolism in ischemic and anoxic heart cells (bioenergetics) Impact of plant natural products (“nutritional supplements”) on cardiac cell metabolism
William Sexton, Ph.D. wsexton@atsu.edu 660-626-2324	Determinants of oxygen delivery in the microcirculation of skeletal muscle, heart and diaphragm with emphasis on the impact of exercise training, diabetes, aging, and hypertension Impact of peripheral vascular flow impairment on oxygen delivery and muscle function, and the role of collateral vessel formation, in health, diabetes, and exercise training Role of nitric oxide in the control of oxygen delivery and utilization in contracting skeletal muscle, diaphragm and heart and interactions with disease and aging Impact of statins on skeletal muscle function and microvascular oxygen kinetics Diaphragm function in health and disease (e.g., emphysema and diabetes) Molecular mechanisms of angiogenesis in skeletal muscle, diaphragm and heart