

UMDNJ GSBS-STRATFORD
FACULTY RESEARCH INTERESTS
Home page: <http://som.umdny.edu/gsbstrat/index.htm>

SOM--Cell Biology Department:

Gene Expression/Transcription::Protein/Nucleic Acid Structure

[Mikhail Anikin, Ph.D.](#) Research in the laboratory is focused on the structure-function relationships in RNA polymerase transcription complexes. Our model transcription systems are based mostly on single-subunit enzymes, such as mitochondrial RNA polymerases and T7 RNA polymerase. anikinmi@umdny.edu

Gene Expression/Transcription::Protein/Nucleic Acid Structure

[Sergei Borukhov, Ph.D.](#) We are focusing our studies on the structure and function of prokaryotic multisubunit RNA polymerase, and on analysis of molecular mechanism of action and biological role of transcription factors Gre and their homologs. borukhse@umdny.edu

Endocrinology/Reproduction::Signal Transduction

[Rocco V. Carsia, Ph.D.](#) Research is aimed at elucidating the cellular and molecular events regulating the remodeling of the reptilian adrenal gland. Influences of sex, season and various stressors on reptilian adrenocortical cell function are evaluated. A variety of lizard species are used. carsiario@umdny.edu

Development::Gene Therapy::Genetic Diseases::Neuroscience

[Jeremy Francis, Ph.D.](#) Our research seeks to determine pathogenic mechanisms underlying neurodegenerative diseases in an effort to identify avenues of therapeutic intervention. Gene and cell-based therapies are used in animal models of disease to create a foundation for possible clinical application. francijs@umdny.edu

Aging::Cardiovascular::Inflammation

[Carl E. Hock, Ph.D.](#) Current work is focused on the effect of humoral mediators and inflammatory cells in the pathophysiology of ischemic states, the effects of dietary lipids on cardiovascular function and the response of the young and aging heart to ischemia and reperfusion. hock@umdny.edu

Cancer::Cell Cycle/Cell Differentiation::Development::Gene Expression/Transcription::Post-Translation::Protein Synthesis/Translation::RNA Processing/Turnover::Stem Cells

[Hristo B. Houbavij, Ph.D.](#) We are interested in the roles of microRNAs in embryonic stem (ES) cells and during the early development of the mouse. Specifically, we are applying biochemical and mouse model approaches to elucidate the functions of miR-290-295 / miR-371-373 which appear to be ES cell and early embryo specific. houbavhr@umdny.edu

Development::Gene Therapy::Genetic Diseases::Neuroscience

[Paola Leone, Ph.D.](#) Our research aims to study pediatric demyelinating diseases and characterize mechanisms to repair white matter and prevent disease progression. These studies run in parallel with the characterization of oligodendrocyte development in the human brain. We are also studying the pathophysiology of Canavan Disease and other leukodystrophies. leonepa@umdny.edu

Aging::Inflammation

[Peitan Liu, Ph.D.](#) Work in the laboratory concerns the role of cytokines and reactive oxygen species in ischemia-reperfusion injury. Currently we focus on the study of myocyte apoptosis, particularly the role of Mdm2/p53-mediated apoptosis, in aged rat model of myocardial ischemia-reperfusion. liupe@umdny.edu

Aging::Cancer::Gene Expression/Transcription::Genetics:: Mitochondrial Function::Molecular Modeling::RNA Processing/Turnover

[William T. McAllister, Ph.D.](#) Molecular basis of transcription. Work in our laboratory concerns the structure and function of RNA polymerase, the enzyme that carries out the first step in gene expression, using a combination of biochemical, genetic, and structural methods. mcalliwt@umdny.edu

Cell Cycle/Cell Differentiation::Cell Structure::Protein Synthesis/Translation::RNA Processing/Turnover

[Dimitri G. Pestov, Ph.D.](#) We study the mechanisms of ribosome biogenesis in mammalian cells in connection with regulation of cell growth and proliferation. Our major goal is to understand how the accuracy of ribosome assembly is controlled at the molecular level and how defects in this process contribute to human disease. pestovdg@umdnj.edu

Aging::Inflammation::Oxidative Stress

[Bernd W. Spur, Ph.D.](#) We focus on mediators of inflammation, including prostaglandins, phytoprostanes, leukotrienes, lipoxins, resolvins, neuroprotectins, docosatrienes as well as isoprostanes. These mediators are prepared in the natural and isotopically labelled form to explore their biological activities and serve as markers in inflammatory diseases such as Asthma and Alzheimer. spurbw@umdnj.edu

Gene Expression/Transcription::Molecular Modeling::Protein/Nucleic Acid Structure

[Dmitry Temiakov, Ph.D.](#) Our laboratory research is focused on studies of molecular mechanisms of transcription as carried out by different RNA polymerases. In particular, we are interested in function and structure of the human mitochondrial RNA polymerase and mechanisms of mitochondrial transcription regulation. temiakdm@umdnj.edu

Aging::Drug Development::Calcium::Neuroscience::Signal Transduction::Vision

[Venkat Venkataraman, Ph.D.](#) We are investigating the processes of neuronal transduction in biological clocks and aging with respect to the role of Ca²⁺ signaling via alpha2 adrenergic receptors and membrane guanylate cyclases. vvenkat2007@gmail.com

Cytokines::Inflammation

[Kingsley Yin, Ph.D.](#) Research focuses on cytokines and other inflammatory mediators in sepsis. The role of interferon-gamma and High Mobility Group Box-1 in macrophage function and tissue repair during sepsis is being investigated. yinki@umdnj.edu

SOM--Molecular Biology Department:

Cancer::Cell Cycle/Cell Differentiation::DNA

[Subhasis B. Biswas, Ph.D.](#) Our laboratory is interested in dissecting the mechanisms of DNA replication in prokaryotic and eukaryotic systems with goals of developing novel anti-microbials and anti-proliferation drugs. biswassb@umdnj.edu

Cancer::Cell Cycle/Cell Differentiation::Cell Structure::DNA::Drug Development::Gene Expression/Transcription::Post-translation::Protein Synthesis/Translation

[Salvatore J. Caradonna, Ph.D.](#) My laboratory is interested in the post-translational mechanisms that regulate proteins involved in base-excision repair of DNA. We are studying the aberrant pathways that lead to uracil misincorporation into DNA and strategies that may exploit these pathways for cancer drug development. We are also involved in the study of atypical cyclin-like proteins that affect cell-cycle phase transitions. caradonn@umdnj.edu

Apoptosis::Cancer::Cell Cycle/Cell Differentiation::Genetics::Mitochondrial Function

[Katrina Cooper, Ph.D.](#) Following stress cells have to orchestrate a myriad of responses to survive or die. Incorrect choices can lead to deleterious outcomes, e.g. tumor formation. To study this, we use *S. cerevisiae*, human cells and mouse models. We focus on the conserved cyclin C protein that is destroyed in response to stress. Our working hypothesis is that cyclin C is a novel stress related tumor suppressor. cooperka@umdnj.edu

Aging::Apoptosis::Behavior::Development::Gene Expression/Transcription::Genetics::RNA Processing/Turnover

[Ronald Ellis, Ph.D.](#) Control of Germ Cell Fate: Animals must produce sperm or eggs to reproduce. Although these cell types differ dramatically, they are produced from similar progenitors. Understanding how this process is controlled could revolutionize our ability to treat reproductive disorders and infertility in humans. Evolution of Hermaphroditism: Sexual traits are among the most rapidly changing features of each species. To learn how these changes take place, and how developmental pathways constrain which ones occur, we are studying the evolution of mating systems in nematodes. ellisre@umdnj.edu

Bioinformatics::Cancer::Cell Cycle/Cell Differentiation::Cell-Cell/Cell-Matrix Interaction::Diseases - Human - Non Cancer::Electrophysiology::Gene Therapy::Genetic Diseases::Membrane Transport::Signal Transduction::Vision

[Gary S. Goldberg, Ph.D.](#) Cells must communicate with each other to coordinate the development and survival of an animal. This communication can be mediated by diffusible factors that pass between cells, or by direct contact through cell junctions. I am interested in how intercellular communication affects cell growth and differentiation, with an emphasis on how cell communication can control tumor cell growth and prevent eye diseases. GaryGoldberg@comcast.net

Cell Structure::Protein Synthesis/Translation::RNA Processing/Turnover

[Michael F. Henry, Ph.D.](#) We use the yeast *Saccharomyces cerevisiae* as a model system to understand the molecular mechanisms by which RNA precursors are processed in the nucleus. More precisely, our goal is to understand the role of posttranslational protein modification in this process. henrymf@umdnj.edu

Cell Cycle/Cell Differentiation::Development::Gene Expression/Transcription::Genetics::Protein Synthesis/Translation::RNA Processing/Turnover

[Eric G. Moss, Ph.D.](#) We study developmental timing, microRNAs and translational control in *C. elegans* and the mouse. The worm heterochronic gene *lin-28* is regulated by microRNAs and encodes a specific mRNA-binding protein. Its human homologue, *Lin28*, appears also to be a microRNA-controlled developmental regulator. mosseg@umdnj.edu

Cancer::Cell Cycle/Cell Differentiation::DNA::Gene Expression/Transcription::Mutagenesis

[Susan Muller-Weeks, Ph.D.](#) Research in the laboratory focuses on the repair of uracil in DNA, which is critical for the maintenance of genomic integrity. Specifically we are elucidating transcriptional and post-translational pathways that regulate expression of uracil-DNA glycosylase under normal cellular conditions and in response to anti-tumor agents. muller@umdnj.edu

Apoptosis::Cancer::Signal Transduction

[John Pastorino, Ph.D.](#) Our work identifies distinctions in mitochondrial function between normal and cancerous cells for the potential discovery of novel chemotherapeutic targets that can be exploited to selectively induce cytotoxicity in cancer cells. Mitochondrial injury is also central to number of disease states. pastorjg@umdnj.edu

Cell Cycle/Cell Differentiation::Gene Expression/Transcription::Oxidative Stress

[Randy Strich, Ph.D.](#) Our laboratory focuses on understanding how the transcription program is coupled to meiotic progression in budding yeast. A second project investigates the activity of the conserved C-type cyclin in directing the oxidative stress response and apoptosis in yeast and mammalian systems. strichra@umdnj.edu

SOM--NJ Institute for Successful Aging:

Aging::Cancer::Cell Structure::Diseases - Human – Non Cancer::Inflammation::Neuroscience

[Robert Nagele, Ph.D.](#) My laboratory is focused on elucidating the role of breakdown of the blood-brain barrier in the initiation and progression of Alzheimer's disease and developing therapeutic strategies aimed at preventing this breakdown and the leak of potentially damaging blood components into the brain tissue. In addition, my laboratory is collaborating with the Coriell Institute to develop methods to isolate and grow adult human stem cells with the goal of generating large quantities of these cells that retain their stem cell and therapeutic potential. nagelero@umdnj.edu

RUTGERS-CAMDEN
DEPARTMENT OF BIOLOGY
MEMBERS OF GSBS-STRATFORD FACULTY

Home page: http://www.camden.rutgers.edu/dept-pages/biology/grad/g_index.htm

Behavior::Electrophysiology::Endocrinology/Reproduction

[Joseph V. Martin, Ph.D.](mailto:jomartin@camden.rutgers.edu) Associate Member. We study how thyroid hormones (TH) influence the adult mammalian brain through nongenomic mechanisms. THs modulate GABA_A receptor binding and protein phosphorylation in nerve terminal fractions without cell nuclei. Currently, temporal patterns of TH release from brain tissue are measured in relation to the subsequent cellular TH response and EEG.

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[Patrick J. McIlroy, Ph.D.](mailto:pmcilroy@camden.rutgers.edu) Assistant Member. Molecular endocrinology of ovarian function.

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[Daniel H. Shain, Ph.D.](mailto:dshain@camden.rutgers.edu) Assistant Member. Annelid development and evolution.

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[William M. Saidel, Ph.D.](mailto:saidel@crab.rutgers.edu) Assistant Member. Visual sensory physiology, neuroethology, neuroanatomy.

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