

Genetics Track Faculty List

AHUJA, Sunil K., Medicine/Infectious Diseases - Our work is currently focused on understanding the role of the chemokine system and other immune molecules in HIV-1 pathogenesis.

ARAR, Nedal Hamdi, Medicine – Renal Disease.

BAI, Yidong, Cellular and Structural Biology - Mitochondrial, respiratory chain, complex assembly, turnover, copy number control.

BISHOP, Alexander, Cellular & Structural Biology – The research of the laboratory is aimed at understanding the contribution of different genes to genomic instability and the role of such instability in development, aging and carcinogenesis.

BOYER, Thomas G., Molecular Medicine - We employ biochemical, molecular, and cell biological approaches to study the regulation of eukaryotic RNA polymerase II transcription.

CODY, Jannine D., Pediatrics - syndromes of chromosome 18 (18q-, 18p-, Tetrasomy 18p, Ring 18 & Trisomy 18). We are interested in understanding the molecular basis, clinical and educational features as well as the natural history of individuals with these syndromes.

DAHIA, Patricia, Medicine - The laboratory's main focus is the utilization of genomics-based approaches to study the genetics of cancer, to characterize interactions between oncogenic pathways, and to identify novel cancer-related genes.

ESCAMILLA, Michael A., Psychiatry - Population Genetics, Linkage Disequilibrium Mapping, Genetics of Bipolar Disorder and Schizophrenia, Genetics of Mood Disorders, and Substance Abuse Comorbidity in Bipolar Disorder.

HARRIS, Stephen E., Periodontics – Bone Morphogenetic Protein and their Expression.

IMAM, Syed Z., Medicine - The main research goal of my laboratory is to understand the molecular basis of neurodegeneration, which can be implicated to develop therapeutic trials for neurodegenerative diseases.

JOHNSON-PAIS, Teresa L., Pediatrics - Genetics of Cancer - Identification of genetic alterations that play a role in cancer tumorigenesis, especially in urologic cancers. Genetics of Paget's Disease of Bone - Understanding the role of mutant SQSTM1 proteins in familial Paget's Disease of Bone.

KADOSH, David, Microbiology - Major human fungal pathogen *Candida albicans*. Although present as a commensal in the digestive tract of most healthy people, *C. albicans* is also capable of causing a wide variety of systemic and mucosal infections. Immunocompromised individuals such as AIDS

patients, organ transplant recipients, cancer patients undergoing chemotherapy and recipients of artificial joints and prosthetic devices are particularly susceptible to infection.

KELLER, Charles, Cellular & Structural Biology - Mouse models of rhabdomyosarcoma and medulloblastoma. Biology of muscle stem cells

KRAIG, Ellen, Cellular and Structural Biology - Effects of aging and infection on immunity and autoimmunity.

LARSEN, Pamela, Cellular and Structural Biology - The focus of the laboratory is on understanding the biological mechanisms for the efficient life maintenance, in development and adulthood in *C. elegans*. It is generally believed that genetic and environmental manipulations result in life span extension by controlling metabolism and resistance to stress. We are interested in understanding the mechanisms of longevity by both means.

LEACH, Robin J., Cellular & Structural Biology - Using a molecular genetic approach, we are studying a number of common diseases including prostate and testicular cancer, diabetes, schizophrenia and Paget's disease of the bone.

LEE, Sang, Molecular Medicine - Cancer results from genetic and environmental insults leading to the accumulation of mutations in genes preventing the initiation and the progression of this disease.

LEHMAN, Donna M., Medicine/Epidemiology - Public health genomics; study of genetics of complex disorders such as diabetes using genetic epidemiologic methods in large family-based and population-based cohorts; Genetic cause of various highly penetrant ophthalmic disorders

LO VERDE, Philip. Biochemistry/Pathology- Elucidating molecular mechanisms of schistosome-host interactions by investigating the role of genes and gene products such as those contributing to female reproductive development and those encoding antigens. An understanding of the role schistosome genes and gene products play in these interactions will lead to vaccine candidates, improved diagnostics, and a basis for rationale drug design.

MCCARREY, John. Cellular & Structural Biology

MCEWEN, Donald G., Biochemistry - Genetic and biochemical approaches to signaling pathways.

MOORE, Charleen, Cellular & Structural Biology - research activities have centered on characterizing human cytogenetic abnormalities and carrying out comparative cytogenetics studies in primates and marsupials.

NAYLOR, Susan, Cellular & Structural Biology - In our early studies with chromosome 3, we found that the middle of the short arm of chromosome 3 is frequently deleted in many types of cancer including lung, ovarian, head and neck, and uterine cancer. Using a combination of analysis of tumor samples and a functional assay for tumor suppression, we have limited the region to 80Kb of human DNA.

PADALECKI, Susan S., Urology - Bone is the most common site of metastases for solid tumors such as breast, prostate and bladder cancers. These metastases contribute significantly to the morbidity and mortality of these cancers.

PAVLIN, Dubravko, Orthodontics - The primary research interest is in the regulation of genes for bone cell (osteoblast) markers. In particular, the focus is on molecular mechanisms involved in mechanically-induced regulation of bone cell markers, including the type I collagen, osteocalcin, alkaline phosphatase, bone morphogenetic proteins and homeobox-containing genes.

PENALVA, Luiz O., Children's Cancer and Research Institute - Dissecting gene expression of tumors and complex tissues with RNA binding proteins.

RANJAN, Ravi, Pharmacology - The genetics of aging in *Drosophila* and the mechanism of neurotransmitter secretion at the synapse.

REA, Shane L., Barshop/Physiology - Aging in *C. elegans* (Mit Mutants; Mitochondrial; Bioenergetics; Metabolomics; DNA Damage); Human Mitochondrial-associated Disorders (*S. cerevisiae* Models); Type II Diabetes.

REBEL, Vivienne I., Children's Cancer and Research Institute - We are interested in understanding how blood-forming stem cells are regulated and how these regulatory processes are affected by disease (such as myelodysplastic syndrome and leukemia) and age. In our studies we use mouse models and we study both stem cell intrinsic - and extrinsic (microenvironment-mediated) regulatory mechanisms.

SHIREMAN, Paula Kay, Surgery - Our lab studies the inflammatory-mediated mechanisms of angiogenesis and skeletal muscle regeneration. We are particularly interested in how hematopoietic stem cells, myogenic stem cells and inflammatory cells interact to form muscle after injury. A better understanding of muscle regeneration will be useful in tissue regeneration strategies for limb salvage.

SLAGA, Thomas J., Pharmacology - glucocorticoid hormones (GC), very potent inhibitors of physiological DNA synthesis in keratinocytes in vivo.

TOMLINSON, Gail, Pediatrics - Genetic predisposition to cancer, Hepatoblastoma, Hereditary breast cancer, Other Pediatric Tumors, Population-specific aspects of childhood cancer, von Hippel-Lindau disease.

VOGEL, Kristine Susan, Cellular & Structural Biology - Neurofibromatosis Type 1 and Genomic Instability.

WALSS-BASS, M Consuelo, Psychiatry - Role of genetic polymorphisms in risk of Schizophrenia and Bipolar Disorder. Correlation of allelic variations with functionality in relation to schizophrenia pathology. Understanding the molecular mechanisms of schizophrenia.

WALTER, Chris, Cellular and Structural Biology - DNA repair, mutagenesis, mitochondria, transgenic mice, aging, spermatogenic cells.

YEW, P. Renee, Molecular Medicine - Vertebrate cell cycle regulation, DNA replication initiation, Ubiquitin-mediated proteolysis and signaling, Tumor suppressor function.