Silvia Blemker

Skeletal muscles are the motors for voluntary movements. Their tuning is achieved through variations in several structural components and can be easily disrupted by misuse or disease. The goal of our research is to identify the principles of muscle design by characterizing the relationships between muscle structure, mechanical properties, and function. She develops computational models to describe complex 3D musculoskeletal systems.

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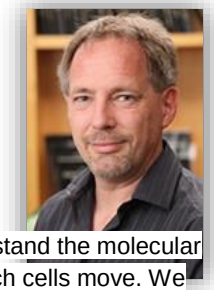
Glynis Kolling

Microbiologist, in the Division of Infectious Diseases and International Health. She has extensive experience in microbial pathogenesis, bacterial toxins, and the changes in intestinal flora associated with antibiotics. She was awarded the 09 Young Investigator Grant in Probiotics Research for her study of the use of oligopeptides for intestinal injury due to C. difficile infection and the development of a fecal microbiota transplant (FMT) program at UVa. glk3a@virginia.edu

William Guilford



Our goal is to understand the molecular mechanisms by which cells move. We examine the mechanics at the level of individual molecules using a laser trap. A laser trap is, quite literally, a "tractor beam" of Star Trek that works at a microscopic scale to capture particles and hold them in three-dimensional space. Thus, to measure the elasticity, distance moved, or force generated by single protein molecules. Cell movement is at the molecular basis of many diseases. whg2n@virginia.edu

Jason Papin

Our research goals consist of the construction and analysis of large-scale biochemical networks and their application to human disease. Currently, we are working to develop methods for incorporating high-throughput data with integrated signaling, metabolic, and regulatory network reconstructions, and we are using these tools to study fundamental problems in infectious disease, cancer, and bioenergy.

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Shayn Peirce- Cottler

The microvasculature, a complex network of highly specialized blood vessels. Microvascular growth and remodeling are important in pathological conditions, such as wound healing, ischemic disease, and tumor growth. We study microvascular growth and remodeling using thin tissues that enable visualization and manipulation of entire microvascular networks in vivo. We also develop therapeutic approaches to grow and regenerate injured tissues by manipulating the structure and composition of the microvasculature.

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Craig Meyer

Our research focuses on inventing, and applying new magnetic resonance imaging (MRI) techniques that acquire the image data very rapidly. Rapid MRI acquisition is important for cardiac studies, for cardiac and respiratory motion. One focus of our research is imaging atherosclerosis in arteries and its effects on perfusion of the heart, brain, and legs. We work with industrial collaborators with the goal of making our techniques widely available.

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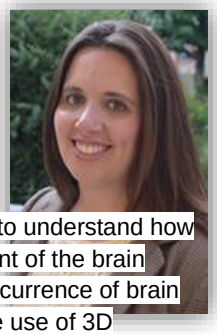
Jennifer Muson



My laboratory aims to understand how the microenvironment of the brain contributes to the recurrence of brain tumors. Through the use of 3D engineered cell culture models we can assess the cellular interactions and therapeutic response of cancer in a controlled. We aim to use these models and tools to identify, deliver, and assess new therapeutic approaches against invasive cancer with hopes to translate this work to a clinical setting and help patients in need of treatment options.

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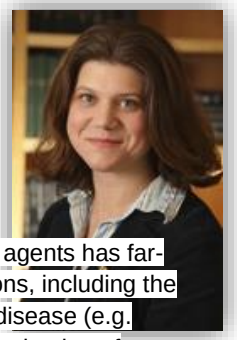
Kim Kelly



Design of imaging agents has far-reaching implications, including the early detection of disease (e.g. cancer), and the evaluation of various treatments and therapeutics (i.e. efficacy and dosing). Using this method of attack, I have generated imaging agents capable of the early detection in vivo of colon, pancreatic, lung, and prostate cancers as well as specific targets in atherosclerosis and inflammation.

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