

**ABI BIOTECHNOLOGY RESEARCH INTERNSHIP
2017 MENTOR RESEARCHERS**

Dr. Fabricio Medina-Bolivar – Bioproduction of medicinal compounds from plants

The Medina-Bolivar laboratory team is involved in the discovery and bioproduction of bioactive plant compounds with medicinal applications (such as cancer and obesity). Our studies utilize “immortalized” root cultures (known as “hairy roots”) as factories for a large diversity of plant natural products. Students involved in this project will learn molecular biology (gene cloning and PCR), plant tissue culture (micropropagation and hairy root cultures), mammalian cell culture and analytical/purification techniques (high performance liquid chromatography and high performance countercurrent chromatography) for the production, isolation and characterization of bioactive plant compounds. Bioactivity assessment of the distinct natural products produced in the roots cultures is currently done in the Medina-Bolivar laboratory and through collaborative projects with scientists across the country. The students are expected to participate in all aspects of the research and produce results for presentation at scientific conferences.

Email: fmedinabolivar@astate.edu

Phone: (870) 680-4319

Dr. Brett J. Savary, ABI Research Professor of Protein and Polysaccharide Chemistry.

My Lab is studying nutritional components isolated from whole-grain rice and rice bran to determine their dietary contribution for healthy colon functioning. This addresses a primary mission of the Arkansas Biosciences Institute at A-State: interfacing AR agriculture and human health. Current research in my laboratory focuses on isolating soluble polysaccharides from rice bran fiber, and treating them with enzymes produced with recombinant expression technologies in my lab. We recover the products for structure analysis and bioassay testing. Summer interns will have the opportunity to learn and apply techniques involved in all of these activities. Our ABI laboratories have advanced instruments that students will learn about and gain working knowledge of their operation during research participation. The goal of the summer internship will be to gain an understanding of our rice bran nutrition project, acquire hands-on experience in a multidisciplinary research laboratory, and obtain experience with preparing a scientific presentation – all invaluable experience in preparing for future graduate and professional studies. See my web page

<http://www.plantpoweredproduction.com/faculty/brett-savary/> or contact me directly for further information.

E-Mail: bsavary@astate.edu

Phone: 870-680-4792

Dr. Maureen Dolan, Therapeutic Protein Production using Plants as “Bio-factories”

Undergraduate research scholars joining our lab will be a part of a dynamic research team that includes undergraduate and graduate researchers focused on using plants as “factories” and recombinant DNA techniques to produce animal therapeutic proteins. An important issue in human and environmental health is development of antibiotic resistance that is contributed through the use of antibiotics in livestock production. Our lab team is exploring the utility of plants for producing more targeted protein-based therapeutics as alternatives to antibiotics in controlling disease outbreaks in farmed raised fish (aquaculture) and poultry. Student researchers will have opportunity for hands-on experience using some of the skills and techniques seen/learned in your lab courses including buffer preparation, pipetting, molecular cloning, PCR, DNA and protein extraction, electrophoresis and animal cell culture. Student scholars are paired with senior researchers in the lab to train in the techniques they will use to carry out their research project.

Please check out this weblink for more information about research in our lab:

<http://www.plantpoweredproduction.com/faculty/maureen-dolan/> or contact me at:

Email: mdolan@astate.edu

Phone: 870-680-4359

Dr. Malathi Srivatsan – Neuronal Regeneration to Address Neuron Loss

As people live longer, we often hear about the neurodegenerative disorders such as Parkinson’s disease or Alzheimer’s disease for which currently there is no cure. Further many in all age groups meet with accidents or

injuries at work or playing sports. Injury to brain or spinal cord leads to permanent functional loss. Therefore the Srivatsan laboratory team is aimed at neuroregeneration or finding ways to repair the nervous system. Our laboratory investigates (1) what happens to neurons when they are exposed to not so friendly environment; (2) whether extracellular matrix molecules or man-made materials resembling those molecules can help make new, fully functional cells of the nervous system (neurons and glial cells) from cells that have not yet decided to become neurons or glia so that these new neurons/glial cells can be used to replace injured or dead neurons/glial cells in patients; and (3) once transplanted, will the new neurons communicate with existing neurons in the brain. We use cell culture, electrophysiology, molecular biology (RNA sequencing, gene expression), immunocytochemistry, protein chemistry and microscopy techniques in this collaborative research. The focus of my research as well as the opportunities that it brings to train undergraduate students, graduate students and postdoctoral research fellows in my laboratory so that they can become stellar future scientists are very gratifying to me. The students will participate in all aspects of the research and produce results for presentation at scientific conferences as well as for publication in research journals.

Email: msrivatsan@astate.edu

Phone: (870) 972-3167