



WVU heart research earns \$2.5 million grant

Five-year study looks at chemicals regulating blood flow

MORGANTOWN, W.Va. – The National Heart, Lung and Blood Institute has renewed its support of the research of West Virginia University scientist S. Jamal Mustafa, Ph.D., whose studies have helped improve understanding of the chemicals that regulate blood flow to the heart.

The five-year, \$2.5 million grant will support three faculty scientists including co-investigator Mohammed Nayeem, Ph.D., three graduate assistants and a research specialist, all of whom are involved in the study of adenosine, a chemical the body releases into the bloodstream in response to injury or stress.

Mustafa is a professor of physiology and pharmacology, and also assistant dean for research, in the WVU School of Medicine.

Adenosine acts as a chemical messenger, signaling the smooth muscle cells that form the walls of the vessels. When the signaling is successfully completed, the vessels open wider so that blood can flow more easily to the heart and lungs. A better understanding of the role of adenosine could lead to improvement in drugs that are used to treat heart disease.

The research is specifically focused on cytochrome P450, an enzyme in the cell that allows it to respond to adenosine. These enzymes play an important role in a number of cardiovascular diseases including high blood pressure, coronary artery disease, heart attack, heart failure, stroke and arrhythmia.

In the laboratory, interactions of the chemicals and cells are studied using genetically modified mice.

The grant was awarded under the National Institutes of Health Research Project Grant program and is known in the scientific community as an “R01” grant. Applications for R01 grants are highly competitive, and the award of a renewal grant for the maximum five-year term signals that the project is both successful and aligned with the research priorities of the National Heart, Lung and Blood Institute.

Mustafa’s work has gained national and international recognition. His lab collaborates on research with scientists at other universities in the United States and abroad as well as with researchers in the pharmaceutical industry.

Mustafa is director of WVU’s training program for Ph.D. graduate students in cardiovascular and pulmonary disease – also funded by the National Heart, Lung and Blood Institute.

For information on WVU’s research training program in cardiovascular and pulmonary disease see http://www.hsc.wvu.edu/som/resoff/cardio/pages/training_program.asp.

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