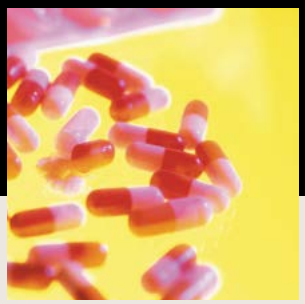
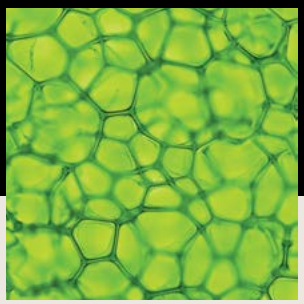
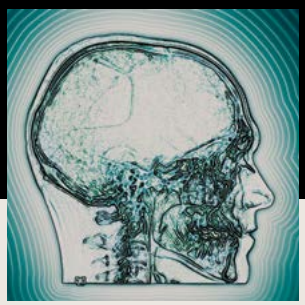





Regenerating Sound-Sensing Cells

Department of Defense grant aids hearing research

Written by Steve Sandstrom

Hearing loss is the third most common health problem in the U.S., and approximately 50 million people in the U.S. suffer from tinnitus, a persistent ringing in the ears. Both conditions are major problems among military personnel. The U.S. Veteran's Administration (VA) currently spends approximately $2 billion per year for compensation where hearing loss or tinnitus was the primary complaint.

Unfortunately, no FDA-approved drugs are available to treat hearing loss or tinnitus. The current treatment strategy for these conditions is hearing aids or cochlear implants. While they provide some benefit, they do not restore normal hearing. Thus, more research is needed.

SIU School of Medicine research scientist **Brandon Cox, PhD,** assistant professor in the Department of Pharmacology, has secured a three-year grant from the U.S. Office of the Assistant Secretary of Defense for Health Affairs, a division of the Department of Defense, to advance her study of hearing loss and regeneration of sound-sensing cells in the inner ear. The total budget for the project is $1.5 million.

Hearing loss is primarily caused by the death of sound-sensing cells (called hair cells) found in the inner ear. These cells can naturally regenerate in birds, frogs and fish, allowing recovery of hearing. However, hair cells were not thought to regenerate in humans or other mammals until recently when Dr. Cox discovered their ability to regenerate in newborn mice.

Dr. Cox's research will investigate the genes and proteins that make hair cell regeneration possible. The long-term goal is to develop new treatment strategies to replace the damaged cells and restore hearing. This is the third national grant awarded for Dr. Cox's research on hearing loss. Her previous research was funded by the National Institutes of Health and the U.S. Office of Naval Research.

NIH grant advances muscular research

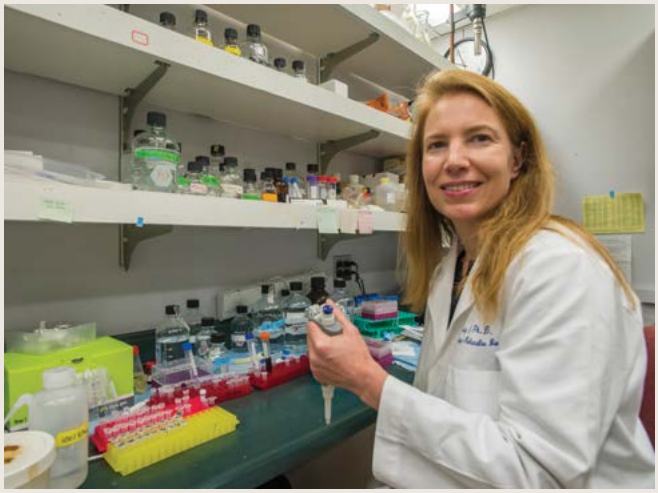
The body's immune system is controlled by proteins known as cytokines. When muscles are injured, a specific cytokine, interferon gamma (IFN-□), causes the muscles to become sore and swollen as the body begins to heal itself. **Judy Davie, PhD,** associate professor in the Department of Biochemistry and Molecular Biology, is conducting research that aims to better understand how this inflammation-causing protein affects muscle function and repair.

Dr. Davie will study the effects of chronic inflammation caused by trauma or diseases on skeletal muscle. The research could be used to develop better therapeutic approaches to illnesses like muscular dystrophy.

Dr. Davie's research is focused on how genetic factors influence muscle cells and fibers as well as the development of rhabdomyosarcoma, a rare form of pediatric cancer in which cancer cells arise from muscle tissue.

The National Institutes of Health (NIH) has awarded Dr. Davie a three-year grant to advance this research. The total budget for the project is $389,400.

"With the help of this grant, our lab will continue our studies on the role of IFN-□ in skeletal muscle," said Dr. Davie. "We should be able to determine the impact of IFN-□ in chronic inflammation and muscular dystrophy, which will improve understanding of these diseases and enable improved therapeutic approaches."



Judy Davie, PhD, in her lab in Carbondale.