

Creating Futures

University of Colorado



*Pursuing Cellular Clues
that Combat Disease*

Institute of Bioenergetics and Immunology

The Goal: Saving Lives

Diseases such as cancer and HIV tend to hide from our natural immune responses. The key to many of these diseases is chronic inflammation—which promotes disease survival and skews the normal immune response. If we find ways to curtail or alter the cascade of events leading to chronic inflammation

(for instance, with molecular therapies or targeted peptides that enable the immune system to target the disease), we may kill the disease, and save lives.

This is the sort of work pursued by immunologist M. Karen Newell, professor of biology and chief executive scientific director of CU's Institute of Bioenergetics



Dr. M. Karen Newell

and Immunology, housed at the University of Colorado at Colorado Springs. Newell is a pioneer in the emergent field of bioenergetics—the study of energy flow through cellular systems. The multidisciplinary institute Newell founded in 2003 is one of UCCS's most productive laboratories, and a vital contributor to the body of knowledge about how we might combat diseases that resist traditional therapies or lack effective treatments.

"We are so grateful for researchers such as Dr. Newell who persevere on behalf of chronic sufferers with AIDS and Lyme Disease around the globe. Great strides are possible when researchers think outside of the four corners of a given hypothesis. Dr. Karen Newell's work gives us hope."

Diane Blanchard

Co-chair, Time for Lyme,
donor toward Dr. Newell's work

Great Strides in a Short Time

Newell, who has played a central role in more than 38 approved or pending patents, is collaborating with California biotechnology firm Viral Genetics on research to unravel scientific mechanisms that underlie the metabolism-disrupting properties of a promising new therapy for drug-resistant cancers. Her discoveries could bolster this therapy's progress toward clinical trials, and accelerate this treatment into the marketplace. And her lab is exploring ways to negate immune-system-bypassing characteristics of HIV, improving our potential to mount more effective defenses against the disease.

UCCS is an ideal place to undertake such work. CU's fastest-growing campus—with a new science and engineering building opening August 2009—boasts a collaborative faculty, nationally regarded strengths in technological fields, and a vibrant high-tech local industry base. It can marshal the combined resources of the three-university University of Colorado System, particularly the medical expertise at the Anschutz Medical Campus in Aurora. And the UCCS campus has established a PhD program in applied science, which will enhance its ability

to attract and educate students with great potential, and meet industry demands for professional expertise in bioscience fields.

The institute draws on the expertise of faculty such as UCCS physics professor **Robert Camley**, a specialist in electromagnetic-wave research; UCCS mechanical and aerospace engineering professor **James Stevens**, whose heat-transfer work helps us better understand how cancer cells work; and UC Denver associate professor of medicine **Elizabeth Connick**, who researches the immunopathogenesis of HIV infection. 2008 Nobel Laureate and virologist **Luc Montagnier** has joined the advisory board of Viral Genetics based on Newell's discoveries.

By supporting the Institute of Bioenergetics and Immunology, you can help us better understand and manipulate biomechanisms, design therapies to combat diseases, and inspire and enable more students to pursue this work at UCCS and beyond.



Your Support Will Accelerate Our Progress

The Viral Genetics partnership is one of many votes of confidence we've received from generous corporations, foundations, and individuals in recent years. Without such private support, we could not make the progress we've made in this resource-intensive discipline. Pharmacology/toxicology tests on a single compound can cost hundreds of thousands of dollars, yet are essential to moving a potential therapy to clinical trial. Laboratory work requires sophisticated equipment such as flow cytometers and ultrasound machines. As a result, we are reaching out to supporters who share our passion for combating immune-system diseases.



UCCS student Roberto Padilla works in a lab in UCCS's new Science and Engineering Building (pictured at top of page)

How You Can Help

We are seeking current and endowed funding for:

- **An Endowed Directorship and Professorship** to enable top talent to devote more time to trailblazing research without sacrificing necessary teaching resources
- **Fellowships and Scholarships** to attract the best and brightest students to UCCS, provide a financial foundation so they can pursue their education without undue financial strain, secure essential lab personnel for high-priority research projects, and open up a UCCS education to low-income or first-generation students
- **Salary support** for a technician and post-doctorate researcher
- **Equipment expenses** such as an ultrasound machine, supercomputer, cell sorter, autoclave, and dark field microscope
- **Studies** to help us assess impacts of prospective therapies on living cellular systems

Naming opportunities are available for the Institute of Bioenergetics and Immunology, to allow you to establish a personal or professional legacy, and secure the institute for generations to come. You can support a particular area of interest, or make an unrestricted gift that will allow us the flexibility to allocate resources to areas of greatest need.

"Dr. Newell has the dedication, passion and intelligence to unlock the mysteries of the immune system. Think of the possibilities."

Nan Kurzman

Board member, Turn the Corner Foundation,
donor toward Newell's work



To learn about the many ways you can make a gift:

Contact

Jaime McMullen-Garcia

Associate Director of Development
719-255-5105

Jaime.Garcia@cufund.org
1420 Austin Bluffs Parkway
Colorado Springs, CO 80918

M. Karen Newell

Chief Executive Scientific Director,
Institute of Bioenergetics
and Immunology
719-255-3256
mnewell@uccs.edu

Visit our new web site at
www.cufund.org

The Time is Now

Newell often receives phone calls from sufferers of cancer and Lyme disease, seeking her advice in treating these ailments. She always advises them to take a proactive role in their health care, and to work closely with their physician. Though she wishes she could help all of them immediately, often she cannot. With your help, the Institute of Bioenergetics and Immunology will continue to pursue solutions to some of immunology's vexing questions, generating positive outcomes for patients who lack options, and millions of disease victims worldwide.

We believe Dr. Newell is on the cutting edge in science that could potentially unlock the mysteries behind HIV/AIDS and other immune-based diseases. Our hope is that this model may result in the future creation of more effective and affordable therapies to aid those needlessly suffering worldwide."

Haig Keledjian
CEO, Viral Genetics

All gifts should be payable to the University of Colorado Foundation, specifying the appropriate fund.

