

# UNLV

## Improving Health Care through Research

UNLV's research can directly benefit people's lives and enhance health care from diagnosis to new treatments to lifestyle adjustments. UNLV faculty members collaborate across several disciplines to improve health and wellness.



Professor Steen Madsen

### **Here are just a few of UNLV's current projects in health-related fields:**

Lasers and nanoparticles are Professor Steen Madsen's key to developing new treatment methods for brain tumors. Madsen is using white blood cells called macrophages to deliver nano-sized particles of gold to tumor surgery sites. Laser light then reacts with the nanoparticles, heats up, and kills off the remaining cancer cells.

Professor Yu Kuang is focused on the early detection of cancer and image-guided cancer treatment. He is exploring whether testing for genetic markers, coupled with new approaches to MRI analysis, might lead to more effective treatments for malignant tumors that form in bone, cartilage, fat, muscle, or vascular tissue.

By creating a database that tracks global drug resistance to various strains of HIV and creating an HIV Toolbox, Professor Martin Schiller is helping doctors tailor treatment to an individual patient's specific HIV profile and better select the most effective drugs for that particular strain.

Professor Jennifer Kwai's research aims to help people with chronic low-back pain reduce their discomfort, lessen their reliance on pain medication, and improve their quality of life.

Professor Janet Dufek is working to more accurately assess injuries in children to spare them from unnecessary diagnostic radiation and reduce pediatric patient falls in health care facilities.

UNLV microbiologist Brian Hedlund studies microbial dark matter in hot springs around the world to fill in uncharted branches in the tree of life. He conducts DNA sequencing of genomes isolated from single cells, and findings of his team's exploration were published in the journal *Nature*.

Nursing professor Barbara St. Pierre Schneider's studies in muscle injury recovery are guiding techniques in high-altitude evacuation by air, improving care for thousands of wounded soldiers and others suffering from traumatic crushing injuries.



Professor Jennifer Kwai

Allergy and asthma sufferers are relieved that UNLV and the school district have revived an airborne pollen monitoring program once operated by Clark County. The program records pollen counts and studies trends as well as keeping local residents informed about pollen concentrations so people with allergy and breathing difficulties can be prepared and limit their exposure to airborne irritants.

A team of UNLV researchers has patented a discovery involving promising new chemotherapy compounds that have greater effect and less toxicity than some existing platinum-based therapies used in the treatment of cancer.

### Student Involvement

Students, especially those at the graduate level, participate in studies as co-investigators, data analysts, test administrators, and evaluators. As part of their clinical training, they also serve the public while they are learning. UNLV's School of Nursing has implemented Nevada's only dedicated education unit, which provides students with hands-on patient care in a hospital setting with seasoned staff nurses as mentors.

### Laboratories

- Athletic Training Laboratory
- Biomechanics Laboratory
- Diagnostic Laboratory
- Environmental Radiochemistry Laboratory
- Exercise Physiology Laboratory
- Gait and Balance Laboratory
- Hedlund Laboratory
- Hot Sample Preparation Laboratory
- Spectroscopy Laboratory

### UNLV PARTNERS

- American Academy for Cerebral Palsy and Developmental Medicine
- American Nurses Foundation
- Centers for Disease Control and Prevention
- Children's Specialty Center of Nevada
- City of Henderson
- Comprehensive Cancer Centers of Nevada
- Department of Defense
- Department of Energy
- Dignity Health
- Health Resources and Services Administration
- National Institutes of Health
- Nevada Imaging Centers
- Nevada Orthotics and Prosthetics
- Southern Nevada Health District
- University of California, Irvine
- University of Hawaii
- Valley Health System
- Varian Medical systems