

NEVADA CANCER INSTITUTE 1-866-621-NVCI

Pathway

Resource Management For Physicians of Patients Battling Cancer



NEVADA'S CANCER BURDEN:

According to the American Cancer Society, in Nevada alone, there will be an estimated 11,370 new cases of cancer diagnosed in 2008. Nevada Cancer Institute is a collaborative academic research organization working side by side with community clinicians to improve the health status of their patients by offering new, and a larger number of treatment options. NVCI is a powerful resource for physicians in Nevada and our neighboring states. We welcome the opportunity to work with you developing a cure and bringing new hope to cancer patients. >>>



Nevada Cancer
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In the lab, Yupo Ma, M.D., M.S., Ph.D. focuses attention toward protein SALL4 which could lead to life-saving breakthroughs for patients suffering from myelodysplastic syndrome and acute myeloid leukemia.

The fight to cure cancer is a battle of science and research; Nevada Cancer Institute (NVC) is founded on the concept that cutting-edge science will lead to breakthrough research, which will have groundbreaking results for cancer prevention, treatment and cure around the world. So far, results have been encouraging and through the continued efforts and dedication of our staff and faculty we will work to win the battle. In brief these research divisions are: **Basic Sciences Division** with a goal to decipher the basic biology of cancer generation and progression, as well as to discover and glean mechanisms for potential novel treatment strategies. The **Division of Population Science and Cancer Control** will study genetic variation in different ethnic groups and how these variations affect susceptibility to cancer, cardiovascular disease and other diseases that have a genetic component to their etiology. The **Translational Research** program champions the application of recent ideas and discoveries generated in the realm of basic sciences to the treatment or prevention of cancer. The program maximizes interactions between researchers with basic and clinical science backgrounds to enhance the rate at which pertinent new discoveries are translated to direct patient care. The **Clinical Sciences Division** of NVC represents the delivery of state-of-the-art diagnosis and treatment to patients. NVC's **Research Imaging Facility** is a resource available for use by researchers from the Nevada community and its academic institutions. And, the **Office of the Directorate**, together with the external advisors and other senior leaders, set the course of NVC. For more information about our research programs, please contact Nevada Cancer Institute at 702-822-5433 or visit www.nevadacancerinstitute.org.

Genetic Research Fuels Treatment at Nevada Cancer Institute

In the war on cancer, Hong Sun, M.D., Ph.D., and Hui Zhang, Ph.D., target cancer cells at their core and help scientists discover ways to eliminate them.

Dr. Sun, along with her husband and fellow geneticist Dr. Zhang, bring a proven track record and tremendous potential to Nevada Cancer Institute (NVCi). Their research will open new paths of discovery that will in turn lead to new treatments for patients.

“We are very lucky to have them,” said NVCi Deputy Director David Ward, Ph.D., who first recruited the pair at Yale University 10 years ago. “Both are among the top 10 in the world in the kind of research they conduct.”

Dr. Sun’s research is focused on signal transduction—how cells respond to environmental stimuli. The stimuli instruct the cells when to grow, when to rest and how to become special cells. Cancer cells grow because they do not receive proper signals or instructions.

Dr. Zhang focuses on the regulation of the cell cycle. There are checkpoints along the way in the life of a properly functioning cell that ensure its growth process is unfolding correctly. Cancer cells circumvent the checkpoints and escape the regulation of the cell cycle. These abnormal cells wreak havoc in the body, multiplying and forming tumors.

“Drs. Sun and Zhang are world-



From left, Hong Sun, M.D., Ph.D., David Ward, Ph.D. and Hui Zhang, Ph.D.

class, internationally renowned geneticists with tremendous insight into the inner workings of basic cellular machinery,” NVCi Director Nicholas Vogelzang, M.D., said. “Both will play key roles in our new drug discovery.”

While at Yale, Drs. Sun and Zhang made seminal discoveries on three major proteins now known to be extremely important in cancer research—PTEN, p16 and p27. Throughout the last decade scientists and pharmaceutical companies have been working to develop drugs based on these discoveries.

When the doctors decided to leave Yale, they weighed job offers

from prestigious institutes across the country, however, NVCi represented a new frontier.

“The leadership at NVCi is visionary,” Sun says. “There is a close connection between basic research and the clinic. We can quickly see our research move from the laboratory bench to the bedside, where it can help cancer patients.”

The move reunited the pair with their former boss Ward.

“Dr. Ward is one of the most creative, original scientists we have met,” Sun said, “and we have studied and worked at world-class institutions such as Harvard, Johns Hopkins, Cold Spring Harbor Laboratory and Yale.”

Dr. Ward is equally enthusiastic about Zhang and Sun. Although they are established as important players in cancer research, he feels their best work is yet to come.

“They have only scratched the surface of their potential,” Dr. Ward said. “They will also help us recruit other scientists who want to work alongside them.”

Dr. Sun is already involved in a groundbreaking research program involving protein-membrane interactions. Her work in this area may lead to a major paradigm shift in the way we treat cancer.

“From our research we have identified the critical mechanisms and pathways involved in cancer,” Dr. Sun said. “We are close to finding answers to some of our core questions that will lead to breakthroughs in cancer treatment for patients.” ●

In Focus: Sheri Holmen, Ph.D.

Sheri Holmen, Ph.D., is an Assistant in Drug Development. Dr. Holmen earned her B.S. and M.S. in biomedical science with cum laude honors from Western Michigan University in 1994 and 1995, respectively, and a Ph.D. with an emphasis in tumor biology from the Mayo Clinic College of Medicine in 2000. She was a Pfizer postdoctoral fellow of the Life Sciences Research Foundation at the Van Andel Research Institute (VARI) from 2000 to 2003 and established her own lab at VARI in 2003. Dr. Holmen joined Nevada Cancer Institute in 2007.

Dr. Holmen’s research focus is on the use of pre-clinical models to define the genes required for tumor initiation, progression and maintenance with the ultimate goal of identifying novel targets for therapeutic intervention. Her laboratory uses a somatic cell gene transfer technique, in combination with traditional transgenic and knock-out systems, to model metastatic melanoma and glioblastoma, tumors that are generally refractory to conventional therapies and are associated with a high mortality rate. These models are useful for pre-clinical testing of pharmacological agents and serve to translate the findings in the lab to more effective treatments for cancer patients.





Research is paramount to the mission of Nevada Cancer Institute (NVCi). At NVCi, the Clinical Trials Office (CTO) assures clinical research follows federal, state and local regulations. The CTO is part of the Clinical Division of NVCi. The CTO supports research scientists in preparing protocols, screening patients for protocol participation, monitoring patients on protocols, and managing data collected on clinical trial participants. The CTO ensures that patients participate properly in the informed consent process and that protocols are interpreted and followed accurately. Within the CTO, there are research scientists to explain complicated scientific and medical goals to patients, family members, staff, and the community. The CTO works in conjunction with a Protocol Review Committee and Institutional Review Board (IRB) to assure that clinical research is conducted safely.

Every person in the CTO office is essential to the NVCi research team. Clinical Research Nurses (CRNs) and Clinical Research Associates (CRAs) are responsible for patient assessments and patient safety, CRNs and CRAs also ensure that every clinical trial patient give informed consent and that all protocols are followed accurately. The data management team ensures that information gathered in a clinical trial is accurately and appropriately reported to the organization sponsoring the clinical trial. They also ensure that all appropriate regulatory organizations such as the FDA and the IRB stay appropriately informed. All CRAs, CRNs, and data managers have direct access to each leading research scientist conducting a clinical trial at NVCi to maintain the highest of ethical research standards. For information about our Clinical Trials programs please contact Nevada Cancer Institute, 702-822-5433 or visit www.nevadacancerinstitute.org.

Collaborative Effort Makes Clinical Trials Available Statewide

Nevadans seeking to participate in Nevada Cancer Institute (NVCi) clinical trials may soon need only go as far as their local oncologist to get cutting-edge treatments.

In an effort to bring new cancer treatment options to patients throughout Nevada, the Clinical Trials Office (CTO) at NVCi has embarked on a project to collaborate with oncology centers throughout the state.

Alpine Hematology-Oncology in Reno is the first medical practice to join NVCi and offer clinical trials to patients outside the Las Vegas metropolitan area. Meanwhile, other oncology practices across Nevada are in the process of joining this initiative.

NVCi and Alpine Hematology-Oncology have partnered to offer Phase II and Phase III clinical trials to patients. NVCi will provide its CTO services at Alpine Hematology-Oncology's offices, allowing patients to stay close to home—and their oncologist—during treatment.



NVCi's Sunil Sharma, M.D., (top) and John Shields, M.D., of Alpine Hematology-Oncology in Reno.

Sunil Sharma, M.D., chief of the Sections of Phase I and Gastrointestinal Oncology, said the developing network is a win-win for all involved.

"We are doing this to fulfill our mission of bringing state-of-the-art care to all Nevadans," Dr. Sharma said. "Oncologists get to continue seeing their patients, and the patients are able to stay in their community, surrounded by a support network of friends and family."

Steven Schiff, M.D., said he and his medical partner, John Shields, M.D., of Alpine Hematology-Oncology, joined the network to provide options for their patients.

"You really only have so many options for patients with cancer," Dr. Schiff said. "Oftentimes the standard treatments are no longer working, but there are drugs available through a clinical trial that may help. This gives more opportunities to our patients."

NVCi's clinical trials research coordinator, Julie Planeta, R.N., will be working with Alpine Hematology-Oncology and other practices in the network.

"This will increase access for Nevadans to clinical trials and ultimately reduce the burden of cancer in our communities," Dr. Sharma said. ●

Nevada Cancer Institute First Site in U.S. to Participate in Clinical Trial

Nevada Cancer Institute (NVCi) is the first site to enter a patient in the United States-based clinical trial of WX/20-001. This clinical trial uses the I¹²⁴-labeled antibody (cG250) positron emission tomography (PET) imaging system REDECTANE (CA9-SCAN) manufactured by IBA in Richmond, VA, for Wilex AG of Munich, Germany.

The WX/20-001 clinical trial uses a specific antibody synthesized by Wilex that recognizes a protein found on the surface of kidney cancer cells called G250 or CA-IX. The antibody is linked to a radioactive imaging tracer, an isotope of the chemical element Iodine (I¹²⁴)

The radio-labeled antibody (I¹²⁴-cG250) is injected into the body and binds preferentially to the clear cell form of renal cell carcinoma (ccRCC). The radiotracer emits positrons that collide with electrons, thereby annihilating both and forming pairs of gamma rays (photons). The gamma rays are detected by the PET scanner to form an image.

Physicians then can use the PET images to determine the location and type of renal carcinoma, prior to surgery being performed (only patients who are about to undergo kidney surgery are allowed into the study). The PET tracer

also has the potential to detect ccRCC metastases that have spread from the kidneys to other locations in the body. The PET images are acquired with x-ray based computer tomography (CT) scans of the anatomy to assist the physician in locating the suspected lesion.

"Participation in this novel imaging study for a very difficult form of cancer to treat is wonderful acknowledgement for NVCi, our collaborators at Urology Specialists of Nevada and the research that we do here in Nevada," said Dr. Nicholas J. Vogelzang, NVCi director. "To be the first site to enter a patient onto this trial is outstanding recognition of how far we have come."

Michael Gach, Ph.D., director of NVCi's Research Imaging Facility, added, "We are fortunate to have advanced diagnostic and research imaging systems and personnel that allow us to conduct advanced clinical trials and imaging research like the Wilex WX/20-001 study. These molecular imaging technologies provide us tremendous insight into disease progression and therapeutic response. We can now distinguish malignant cells from normal tissue with molecular imaging and attack only the malignant cells with targeted therapies."



Residents Suneet Sidhu, far left, and Roja Mulamalla, far right, make patient rounds at University Medical Center with Karen Milligan, M.D.

Through research, treatment and education initiatives Nevada Cancer Institute (NVCi) strives to reduce the burden of cancer for all Nevadans and our nation. NVCi offers educational services for students, physicians and the entire healthcare community.

Most recently NVCi was granted provisional Continuing Medical Education (CME) accreditation for two years by the Nevada State Medical Association.

CME accreditation allows physicians to maintain knowledge of new developments in all medical fields, and earning CME credits is a state requirement for physicians. In addition, most member boards of the American Board of Medical Specialties, such as the American Board of Internal Medicine, have CME requirements for physician recertification. NVCi's CME activities are open to physicians throughout the healthcare community.

The Accreditation Council for Continuing Medical Education describes CME accreditation as a declaration of integrity. Through this designation, NVCi establishes that the purpose of its program is to serve the public interest by improving healthcare and not to promote the products and services of commercial interests. There are stringent guidelines for CME funding to ensure that activities are free of bias from commercial interests.

"This is a significant milestone for the Institute and the collaborative effort to build Continuing Medical Education programs in Nevada," said Phillip Dorsey, academic administrator and research finance officer. "We are honored and appreciative to our distinguished faculty and staff who have helped us reach this level."

NVCi is one of only 10 Nevada State Medical Association accredited providers in Nevada. Since March 2007, the Institute has been joint sponsoring CME activities with the University of Nevada School of Medicine in Reno. Acquiring individual accreditation allows NVCi to provide CME credits and offer many more activities. NVCi also has been approved as a provider for nursing continuing education credits and will soon be submitting a request to the Nevada Board of Pharmacy to obtain accreditation for providing pharmacists with continuing education credit. For additional information about our educational programs please contact Nevada Cancer Institute, 702-822-5433 or visit www.nevadacancerinstitute.org.

Tumor Board presentations

A multidisciplinary approach is an important part of the care of the cancer patient at Nevada Cancer Institute (NVC). Monthly tumor boards are held for presentation of the current state of a particular cancer and are followed by a presentation of interesting and/or difficult cases. NVC and community physicians have the opportunity to discuss various aspects of these cases including diagnosis with pathology and radiology presentations as well as treatment plans and can also discuss other recommendations for treatment. NVC tumor boards also provide valuable medical education for all medical disciplines with the fundamental learning objective of understanding diagnosis, treatment, clinical trial options and outcomes for the specific malignancy discussed.

July 17, 2008 Ovarian Cancer presented by Assistant, Breast Cancer Oncology Division, Karen Milligan, M.D.

August 21, 2008 Colon Cancer presented by Chief of the Sections of Phase I and Gastrointestinal Oncology Sunil Sharma, M.D.

September 18, 2008 Melanoma presented by Head of the Section of Melanoma, Renal Cancer and Immunotherapy Wolfram Samlowski, M.D.

October 16, 2008 Lung Cancer Presented by Medical Oncologist Lin-Chi Chen M.D., Ph.D.

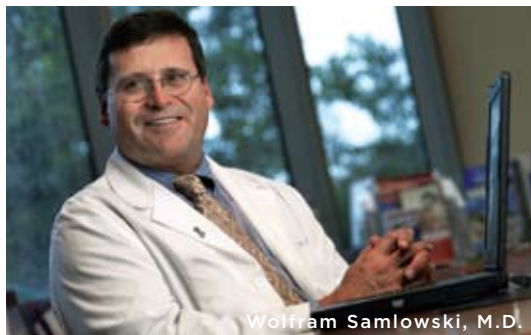
December 18, 2008 Breast Cancer presented by Co-Director, Radiation Oncology Clinical Research, Anita Pomerantz, M.D.

CME Accreditation and Designation

NVC is accredited by the Nevada State Medical Association to provide continuing medical education to physicians.

NVC designates this educational activity for a maximum of 1.0 AMA PRA Category 1 Credit(s)TM. Physicians should only claim credit commensurate with the extent of their participation in the activity.

The Nevada State Board of Nursing allows licensed nurses to apply CME Category 1 credit toward the renewal of their nursing license.



Wolfram Samlowski, M.D.

Patient Services

The Nevada Cancer Institute (NVC) provides *Navigation Services* to anyone affected by a cancer diagnosis. Services include help in better managing appointments, understanding the role of providers, referrals to financial counseling and support, support groups and counseling, information on specific cancer types and treatment options and language translation services.

The Nevada Community Cancer Resource Guide was created by volunteers and staff of NVC. The guide covers cancer resources including support groups, economic and legal assistance, screening, and medical providers currently available throughout the state of Nevada with references to national agencies.

The Lance Armstrong Foundation Survivorship Center at NVC strives to enhance the quality and length of survival of all persons diagnosed with cancer and to minimize or stabilize adverse effects experienced during cancer survivorship.

Cancer Information Services (CIS) is a free public service of the National Cancer Institute. Through collaboration with NVC, the public has access to highly trained CIS specialists who provides one-on-one information about cancer to patients and their families, health professionals, journalists, science writers and the public.

Preventive and Education Services including *Wellness Classes* teaches about disease risk factors and management; provides wellness tips and notifications of community screenings; offers classes in nutrition, weight management, stress reduction, screenings and sun safety. This program teaches patients how to select a doctor, manage appointments and improve their overall health.

Modeled after the Mayo Clinic, our *Smoking Cessation* program is here to help individuals stop smoking and stay smoke free. Individuals are given the knowledge and tools to make self-care decisions to improve the quality of their lives. The six weeks course provides individualized counseling, referrals to tobacco cessation quit lines and assistance in accessing pharmaceutical replacement therapies.

Aimed at helping women participate in regular screenings and learning about women's health issues including breast and cervical health, the *Women's Health Education* program is specifically designed for our communities. Through a partnership with the Nevada State Health Division and the Avon Foundation, we provide personal service to women who need help.

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