Pharmaceutical company seeks to advance protein-replacement therapy discovery test

Pioneering research by Professor Dean Burkin is at the center of strategic agreements between the University, Prothelia Incorporated and Alexion, and may lead to a protein replacement therapy for a rare form of muscular dystrophy.

Burkin, a professor and pharmacological researcher with the University of Nevada School of Medicine, and his team discovered that administering laminin-111, a naturally occurring protein, prevents muscle damage in mouse models of muscular dystrophies. The therapy holds promise as a possible treatment for congenital muscular dystrophy in humans.

The patented laminin-111 therapy was licensed to Prothelia in 2008.

Now, the three parties have entered into an agreement through which Alexion has an exclusive option to acquire privately held Prothelia and license laminin-111 directly from the University upon the achievement of specified research and development milestones. In addition, through Prothelia’s introduction of Alexion to the University, the University and Alexion have entered into a sponsored-research agreement to accelerate further research on the patented therapy conditioned on the outcome of certain development research to be performed by Alexion.

“The pathway is now there to hopefully get this to a phase-one clinical trial,” Burkin said. “Moving a discovery from the bench to the possibility of a therapeutic application and the treatment of patients is very exciting.”

“Dr. Burkin has devoted much of his research to the treatment of muscular dystrophy, and this partnership and continued investigational research builds on his work,” said Mridul Gautam, the University’s vice president of research and innovation. “This partnership exemplifies the potential for university-based discovery and industry collaboration to create the possibility of bringing important advancements to the marketplace and ultimately bettering lives.”

Congenital muscular dystrophy is a rare group of diseases that causes muscle weakness at birth. One form, known as MDC1A, is classified as an ultra-rare disease and is caused by a genetic defect that results in loss of the laminin-211 protein, which provides the necessary structural integrity to muscles.

Protein-replacement therapy is an expanding field resulting in new therapeutic options for muscular dystrophy and other diseases. In the case of MDC1A, the application of protein-replacement therapy means the protein laminin-111 would compensate for the genetic deficiency of the laminin-211 protein.

Burkin’s published research has been applauded by Cure CMD, a national nonprofit organization dedicated to congenital muscular dystrophy research and education.

There are no approved therapies for those with congenital muscular dystrophy, and seeing experts and resources come together, Burkin said, “gives patients and their families hope, especially when we are talking about rare diseases.”

—Jane Tors ’83
New collaborations, new contributions, record enrollment for CABNR

Wine grapes, hops and hoop houses are among the new College of Agriculture, Bio-technology and Natural Resources projects that align teaching, research and faculty expertise with current opportunities facing the region’s agriculture and ag-related industry.

New faculty positions, realigned educational programs, strengthened community connections and new partnerships with other University colleges and agencies are all part of the college’s re-energized, mission-driven focus.

Wolf Pack Meats, the University’s USDA certified meat harvesting and processing facility at the Main Station Field Laboratory in east Reno, continues to serve area ranchers and now hosts classes as part of a new certification course offered through University of Nevada Cooperative Extension’s Herds & Harvest program. The popular certification course is helping educate ag producers in the processing and retail sales of meat in Nevada and teach skills in sanitation and food safety.

A new experimental vineyard builds on the research of Professor Grant Cramer. With the help of nonprofit Nevada Vines and Wines, Cramer expanded his applied research program conducted at the Valley Road Experiment Station by planting 1,800 wine-grape plants at the Main Station Field Lab in the spring of 2013. Nevada Vines and Wines is a group of vine growers and winemakers who would like to see a wine industry further developed in Nevada.

An additional new venture on the Main Station Field Lab will study and identify hop varieties that may have the potential to flourish in Nevada’s high-desert environment and yield highly desirable qualities for Nevada beer brewers. The High Desert Hops Project is a collaboration with the Urban Roots Farm Corps, Cooperative Extension and AmeriCorps, and is funded through a Nevada Department of Agriculture grant.

The High Desert Farming Initiative, begun in the College of Business and carried out in partnership with CABNR and the community, has taken root at the Valley Road Experiment Station just a short walk from the main campus. The farming initiative’s certified organic crops are served in the University’s Downunder Cafe.

CABNR’s 2013 saw record student enrollments, with the college’s enrollment rising from 800 just three years ago to 1,200 this academic year. The new, streamlined Department of Agriculture, Nutrition and Veterinary Sciences rose from 350 students in 2011 to 450 this year.

—Mike Wolterbeek ’02

Getchell Library takes a bow

Demolition of the former Noble H. Getchell Library is now complete, making way for the new William N. Pennington Student Achievement Center.

Two large excavators, along with a crew of more than 20 people, worked on the building’s exterior demolition for about two months. Most of the materials from the building were removed and recycled.

As the University considered options for the new Pennington Center, intense review and forethought went into the decision to take down the Getchell building, including the health risks of the building, cost to update the building and bring it up to code, and the vision to better connect the north and south parts of campus.

Slated to open in early 2016, the Pennington Center will bring together, in one facility, a myriad of student-success services now scattered across campus. Clustering these services will create synergy and allow for flexibility in scheduling, including the availability of evening hours to accommodate students’ schedules.

—Nicole Shearer ’03

Look online


Site preparation for the new, mid-campus William N. Pennington Student Achievement Center is well underway.

Organic farming is being demonstrated in the High Desert Farming Initiative's hoop houses at the Valley Road Experiment Station in Reno.
Research, education to support selection of Nevada as UAV development center

Flying robots will soon be buzzing around several test sites in Nevada as part of a new initiative through the Governor’s office to develop a new industry and bolster Nevada’s economy. Some of these unmanned aerial systems will be part of the University’s research and industry collaboration in this emerging economic arena.

The Federal Aviation Administration has selected Nevada as one of six states designated as a center for the development of unmanned aerial vehicles and outdoor testing of autonomous systems.

“The FAA decision to select Nevada as a test site to begin work on safely integrating unmanned aircraft systems into the national airspace aligns perfectly with plans and projects underway at the University,” said Kam Leang of the University’s Mechanical Engineering Department.

The University has more than a dozen faculty across several departments and colleges, including engineering, business, geological sciences, cooperative extension and environmental sciences, who will contribute to the research, design, implementation and commercialization of advanced autonomous systems.

“We have been developing research and educational infrastructure to support the FAA designation of Nevada as an unmanned autonomous flight location,” University President Marc Johnson said. “This designation has been an objective of the Governor’s Office of Economic Development for some time and the University is working in concert with government and industry to support advanced manufacturing and diversify the Nevada economy.”

The University is establishing an innovation center for advanced autonomous systems with the goal of creating unique industry-university partnerships to commercialize technologies in autonomous systems. This includes land-based, aerial and stationary robotic systems such as industrial robots, advanced manufacturing systems, driverless road vehicles and underwater robots.

A new minor degree program in Unmanned Autonomous Systems, or UAS, began in January. Courses in computer science, electrical engineering and mechanical engineering were combined into the new UAS engineering program that will help prepare students to enter the Nevada workforce in the UAS industry.

“This is a transformative event for the state of Nevada, the knowledge-based economy of the state and the University of Nevada, Reno,” Mridul Gautam, vice president of research and innovation, said. “We are very well qualified to provide the UAS industry, the state and the nation with world-class expertise in all areas of research and development related to UAS. The potential growth in innovation at all levels—high school to graduate school, and beyond—is unimaginable.”

—Mike Wolterbeek ’02

Business and education online graduate programs among the nation’s best

The College of Business and College of Education’s online graduate programs have again been recognized by U.S. News & World Report as some of the best in the country.

The College of Business online graduate program is ranked as one of the “Best Online Graduate Business Programs.” The College of Education online graduate programs, which include the master of science in equity and diversity in education and master of education in literacy studies, were ranked among the “Best Online Graduate Education Programs.”

In each of these categories, about 1,000 regionally accredited institutions were sent statistical questionnaires, and certain other conditions and definitions had to be met. Criteria used to determine the final ranking included student engagement, student services and technology, faculty credentials and training, and peer reputation. Both the University’s Executive MBA and education master’s programs received particularly high marks for faculty credentialing and training, which is defined as how well the schools prepare teachers to teach remotely.

—Nicole Shearer ’03
Faces on the Quad

Joe Crouse is a doctorate student at the University studying economics. The 20 year old has already received a master’s of arts and human sciences degree at Hood College in the Washington, D.C. area and an MBA in strategic management at Frostburg State University in Frostburg, Md. Originally from Maryland, Crouse was drawn to the University after a visit to campus because the faculty spent time talking to him about their research and immediately offered to integrate him into their own research, which was unique from other universities. As a graduate teaching assistant, Crouse has taught four courses at the University including marketing research, econometrics, intermediate microeconomics and principles of microeconomics. He defends his dissertation this spring and looks forward to entering the job market.

Cortland Hill is the recipient of the 2014 Youth Leadership Award by the Northern Nevada Black Cultural Awareness Society. His dedication to service and leadership is demonstrated by considerable involvement at the University and in the community. As president of the Black Student Organization, he helped organize a mentorship program with McQueen High School. Last fall, Hill developed a leadership class through the Victory City Church in Sparks, Nev. Hill is pursuing a degree in community health science and participated in a three-week medical internship last December in Bangladesh where he helped build a hospital and teach others about arsenic contamination. He also hosts a Wolf Pack Radio show and leads his own church, City Group, on the University’s campus.

Sabina Kraushaar, a geology graduate student, won “best in presentation” for the Basin and Range Session at the 37th Annual Geothermal Resources Council Meeting in Las Vegas. She studied fault lines and geothermal activity in northern Nevada’s Black Rock Desert through temperature readings, magnetic surveys and geological mapping. She affirmed previous findings that the geothermal water running through the desert fault was too cold to be used for power generation without extensive costs. Her findings also received an honorable mention in a poster competition at the Rocky Mountain Rendezvous in Laramie, Wyo. Kraushaar has since presented her findings for her thesis defense. She graduates from the University in May 2014 and hopes to pursue a career in the geothermal or gas and oil industry.

University alumna and KTVN anchor Wendy Damonte ’94 (journalism, Spanish) captivated the audience with the story of her mother’s battle with breast cancer and the work being done to inform women about dense breast tissue.

TEDxUniversityofNevada takes center stage

Ideas worth spreading. It’s a simple enough concept that has been revolutionized by the popular TED and TEDx brands. At TEDxUniversityofNevada in January, 22 individuals gave the talk of their lives, eliciting a range of emotions and offering ideas and insight on a wide range of topics.

The event included 10 published book authors, a sold-out audience of more than 200 and a lineup that left everyone with something to think about at day’s end. Speakers included childhood abduction survivor, Elizabeth Smart; management and leadership educator, Barry Posner; Steve Wynn’s “HR Guy,” Arte Nathan; high school senior and teen grief speaker, Bridget Park; and KTVN anchor and University alumna, Wendy Damonte ’94, to name a few.

“This year’s event was a labor of love,” said Bret Simmons, associate professor in the University’s College of Business and TEDxUniversityofNevada event organizer. “It was a big success, with many of the talks already receiving thousands of views online. I know these talks will continue to have a big impact and will showcase the University community as one with people who have ideas worth spreading.”

“There’s no telling how far these talks can reach,” Simmons said. “Last year’s TEDxUniversityofNevada talk by Logan LaPlante on ‘Hackschooling’ has become the second most popular TEDx talk ever on YouTube with more than 4 million views, and counting.”

—Nicole Shearer ’03
NBC connects engineering and the Olympics with faculty member profile

Kam Leang is one of 10 scientists from around the country selected by NBC News and the National Science Foundation to be featured in the latest installment of NBC Learn’s Science and Engineering of the 2014 Olympic Winter Games project.

In a series of videos produced through the NBC and NSF collaboration, Leang, associate professor of mechanical engineering and an avid skier, is featured explaining his research using nanotechnology to build a better performing ski. In the video, Leang’s science is juxtaposed with Squaw Valley’s Olympic skier Julie Mancuso carving turns through a race course.

“It’s great to be a part of this effort to show how science and engineering is important, to make engineering and science relevant to kids,” Leang said.

Leang has been making skis as a hobby for more than 10 years and has been working in the nanotechnology research arena for 14 years. Applying the use of nanomaterials to the design of high-performance skis and sports equipment seemed it would get students engaged about the subject, so Leang pursued and received an NSF grant for a senior design course a few years ago.

—Mike Wolterbeek ’02

Students apply course concepts through service-learning

Students at the University of Nevada, Reno are constantly encouraged to step out from behind their books, computers and mobile devices and become a part of something bigger. Whether it’s joining one of the more than 200 student clubs and organizations, participating in academic-oriented competition teams, or volunteering at a community organization or event, the University emphasizes the importance of students getting involved.

Service-learning, a teaching method designed to promote student learning through meaningful experiences with community partners, has been brought to the forefront of programs in which students are encouraged to participate.

Service-learning is not new to campus, many instructors have included it as part of their coursework for years. What is new, however, is the establishment of a new Office of Service-Learning and Civic Engagement to support and assist faculty, students and community partners in this endeavor.

“The office is a tangible manifestation of the University’s continued commitment to enriching the academic experiences of our students through meaningful community-based learning,” University Executive Vice President and Provost Kevin Carman, said.

Though often compared to internships or volunteerism, service-learning differs significantly in that community partners serve as co-educators. Community partners offer students a valuable venue to connect course concepts to community needs. Students benefit from critically thinking about their work in the community and how it ties back to what they are studying in the classroom.

“Service-learning integrates three core concepts: knowledge, action and reflection,” said Marlene Rebori, director of Service-Learning and Civic Engagement. “We work to integrate the campus, classroom and community through meaningful learning partnerships.”

—Nicole Shearer ’03
Bill Payne named dean of CABNR

Following a national search process, William “Bill” Payne has joined the University as dean of the College of Agriculture, Biotechnology and Natural Resources.

Payne comes to the University from Texas A&M University, where he was a professor of crop physiology and director of a multi-institutional, $150 million research endeavor aimed at improving food security and livelihoods in the dry areas of the world.

As dean, Payne also becomes director of the Nevada Agricultural Experiment Station, which conducts basic and applied research, programs and collaborations to enhance the sustainability of Nevada’s agriculture industry.

“I am impressed by the very high standards exemplified by CABNR’s faculty and staff, and the college’s interdisciplinary composition,” Payne said. “I believe these are qualities that provide comparative advantages in addressing real world problems in Nevada and indeed around the world, for solutions to such problems are almost always interdisciplinary.”

As director of the Research Program on Dryland Systems conducted through Texas A&M’s Consultative Group on International Agricultural Research, Payne led an innovative agroecosystem project involving multiple stakeholders to improve agricultural productivity and alleviate poverty and hunger in dry areas. Much of his field work centered in Ethiopia.

Payne has been named fellow of five international scientific societies and has held numerous leadership roles at the state, national and international level. He has advised charitable foundations, national and international agencies, publishers, foreign governments and universities on science and agriculture.

University President Marc Johnson said, “Dr. Payne has many years of experience, domestically and internationally, related to the science of managing arid environments. His experience is well suited to the Great Basin.”

Payne takes the helm from Ron Pardini, who served as interim dean for the past four years. Pardini, a professor of biochemistry, continues with the University and with his active research of nutritional interventions and cancer.

—Mike Wolterbeek ’02

Addressing the national cyber security challenge

A new Cyber Security Center will support economic development in Nevada and address the growing national challenge of cyber security.

“We are taking a holistic approach to cyber security, blending the technical aspects of protecting cyberspace with a range of disciplines from business to the liberal arts,” said Kevin Carman, University executive vice president and provost. “We will have a strong alliance with the private sector throughout Nevada.”

The Cyber Security Center is being developed to work on solutions to cyber attacks, educate students and conduct relevant research. A melding of disciplines makes the University’s approach to cyber security unique. The multiple faculty disciplines involved include computer science and engineering, political science, information studies, journalism, criminal justice, mathematics, philosophy, psychology and military science.

University administration worked with internationally recognized cyber-security scholar John Arquilla, professor in and chair of the Department of Defense Analysis at the Naval Postgraduate School in Monterey, Calif., to develop the concept for the center.

“The answers to cyber security and protecting the country’s cyber infrastructure are not to be found in a single discipline—it takes cross-disciplinary team intelligence,” Arquilla said. “This is truly a grand challenge, requiring bringing together the best minds from many academic fields. Provost Carman and Dean (Manos) Maragakis (engineering) realize the tremendous comparative advantage the University of Nevada, Reno has, as its departments already have a deep appreciation of the value of working across disciplines. This is truly pioneering a new approach to higher education, one that will greatly benefit the Cyber Security Center.”

The new center will address issues in a variety of industries that have enormous cyber security implications for economic development in Nevada, such as banking, health care, data centers, online gaming, the power grid and the large and growing military presence in the state.

“Nevada is the ideal place for this initiative, as all the pieces come together here on a very manageable scale: industry, law enforcement, education and research,” Arquilla said.

In Nevada, the Governor’s Economic Development Task Force identifies cyber security as an industry that can be advanced by collaboration with higher education as a means for building the state’s economy.

—Mike Wolterbeek ’02

Geoff Blewitt, a professor in the Nevada Bureau of Mines and Geology, has developed a GPS monitoring system that processes 20 million bits of information every 30 seconds, 24/7, from 10,000 stations around the globe, making it the largest such system in the world.