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The UC Davis Institute for Regenerative Cures Creating Tomorrow's Therapies for Genetic and Chronic Illnesses

The Vision

Stem cell and gene therapies offer great hope to patients and families suffering from genetic disorders, chronic disease or injury — and they hold tremendous promise for how the body's own systems can be used to treat and heal disease. At the UC Davis Institute for Regenerative Cures (IRC), interdisciplinary teams of physicians, researchers, biomedical

engineers and other partners innovate at the forefront of regenerative medicine. Our scientists' and clinicians' unparalleled diversity of expertise powers pathbreaking discoveries and personalized patient treatments.



We are working toward a future in which every patient living with a genetic disease or chronic condition can be offered a regenerative cure. With the support of philanthropic partners who share in our vision, the UC Davis IRC will continue to lead the way in California and around the world.

Forging New Paths Forward in Stem Cell Science



JAN NOLTA, Ph.D.

Women in scientific fields have long faced challenges, from a lack of faculty representation to limited research opportunities. UC Davis Health is changing these trends — advancing equity of opportunity and culture change across our research, clinical and educational missions.

The IRC's exceptional clinician-scientists include prominent women leaders who are breaking ground in stem cell therapeutics. IRC Director Jan Nolta is working with Diana L. Farmer, an internationally renowned fetal and neonatal surgeon who chairs

the Department of Surgery, and Satya Dandekar, a preeminent immunologist who chairs the Department of Medical Microbiology and Immunology, to investigate how mesenchymal stem cells from bone marrow can be used to heal lung damage and speed recovery from COVID-19. Such therapies are urgently needed because antiviral drugs fail to control lung injury caused by COVID-19.

With numerous FDA-approved clinical trials of cell and gene therapies ongoing at UC Davis, Director Nolta — who has spent decades refining stem cell products — sees dramatic advances on the horizon. "In the near future we should be able to routinely take cells from a person's body, change them in a clean room, and treat that person's disease," she said. "The future of regenerative medicine is very bright."

The UC Davis Institute for Regenerative Cures

The Science

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Stem cell and gene therapies work by using implanted cells, modified viruses and other complex products known as "living medicines" to change how a patient's body responds to a disease, injury or illness. This allows healing that otherwise would not be possible. In addition to reversing damage from debilitating injuries, regenerative medicine has the potential to transform the lives of people living with genetic diseases and chronic illnesses like peripheral artery disease, osteoporosis, Huntington's disease and pediatric neurological disorders like spina bifida. Many of the patients we serve are children living with genetic disorders.

Philanthropy is more important than ever for powering gamechanging research in this burgeoning area of medicine. Investments in training tomorrow's scientists, physicians and regenerative medicine support staff will help prepare a highly skilled workforce to carry this field forward. Gifts that enable faculty and early career physician-scientists to scale projects ahead of clinical trials are particularly valuable for accelerating discoveries out of the lab and into the world.



The Philanthropic Opportunities

Create unrestricted research funds to support seed grants and the development of pre-trial therapies

Support training programs for regenerative medicine workers to meet rapidly growing staffing needs

Fund an expansion of our production facilities to serve more researchers and patients

How Regenerative Medicine Changes Lives: Diana's Story

Diana Souza enjoys the hard work it takes to manage her 23-acre ranch in Northern California. But a fall in 2011 left her with a badly broken arm, complicated by previous injuries. Even after several surgeries, Souza's bone failed to heal and eventually became misaligned. "My arm was a complete mess. I faced a very real possibility of being left with only one working arm," she said. "Fortunately, I found out about Dr. Mark Lee's clinical trial." Lee, an associate professor of surgery at the UC Davis School of Medicine, was confident that Souza's arm could be healed by delivering mesenchymal stem cells, derived from her own bone marrow, to the site of the fracture. "I can fix this for you," he told her.

Lee was right. Looking at X-rays of her arm several months after the stem cell procedure, Souza couldn't believe how well her injuries had healed. Best of all, she regained function in her arm and was able to return to an active lifestyle. "It is incredible, after living with such a damaged and unhealthy arm for so long. It is really a new lease on life for me," she said.

For more information about supporting regenerative medicine at UC Davis, please contact Brenda Betts, Assistant Vice Chancellor, Health Sciences Development and Alumni Relations, at bkbetts@ucdavis.edu or (916) 734-9583.