Brain areas altered during hypnotic trance

By Sarah C.P. Williams

Your eyelids are getting heavy, your arms are going limp and you feel like you’re floating through space.

The power of hypnosis to alter your mind and body like this is all thanks to changes in a few specific areas of the brain, researchers at the School of Medicine have discovered.

The scientists scanned the brains of 57 people during guided hypnosis sessions similar to those that might be used clinically to treat anxiety, pain or trauma.

Distinct sections of the brain have altered activity and connectivity while someone is hypnotized, they report in a study published online July 28 in *Cerebral Cortex*.

“Now that we know which brain regions are involved, we may be able to use this knowledge to alter someone’s capacity to be hypnotized or the effectiveness of hypnosis for problems like pain control,” said the study’s senior author, David Spiegel, MD, professor and associate chair of psychiatry and behavioral sciences.

A serious science

For some people, hypnosis is associated with loss of control or stage tricks. But doctors like Spiegel know it to be a serious science, revealing the brain’s ability to heal medical and psychiatric conditions.

“Hypnosis is the oldest Western form of psychotherapy, but it’s been tarred as a pseudo-science,” Spiegel said. “Now that we know which brain regions are involved, we may be able to use this knowledge to alter someone’s capacity to be hypnotized or the effectiveness of hypnosis for problems like pain control,” said the study’s senior author, David Spiegel, MD, professor and associate chair of psychiatry and behavioral sciences.

Researchers found changes in three areas of the brain that occur when people are hypnotized.

By Jennie Dusheck

**Study challenges view that sickle cell trait increases the risk of mortality**

Health experts have long believed that sickle cell gene variants, which occur in about 1 in 13 African-Americans, increase the risk of premature death, even when people carry only a single copy of the variant.

But health records of nearly 50,000 active-duty U.S. Army soldiers between 2011 and 2014 shows that’s not the case, according to a study led by researchers at the School of Medicine.

People who carry two copies of the sickle cell gene variant have sickle cell disease, which brings a drastically shortened life span of only 40 to 60 years, as well as lifelong bouts of intense pain.

In contrast, those carrying just one copy of the gene variant have what’s called sickle cell trait. Earlier studies have suggested that the health consequences of sickle cell trait might be dire, including higher mortality from a potentially fatal condition called exertional rhabdomyolysis. ER, which occurs when molecules from the breakdown of muscles end up in the kidneys, has been known to cause kidney failure, often when they are practicing too hard in the hot sun without drinking enough water. (ER is distinct from heat exhaustion, however.) Likewise, ER is a risk for soldiers on active duty.

Yet, in the first-ever longitudinal cohort study of sickle cell trait in African-American soldiers of all ages, researchers have found they suffered no increase in mortality. Lianné Kunic, PhD, an associate professor of medicine at Stanford, and a team of medical researchers found that having sickle cell trait does not increase the risk of death. A paper describing their findings was published Aug 3 in *The New England Journal of Medicine*. Kunic is senior author. D. Alan Nelson, PhD, PA-C, a postdoctoral scholar at Stanford and former Army medical officer, is

**Hormone therapy for brain performance: No effect, whether started early, late**

A study led by a scientist at the School of Medicine shows that hormone therapy has a negligible effect on verbal memory and other mental skills regardless of how soon after menopause a woman begins therapy.

The study is the first large, long-term clinical trial to compare the effects of estradiol, a type of estrogen, on the mental capabilities of women who commence treatment soon after menopause versus those who begin after a long delay.

“Our results suggest that healthy women at all stages after menopause should not take estrogen to improve memory,” said the study’s senior and lead author, Victor Henderson, MD.
**One special needle saves baby after physician’s trip to Madagascar**

By Ruthann Richter

S.V. Mahadevan, MD, had no idea when he visited Madagascar two months ago that he would help save the life of an ailing newborn.

Associate professor and chair of emergency medicine at Stanford Medicine, Mahadevan traveled to the island nation in April to teach some medical procedures to health-care workers there, using simple equipment he had brought. Those same health-care workers put that equipment behind when he returned to Stanford.

Mahadevan had brought a needle and a type of needle that penetrates bone to gain access to the circulatory system. These needles are typically used to deliver fluids, antibiotics and other medications when a patient’s veins are inaccessible because of dehydration or other factors.

Mahadevan had brought a needle with him, as well as the instructions to insert the needle and a fake bone, for the health workers to practice on. He left the equipment behind when he returned to Stanford.

On July 8, he received an exuberant email from a physician there describing the rescue of a child in the intravenous device. A chubby baby had been suffering from advanced meningitis and was so dehydrated that there was no way to access her veins. Relying on Mahadevan’s training, a Malagasy clinician, Tahiry Ravenolos, MD, successfully inserted the intravenous needle into the baby’s shin and was able to give the ailing newborn fluids and antibiotics. The caregivers were also able to feed her breast milk via a tube threaded through her nose to her stomach.

After a week, the baby began to recover, becoming conscious and alert, reported Charles Mead, MD, a PIVOT assistant professor and chair emeritus in Global Health.

By working together with others in preparing. There is a sense of immense knowledge about predicting, preventing and treating disease? This will be our challenge, but I’m confident we can accomplish this.

The landscape of health care is continuing to change. How do you see Stanford Health Care evolving?

ENTWISTLE: As we look at where health care is going — whether you call it population health or accountable care (and there are many different terms in use) — it’s really about taking care of groups of individuals and caring for them over periods of time.

So we’ve got to be able to have the locations to be able to do that, with the right facilities and excellent clinicians. As we advance the potential for precision health, it’s really about keeping people well, and it’s even better if we can also keep them out of the hospital. We have to make sure that we have the facilities and infrastructure to be able to serve patients where they are located. I think creating a network that really will be state-of-the-art nationally is one of the exciting opportunities that Stanford is well-positioned to take advantage of here in the Bay Area.

4 What do you think differentiates Stanford Health Care?

ENTWISTLE: Research is really what differentiates us. It is the fact that we can actually bring the new and innovative technologies, the new treatments and the new diagnoses to the patient and begin to push the bar. That’s why patients come here.

Huge changes are underway in health care right now, from the Affordable Care Act to delivery reform to the shift toward population health, and how the relationships that we’re going to have in the future with our patients will be different from what we have now. The combination of Stanford Health Care with our partners at the School of Medicine and Stanford Children’s Health creates tremendous potential impact for our patients as we integrate to bring them solutions.

5 How has your involvement in athletics influenced your perspective on leadership?

ENTWISTLE: Even though many of the events in which I participate are an individual effort, a lot of what I’ve learned in cycling or in a triathlon is seeing the difference that you can make in your own performance by working together with others in preparing. There is a real power in teams. If you’re acting as a team, building on each other’s strengths and helping to support each other, then you really can accomplish anything.

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Scientists coax stem cells to rapidly become bone, heart muscle

By Krista Conger

Researchers at the School of Medicine have mapped out the sets of biological and chemical signals necessary to quickly and efficiently direct human embryonic stem cells—undifferentiated populations of any of 12 cell types, including bone, heart muscle and cartilage.

The ability to make pure populations of these cells with precision, and to efficiently direct them during human embryo segmentation and confirms that human development appears to rely on processes that are evolutionarily conserved. But we don’t have a lot about how this process is controlled in animals, in-cluding certain cell types as the embryo develops. The meso-derm, for example, gives rise to key cell types, including bone, heart muscle and cartilage.

Irving Weissman is co-author of a study describing how biological and chemical signals can be used to efficiently steer embryonic stem cells into becoming specific cell types. The research, which was published July 14 in Cell, Graduate student Kyle Loh and research assistant Angela Chen, both at Stanford, share lead authorship of the study. Weissman and Lay Yung Ang, of the German institute for developmental biology, were also senior authors of the study.

Unraveling the mysteries

Embryonic stem cells are pluripotent, meaning they can become any type of cell in the body. They do so by responding to a variety of time- and location-specific cues within the developing embryo that direct them to become specific cell types and organs. Researchers have long been interested in how this process is controlled in animals, including fish, mice and frogs.

In contrast to many other animals, human embryonic development is a mysterious process, particularly in the first weeks after conception. This is because cultivating a human embryo for longer than 14 days is banned by many countries and scientific societies. But we do know that, like other animals, the human embryo in its initial stages consists of three main components—known as germ layers: the ectoderm, the endoderm and the mesoderm.

Each of these germ layers is responsible for generating certain tissues as the embryo develops. The mesoderm, for example, gives rise to key cell types, including cardiac and skeletal muscle, connective tissue, bone, blood, fat, nerve cells, cartilage and portions of the kidneys and skin.

The ability to generate pure populations of these cell types is very important for any kind of clinically important regenerative medicine,” said Loh, “as well as to develop a basic road map of human embryonic develop-ment. In particular, making these cell types took months to years, primarily because it wasn’t possible to ac-curately control cell fate. As a result, researchers would end up with a hodgepodge of cell types.

Loh and Chen wanted to know what signals drive the formation of each of the mesodermally derived cell types. To do so, they started with a human embryonic stem cell line, which they chemically nudged to become cells that form what’s known as the primitive streak on the hollow ball of cells of the early embryo. They then experimented with varying combinations of well-known signaling molecules, including WNT, BMP and Hedgehog, as a way to coax these cells to become even-more-specialized precursor cells.

A yes-and-no strategy

They learned that often the cells progressed down the developmental path in a series of consecutive steps that have been difficult to reproduce. They also learned that it’s a lot about how this process is controlled in animals, in-cluding fish, mice and frogs.

For example, cells in the primitive streak can become either endothoderm or one of two types of mesoderm. Inhibiting the activity of a signaling molecule called TGF beta drives the cells to a mesodermal fate. Adding a sig-naling molecule called WNT, while also blocking the activity of another molecule known as BMP, promotes differentiation into one kind of mesoderm; conversely, adding BMP while blocking WNT drives the cells to instead become the other type of mesoderm.

“We learned during this process that it is equally im-portant to understand how unwanted cell types develop and find a way to block that process while encouraging the developmental path we do want,” said Loh.

By carefully guiding the cells’ choices at each fork in the road, Loh and Chen were able to generate bone cells that formed human bone when transplanted into laboratory mice and beating heart muscle cells, as well as 10 other mesodermal-derived cell lines.

At each developmental stage, the researchers con-ducted single-cell RNA sequencing to identify unique gene expression patterns and assess the purity of indi-vidual cell populations. By looking at the gene expres-sion profile in single cells, the researchers were able to identify two developmental steps that specified the progression from precursor to more-specialized cells.

Segmentation in embryonic development

In particular they observed for the first time a tran-sient pulse of gene expression that precedes the segmen-tation of the human embryo into discrete parts that will become the head, trunk and limbs of the body. The process mirrors what is known to occur in other animals, and confirms that the segmentation process in human development has been evolutionarily conserved. “The segmentation of the embryo is a fundamental step in human development,” said Loh. “Now we can see, that, evolutionarily, it’s a very conserved process.”

Understanding when and how segmentation and other key developmental steps occur could provide important clues as to how congenital birth defects arise when these steps go awry.

The ability to quickly generate pure populations of multi-potent precursor cells has opened new doors to further study.

Next, we’d like to show that these different human progenitor cells can regenerate their respective tissues and perhaps even ameliorate disease in animal models,” said Loh.

Stanford co-authors of the study are data analyst Pang Wei Koh; former undergraduate student Tianda Deng; instructor Rahul Sinha, PhD; graduate students Tanja Choi, Anju Sarkar, Kimberle Shen and Ben-son Liu; assistant Rachel Morgant; post-doctoral scholar Nathaniel Fernhoff, PhD; assistant professor of pathology Gerlinde Weimp; former graduate student Zhuanghao Chen; professor of pathol-ogy and of pediatrics Hannes Vogel, MD; assistant professor of genetics and of computer science Anshul Kundra, PhD; professor of developmental biology William Talbot, PhD; and professor of developmental biol-ogy Philip Beachy, PhD.

The study was supported by the California Institute for Regenerative Medicine, the National Institutes of Health, the Howard Hughes Medical Institute, anony-mous donors, the Agency for Science, Technology and Research in Singapore; the Siebel Stem Cell Institute; the Fannie and John Hertz Foundation, the National Science Foundation, the Davidson Institute for Talent Development, the Paul and Daisy Soros Fellowship for New Americans and the Alfred Sloan Foundation. Stanford’s departments of Pathology and of Develop-mental Biology also supported the work.

The School of Medicine’s video about neurosurgeon Paul Kalanithi’s reflections on life while facing death from metastatic cancer has been nominated for a News and Documentary Emmy by the National Academy of Television Arts and Sciences.

The video, “A strange relativity: Altered time for surgeon-turned-patient,” was nominated in the New Approaches: Arts, Lifestyle, Culture category, along with pieces by The New York Times, The Center for In-vestigative Reporting, National Geographic Magazine and PBS. The video was produced by Mark Hanlon, PhD; and video director of the medical school’s Office of Com-munication & Public Affairs.

The video was an outgrowth of an essay and video that Hanlon wrote and directed, and which was published in the spring 2015 issue of Stan-ford Medicine magazine. In the essay and the video, Ka-lanithi described how his perspective of time changed after being diagnosed with metastatic cancer at age 36 in May 2013. The essay and video were published just a few weeks before he died on March 9, 2015.

Hanlon produced, photographed and edited the video and wrote and performed the film score.

Needle

also for the health-care provider. It gives them that sense of hope that they can make a difference and a desire to learn more of these interventions that are simple and easy to deploy and inexpensive and can really save a life. It’s also easy to deploy and inexpensive and can really save a life. It’s also to learn more of these interventions that are simple and inexpensive and can really save a life. It’s also easy to deploy and inexpensive and can really save a life. It’s also to learn more of these interventions that are simple and inexpensive and can really save a life. It’s also easy to deploy and inexpensive and can really save a life. It’s also to learn more of these interventions that are simple and inexpensive and can really save a life. It’s also easy to deploy and inexpensive and can really save a life. It’s also to learn more of these interventions that are simple and inexpensive and can really save a life. It’s also easy to deploy and inexpensive and can really save a life. It’s also to learn more of these interventions that are simple and inexpensive and can really save a life.
Antibodies could counter atherosclerosis, study finds

By Bruce Goldman

Investigators at the School of Medicine have learned the signal that tumor cells use to avoid being destroyed by the immune system also plays a role in enabling atherosclerosis, the process underlying heart disease. The finding is the latest in a series of developments that could lead to new ways to prevent or treat cardiovascular disease.

A biological drug capable of blocking this so-called "don't eat me" signal is already in clinical trials in cancer patients. The same antibody, the investigators found, was able to prevent the trigger from working in several mouse models of cardiovascular disease. If this success is borne out in human studies, the antibodies could be used to combat cardiovascular disease — the world’s No. 1 killer — and do so by targeting a mechanism that leads to plaque formation in arteries.

"It's not enough to just tell people what nutrients they should be consuming. I think it really has to come down to telling people what types of foods they should be eating more of and what types of food they should be eating less of," said Nicholas Leeper, MD, associate professor of vascular surgery and of cardiovascular medicine, who led the study. "I think the guidelines have moved in the right direction. For instance, the guidelines have moved away from a recommendation to reduce total fat intake and are now focused solely on saturated fat, for which there's more evidence of harm. And the guidelines' emphasis on obvious vegetables and whole grains are more forthright. But the whole regulatory and guideline process really needs to become more practical and actionable by consumers. It would be much more direct to simply tell consumers to eat less meat. And that would be the most effective way to reduce the consumption of saturated fats.

Despite the tendency of consumers to be attracted to fad diets, I think Americans are more ready than ever to hear a simple recommendation to eat less meat. The dietary evidence is stronger today than it's ever been. And I think consumers are also uncomfortable with both the environmental impact of their diets and the issues surrounding the ethical treatment of animals. The time is right for the USDA to be more direct in their recommendations, even if it means making a recommendation that is contrary to the interests of some entrenched food manufacturers.

I certainly think more pressure from scientists to have the USDA state the obvious consequences of the data would help. I also think it's important that consumers complain to the USDA that the guidance is not effective in the way it's currently presented. It would be much more direct to simply tell consumers to eat less meat. And that would be the most effective way to reduce the consumption of saturated fats.

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Antibodies continued from page 4

that there are so many dying cells in an atherosclerotic plaque, although those sick cells are supposed to be cleared promptly by macrophages, got us thinking," said Yoko Kojima, MD, PhD, a basic life science re-
search associate who is the study’s lead author.

CD47 in atherosclerotic tissue

In the new study, Leeper, Kojima and their col-
leagues performed genetic analyses of hundreds of hu-
nan coronary and carotid artery tissue collected at
Stanford and at Sweden’s Karolinska Institute. They
said the burden of chronic disease in the country
is a major health issue for the country, which is the
world’s largest maker of cigarettes, produce-
ted at trillion-scale level with over
900 different brands. They said half of all men in China smoke cigarettes, which
cost as little as 75 cents a pack.

Within the setting of the historic Peking
University Hospital, a professor for Clinical Investiga-
tion in Cancer Research, Professor Thomas Quertermous, MD, associate profes-
sor of pathology Andrew Connolly, MD, PhD; and professor of cardiovascular medicine Thomas Quertermous, MD.

The study was carried out in collaboration with in-
vestigators at the David Geffen School of Medicine at UCLA and the New York Blood Center. Other Stanford study co-authors are instructors Jenn-Peter Volkmer, MD, and Clint Miller, PhD; post-
doctoral scholars Paula Betanur, PhD, Daniel Winiarski, PhD, and Vivek Nanda, PhD; life science research as-
sistant Kelly McKenna; laboratory manager Jianqin Ye, MD, PhD; associate professor of pathology Andrew Connolly, MD, PhD; and professor of cardiovascular medicine Thomas Quertermous, MD.

The study was funded by the National Institutes of
Health.

Stanford’s departments of Medicine, of Surgery, of
Developmental Biology and of Pathology also sup-
ported this work. See CHINA, page 6
Hypnosis
continued from page 1

Estrogen
continued from page 1

China
continued from page 5

between two other areas of the brain — the hippocampus and the insula. He described this as a brain-body connection that helps the brain process and control pain and anxiety. Finally, Spiegel's team also observed reduced connections between the dorso- lateral prefrontal cortex and the default mode network, which includes the medial prefrontal and the posterior cingulate cortex. This decrease in functional connectivity may contribute to the disconnection between someone's actions and their awareness of those actions, Spiegel said. “When you're driving, you're not thinking about something, you don't really think about doing it — you just do it,” he said. During hypnosis, this kind of dissociation between action and reflection allows the person to engage in activities either suggested by a clinician or self-suggested without devoting mental resources to being self-conscious about doing the activity.

Treat pain and anxiety without pills

In patients who can be easily hypnotized, hypnosis sessions have been shown to be effective in relieving chronic pain, the symptoms of childbirth and other medical procedures; treating smoking addiction and post-traumatic stress disorder; and easing anxiety or phobias. The new findings about how hypnosis affects the brain might pave the way toward developing treatments for the many disorders — those who aren't naturally as susceptible to hypnosis.

We're certainly interested in the idea that you can change people's ability to be hypnotized by studying specific areas of the brain,” said Spiegel.

A treatment that combines brain stimulation with hypnosis could improve the known analgesic effects of hypnosis and its ability to reduce the pain of effect-laden painkillers and anti-anxiety drugs, he said. More research, however, would be needed. The study's lead author is Heidi Jiang, a former research assistant at Stanford who is now a graduate student in neuroscience at Northwestern University. Other Stanford co-authors are clinical associates in integrative behavioral sciences Matthew White, MD, and associate professor of neurology Mi- shael Greicius, MD, MPH.

The study was funded by the National Center for Complementary and Integrative Health, the National Institute of Biomedical Imaging and Bioengineering, the Randolph H. Chase, M.D. Fund II, the Jay and Rose Phillips Family Foundation, the American Cancer Society, the Stanford's Department of Psychiatry & Behavioral Sciences and Department of Neurology & Neurological Sciences also supported the work.

Lots of smokers

“One thing I found pretty striking was that the top questions in class were things I saw when I was walking through the city or riding the subway,” Arbaugh said. “The smoking rate is incredibly high among men in China, while very low for women. I saw a lot of men smoking. As for diet, I noticed a discrepancy between food here and in China in terms of oil and salt content. Salt consumption in the U.S. is high and in China it’s even higher. The food was delicious, but I was always very thirsty after I ate.”

She said her exposure to an entirely new culture will help inform training at Stanford and future medical practice. “For me personally, having the opportunity to learn more about Chinese culture is really valuable, regardless of where I end up practicing, as I want to work with underrepresented communities and understand the values and the challenges of being in a foreign environment,” she said. “You're still very much in an academic environment, but I think that needs to change.”

David Spiegel

“Our results suggest that healthy women at all stages after menopause should not take estrogen to improve memory.”

Henderson also supported the work.

Heidi Jiang, the study's lead author, is a graduate student in neuroscience at Northwestern University. Other Stanford co-authors are clinical associates in integrative behavioral sciences Matthew White, MD, and associate professor of neurology Michael Greicius, MD, MPH.

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Pediatric pulmonologist Nanci Yuan dies of cancer at 47

By Erin Digitale

Nanci Yuan, MD, clinical associate professor of pediatric pulmonary medicine at the School of Medicine, died July 1 of colon cancer in Santa Clara, California. She was 47.

Yuan, who was known for her devoted work with children with severe forms of inherited muscle dysfunction and sleep disorders, built the Pediatric Sleep Center at Lucile Packard Children’s Hospital Stanford into a nationally recognized program that now delivers diagnostic and therapeutic care to almost 2,000 children annually. She helped write the standards for caring for children with severe congenital muscle disease and introduced a home ventilator program that allowed young patients with chronic respiratory failure to remain home instead of being admitted to a hospital. She also carried out 2,000 home visits in one year while working full-time in the hospital, treating the children and their families.

“Nanci was completely comfortable advocating for her patients, and she did so with great courage and integrity,” said David Cornfield, MD, chief of the Division of Pulmonary Medicine at the School of Medicine. “She provided incredible service to patients and their families,” said Richard Moss, MD, professor emeritus of pediatrics, who hired Yuan to help build the division in 2003.

“Nanci was fantastic about going from A to Z, everything from the initial evaluation to finding the best treatment for a patient,” said Jason Spivak, MD, chief of the Division of Pulmonary, Allergy, and Critical Care Medicine.

Yuan was born in Sao Paulo, Brazil, in December 1968 and immigrated with her family to the Bay Area, growing up in Daly City steeped in Chinese culture and language. She earned an undergraduate degree in biology from the University of California-Berkeley and graduated from Hahnemann University Medical School in Philadelphia in 1996. After medical school, Yuan undertook a pediatrics residency at Kaiser Permanente Hospital in Oakland and a fellowship at Children’s Hospital Los Angeles. During her training, she gained board certification in pediatrics as well as pediatric pulmonology, sleep and pediatric sleep medicine.

For the study, the researchers reviewed the health records of 47,944 African-American soldiers who served on active duty between 2011 and 2014 and for whom sickle cell status was known. The researchers got the health records from the Stanford Military Data Repository data set, which Nelson and Kurina created. The repository includes all digitally recorded health encounters at military medical facilities or civilian institutions, general health information and official records of physical performance and mortality of all active-duty U.S. Army soldiers. The data in the repository are de-identified to protect privacy.

Kurina and her colleagues found that the risk of exertional rhabdomyolysis was only 54 percent higher among African-American soldiers with sickle cell trait than among those without it. A 54 percent increase might sound like a lot, but it’s far less than the 900 percent increase caused by some medications and drugs. And smoking, obesity and increasing age each incur a heightened risk of ER that is about the same as sickle cell trait, the study said.

Another critical difference between our study and the earlier, population-based studies is that in our study, we knew the sickle cell status of everyone in the population,” said Kurina. She and her team looked only at soldiers whose sickle cell status was confirmed by blood tests taken during their years of service, instead of from self-reported sickle cell trait status or past medical history, as had been the case in the other studies.

“The most important thing to come out of this study is the really reassuring news that under conditions of universal precautions against dehydration and overeating, we don’t see an elevation in the risk of mortality in people with sickle cell trait,” said Kurina. It happens, she noted, that the lead author of the 1987 paper went on to propose and validate the measures adopted by the Army to mitigate dehydration and overeating.

The study’s results call into question the need to screen service members with sickle cell trait, especially with better safety precautions during intense exertion, Kurina said.

Big data at Stanford

The work is an example of Stanford Medicine’s focus on precision health, the goal of which is to anticipate and prevent disease in the healthy and precisely diagnose and treat disease in the ill, and could not have been done without the Stanford Military Data Repository.

Kurina said she values collaborating with the military on health research. “In each of these projects,” she said, “it’s critical to be able to have these really productive partnerships with military partners,” Kurina said she’d like to see the work repeated and confirmed in a civilian population.

Researchers from the Army, the University of Texas and the Army-Baylor University Graduate Program in Health and Business Administration contributed to the study.

This research was supported by the National Heart, Lung and Blood Institute in collaboration with the Uniformed Services University of the Health Sciences. All data used in the study were provided under a cooperative agreement with the U.S. Army Medical Command.

Stanford’s Department of Medicine also supported the work.

Of Note

Nanci Yuan, PhD, professor of developmental biology and of genetics, has been selected to join the 2017 class of the American Academy of Arts and Sciences. AAAS is one of the nation’s oldest and most prestigious academic societies and policy research centers. Villemure will be inducted in October in Cambridge, Massachusetts.

MANALI PATEL, MD, was promoted to associate professor of biochemistry and of medicine, effective Jan. 1. His research focuses on the mechanisms of cell-to-cell communication in developmental biology and cancer.

RAJAT ROHATGI, PhD, was promoted to associate professor of biochemistry and of medicine, effective Jan. 1. His research focuses on the mechanisms that control the proliferation of normal and malignant cells, with an emphasis on stem cells and cancer.

KELLEY SKEFF, MD, PhD, the George DeForest Barnett Professor and professor of medicine, delivered the 2016 commencement address at the Georgetown University School of Medicine, which gave him an honorary degree. He is co-director and co-founder of the Leonard Faculty Development Centre for Medical Teachers.

ANKIT VILLEMURE, PhD, professor of developmental biology and of genetics, has been selected to join the 2017 class of the American Academy of Arts and Sciences. AAAS is one of the nation’s oldest and most prestigious academic societies and policy research centers. Villemure will be inducted in October in Cambridge, Massachusetts.

GEORGE POULTISIDES, MD, was promoted to associate professor of surgery, effective April 1. His research and clinical work focuses on the treatment of hepatic, pancreatic and gastrointestinal cancer, and on clinical trials of new diagnostic and therapeutic approaches.

RAJAT ROHATGI, PhD, was promoted to associate professor of biochemistry and of medicine, effective Jan. 1. His research focuses on the mechanisms of cell-to-cell communication in developmental biology and cancer.

JULIEN SAGE, PhD, is professor of pediatrics and of genetics, effective Jan. 1. His research focuses on the mechanisms that control the proliferation of normal and malignant cells, with an emphasis on stem cells and cancer.

KEVIN SKEFF, MD, PhD, the George DeForest Barnett Professor and professor of medicine, delivered the 2016 commencement address at the Georgetown University School of Medicine, which gave him an honorary degree. He is co-director and co-founder of the Leonard Faculty Development Centre for Medical Teachers.

ANKIT VILLEMURE, PhD, professor of developmental biology and of genetics, has been selected to join the 2017 class of the American Academy of Arts and Sciences. AAAS is one of the nation’s oldest and most prestigious academic societies and policy research centers. Villemure will be inducted in October in Cambridge, Massachusetts. 

Inside Stanford Medicine August 8, 2016
RAAG AIWAN, MD, PhD, was appointed assistant professor of radiology, effective July 1. AIwan, who earned his graduate degrees at Stanford, is a neuroradiologist, a bioengineer and member of the Stanford Neuroscience Institute and the Stanford Bio-X. His research centers on developing translational techniques for targeted drug delivery to the central nervous system and for noninvasive neuromodulation.

PHILIP BEACHTY, PhD, the Ernest and Amelia Gallo Professor, professor of biochemistry and of developmental biology, received the 2016 Katharine Berkman Judah Award from the Memorial Sloan Kettering Cancer Center. The award recognizes a researcher who has made significant contributions to understanding cancer. Beachy delivered a lecture at the center titled “Stem cells and signaling pathways in regeneration and malignancy.”

JONATHAN BERNSTEIN, MD, PhD, was promoted to associate professor of pediatrics, effective April 1. His research focuses on the genetics of autism and other developmental disorders.

PAUL BOLLYKY, MD, PhD, assistant professor of medicine and of microbiology and immunology, received a Grand Challenges Explorations grant from the Bill & Melinda Gates Foundation. He will receive $100,000 for one year and have the opportunity to compete for a $1 million grant. In collaboration with W. K. HUANG, PhD, associate professor of bioengineering and of microbiology and immunology, and ERIC NELSON, MD, PhD, instructor of pediatrics, Bollyky will investigate whether bacteriophages lead to structural changes in the lining of the intestines, which could promote the growth of harmful intestinal bacteria.

ALEXANDER BUTWICK, MD, was promoted to associate professor of anesthesiology, perioperative and pain medicine, effective Feb. 1. His research focuses on preventing and treating postpartum hemorrhage. He is investigating risk factors for postpartum hemorrhage and postpartum anemia following cesarean deliveries.

LISA CHAMBERLAIN, MD, associate professor of pediatrics and medical director of Lucile Packard Children’s Hospital Stanford’s Pediatric Advocacy Program, received an Excellence in Healthcare Award from the Silicon Valley Business Journal for her work helping low-income children. Her research focuses on child health policy and on nonclinical factors that affect care for children with chronic illnesses.

ANNIE LYNN S. CHANG, MD, was promoted to associate professor of dermatology, effective Feb. 1. She is the director of the Advanced Basal Cell Carcinoma Clinic and of the dermatologic clinical trials. Her research and clinical work focuses on aggressive basal cell carcinomas and on the mechanisms of healthy skin regeneration.

LU CHEN, PhD, was promoted to professor of neurosurgery and of psychiatry and behavioral sciences, effective Jan. 1. Her research focuses on the molecular mechanisms of synaptic plasticity and memory formation. She is particularly interested in investigating synaptic and cognitive dysfunction in autism spectrum disorders.

BENJAMIN CHUNG, MD, was promoted to associate professor of urology, effective May 1. He is the director of robotic surgery and of prostate and kidney cancer using minimally invasive robotic techniques. His research focuses on urologic cancer outcomes and on the epidemiology of urologic cancers.

A. DIMITRIOS COLEVAS, MD, was promoted to professor of medicine, effective April 1. His interests include head and neck cancer treatment and development of therapeutic agents.

ANNA CUNNINGHAM, a graduate student in chemical biology, was a thematic best poster winner in the bioorganic catalysts category at the 2016 American Society for Biochemistry and Molecular Biology meeting. Her poster was on evolution and disease-causing mutations in glucose-6-phosphate dehydrogenase.

AMIT ETYIN, MD, PhD, was promoted to associate professor of medicine and of neurosurgery, effective July 1. His research focuses on understanding the neural basis of emotional disorders and their treatment, then using that knowledge to create improved therapies.

SUMMER HAN, PhD, was appointed assistant professor of neurosurgery and of medicine, effective Dec. 1, 2015. Her research interests include statistical genetics, health-policy modeling and risk-prediction modeling.

BRIAN HARGREAVES, PhD, was appointed associate professor of radiology, effective Feb. 1. He directs the Body MRI research group, which develops and implements new magnetic-resonance imaging techniques, particularly in cardiovascular, abdominal, breast and musculoskeletal imaging.

ANDREW HUBERMAN, PhD, was appointed associate professor of neurobiology, effective April 1. He studies the function of the neural circuits underlying sight and how to repair them after damage from conditions such as glaucoma and traumatic brain injury. His work has implications for treating disorders of brain development, including autism and Williams syndrome.

ERIK INGELENS, MD, PhD, was appointed professor of medicine, effective May 1. In his research, he combines analyses of large-scale studies in genomics, transcriptomics, epigenomics, proteomics and metabolomics with functional model systems to develop new insights into the pathophysiology of cardiovascular disease and related conditions, identify novel biomarkers and discover targets for drug development.

VINICIUS DE JESUS PEREZ, MD, assistant professor of medicine, received a Young Physician-Scientist Award from the American Society for Clinical Investigation. The award recognizes junior researchers whose work is notable for its insights into the mechanism of disease and the potential for new therapies. De Jesus Perez’s research and clinical focus is pulmonary hypertension and lung fibrosis.

IOANNIS KARAKIKES, PhD, was appointed assistant professor (research) of cardiovascular surgery, effective May 1. His research focuses on delineating the molecular mechanisms underlying the pathogenesis of familial cardiomyopathies using patient-specific cardiomyocytes derived from human induced pluripotent stem cells, as well as the development of biological therapies for heart failure.

ABBY KING, PhD, professor of health research and policy and of medicine, will serve as one of two co-chairs of the U.S. Department of Health and Human Services 2018 Physical Activity Guidelines Advisory Committee. The guidelines serve as the authoritative federal document providing guidance on physical activity, fitness and health. King’s work focuses on chronic disease prevention and health promotion using behavioral and social ecological approaches.

CHRISTIN KUO, MD, was appointed assistant professor of pediatrics, effective May 1. She specializes in pediatric pulmonary medicine, and her research focuses on the development and function of lung neuroendocrine cells in order to improve diagnostic and therapeutic approaches for pediatric neuroendocrine-related respiratory disorders and adult neuroendocrine tumors.

CAROLYN LEE, MD, PhD, was appointed assistant professor of dermatology, effective Feb. 15. Her research focuses on allogeneic hematopoietic stem cell transplantation and on the use of immunotherapy to treat blood cancers.

MONTASER MOTIVITA, MD, PhD, was appointed assistant professor of medicine, effective March 1. His research focuses on discovering and functionally characterizing new oncogenes and tumor-suppressor genes in skin cancer.

DAVID MIXLOD, MD, PhD, was appointed associate professor of medicine, effective May 1. His research and clinical work focuses on allogeneic hematopoietic stem cell transplantation and on the use of immunotherapy to treat blood cancers.

THOMAS MONTEINE, MD, PhD, was appointed professor of pathology, effective May 1. He chairs the department, having succeeded professor of pathology Stephen Galli, MD. Montine’s research focuses on the structural and molecular bases of cognitive impairment in the elderly and how they give rise to Alzheimer’s disease and nonmotor features of Parkinson’s disease.

MARK NICOLLS, MD, was promoted to professor of medicine, effective March 1. His research focuses on the relationship between inflammation and the development of pulmonary hypertension. He also studies how microvascular health affects lung transplants.

MANALI PATEL, MD, MPPH, MS, was appointed assistant professor of medicine.