

OHSU **extra**

Celebrating the Power of Philanthropy

EXTRAORDINARY
DISCOVERIES POWERED BY
PHILANTHROPY!

ASTONISHING
FEATS OF INTELLECT!

Summer 2013

A New Era in Prostate
Cancer Treatment

Stem Cell Discovery May Be
Key to New Cures

Noteworthy News and Gifts

**OHSU'S
BELIEVE IT OR NOT**

**AMAZING
MEDICAL
FACTS!**

SEE INSIDE!

OREGON
HEALTH
& SCIENCE
UNIVERSITY



AN OREGON HEALTH & SCIENCE UNIVERSITY FOUNDATION PUBLICATION

OHSU is home to some of the world's most astonishing feats of intellect. In this feature we highlight a few of the discoveries taking place across campus - all with the potential to transform health. Though they might seem uncanny or bizarre, each of these items is true - and nearly all of these mind-boggling advances were made possible by generous and well-timed philanthropic investments in OHSU scientists and their work.

**AMAZING
MEDICAL
FACTS!**

BELIEVE IT OR NOT

SPACE AGE PILL CADDY

OHSU's Oregon Center for Aging & Technology (ORCATECH) has developed a pill dispenser that uses wireless technology to help doctors track whether or not their elderly patients are taking their medications. The pill caddy is one of many technologies ORCATECH researchers are developing to measure seniors' routine activity within the home and detect the early stages of cognitive decline.



This new technology and many others in development at ORCATECH were made possible by a philanthropic partnership with Intel and grants from the National Institute on Aging.



SHOCKINGLY STRONG MAGNET!

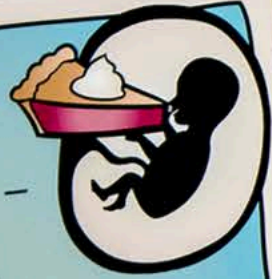


The magnet in the magnetic resonance imaging (MRI) scanner used by OHSU neuroscientists to detect tiny brain injuries in animals is powerful enough, if unshielded, to yank a car off the Fremont bridge. The 12 Tesla MRI creates a magnetic field 120,000 times stronger than that of the Earth. The National Institutes of Health in Bethesda, MD, is currently the only other site in the world with a 12 T MRI.



The W. M. Keck Foundation made it possible for OHSU to purchase this powerful instrument.

WOMAN FEEDS HER GRANDDAUGHTER - BEFORE SHE'S BORN!



It's been known for decades that what a woman eats while pregnant has a strong influence on the health of her child. But now OHSU research suggests that a woman's diet affects not only her future children but also future grandchildren! A woman's diet, even before pregnancy, determines the health of her ovaries, which in turn determines the health of her future embryos, and the health of her daughter's ovaries in ways that can lead to - or prevent - chronic conditions such as obesity, type 2 diabetes and heart disease.

OHSU continues to advance our understanding of nutrition and disease thanks to Bob and Charlee Moore, whose support launched the Bob and Charlee Moore Institute for Nutrition & Wellness in 2011.

MYSTERIOUS SPELLING BONNET!

HELLO

Using sophisticated software to read the brain's electrical signals, OHSU scientists can translate brainwaves into letters that appear on a computer screen, so that you can spell by just thinking. Led by Melanie Fried-Oken, Ph.D., director of OHSU's assistive technology program, the innovative research is a life-changer for those who have been paralyzed because of a spinal cord injury or stroke, for example.

\$ This exciting research needs private support to take it to the next level.

WORLD'S ONLY TUMOR-PRINTING MACHINE!

OHSU's Rosalie Sears, Ph.D., is using a three-dimensional printer that "prints" layers of live cells to create replicas of human tumors. Sears and her team at the OHSU Knight Cancer Institute test replicas with different treatments to see which remedies could be most effective on original tumors. OHSU's 3D bio-printer, obtained in partnership with Organovo, Inc., is one of only three in the U.S., and the only one being used to study cancer.

\$ This mind-blowing technology and research was made possible by a partnership between OHSU and Organovo, Inc.

4-D MAP OF CANCER CELLS!

In a world-leading effort to stop cancer at its source, OHSU researchers are starting to map the ever-changing molecular landscape in and around cancerous cells. Led by Joe Gray, Ph.D., director of the OHSU Center for Spatial Systems Biomedicine and the Gordon Moore Chair in Biomedical Engineering, the team uses advanced imaging technologies that illustrate cancer cells, tissues and structural details across time, creating an overall picture every bit as detailed as a Google map.

\$ Philanthropic support from Phil and Penny Knight, MMGL Corp. (formerly Schnitzer Investment Corp.), FEI and many others made it possible to recruit the world-famous Gray and build his specialized lab in the new OHSU/OUS Collaborative Life Sciences Building.

THE PECULIAR PORTABLE PANCREAS!

A team led by Kenneth Ward, M.D., an associate professor of medicine and a provider at the OHSU Harold Schnitzer Diabetes Health Center, is developing a wearable blood sugar monitor and insulin pump, critical components of an artificial pancreas system. In collaboration with Legacy Health System, Ward's team is developing a computer program that controls the infusion of insulin and the hormone glucagon to tightly regulate blood sugar and prevent it from dropping dangerously low. Ward hopes the system will make it easier for those with type 1 diabetes to manage their disease.

\$ Grants from the HEDCO Foundation, M.J. Murdock Charitable Trust, the JDRF and the Leona M. and Harry B. Helmsley Charitable Trust are helping to speed progress on this remarkable technology.

HEART ATTACK-DETECTING BUBBLES!

OHSU cardiologists use a non-invasive test that uses microbubbles to quickly and accurately detect heart attacks. Developed by Sanjiv Kaul, M.D., co-director of the OHSU Knight Cardiovascular Institute and Ernest C. Swigert Distinguished Professor of Cardiology, Myocardial Contrast Echocardiography (MCE) provides a more detailed, real-time ultrasound of the heart than traditional EKGs, which fail to detect heart attacks up to 50 percent of the time.

\$ The M.J. Murdock Charitable Trust funded the development of the world's fastest movie camera to observe the microbubbles.

SCIENTISTS ATTACK PIGGYBACKING PARASITES



A parasite that latches onto tsetse flies infects hundreds of thousands of Africans with sleeping sickness every year. Scott Landfear, Ph.D., professor of molecular microbiology and immunology in the OHSU School of Medicine, and his team are dedicated to understanding the pesky parasite's genetic makeup - and creating drugs designed to shut it down.

\$ Several bequests to OHSU have supported Landfear's work, helping him assemble one of the nation's top teams exploring parasite-borne disease.

ORDINARY PEOPLE CHANGE THE FUTURE

More amazing scientific discoveries are on the horizon at OHSU.

Call 503 228-1730 or e-mail ohsufinfo@ohsu.edu and find out how you can support the spine-ting scientific advances yet to come.