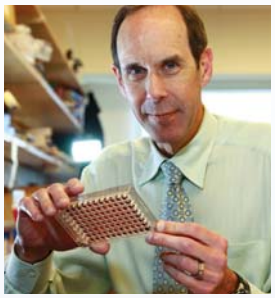
Big ideas are born here.

What's a big idea? In the world of health care and biomedical research, big ideas are discoveries that fundamentally transform what is possible. They jumpstart new thinking and ignite new hope. At Oregon Health & Science University, big ideas come in all shapes and sizes, but the biggest and best have one thing in common—they change the landscape of health. Here are a few that make us proud:

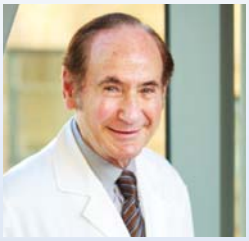
A pill that stops cancer

OHSU's Lasker Award winning Brian Druker, M.D., director of the OHSU Knight Cancer Institute, led the development of Gleevec, a pill that stops chronic myeloid leukemia and other cancers by turning off the molecular switch that drives its spread.



Brian Druker, M.D.

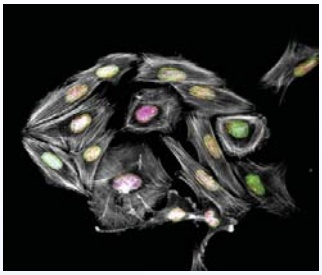
A valve that heals hearts



Albert Starr, M.D.

Lasker winner and pioneering cardiac surgeon Albert Starr, M.D., co-invented and implanted the world's first successful artificial heart valve at OHSU, transforming the treatment of valve disease and giving rise to a vibrant sector in the medical device industry.

A four-dimensional approach to studying diseased cells



An image from the Gray lab of bone tumor cells

Renowned Knight Cancer Institute researcher Joe W. Gray, Ph.D., OHSU's Gordon Moore Chair in Biomedical Engineering, is pioneering an entirely new field of cancer biology: spatial systems biomedicine. He is using unique tools, including the world's first integrated light and electron microscope for bioimaging, to collect structural and genomic information on healthy and diseased cells in the three dimensions of physical space and also over time. It's a key step in the development of personalized cancer medicine at OHSU and everywhere else.

Continued on back page

A theory that reveals the true origins of chronic disease

OHSU's David Barker, M.D., Ph.D., pioneered the study of the fetal/developmental origins of chronic adult diseases such as type 2 diabetes and heart disease. His work with OHSU's Kent Thornburg, Ph.D., is leading to new interventions and preventive strategies to promote good nutrition in future mothers. OHSU's Bob & Charlee Moore Institute for Nutrition & Wellness is translating that knowledge into programs and public policies that will change the game against childhood obesity and its devastating complications.

A scanner that catches hidden heart attacks

Cardiovascular imaging pioneer Sanjiv Kaul, M.D., spearheaded the development of microbubble-based myocardial echocardiography, an ultrasound imaging technique that can diagnose heart attacks other methods miss.

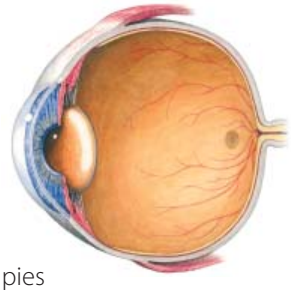
Sanjiv Kaul, M.D.

A smarter path to an AIDS vaccine

Louis Picker, M.D.

Louis Picker, M.D., and colleagues at OHSU's Vaccine and Gene Therapy Institute, have developed an HIV/AIDS vaccine candidate that appears to have the ability to completely clear an AIDS-causing virus from the body.

Gene therapies that could stop the leading causes of permanent blindness



Researchers at the OHSU Casey Eye Institute are conducting some of the world's first clinical trials on gene therapies that may prevent blindness due to abnormal growth of new blood vessels in the eye. Trials are now under way of promising therapies for a form of macular degeneration and other blinding diseases.

A genetic key to new autism drugs

Gail Mandel, Ph.D.

Gail Mandel, Ph.D., a National Academy of Sciences member and Vollum Institute senior scientist, showed that Rett Syndrome, a devastating autism-spectrum disorder that strikes young girls, is a complex disorder due to glia and neurons. She is exploring several promising gene therapy approaches toward a cure.

A new source of stem cells

OHSU's Shoukhrat Mitalipov, Ph.D., was the first to report the use of skin cells from a non-human primate to create pluripotent stem cells. This work could lead to better experimental disease models in the lab, new cures for devastating human diseases, and an answer to the debate over embryonic stem cells.

Shoukhrat Mitalipov, Ph.D.

Better diagnosis for breast cancer

Charles Springer, Ph.D., of OHSU's Advanced Imaging Research Center, is using high-field MRI as a non-invasive and more precise replacement for surgical biopsies in the diagnosis of breast cancer.

Technologies that keep seniors safe

Neuroscientists, engineers and physicians across OHSU are developing the next generation of sensing, monitoring and assistive devices that help elderly people live more safely and independently.

Without exception, big ideas like these have been advanced by breakthrough collaborations among passionate physicians and scientists—and through powerful partnerships with private industry, government leaders, and donors of all types. Partnerships make big ideas better. They bring big ideas to life for all of us—for all time.

For more information about OHSU go to www.ohsu.edu or call 503-494-8311.