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## Entrepreneur of the Year Dinner

Ernst and Young's Annual Entrepreneur of the Year dinner will be held Wednesday, June 9, at the Hyatt Regency La Jolla. The finalists for Health Sciences Entrepreneurs being honored include Jonathan Lim, of Halozyme Therapeutics, Scott Huennekens, of Volcano Corp., and Marcus Hompesch, of the Profil Institute for Clinical Research. For tickets or more information please contact [Teng Yeng](#) at 858-535-7334.

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## Scripps Team Finds New Way to Attack Cancerous Cells

Scripps Research Institute scientists have discovered a new way to target and destroy a type of cancerous cell. The findings may lead to the development of new therapies to treat lymphomas, leukemias, and related cancers.

The study, which appears in the June 10, 2010 edition of the journal *Blood*, showed in animal models the new technique was successful in drastically reducing B cell lymphoma, a cancer of immune molecules called B cells.

"[The method] worked immediately," said Scripps Research Professor James Paulson, who led the research. "We are very interested in moving this technology forward to see if it would be applicable to treatment of humans and to investigate other applications for this kind of targeting."

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## Study Shows PCA3 Test Significantly Improves Detection Prostate Cancer

A new molecular test manufactured by San Diego-based Gen-Probe, which detects the presence of a specific gene is better for prostate cancer detection than PSA alone, according to data presented at the American Urology Association (AUA) 2010 Annual Meeting.

E. David Crawford, MD, professor of surgery, radiation oncology and urology at the University of Colorado School of Medicine, is one of the study's lead investigators.

Researchers found that testing men's urine for the gene, called PCA3, gave them more accurate results than the PSA test that's currently the gold standard in prostate cancer screening.

"Data from this study shows the PCA3 test addresses the limitations of PSA testing, and PSA and PCA3 together can be a robust and complementary approach for the detection of prostate cancer," Crawford said. "More accurate detection may help to reduce unnecessary biopsies and over treatment in patients."

PCA3 is overexpressed—turned on too high—in more than 90 percent of prostate cancers. This gene overexpression is specific to prostate cancer. It has been linked to more accurate prediction of positive biopsies compared to PSA, and it is easy to test in urine samples following a digital rectal exam of the prostate.

"PSA testing can result in false-positive results," Crawford said. "Up to 75 percent of men with elevated PSA results have a negative biopsy."

Recent studies have shown that as the level of PCA3 increases in the urine, so does the chance a biopsy will show cancer. Also, since PCA3 correlates with Gleason score—a number indicating the aggressiveness of prostate cancer cells—the test results can guide urologists in the best treatment plan for each specific patient, rather than ordering what could be an unnecessary biopsy or treatment for a slow-growing cancer that might never threaten the patient's life.

The PCA3 test is the first urine-based molecular diagnostic assay for prostate cancer. The test has a CE mark approval for use in Europe. It is not yet approved by the FDA for marketing in the United States.

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## La Jolla Institute Team Discovers Important Player in Diabetes Onset

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If you think of diabetes onset like an elaborate molecular drama, then a research team led by a La Jolla Institute scientist has unmasked a previously unknown cellular player, which is critical to proper insulin secretion.

"Defective insulin secretion is a hallmark of both type 1 and type 2 diabetes," said Catherine Hedrick, Ph.D., a scientist at the La Jolla Institute for Allergy & Immunology, who led the team, which included researchers from the University of Virginia.

Working in mouse models, the team discovered that the ABCG1 protein is essential for the beta cells of the pancreas to produce sufficient amounts of insulin. Insulin is needed by the body to convert glucose from food into energy. Problems with insulin production underlie both type 1 and type 2 diabetes. "Based on our studies in mice, we think that some diabetes patients may have reduced expression of ABCG1 which impairs their insulin secretion," said Dr. Hedrick, who has previously published findings showing that type 2 diabetics have lower levels of ABCG1 than non-diabetics.

The research team also showed that proper expression of the ABCG1 protein in beta cells could be restored in the mice by treatment with some existing antidiabetic drugs. "Our study suggests that certain existing antidiabetic drugs may also provide therapeutic benefit related to restoring normal levels of ABCG1 protein in beta cells and improving insulin secretion in people with type 2 diabetes," said Dr. Hedrick. "Our research points to the need to investigate this possibility further as well as to explore the potential development of new therapies that boost ABCG1 protein levels and insulin secretion," she said.

The finding was published online today in the [Journal of Clinical Investigation](#) in a paper titled "An intracellular role for ABCG1-mediated cholesterol transport in the regulated secretory pathway of mouse pancreatic beta cells."

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## Human BioMolecular Research Institute Open House

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On May 21, the Human BioMolecular Research Institute (HBRI) hosted an Open House to celebrate advancements in stem cell research. In collaboration with Professor Mark Mercola and Evan Snyder of the Sanford-Burnham Medical Research Institute, HBRI is developing small molecules to direct maturation of human stem cells and human induced pluripotent stem cells.

HBRI honored two distinguished guests with Disease Advocate Awards. These awards were presented to Joan Samuelson J.D., and David Serrano Sewell J.D., two Patient Advocates that have been particularly motivated and outspoken about patient causes including Parkinson's disease, Multiple Sclerosis and ALS (or Lou Gehrig's disease), and have worked tirelessly to make stem cell research for these diseases possible. Their advocacy efforts will provide technology for greater numbers of cells for research and eventually, clinical purposes. Their dedication to support research is an inspiration to all.

HBRI welcomed over eighty members of the San Diego community to this event. Guests included local scientists from research institutes in the area, administrative personnel from local institutes and universities and six college and high school HBRI summer interns destined to be future stem cell chemists and stem cell biologists.

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## Scripps Scientists Break Barrier to Creating Potential Therapeutics

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Scientists from The Scripps Research Institute have created a novel technique that for the first time will allow the efficient production of a molecular structure that is common to a vast array of natural molecules. This advance provides a means to explore the potential of this molecular substructure in the search for new therapies.

The study was published on May 23, 2010 in an advance online edition of the journal *Nature Chemistry*.

The structures in question, called "skipped polyenes," are shared by a large class of molecules that play a critical role in human health, including polyunsaturated fatty acids, which are vital to blood pressure regulation, inflammation, and immune response. The structures are also shared by a number of potent antibiotic, antifungal, and cytotoxic (toxic to living cells) compounds.

Simple and efficient methods for the preparation of skipped polyenes have generally been lacking, creating a significant barrier to exploring their potential as drugs. Currently, the production of molecules that contain simple variants of this substructure is quite labor intensive.

"Our study identifies a novel chemical reaction that will enable the accelerated production of this type of structural motif," said Associate Professor Glenn Micalizio, who authored the new study with a member of his Scripps Florida lab, Research Associate Todd K. Macklin. "This new reaction provides a means to explore the medicinal potential of molecules bearing complex, skipped polyene... something that our clients have not been

medicinal potential of molecules bearing complex skipped polyenes – something that we simply haven't been able to do until now."

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## New Answers on Rare Childhood Disease

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Children born with multiple hereditary exostoses (MHE) suffer from abnormal growths on their bones. These bony protrusions stunt their growth and can cause pain and disfigurement. Scientists have long known which genes are mutated in this rare disease, but not how the mutations lead to abnormal bone growth. Even attempts at replicating the symptoms in mice have been unsuccessful, hampering the search for treatments. In a study published May 31 in Proceedings of the National Academy of Sciences USA, [researchers at Sanford-Burnham Medical Research Institute \(Sanford-Burnham\)](#) and their colleagues created a new mouse model that mimics the disease in humans, providing new opportunities to test treatments.

"MHE is not usually deadly, but it is debilitating," said Yu Yamaguchi, M.D., Ph.D., senior author of the study and professor in the Sanford Children's Health Research Center at Sanford-Burnham. "And if not removed by surgery, there is a chance these bone growths will become cancerous."

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## Salk Scientist Named 2010 Rita Allen Scholar

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Dr. [Ye Zheng](#), an assistant professor in the Nomis Laboratories for Immunobiology and Microbial Pathogenesis at the Salk Institute for Biological Studies, has been named a 2010 Rita Allen Scholar, the Rita Allen Foundation announced today. He will receive \$500,000 over a five-year period to study how regulatory T cells prevent the immune system from attacking the body's own tissue and causing autoimmune disease.

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## Scripps Team Advances Quest for AIDS Vaccine

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In findings that contribute to efforts to design an AIDS vaccine, a team led by Scripps Research Institute scientists has determined the structure of an immune system antibody molecule that effectively acts against most strains of human immunodeficiency virus (HIV), the virus that causes AIDS.

The study, which is being published in an advance, online issue of the journal Proceedings of the National Academy of Sciences (PNAS) during the week of June 1, 2010, illuminates an unusual human antibody called PG16.

"[This study advances the overall goal of how to design an HIV vaccine.](#)" said Scripps Research Professor Ian Wilson, who led the team with Dennis Burton, Scripps Research professor and scientific director of the International AIDS Vaccine Initiative (IAVI) Neutralizing Antibody Center at Scripps Research. "This antibody is highly effective in neutralizing HIV-1 and has evolved novel features to combat the virus."

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