

Seven Medical Breakthroughs

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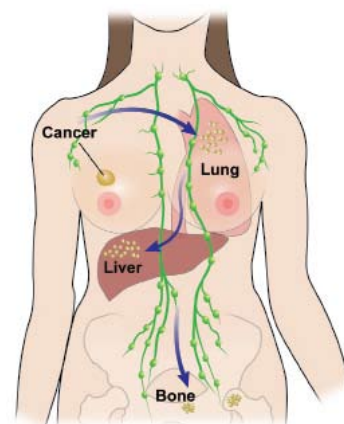
Donald Morton, MD, is a recipient of the Jacobson Innovation Award of the American College of Surgeons.

Donald L. Morton, MD, Chief, Melanoma Program, discovered the sentinel lymph node (SLN) technique for staging melanoma. This revolutionary diagnostic technique helps surgeons determine if a tumor has spread to nearby lymph nodes, rather than simply removing the nodes (a practice that can cause permanent side effects). The SLN technique involves injecting a blue dye and radioactive substance into the lymphatic system near the tumor. As the dye is absorbed, it identifies the sentinel node so that it can be excised and analyzed for evidence of cancer spread. If cancer has not invaded the sentinel node, the surgeon may elect to leave the other healthy lymph nodes in place. The SLN technique has become the international medical standard for melanoma surgery, and is being adapted to many other cancers.



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Armando E. Giuliano, MD, Chief of Science and Medicine, adapted the SLN technique for use with breast cancer patients. The procedure is now considered the national gold standard for breast cancer staging, sparing countless women unnecessary lymph node removal and its associated risks and side effects.



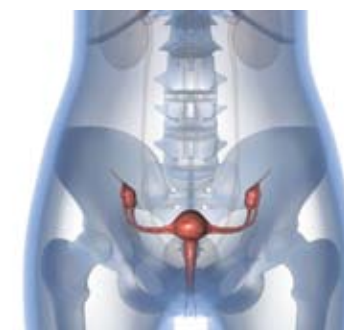
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Neurosurgeons at Saint John's Health Center are internationally recognized as pioneers in minimally invasive brain surgery. By developing and improving "kinder, gentler" brain surgery procedures and brain-mapping techniques, they can eliminate the need for complex, risky craniotomies while sparing the patient's sensitive brain tissue. **Amin B. Kassam, MD**, Medical Director of the Chan Soon-Shiong Neuroscience Institute, and **Daniel F. Kelly, MD**, Medical Director of the Chan Soon-Shiong Brain Tumor Center, have performed a combined total of more than 2,000 minimally invasive procedures from a number of access points. Dr. Kassam played a key role in developing the Expanded Endonasal Approach, which allows surgeons to use the nostrils as natural portals to reach brain and skull base tumors. Unwanted tissue can be removed through the nose rather than via a traditional open craniotomy (cutting through the top of the skull). Dr. Kelly, an international leader in minimally invasive brain surgery, has extensive experience in removing brain tumors through the nostrils as well as through keyhole incisions above the eyebrow. Dr. Kassam's recent efforts have focused on developing a surgical tube (brain cannula) combined with detailed fiber tract mapping of the brain (tractography) to optimize the safe endoscopic removal of deeply situated brain tumors.



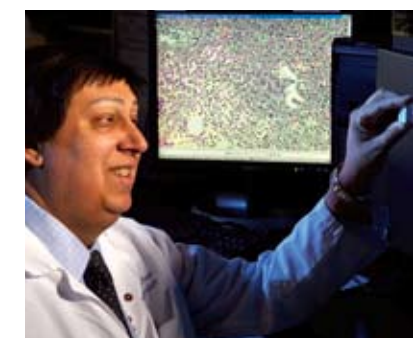
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A landmark study led by **William Parker, MD**, an obstetrician-gynecologist at Saint John's Health Center, has raised serious questions about the long-term survival benefits of removing a woman's ovaries during routine hysterectomy. The study, published in the May 2009 edition of *Obstetrics and Gynecology*, reviewed outcomes of women with benign (noncancerous) reproductive disease who were given a hysterectomy with either bilateral oophorectomy (removal of both ovaries) or ovarian conservation (leaving the ovaries intact). Results showed that removing the ovaries greatly increases the risk of heart disease, stroke and lung cancer. These findings challenge a medical practice that has been standard in women's health for 30 years.



5

David Hoon, PhD, Director, Department of Molecular Oncology, and his team have developed novel blood biomarker assays to help research melanoma, lung and breast cancer, as well as other cancers. The goal of their research is to find biomarkers with potential clinical utility and to speed the identification of new drug strategies and treatments. Dr. Hoon's team has made great strides in defining specific classes of cancer, analyzing tumor-related genomic changes and screening FDA-approved and targeted drugs.



6

A pioneering study led by **Dr. Hoon** and his colleagues found that highly sensitive molecular diagnostic techniques can effectively "upstage" early stage colorectal cancer patients who would normally be declared to be cancer-free when evaluated using conventional tests. The findings could lead to better, more sensitive cancer detection methods. The study may also help scientists develop more consistent ways to identify patients who would benefit the most from adjuvant therapy after surgery for colorectal cancer.



7

Researchers at John Wayne Cancer Institute at Saint John's, the National Institutes of Health (NIH) and Childrens Hospital Los Angeles have granted CerRx, Inc., worldwide exclusive rights to intellectual property and know-how related to a novel formulation of a synthetic vitamin A analog used to treat cancer. **Myles Cabot, PhD**, Director, Experimental Therapeutics, and his team discovered that when combined with certain other drugs or "partnering agents," the analog 4-HPR (fenretinide) can selectively kill certain types of cancer cells in malignant solid tumors, leukemias and lymphomas. Fenretinide causes cancer cells to overproduce cellular substances (waxes) that lead to cell death. Fenretinide appears to be therapeutic when used either as a single agent or in combination with a partnering drug that slows degradation of the lethal waxes. It can be used in both adults and children, and may be particularly useful in treating recurring or relapsed malignant disease.

