Scientists Discover ‘Two-Faced’ Cells in Colon Cancer

A TEAM OF RESEARCHERS led by Khashayarsha Khazaie, PhD, Research Associate Professor at the Lurie Cancer Center, have discovered a “two-faced” group of cells at work in human colon cancer, with opposing functions that can suppress or promote tumor growth. These cells are a subset of T-regulatory (Treg) cells, known to suppress immune responses in healthy individuals.

In this previously unknown Treg subset, the presence of the protein RORγt has been shown to differentiate between cancer-protecting and cancer-promoting properties. The team recently reported their findings in the journal, Science Translational Medicine.

“The subset of Tregs that expand in human colon cancer is different from the Tregs that abound in healthy individuals in their ability to suppress inflammation,” Khazaie said. “Since their discovery, Tregs have been assumed to be harmful in cancer based on the knowledge that they suppress immunity. More recent clinical studies have challenged this notion. Our work shows that Tregs, by suppressing inflammation, are normally very protective in cancer; it is rather their switch to the expression of RORγt that is detrimental.”

After identifying the abnormal Treg subset in mice with hereditary colon cancer, Khazaie and lead author Nichole Blatner, PhD, Research Assistant Professor at the Lurie Cancer Center, worked with Mary Mulcahy, MD, Associate Professor of Medicine, and David Bentrem, MD, Associate Professor of Surgery at the Feinberg School of Medicine, to look for the same cells in colon cancer patients. “To our delight, we found the same Treg alterations in cancer patients,” said Khazaie.

“Tregs are actually very useful in the fight against cancer,” he said. “We can do better by targeting RORγt or other molecules that are responsible for the expansion of this Treg subset, instead of indiscriminately eliminating all Tregs. We are very excited about the therapeutic options that targeting specific subsets of Tregs could provide in human solid tumor cancers, and that is our next immediate goal.”

» Read more

Save the Date! Cancer Survivors’ Celebration & Walk: Sunday, June 2, 2013

THE 20TH ANNIVERSARY of the Lurie Cancer Center’s signature event will include some exciting new additions. Make plans now to be part of the celebration in Grant Park!

» Read more
New Approach in Fight Against Brain Cancer

ENIGMATIC AND INCURABLE. These defining characteristics of the brain’s most common and aggressive form of cancer are what motivate the research of Alexander Stegh, PhD, Assistant Professor of Neurology and Medicine at Feinberg, and a member of the Lurie Cancer Center. Inside Stegh’s lab, researchers are working to uncover the genetic underpinnings of Glioblastoma multiforme (GBM), asking questions like: what are the genes critical for initiating the disease, and how is the disease driven?

“We are also interested in learning why it is that most chemo-therapeutic drugs, including targeted GBM agents, fail in the clinic,” Stegh said. “Some of these agents have certain efficacy in other forms of cancer with similar genetic backgrounds, but in GBM they are completely unsuccessful.”

For the past year, Stegh has pursued this therapeutic paradox. Funded by the American Cancer Society Illinois Division, the project identified a novel oncogene that is overexpressed in GBM, and clarified the gene’s role in thwarting therapeutic response.

“Targeting these genes presents a very difficult challenge because many of them are unprecedented, meaning we have no idea how they work,” Stegh said. “Basically, we need a genetically-based technology such as RNA interference (RNAi) nanoparticles to actually target the genes we have already identified. That’s where I think bioengineering and nanotechnology come into play.”

Working in collaboration with Chad Mirkin, PhD, Director of the International Institute for Nanotechnology at Northwestern, Stegh used a Northwestern University Center of Cancer Nanotechnology Excellence grant to pursue an ambitious proof of concept project. The RNAi gold nanoparticles—measured in billionths of a meter—are able to turn off the production of an important cancer protein, acting as a potent inhibitor of tumor progression in vivo.

» Read more

Novel Targets for Ovarian Cancer Treatment

MARCUS PETER, PHD, Professor of Medicine at Feinberg, is the co-lead author of a paper showing how ovarian cancer cells change the normal cells around them into versions that promote tumor growth.

In the December issue of the American Association for Cancer Research journal, Cancer Discovery, a team of researchers from Northwestern University Feinberg School of Medicine and the University of Chicago Medicine show that ovarian cancer cells induce nearby cells to alter their production of three microRNAs - small strands of genetic material that are important regulators of gene expression.

By changing gene expression, microRNAs can modify a cell’s function. In this case, they convert normal, healthy fibroblasts into cancer-associated fibroblasts (CAFs). These CAFs pump out chemical signals telling cancer cells to multiply, invade healthy tissues, and travel to distant sites in the abdomen. Importantly, by reversing the microRNA signals the researchers were able to cause CAFs to revert to normal fibroblasts.

“Only a few years ago scientists learned how to reprogram normal cells into cells that can give rise to any cell type in the body,” said Peter, who is also a member of the Lurie Cancer Center. “Our work demonstrates that cancer cells also have the ability to reprogram cells in their environment into cells that support their growth and that this process involves microRNAs.”

» Read more
Swanson Named Professor and Vice Chair of Research for Neurological Surgery

AFTER 12 YEARS at the University of Washington, Kristin Rae Swanson, PhD, has been named Professor and Vice Chair of Research for Neurological Surgery at Northwestern University Feinberg School of Medicine. Swanson comes to Feinberg from the University of Washington, where she served as the James D. Murray Endowed Chair of Applied Mathematics in Neuropathology as part of the Nancy and Buster Alvord Brain Tumor Center.

A pioneer in the field of mathematical neuro-oncology as a novel means to generate personalized medicine approaches for primary brain tumors, Swanson’s talent for developing collaborative networks comprised of strong multidisciplinary researchers, scientists, clinicians, and trainees, will strengthen the Brain Tumor Institute’s research endeavors.

“I am thrilled to be joining the Northwestern Brain Tumor Institute at such an exciting time of growth and opportunity,” said Swanson, who is also a member of the Lurie Cancer Center. “The institutional and community investment in growing the NBTI is astounding and I am delighted to be part of this exceptional group. I know my lab will contribute to this growth through the integration of our science into the clinical and research fabric of the Northwestern community.”

As Vice Chair for Research, Swanson’s mentoring skills will be invaluable. In 2010, she was honored with the University of Washington Research Mentor of the Year Award. Swanson is also a member of multiple national organizations, including the American Association for Cancer Research, the Society for Mathematical Biology, the Society for Neuro-Oncology, and the Society for Nuclear Medicine.

“Some studies need several thousands of samples,” says NUgene Director, Maureen Smith, MS, CGC. “Before, a person would have to physically go into the freezer and pull out each box to locate a sample. It would take days and days. Now it takes a matter of hours.”

The NUgene Project, a long-term genetic banking study sponsored by the Center for Genetic Medicine, enables scientists to study the genetic basis of cancer and other diseases.

Summer Research for Students

TRAINING THE NEXT generation of clinicians and scientists is at the foundation of the Lurie Cancer Center’s mission. Our summer research programs give students the opportunity to learn and become active participants in cancer research. The hope is that these new experiences will inspire students to consider health and science-related careers.

Application deadline is March 1, 2013.

• PS-OC (Physical Sciences-Oncology Center) programs are available for underserved college students, as well as Northwestern University undergraduate and medical students.

• The CURE (Continuing Umbrella of Research Experience) program offers underserved undergraduate students the opportunity to participate in laboratory summer research experiences.

Details and application information for summer research programs.

New System Increases Efficiency for NUgene

A REVOLUTIONARY automated DNA sample storage and handling system is making the process of storing and recovering DNA samples more efficient. A custom-built SmaRTStore freezer system purchased for the NUgene Project eliminates the need for people to go in and out of the freezer. A series of robotic arms loads and unloads samples from the SmaRTStore, which was funded by a National Center for Research Resources’ High-End Instrumentation Grant awarded to Rex Chisholm, PhD, Adam and Richard T. Lind Professor of Medical Genetics, and Vice Dean for Scientific Affairs and Graduate Education at Feinberg.

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» Read more about Dr. Swanson’s mathematical modeling research

» Read more
Awards & Honors

David Bentrem, MD, Harold L. and Margaret Research Professor in Surgery and Associate Professor in Surgical Oncology at the Feinberg School of Medicine, was inducted into the Alpha Omega Alpha (AOA) medical honor society, a recognition of his commitment to scholarship, leadership, professionalism, and community service. Bentrem is a member of the Lurie Cancer Center’s Translational Research in Solid Tumor (TRIST)-Gastrointestinal Cancer and Cancer Control & Survivorship Programs.

Karl Bilimoria, MD, Assistant Professor in Surgical Oncology and Medical Social Sciences at Feinberg, was honored along with his co-authors of the exhibit “Variations in Complication Rates for Elective Non-Reconstructive Breast Surgery: An Analysis of NSQIP Data from 2006-2010” at the American College of Surgeons (ACS) 98th Clinical Congress. The exhibit was recognized as a Poster of Exceptional Merit as well as the 2012 ACS Best Scientific Exhibit. Bilimoria is a member of the Lurie Cancer Center’s Cancer Control & Survivorship Program.

Leo Gordon, MD, Abby and John Friend Professor of Cancer Research, Professor of Medicine and Director of the Lymphoma Program at Feinberg, is the new Chair Elect of the Lymphoma Research Foundation (LRF) Scientific Advisory Board (SAB). He also serves as Chair of the LRF Mantle Cell Consortium, and will begin his term as SAB Chair on July 1 2014. Comprised of the world’s leading lymphoma researchers and oncologists, the SAB formulates the LRF research portfolio, seeking out the most innovative and promising lymphoma research projects for support.

Gordon, a member of the Lurie Cancer Center’s Hematologic Malignancies Program, says that he is “looking forward as Chair Elect of the SAB to helping influence research, mentoring young investigators and interacting with patients you use LRF as an anchor for dealing with their disease.”

Jacqueline Jeruss, MD, PhD, Assistant Professor of Surgery at Feinberg and a member of the Lurie Cancer Center’s Women’s Cancer Program, is a recipient of the Society of Surgical Oncology’s (SSO) 2012 Clinical Investigator Award for her research, “Synergistic Action of Carboplatin/Eribulin in Combination with CDK Inhibitor Therapy for the Treatment of Triple Negative Cancer.” In addition, Jerruss received the 2012 American Medical Women’s Association (AMWA) Gender Equity Award. The award, given annually, acknowledges the efforts of a medical professional who has helped to create an environment for gender equity in healthcare in both their professional accomplishments and teaching responsibilities.

Shari Meyerson, MD, Associate Professor in Thoracic Surgery and Pulmonary Medicine at Feinberg, received an Augusta Webster Faculty Grant for Education Innovation for her research of, “Utility of an Errors-Based Curriculum to Improve Advanced Skill Acquisition in Surgery.” Sponsored by Feinberg’s Center for Education in Medicine, the award supports health professions education scholarship and research.

Samuel Stupp, PhD, Director of the Institute for BioNanotechnology in Medicine and Professor of Material Science, Chemistry, and Medicine at the Weinberg College of Arts and Sciences, will be honored with the Ronald Breslow Award for Achievement in Biomimetic Chemistry at the American Chemical Society’s 245th national meeting in New Orleans. Stupp is a member of the Lurie Cancer Center’s Cancer and Physical Sciences Program.

Congratulations to the American Cancer Society Action Network and everyone celebrating the fifth anniversary of the Smoke-Free Illinois Act. The law, enabling everyone who visits or works in indoor public places to breathe cleaner air, free of the cancer-causing toxins caused by secondhand smoke has already had a positive impact.

» Read the “Impact of the Smoke Free Illinois Act”
Travel Grants

The Katten Muchin Rosenman Travel Scholarship Program (KMR), the Center for Genetic Medicine Travel Fellowship (CGM) and the Cancer Prevention and Control Travel Scholarship Program (CP) for doctoral students and postdoctoral fellows.

Each of these travel programs provide $750 to recipients to help defray the cost of travel and registration fees to a scientific meeting where the awardees will present their research.

Applications for the next Travel Awards must be received by March 1, 2013

» Details and Application Process

AACI Translational Cancer Research Fellowship

Applications are being accepted for the 2013 AACI Translational Cancer Research Fellowship. This $50,000 one-year non-renewable grant will support post-doctoral training to individuals who have completed at least one year of training in any field of oncology and have at least one year of training remaining at an AACI member institution.

Applications must be submitted by February 1, 2013

Questions regarding this funding opportunity, open exclusively to AACI member institutions, should be directed to Kate Burroughs, kate@aaci-cancer.org.

» Details and Application Process

Basic Sciences Research Division

H Foundation Incentive Awards provide funding for faculty who have submitted and received a score on a RO1 grant to the NCI for the first time in their career. If additional funds are available, awards will be made to other faculty for new, first-time NCI RO1 submissions, which are scored but not yet funded.

H Foundation Bridge Awards provide up to $20,000 of support for competing renewals of NCI-sponsored RO1 research that missed the payline.

Applications for H Foundation Incentive and Bridge Awards are reviewed on a rolling basis and accepted until funds for the year are expended.

» Details and Application Process

Lea Charitable Trust Equipment Grants

Through the generous support of the Lea Charitable Trust, a pool of funds is available to full members of the Lurie Cancer Center affiliated with one of the Basic Sciences Research Programs for use by multiple investigators or to support small equipment grants for collaborative research projects.

Lea Charitable Trust Equipment Grants are made on a rolling basis as funds become available.

» Details and Application Process
Professional Programs

THROUGHOUT THE YEAR, the Lurie Cancer Center offers professional education on various cancer related topics. Below is a list of programs scheduled through March, 2013.

LEARN MORE AND REGISTER AT cancer.northwestern.edu or call 312.695.1304.

2012 San Antonio Breast Cancer Review
Friday, February 8, 2013
Prentice Women’s Hospital, 3rd Floor, Room L
Chair: William Gradishar, MD

Gastrointestinal Malignancies:
2013 Update of Clinical Care
Friday, February 22, 2013
Prentice Women’s Hospital, 3rd Floor, Room L
Chair: Mary Mulcahy, MD

Northwestern Brain Tumor Institute CME Symposium 2013
Saturday, March 23, 2013
Prentice Women’s Hospital, 3rd Floor, Room L
Chairs: James Chandler, MD, and Jeffrey Raizer, MD

Cancer & Fertility Virtual Grand Rounds

The Oncofertility Consortium has created a series of Virtual Grand Rounds, primarily for the clinical community, to increase reproductive education among oncology and reproductive providers. Learn more about how specific chemotherapeutic drugs and radiation treatments used to treat brain cancer, can impact fertility. Providers can also get information about the latest fertility preservation options, get access to reproductive specialists in their region, and receive free CME credits through this program, which is accessible via computer or mobile device.

Illinois oncology providers interested in connecting with other providers and reproductive specialists in the Illinois area can participate in the Consortium’s pilot program to increase oncofertility communication and education.

View the Virtual Grand Rounds schedule here.

E-mail Angie Krausfeldt or call her at 312.503.2506 to learn more.

Grand Rounds & Tumor Cell Biology

GRAND ROUNDS
Fridays: 8:00 a.m. to 9:00a.m
Robert H. Lurie Medical Research Center
303 E. Superior, Chicago
Gray Conference Room (unless otherwise noted)

Presented by the Division of Hematology/Oncology and the Lurie Cancer Center, the weekly Grand Rounds update physicians and healthcare personnel on developing trends and techniques in medicine.

» View the Grand Rounds schedule here

TUMOR CELL BIOLOGY
Thursdays: 1:00 p.m. to 2:00 p.m.
Robert H. Lurie Medical Research Center
303 E. Superior, Chicago
Baldwin Auditorium (unless otherwise noted)

The Tumor Cell Biology Seminars present weekly updates on novel translational cancer research in the areas of tumor biology, biomedical informatics and cancer prevention and diagnosis.

» View the Tumor Cell Biology Seminar schedule here

If you would like to receive weekly reminders about the Grand Rounds and/or TCB Seminar schedules please notify Denise Marshall at d-marshall4@northwestern.edu.
THE LURIE CANCER CENTER is committed to educating the public about cancer prevention and treatment, and offers a wide range of community events and patient programs throughout the year. Below is a list of programs scheduled through March 2013.

LEARN MORE AND REGISTER AT cancer.northwestern.edu or call 312.695.1304.

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**Eisenopoly**

Friday, January 25, 2013  
Macy’s on State St., Chicago

Proceeds from the evening of games, prizes, music, cocktails, wine tasting, and more, benefit gastrointestinal cancer research at the Lurie Cancer Center.

» [Read more](#)

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**Danstock**

Thursday, February 7, 2013  
Lincoln Hall  
2424 N. Lincoln Ave., Chicago

Local bands join forces to honor Dan Stock, a long-time member of Chicago’s music community and melanoma patient. Funds raised will support research at the Lurie Cancer Center.

» [Read more](#)

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**Support the Northwestern Brain Tumor Institute While you Laugh!**

“Tomato /Tomatoe on the Brain” Comedy Show  
Now Available on DVD

» [Read more](#)

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**Magellan Development Chicago Spring Half Marathon, 10K and Junior Dash**

Sunday, May 19, 2013  
The Park at Lake Shore East  
Registration is open — run and support the Northwestern Brain Tumor Institute!

» [Read more](#)
Welcome New Staff

New Staff

Michael Balco  
Cytotechnologist  
Pathology Core Facility  
michael.balco@northwestern.edu

Megan Cahill  
Manager of Education Programs  
Public Affairs  
megan.cahill@northwestern.edu

Jacqueline Glenn  
Financial Specialist 1  
Business Operations  
jacqueline.glenn@northwestern.edu

Victoria Spah  
Web Designer  
Public Affairs  
victoria.spah@northwestern.edu

what's new

News of the Robert H. Lurie Comprehensive Cancer Center of Northwestern University  
Office of Public Affairs and Communications -  
676 N. St. Clair  
Suite 1200  
Chicago, IL 60611  
312.695.1304  

Director  
Steven T. Rosen, MD, FACP

Director,  
Public Affairs and Communications  
Sharon Markman

Editorial Advisor  
Tim Volpe

Managing Editor  
Jennifer Bowker

Designer  
Dana Cullum

Help Wanted: Reporters

PLEASE SEND SUGGESTIONS for this newsletter to Jennifer Bowker,  
j-bowker@northwestern.edu

Lurie Cancer Center Weekly Updates

INFORMATION TO BE CONSIDERED for inclusion in the Lurie Cancer Center’s weekly e-mail updates must be received at least one week in advance. Submit suggestions to Denise Marshall at  
d-marshall4@northwestern.edu