momentum
SPRING 2008 | A NEWSLETTER FROM THE DAMON RUNYON CANCER RESEARCH FOUNDATION

# Discoveries That Matter

New findings from Damon Runyon scientists that could change the way we diagnose, prevent and treat cancer

Over its 62-year history, the Damon Runyon Cancer Research Foundation has funded more than 3,000 of the most outstanding young cancer researchers in America.

To give you a sense of the important discoveries and high rate of productivity of our alumni and current award recipients, the following are selected findings published by Damon Runyon Scientists (along with their colleagues) in prestigious scientific journals including *Science*, *Nature* and *Cell*. This selection is taken from only a two month period–**January to February, 2008**.

Cancer encompasses a variety of diseases caused by mutations in genes, which trigger cells to grow out of control and spread. Some of our scientists are seeking to understand what factors cause these mutations in the first place, while others are focusing on preventing the onset of these deadly processes. Several are developing novel approaches to attacking cancer cells themselves.


Peter A. Savage, PhD

**Peter A. Savage, PhD** (Damon Runyon Fellow '01-'04) at Memorial Sloan-Kettering Cancer Center, discovered a specific protein that immune cells (tumor-infiltrating CD8+ T lymphocytes) use to recognize **prostate tumor** cells. Once the tumor cells are identified, the immune cells attack and kill them. This work is important for the development of immunotherapies for cancer and could also provide the basis for diagnostic markers for early detection.

*"This project, which has taken 7 years to complete, has provided novel insights that I hope will lead to additional discoveries in the years to come. It is Damon Runyon's commitment to promising, high-risk research projects that has made this possible."* –Peter A. Savage, PhD

**Li Li, MD, PhD** (Damon Runyon-Lilly Clinical Investigator '01-'06), an epidemiologist at Case Western Reserve University, reported that high carbohydrate intake and obesity can partially account for the rise in **esophageal cancer** from 1973 to 2001.*

**Philip G. Febbo, MD** (Damon Runyon-Lilly Clinical Investigator '05-'10) at Duke University, is tackling the challenge of deciphering the vast and complex data resulting from the human genome project. He has developed a novel method for integrating these data to predict genetic pathways underlying cancer and, using this technique, has identified a previously unknown connection between a specific enzyme (ErbB4) and **prostate cancer**. He plans to apply this method to other cancer types as well.

*"The funds from Damon Runyon have allowed me to obtain clinical samples in the setting of clinical trials and develop new computational methods of analysis. This combination is facilitating discovery, and promises to impact patient care."* –Philip G. Febbo, MD

*The time period for which statistics are available

**Gregory J. Hannon, PhD** (Damon Runyon Fellow '92-'94), at Cold Spring Harbor Laboratory, is an expert in using pieces of RNA to turn genes on and off to understand their role in cancer. He recently reported a novel screening system using short hairpin RNAs to identify genes in **breast and colon** cells that, when disrupted, harm cancer cells but not normal cells. His approach allows for genome-wide screening to identify genes that are selectively required for cancer cell survival and growth–ideal targets for drug development.

**Maura L. Gillison, MD, PhD** (Damon Runyon-Lilly Clinical Investigator '00-'05) at The Johns Hopkins University, identified a significant increase in human papillomavirus (HPV)-related **oral cancers** from 1973 to 2004*, particularly in men. With FDA approval of the HPV vaccine Gardasil, which prevents most cervical cancers, studies are now ongoing to test effectiveness of this vaccine in the prevention of head and neck and other HPV-related cancers.

*"I can emphatically state that it would not have been possible for me to develop my research program in molecular epidemiology without the Damon Runyon funding. I am very grateful for the support I have received."* –Maura L. Gillison, MD, PhD

**Azad Bonni, MD, PhD** (Damon Runyon Fellow '96-'97) at Harvard Medical School, studies the proteins that turn genes on and off (transcription factors) in glioblastoma, a form of **brain cancer**. He has identified one such factor (STAT3) that can promote or suppress cancer depending on specific genetic mutations in the tumor. This emphasizes the importance of personalized treatments for each cancer patient.

**Xiao-Fan Wang, PhD** (Damon Runyon Fellow '87-'89) at Duke University, reported an association between increased levels of a specific protein (βig-h3/TGFBI) and aggressive **colon cancers**. Cancers associated with overexpression of βig-h3 may be more likely to metastasize, and preliminary studies show that inhibiting this protein can block this deadly spread.


Matthew G. Vander Heiden, MD, PhD

**Matthew G. Vander Heiden, MD, PhD** (Mel Karmazin Fellow of the Damon Runyon Foundation '06-'09) at Harvard Medical School, studies how cancer cells generate energy to survive and grow. He has identified a specific enzyme that is altered in cancer cells, which affects the way these cells metabolize sugar for tumor formation. Targeting this enzyme is a new potential way to stop tumor development.

*"By providing three years of funding, the Foundation has given me the freedom to work on this 'risky' project without having the pressure to secure new support each year."* –Matthew G. Vander Heiden, MD, PhD

## SWISH AND SPIT TO DETECT CANCER

In January, Damon Runyon alumnus Joseph A. Califano III, MD, along with colleagues at The Johns Hopkins Kimmel Cancer Center, reported that their ground breaking saliva test for head and neck cancer has proven successful. The "swish and spit" technique, which utilizes information from DNA in saliva, could allow for earlier detection of head and neck cancer, the seventh most common cancer in the United States.


Joseph A. Califano, III, MD

In the study, researchers were able to identify more than half of the people who had cancer from the simple spit test. Califano now believes that further optimization will make it possible to detect head and neck cancer in up to 90 percent of cases.

Head and neck cancer includes cancers of the mouth, nose, sinuses, salivary glands, throat and lymph nodes in the neck. It is usually treatable with early detection, yet because symptoms are similar to those of the common cold or flu, many people do not consult their physician until the cancer is quite far advanced.

Califano's "swish and spit" kit for doctors' offices is planned to be available in approximately three years. The study was published in the January 1 issue of *Clinical Cancer Research*.

Of his Damon Runyon-Lilly Clinical Investigator Award, Dr. Califano said,

"This Award was vital to my professional development. It allowed me to perform critical basic investigations that set the stage for a productive scientific career in patient-directed research."

# Annual Breakfast Benefit
## *Investing in Brilliance*


John M. Angelo, CEO
Angelo, Gordon & Co.

**Wednesday, May 28, 2008 – 7:30 AM to 9:30 AM**
**The Rainbow Room, 30 Rockefeller Center, New York, NY**
**Honoree: John M. Angelo, Chief Executive Officer, Angelo, Gordon & Co.**

This year's Annual Breakfast focuses on courageous, innovative and successful investment.

As a leading investor in pioneering cancer research, the Damon Runyon Cancer Research Foundation is delighted to honor one of the nation's foremost alternative investors: **John M. Angelo** of Angelo, Gordon & Co.

The morning's program will be hosted by an innovator in his own right, award-winning TV producer and director **James Burrows** *(Cheers, Will & Grace,* etc.). In addition, the first-ever **Damon Runyon–Rachleff Innovation Award** winners will speak about their "high risk, high reward" ideas and why funding from the Foundation is critical to their research.

**For further information or to purchase a ticket or table, please call us at 212.455.0500 or 1.877.7CANCER.**

## DID YOU KNOW?

Damon Runyon scientists have made and continue to make discoveries that change our approach to cancer, and also affect how we live our lives day to day. Our honor list includes:


John Mendelsohn, MD

- **11 Nobel Prize Laureates**
- **Ernst L. Wynder, MD**–First to link lung cancer and cigarette smoking
- **Theodore T. Puck, PhD**–Discovery of a human's 46 chromosomes
- **Min Chiu Li, MD**–First to cure a solid tumor with chemotherapy
- **Peter K. Vogt, PhD**–First to identify a cancer-causing gene
- **Henry S. Kaplan, MD**–First cure of cancer with radiation using a linear accelerator
- **Fritz H. Bach, MD**–First bone marrow transplant using matched family members
- **C. Alexander Kamb, PhD**–Co-discovery of the first gene identified as a cause for breast cancer
- **John E. Niederhuber, MD**–Director of the National Cancer Institute (NCI)
- **John Mendelsohn, MD**–President, University of Texas, M.D. Anderson Cancer Center
- **Bruce W. Stillman, PhD, FRS**–President, Cold Spring Harbor Laboratory

# Good Company, Great Cause

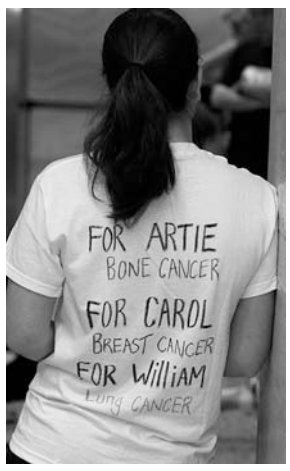
**Colt and Cindy Landreth**, two of our most loyal supporters in Chicago, hosted a Damon Runyon dinner in November and raised more than $25,000 for cutting-edge cancer research. The dinner preceded the sixth annual Go Vertical Chicago event and featured speeches by **Jonathan D. Licht, MD**, head of Hematology and Oncology and **Dinari A. Harris, PhD**, a Damon Runyon Fellow, both at Northwestern University. Our heartfelt thanks to Colt and Cindy.

**If you would like us to help you organize an event and raise money for the Foundation, please call us at 212.455.0500 or 1.877.7CANCER.**

## GO VERTICAL CHICAGO 2007

# 2,000 Brave Climbers (4,000 Sore Calves)

The Skydeck of Chicago's mighty Sears Tower is open 365 days a year – apart from the morning of the Damon Runyon Cancer Research Foundation's Go Vertical stair climb!



**A very personal challenge**

For the sixth annual challenge, which took place in November, **a record 2,000** intrepid adventurers scrambled up 2,109 steps to the best view in town – and raised more than **$340,000** towards funding brilliant young scientists in their fight against cancer.

Cindy Harris from Indianapolis, Indiana, won the women's division for the sixth straight year in a time of 15:01, while Eric Leninger, a 24-year-old from Geneva, Illinois, won the men's race in 13:42.

Some climbed for fun, others for a family member or friend affected by cancer, and some were cancer survivors themselves. The oldest participant was a sprightly 79 years, with the youngest only six years old. Many different states – and even different countries – were represented. Their supporters were equally varied, with the total number of worldwide sponsors topping 6,000.

The event continues to grow in popularity and received widespread media attention, including TV news coverage on most of the major networks.

*Join us for Go Vertical Chicago 2008 on Sunday November 9.*

**Can you help? We are looking to extend the Go Vertical challenge to other great cities. If you know of a building that might be suitable, please contact us at 212.455.0500 or GoVerticalChicago@damonrunyon.org www.goverticalchicago.org**

**The event attracted corporate teams as well as individuals**

## 2008 CALENDAR OF EVENTS

**MONDAY APRIL 28 & TUESDAY, APRIL 29**
Clinical Investigators Reporting and Award Selection Committee Meeting

**FRIDAY, MAY 16**
Fellowship Award Selection Commitee Meeting

**WEDNESDAY, MAY 28**
Annual Breakfast and Board Meeting

**MONDAY, JUNE 2**
Damon Runyon-Rachleff Innovation Award pre-proposal application deadline

**FRIDAY, AUGUST 15**
Fellowship Award application deadline

**SUNDAY, OCTOBER 5 – WEDNESDAY, OCTOBER 8**
Fellows' Retreat

**SUNDAY, OCTOBER 26 & MONDAY, OCTOBER 27**
Damon Runyon-Rachleff Innovation Committee Dinner and Award Selection Meeting

**TUESDAY, OCTOBER 28**
Board Meeting

**FRIDAY, NOVEMBER 7**
Fellowship Award Selection Commitee Meeting

# 17 New Damon Runyon Fellows Selected

The Damon Runyon Fellowship Award supports the training of the brightest young postdoctoral scientists conducting basic and translational cancer research in leading laboratories across the country. The three-year award is designed to enlist the skills and creativity of the next generation in the fight against cancer.

**Lu Bai, PhD (Bob and Suzanne Wright Fellow)**, with her sponsors Frederick R. Cross, PhD, and Eric D. Siggia, PhD, at The Rockefeller University, New York, NY, is investigating transcriptional regulation of cell cycle-regulated genes, an important issue in **understanding general cancer mechanisms.**

**Eric J. Bennett, PhD**, with his sponsor J. Wade Harper, PhD, at Harvard Medical School, Boston, MA, is aiming to identify new genes that control the abundance of an important tumor suppressor protein, PTEN. The goal is to gain a better understanding of **how the formation and development of tumors starts.**

**Jelena Bezbradica, PhD (HHMI Fellow)**, with her sponsor Ruslan M. Medzhitov, PhD, at Yale University, New Haven, CT, is investigating mechanisms underlying **effective T cell immune responses.**

**Michelle M. Boehm, PhD (HHMI Fellow)**, with her sponsor Bonnie L. Bassler, PhD, at Princeton University, Princeton, NJ, is studying the basic mechanisms of cell-to-cell communication, **a key process in cancer's development.**

**Ken Cadwell, PhD (Lallage Feazel Wall Fellow)**, with his sponsor Herbert W. Virgin, IV, MD, PhD, at Washington University, St. Louis, MO, is using a novel model to investigate autophagy, a cellular process that is **intimately linked to cancer and human disease.**

**Erhu Cao, PhD**, with his sponsor David J. Julius, PhD, at the University of California, San Francisco, CA, is investigating the structure and function of sensory channels for **better management of cancer-related pain.**

**Alexandra M. Deaconescu, PhD (HHMI Fellow)**, with her sponsor Nikolaus Grigorieff, PhD, at Brandeis University, Waltham, MA, is investigating how adenomatous polyposis coli, the **most commonly mutated protein in colorectal cancers,** regulates the organization of the cellular cytoskeleton.

**Erik W. Debler, PhD (Dale and Betty Ann Frey Fellow)**, with his sponsor Günter Blobel, MD, PhD, at The Rockefeller University, New York, NY, is investigating components of the nuclear pore complex (NPC), a structure that regulates movement of proteins within the cell. Disruption of the NPC is linked to various types of cancer, including **myeloid and lymphoid leukemias.**

**Gianna Elena Hammer, PhD**, with her sponsor Averil Ma, MD, at the University of California, San Francisco, CA, is investigating how dendritic cells, the regulators of T cell function, detect infection or cancer and then **coordinate protective immune responses.**

**Yoh Isogai, PhD**, with his sponsor Catherine Dulac, PhD, at Harvard University, Cambridge, MA, is investigating causes and effects of stress hormone perturbation, a hallmark of certain **brain cancers.**

**Daniel F. Jarosz, PhD (HHMI Fellow)**, with his sponsor Susan L. Lindquist, PhD, at the Whitehead Institute for Biomedical Research, Cambridge, MA, is investigating how the environment shapes the acquisition and expression of new traits–a fundamental question with broad implications from **carcinogenesis to drug resistance and evolution.**

**Chitra V. Kotwaliwale, PhD**, with her sponsor Abby F. Dernburg, PhD, at the University of California, Berkeley, CA, is defining the mechanisms underlying the spatial organization of chromosomes within the nucleus. This work may provide insight into the causes of changes in nuclei of **leukemias and lymphomas.**

**Dipali G. Sashital, PhD**, with her sponsor Jennifer A. Doudna, PhD, at the University of California, Berkeley, CA, is studying the production of newly discovered small RNAs, and defining their function with a protein that plays a **fundamental role in cancer cell proliferation.**

**Elizabeth S. Sattely, PhD**, with her sponsor Christopher T. Walsh, PhD, at Harvard Medical School, Boston, MA, is focusing her research on understanding how enzymes synthesize medicinal compounds in nature. Because many powerful chemotherapeutics are small molecules produced by microorganisms, her efforts may contribute to the **discovery of next-generation anticancer agents.**

**Alla A. Sigova, PhD**, with her sponsor Richard A. Young, PhD, at the Whitehead Institute for Biomedical Research, Cambridge, MA, is discovering novel, non-coding RNAs that regulate the self-renewal and developmental potential of normal stem cells – **a critical step in understanding the origins of many aggressive cancers.**

**Sarah E. Tully, PhD (Conrad Hilton Fellow)**, with her sponsor Benjamin F. Cravatt, PhD, at The Scripps Research Institute, La Jolla, CA, is studying the biosynthesis of endocannabinoids, small lipid molecules important in the regulation of appetite and analgesia. Manipulation of this process may make it possible to **relieve pain, promote hunger and inhibit nausea associated with radio- and chemotherapy used during cancer treatment.**

**Brian J. Yeh, PhD**, with his sponsor Eric L. Weiss, PhD, at Northwestern University, Chicago, IL, is determining how cell division can produce two cells with distinct gene expression programs, a process that must occur faithfully to **avoid tumor formation.**

"There is no question that young scientists are the most critical resource in biomedical research. They inject the excitement, energy and enthusiasm that drive the scientific enterprise. The Damon Runyon Cancer Research Foundation fills a critical niche by supporting these exceptionally driven young people at a vitally important stage in their cancer research careers."
*—Günter Blobel, MD, PhD, Nobel Laureate, 1999*

# "High risk, high reward"
## Innovation Award Winners Selected

Three bold young scientists with potentially breakthrough ideas now have a chance to pursue their dreams, thanks to the **Damon Runyon–Rachleff Innovation Award**, a new form of funding for cancer research that is based on a venture capital "high risk, high reward" investing model.

"Obtaining funding for risky ideas has always been very difficult and is now even more so due to decreased grant funding by the National Institutes of Health," said Ronald Levy, MD, Chief of Oncology at the Stanford University School of Medicine and the chair of the scientific advisory committee for the Award.

David G. Kirsch, MD, PhD, one of the recipients of the Award, added, "I just started my own lab in September and without preliminary data, I do not think my proposal would have had a realistic chance of being funded from traditional sources."

The Foundation received more than 400 applications, which were reviewed by a scientific advisory committee comprised of world-renowned scientists who themselves conceived of breakthrough ideas at a young age. Seventy-three semi-finalists were identified and ten finalists were interviewed before the committee made its final selection.

Each award recipient will receive $450,000 over three years. This funding should enable them to collect enough data to confirm their hypotheses so that they can attract more substantial funding from traditional sources.

**Nathanael S. Gray, PhD**, *Dana-Farber Cancer Institute, Boston, MA, age 34*. Dr. Gray is using organic chemistry to create a "cancer signaling roadmap." By identifying the protein partners of tumorigenic kinases, which signal tumor cells to grow and spread, he hopes his work will identify new targets for drugs that target cancer cells without causing the side effects associated with most current chemotherapy.

**David G. Kirsch, MD, PhD**, *Duke University, Durham, NC, age 37*. Dr. Kirsch seeks to use the latest molecular imaging technology to develop a hand-held device to image single cancer cells during surgery to identify microscopic residual disease – something he has been told cannot be done. If he is successful, patients will be spared unnecessary radiation therapy and those with residual disease will receive more precisely targeted high dose radiation.

**Sarkis K. Mazmanian, PhD**, *California Institute of Technology, Pasadena, CA, age 35*. Dr. Mazmanian's novel hypothesis is that intestinal bacteria are a critical factor in colon cancer. He proposes that symbiotic microorganisms have evolved molecular mechanisms to protect their hosts from unfavorable immune responses that cause disease. He hopes that an understanding of the properties of beneficial molecules of intestinal bacteria may lead to a new class of natural therapeutics.

WHAT'S INSIDE **SPRING 2008**

# momentum

> Discoveries That Matter: Daring Science, Extraordinary Breakthroughs

> Go Vertical: 2,000 Brave Climbers (4,000 Sore Calves)

> 20 New Awardees With Pioneering Ideas


*Damon Runyon*
Cancer Research
*Foundation*
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Suite 302, New York, New York 10006




## Great shows, great seats, great cause

Every month, New York's leading Broadway theaters set aside a selection of their very best seats–normally only available to VIPs or those in the entertainment industry–especially for Damon Runyon supporters. And while brokers can charge more than triple the ticket price for premium seats, we offer the same seats at double the original price–half of which goes towards fighting cancer (and is tax deductible).

Call us and we'll personally assist you with your selection. Your tickets will then be waiting for you at the box office on the night of the performance.

*Perfect for Mother's Day, or a birthday or anniversary gift.* We also welcome corporate clients.

**Please call our Broadway Tickets Service at 212.455.0550 Monday through Friday between 9 AM–5 PM.**

## Invitation to the Premier Circle

The Premier Circle is a premium membership service that gives patrons early access to the best seats on Broadway.

DAMON RUNYON BROADWAY PREMIER CIRCLE

Members also enjoy two free tickets to a show of their choice (subject to availability), reduced-price invitations to our theater benefits and savings at theater district restaurants.

**For information about our Premier Circle, please call 212.455.0550 or visit our website at www.damonrunyon.org.**

### 2008 Spring Shows–New Shows, Famous Faces

**MARCH**

**Cat on a Hot Tin Roof:** Starring James Earl Jones, Terrence Howard and Phylicia Rashad. Directed by Debbie Allen.

**In the Heights:** A freestyling, salsa- and hip-hop-filled love story set in Washington Heights, New York City.

**Gypsy:** The new Roger Berlind production starring Patti LuPone and Boyd Gaines.

**APRIL**

**South Pacific:** The iconic Rodgers and Hammerstein musical returns in its first-ever Broadway revival.

**A Catered Affair:** Harvey Fierstein's new musical, also starring Faith Prince and Tom Wopat.

**Cry-Baby:** A new musical based on the film by John Waters about a 1950's rock n' roll rebel.

**The Country Girl:** Starring Morgan Freeman and Frances McDormand. Directed by Mike Nichols.

**Thurgood:** The story of Thurgood Marshall's rise to the Supreme Court, starring Laurence Fishburne.

**SUMMER 2008**

**Godspell:** A new production of the 1971 musical based on the Gospel according to St. Matthew.

**TO ORDER TICKETS CALL 212.455.0550 or 1.877.7CANCER**
*(For more information about our Broadway Tickets Service, visit our website at www.damonrunyon.org)*

***See our website for a full list of all available shows, seating and ticket prices.**

## **GIVING** OPPORTUNITIES

> **Tribute gifts** Honor someone in your life, give special meaning to condolences or celebrate nuptials with a special gift that supports cancer research. The Foundation will send a beautiful card on your behalf to the person(s) of your choosing.

> **Remember the Foundation in your will or trust** Support the Damon Runyon Cancer Research Foundation after providing for your family and loved ones. Bequests and trusts using property, securities or cash provide long-term financial stability to the Foundation.

> **Gifts of securities** If you have stock that has grown in value and produces little income, you can make a charitable gift of these securities and enjoy significant tax savings.

> **Matching gifts** Double your impact through a corporate matching gift. Check with your employer's human resources department to find out if this is an option for you.

> **Named awards** Sponsor a brilliant scientist for a three-year period or in perpetuity, and we will name the award for you or your family or in honor of a loved one.

> **Host an event** Help the Foundation reach out to new friends by hosting an event to raise funds and awareness about our important work.

> **Take a trip on us** Make a donation with a credit card and add to your reward points!

> **Non-Monetary Giving** We value non-monetary gifts and welcome pro-bono services. We would particularly welcome gifts of professional services, catering services, advertising and media-related placements or products that we can use for raffles, prizes or gift bags.

**For more information about these giving opportunities, please call 1.877.7CANCER.**

100% for cancer research*

*THAT'S HOW MUCH OF YOUR DONATION WILL BE USED IN THE FIGHT AGAINST CANCER



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