WHAT'S INSIDE **FALL 2009**

momentum

Damon Runyon
Cancer Research
Foundation
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A gift of premium house seats from Damon Runyon Broadway Tickets guarantees your loved ones, colleagues and friends a fantastic night at the theater at a show they can choose themselves!

Our Damon Runyon Broadway Tickets service offers you the best seat locations – house seats normally reserved for VIPs and industry insiders – for a wide variety of Broadway shows. Our tickets typically cost less than a broker would charge and your purchase supports cancer research.

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The **Broadway Premier Circle** is a premium membership service that gives patrons early access to our tickets, along with other exclusive benefits. It's a great way to guarantee your choice of top seats at the hot new shows and increase your commitment to cancer research.

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2009 FALL AND FESTIVE SEASON SHOWS

Go to www.damonrunyon.org/broadway for a full list of all available shows, seating and ticket prices.

SEPTEMBER

A Steady Rain: A new play that puts friends, honor and loyalty to the test. Starring Hugh Jackman and Daniel Craig.

OCTOBER

Superior Donuts: *August Osage County*'s playwright, Tracy Letts, returns with a new play about the power of friendship.

Hamlet: The classic Shakespeare tragedy. Starring Jude Law.

Oleanna: The revival of David Mamet's controversial play of power and control. Starring Bill Pullman and Julia Stiles.

Memphis: A new musical about rock 'n' roll and love in Memphis in the 1950s.

Brighton Beach Memoirs: Neil Simon's classic comedy about Eugene Jerome – his dreams, love life and family.

Finian's Rainbow: The classic musical about luck and love.

NOVEMBER

Ragtime: A revival of the much-loved musical set in New York City in the 20th century.

In The Next Room: A new play about marriage, intimacy and electricity in the 1880s.

Fela!: Using a blend of jazz, funk, and African rhythm and harmonies, Fela! explores Fela Kuti's controversial life as an artist, political activist and revolutionary musician.

DECEMBER

Race: A firm made up of three lawyers, two black and one white, is offered the chance to defend a white man charged with a crime against a black young woman. Starring James Spader.

Broadway Bound: Neil Simon's sequel to *Brighton Beach Memoirs* continues to explore Eugene Jerome's life.

White Christmas: Irving Berlin's classic musical returns to Broadway this holiday season.

POPULAR AND ACCLAIMED

Billy Elliot: The 2009 Tony Award winner for Best Musical based on the British film of a young boy who wants to be a ballet dancer.

God of Carnage: The 2009 Tony Award winner for Best Play about two ostensibly civilized couples. Starring Jeff Daniels, Hope Davis and James Gandolfini.

Hair: The 2009 Tony Award winner for Best Revival of a Musical defines the 1960s through the stories of NYC hippies.

TO ORDER TICKETS CALL 212.455.0550 OR 1.877.7CANCER

WAYS TO **GIVE**

100% for cancer research*

*ADMINISTRATIVE COSTS ARE PAID THROUGH OUR DAMON RUNYON BROADWAY TICKETS SERVICE AND ENDOWMENT.

- **Plan for cancer research in your will or trust** You can support the Foundation's important work while also meeting your financial needs and those of your loved ones. There are many types of planned gifts that enable you to make a significant contribution to the fight against cancer.
- **Sponsor a scientist** You can have a direct impact on the research of a brilliant young scientist. Sponsor a Damon Runyon researcher for one or more years of his or her award and we will name the award for you, your family, or in honor of someone you choose. Your support could be crucial to the development of cancer treatments and cures of the future.
- **Give annually** We rely on annual gifts from generous individuals, foundations and corporations to fund our research programs. Donate by mail, over the phone or on our secure website at www.damonrunyon.org. We also accept securities, which may enable you to enjoy significant tax savings.
- **Pay a tribute** We welcome and appreciate donations to celebrate your friends and loved ones on birthdays, weddings, anniversaries, Mother's Day and Father's Day, as well as gifts in memory of those close to you. In each case a special card will be sent and, as always, 100% of your gift will be used to support cancer research.
- **Attend an event** We specialize in events that are high in content yet short on lengthy speeches. Join us, meet other informed supporters and have the chance to engage with current and former Damon Runyon scientists working to defeat cancer.
- **Purchase Broadway tickets** Enjoy the best seats on Broadway while supporting cancer research with a tax deductible contribution. Call 212.455.0550 or visit www.damonrunyon.org/broadway to learn more.
- **Donate online** You can easily donate online via our secure website at www.damonrunyon.org

For more information about these giving opportunities, please call 1.877.7CANCER or visit us at www.damonrunyon.org/donate

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FALL 2009 | A NEWSLETTER FROM THE **DAMON RUNYON CANCER RESEARCH FOUNDATION**

The "War on Cancer"– Where We Stand Now

by Lorraine Egan, Executive Director

Senator Ted Kennedy's death raised the oft-repeated question –"are we winning the war on cancer?" There have been strong reactions to this question on all sides. Some are optimistic and see real progress in our understanding of cancer – especially those who are survivors thanks to scientific advances. Some are skeptical and frustrated that the billions of dollars invested in research have not brought about a "cure."

The problem is that we are asking the wrong question.

IS THIS REALLY A WAR?

The phrase "War on Cancer" was coined back in the 1970s at a time when little was known about cancer. It was galvanizing and resulted in a significant investment in cancer research, which fortunately continues today. But it gave the impression that there was a single enemy that could be defeated if we simply devoted more money to the fight.

Since then, our understanding of cancer has advanced by quantum leaps. That knowledge makes it crystal clear that "defeating" cancer is one of the most complex scientific challenges we have ever faced.

Unlike other diseases such as polio and AIDS, which are caused by outside invaders that we can identify, cancer is the breakdown of our own basic cellular processes. Moreover, cancer is many diseases. We do not know how many because we continue to learn that even cancers with the same name vary significantly from person to person at the molecular level. For example, one person's colorectal cancer is not genetically the same as another person's colorectal cancer, and these differences in DNA can dictate how a patient responds to drug treatment.

Finally, cancer cells are wired for survival – knock down a tumor with drugs and radiation and it may find a way to survive and regrow. A single cure for cancer is, therefore, extremely unlikely, and the war analogy fuels unrealistic expectations and frustration.

"If we can eliminate all cancers, putting a man on the moon will look like child's play."

ARE WE MAKING MEANINGFUL PROGRESS?

This is the right question, and the answer is yes. Recently released data show that cancer death rates are declining, especially among younger people (*Cancer Research*, 8/15/09). One example in this report indicates the death rate from cancer for people born between 1945 and 1954 was 29% lower than for people this age born 30 years earlier. The gains have been smaller in older populations (not surprising, since cancer and aging go hand in hand), but they are happening there as well.

Progress has clearly been made against specific cancers. Survival rates have dramatically improved for childhood leukemia, testicular cancer, certain types of lymphoma and, more recently, chronic myelogenous leukemia, thanks to the drug Gleevec (a Damon Runyon scientist made a key discovery that accelerated the development of this breakthrough treatment).

We in the scientific world also see the exponentially increased understanding of how cancer develops. Thanks to technological advances, the tools needed to expand this knowledge have and will continue to enable more rapid progress. Researchers, including those funded by the Damon Runyon Cancer Research Foundation, continue to elucidate the phenomenally complex cellular processes that go awry in cancer. They are also moving forward with new ideas to prevent or repair these aberrant processes. The scope and breadth of this research is vast.

Lorraine Egan, Executive Director

WILL WE EVER ELIMINATE CANCER AS A DEADLY DISEASE?

We will continue to make steady progress against the different forms of cancer, identifying ways to diagnose them earlier and either cure them outright or control them so that they become more benign chronic diseases. Our knowledge of how to prevent cancers will also continue to grow. However, we all must accept the sheer complexity of this challenge. If we can eliminate all cancers, putting a man on the moon will look like child's play.

To accelerate progress, I believe we must do the following:

- Invest our research dollars in the best scientists. This is the single most important determinant when it comes to breakthrough discovery.
- Encourage scientists to think big and explore new directions. Incremental research and drug development will not accelerate progress.
- Fund research across the full continuum, from basic discovery to clinical trials. Basic science is essential because we must understand cancer much more deeply; clinical research drives the translation of new findings into real benefit for patients.

WHAT IS DAMON RUNYON'S ROLE?

We believe that progress against cancer absolutely depends on having the smartest minds working on the problem. We also believe that younger scientists are the ones who bring new ideas, creativity and drive to this enormous challenge. Therefore, our strategy is to identify the most brilliant, most exceptional early career basic and clinical researchers and provide them with support that will enable them to become the next breakthrough researchers in cancer.

We do not fund soldiers. We fund explorers, inventors and innovators. They will meet – and solve – the challenge of cancer.

Study Traces Steady Declines in U.S. Cancer Deaths

Information and quotes from Reuters and EurekAlert!

Improvements in cancer screening, prevention – especially cessation of smoking – and better treatments have resulted in steady declines in cancer death rates over the past three decades, according to a recent report in the journal *Cancer Research*.

This is especially true for younger adults – 35 to 45 years old – who had a greater than 25 percent decline per decade in cancer deaths.

"Everyone born since the 1930s has enjoyed a decreased risk of cancer death, at every age," said one of the study's authors, Dr. Eric Kort. His team looked at improvements in cancer deaths among groups of individuals born in five-year intervals starting in 1925.

"Our efforts against cancer, including prevention, early detection and better treatment, have resulted in profound gains, but these gains are often unappreciated by the public due to the way the data are usually reported," he said.

Past analyses of death rates, conducted by government researchers, tracked trends in cancer deaths across the entire population, including the elderly, not by individual age groups.

Clinical Investigator Symposium

Forty exceptional physician-scientists funded by the Damon Runyon Cancer Research Foundation gathered in April to discuss the latest in cancer research at our Clinical Investigator Symposium, which commemorated the 10th year of the award program. They were joined by leaders in academia, industry, healthcare investing and media.

"I'd really like to thank you for putting on such an extraordinary event. I can't describe how impressed I was by the quality of the speakers, the stature of the reviewers, the professionalism of the staff, and the human character of those involved. I now fully realize the great significance of this award."

Juan Carlos Ramos, MD, Damon Runyon-Genentech Clinical Investigator '07–'10, University of Miami School of Medicine

"The symposium was absolutely marvelous; it was a great chance to reconnect with each other and hear some great science."

Robert H. Vonderheide, MD, DPhil
Damon Runyon-Lilly Clinical Investigator '00-'05, University of Pennsylvania School of Medicine

Left: John Mendelsohn MD, President, The University of Texas M. D. Anderson Cancer Center. Right: Robert A. Weinberg, PhD, of MIT and the Whitehead Institute delivers his keynote address.

DAMON RUNYON **IN THE NEWS**

Clinical Investigator Douglas K. Graham, MD, PhD

Science, a leading scientific journal, recently featured the Damon Runyon Clinical Investigator Award loan repayment program in an article focusing on the issue of medical school debt. Scientific Director Yung S. Lie, PhD, and several Damon Runyon scientists are quoted:

"The impact of student debt on career choice has been a concern of academic leaders since the early 1990s, when a series of commentaries published in medical journals warned of a serious drought in the physician-scientist pipeline unless something was done to help recruit and retain people on that career path.

"Responding to those calls, Damon Runyon began to offer loan repayment, and in 2000 the National Institutes of Health extended its Loan Repayment Program (LRP).... to medical scientists at universities and medical centers.

"Such programs appear to be working."

HHMI COMMITS $1M ANNUALLY

The Howard Hughes Medical Institute (HHMI), the largest private funder of biomedical research in the world, recently doubled its funding of our Damon Runyon Fellowship program to $1 million per year.

The Fellowship Award is the Foundation's oldest and most recognized award and one of the highest accolades a young scientist can receive. Damon Runyon Fellows gain freedom and flexibility to explore their own innovative ideas while working with mentors in top universities and research centers.

The Fellowship Award is the scientist's primary source of funding for three years – $140,000 for PhDs and $174,000 for MDs. Approximately 30 new Fellows are funded each year.

New HHMI Fellow, Ilan Wapinski, PhD

HHMI now supports 16 Damon Runyon Fellows. Given the Institution's elite status, the announcement is a powerful endorsement of the Fellowship program.

NEW DAMON RUNYON EVENT **AT YANKEE STADIUM**

We're delighted to announce a new, unique event at Yankee Stadium – the inaugural Runyon 5K – on **Sunday, November 15, 2009**. We're especially hoping Damon Runyon supporters like you will join us.

Participants will run or walk the concourses and ramps, climb the stairs between levels and enjoy incredible views of the Stadium. The course will finish with a victory lap on the warning track circling the field – where you will see the Stadium from a player's point of view!

The Runyon 5K is the first event of its kind at Yankee Stadium

THE runyon 5K
DAMON RUNYON 5K AT YANKEE STADIUM
RUN/WALK FOR CANCER RESEARCH

Children ages 5 to 12 can take part in the Kids Fun Run – one lap around the warning track.

The Damon Runyon Cancer Research Foundation has a long history with the Yankees: Joe DiMaggio was on its Board, and Babe Ruth and Mickey Mantle were supporters. Damon Runyon himself began his career as a sports writer and revolutionized how the game was covered.

Individuals and teams are welcome. Entry is limited to the first 2,500 registrants.

The registration fee is $35 for students and children and $50 for adults. Each fee includes a tax-deductible contribution to cancer research.

For more information please visit www.damonrunyon.org/yankeestadium or contact Kim Kubert at runyon5k@damonrunyon.org. If you would like to volunteer, please contact Liz Benham at volunteers@damonrunyon.org.

Annual Breakfast Raises $1.4 Million

Joe Kernen, co-anchor of CNBC's "Squawk Box"

"This is an amazing time to be involved in cancer research. But no one company, individual or organization can do it alone," said Richard T. Clark, Chairman, President and Chief Executive Officer of Merck and Co., Inc., who was honored at our Annual Breakfast in May. Merck recently donated $450,000 towards the Damon Runyon Clinical Investigator program, extending its total support of Damon Runyon award programs to $2 million since 1995.

The event, held at New York's famous Rainbow Room, raised $1.4 million for cancer research and was attended by 250 guests, including leaders of business and science.

Joe Kernen, co-anchor of CNBC's flagship morning program "Squawk Box," spoke of his early career as a cancer researcher at MIT. "The people that pushed me out of research and into reading a teleprompter are the people that win Damon Runyon awards," said Mr. Kernen.

Guests were inspired by Damon Runyon-funded scientists John L. Rinn, PhD, and Christine H. Chung, MD, who shared their personal stories and described their high-impact cancer research.

For photos of the event, see the "Events" section of our website at: www.damonrunyon.org.

"For our son's birthday this year, in lieu of presents, he requested that well-wishers consider contributing to his donation to Damon Runyon. Several family and friends received cancer diagnoses this year, and we chose this Foundation after attending the Annual Breakfast. We were impressed by both the quality of the event, the presenters, and in particular, the two young scientists who spoke."

—The Tom Family, supporters

Left: Damon Runyon scientists Christine H. Chung, MD, and John L. Rinn, PhD; Right: Lorraine Egan with Richard T. Clark of Merck and Co., Inc

Four New Clinical Investigators Selected

Andrew L. Feldman, MD
with mentors Stephen M. Ansell, MD, PhD, and Ahmet Dogan, MD, PhD, at the Mayo Clinic, Rochester, Minnesota

Dr. Feldman's research focuses on defining the role of a factor called IRF4 in **T-cell lymphomas** (TCLs), aggressive cancers that are fatal in the majority of patients. He proposes that IRF4 represents a promising therapeutic target for TCLs and aims to develop new strategies to block it.

William Y. Kim, MD
[*Merck Investigator*]
with mentor Charles M. Perou, PhD, at the University of North Carolina, Chapel Hill, North Carolina

Dr. Kim is conducting a clinical trial examining the efficacy of **erlotinib/Tarceva** in bladder cancer. His goal is to define predictors of patient response to detect which patients would benefit from the treatment, and determine how to best coordinate this therapy with chemotherapy.

C. Ryan Miller, MD, PhD
[*Genentech Investigator*]
with mentors Charles M. Perou, PhD, and Terry Van Dyke, PhD, at the University of North Carolina, Chapel Hill, North Carolina

The most common and deadly primary brain tumor is **glioblastoma (GBM)**, which is comprised of a spectrum of disease subtypes that are molecularly distinct. Dr. Miller aims to develop diagnostic tests to classify human GBM, define new targets for preclinical drug development, and define the molecular changes in GBM after standard-of-care therapy.

Vu H. Nguyen, MD
[*August M. Watanabe, MD, Investigator*]
with mentor Thomas F. Gajewski, MD, PhD, at The University of Chicago, Chicago, Illinois

Dr. Nguyen's goal is to develop novel ways of controlling donor T immune cell activity to **prevent graft-versus-host disease (GVHD) in cancer patients** treated with bone marrow transplantation. His hypothesis is that regulatory T cells can be used to suppress GVHD while preserving anti-tumor immunity. This work could greatly reduce the dangers associated with bone marrow transplantation.

2009 CLINICAL INVESTIGATOR **CONTINUATION GRANTS**

Three outstanding Damon Runyon Clinical Investigators are the first recipients of Continuation Grants, an additional two years of funding totaling $300,000, to complete a promising avenue of research, or initiate or continue a clinical trial. This program is possible through the generous support of the William K. Bowes, Jr. Foundation, and Connie and Robert Lurie.

Renier J. Brentjens, MD, PhD [Lilly Investigator] is leading two clinical trials for leukemia patients for whom all other treatment options have been exhausted. His Phase I trial uses the patients' own genetically modified immune T cells to treat **chronic lymphocytic leukemia (CLL)**. The second trial aims to treat children with **acute lymphocytic leukemia (ALL)**.

Patrick A. Brown, MD [Lilly Investigator] is leading two national Phase I/II clinical trials focused on a new, small molecule inhibitor drug – which he was instrumental in developing – for the treatment of two types of pediatric leukemias, **acute lymphocytic leukemia (ALL) and acute myelogenous leukemia (AML)**. He is also developing a test to predict response to this drug.

Andrea L. Cox, MD, PhD, is involved in several clinical trials to develop a **hepatitis C virus (HCV) vaccine**, vitally important as HCV often leads to **liver cancer**.

f May 2009 Fellows

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.

Orkun Akin, PhD [HHMI Fellow] with his sponsor S. Lawrence Zipursky, PhD, at the University of California, Los Angeles, California, is studying cell motility – the methods that cells use to move in their environments – in the context of the developing nervous system. As **cell motility** is essential for **cancer metastasis**, new insights into its basic biology carry the promise of new therapies and approaches to cancer treatment.

Yimon Aye, PhD, with her sponsor JoAnne Stubbe, PhD, at the Massachusetts Institute of Technology, Cambridge, Massachusetts, is studying ribonucleotide reductases (RNRs), enzymes that play an essential role in making deoxynucleotides (the "building blocks" of DNA). RNRs are overexpressed in cancer cells, making them an ideal target for cancer drugs. She will focus on understanding the mechanism of **a new drug called Triapine, which may prevent the replication of tumor cells** and is currently being tested in Phase II and III clinical trials.

Sean C. Bendall, PhD, with his sponsor Garry P. Nolan, PhD, at Stanford University, Stanford, California, is using breakthrough single-cell analysis techniques to investigate **how normal cell signaling networks are rewired**, allowing cancer to grow unchecked.

Robert K. Bradley, PhD, with his sponsor Christopher B. Burge, PhD, at the Massachusetts Institute of Technology, Cambridge, Massachusetts, is studying the proteins that regulate splicing, a process by which a single gene may be expressed as multiple, distinct protein forms. Gaining a better understanding of this process is important, as **disruption of normal splicing can give rise to cancer**.

Matthew F. Calabrese, PhD [HHMI Fellow] with his sponsor Brenda A. Schulman, PhD, at St. Jude Children's Research Hospital, Memphis, Tennessee, is studying how cell division is regulated, in part, by the attachment of a protein called ubiquitin to other proteins throughout the cell. Understanding how **ubiquitin** functions is critical to understanding normal cell division as well as **unregulated cell division associated with cancer**.

Jianfu Chen, PhD [HHMI Fellow] with his sponsor Lee A. Niswander, PhD, at the University of Colorado Denver, Colorado, is studying molecular mechanisms of **how folic acid (FA) interacts with our genome**. His goal is to determine whether FA has a role in **cancer prevention**.

Won-Suk Chung, PhD, with his sponsor Ben A. Barres, MD, PhD, at Stanford University, Stanford, California, is investigating the development and function of **brain cells called astrocytes**, which play critical roles in neuronal development and diseases such as **brain tumors (astrocytomas)**. Understanding how astrocytes are generated and maintained in the brain will help to develop better strategies for treating astrocytomas.

Nadya Dimitrova, PhD [Robert Blount Family Fellow] with her sponsor Tyler Jacks, PhD, at the Massachusetts Institute of Technology, Cambridge, Massachusetts, is studying the role of a **novel class of RNA molecules, called lincRNAs, in tumor suppression**. She hopes to identify new markers for cancer diagnosis as well as novel approaches for effective cancer treatment.

Chuan-Hsiang Huang, MD, PhD [Harold L. Plotnick Fellow] with his sponsor Peter N. Devreotes, PhD, at The Johns Hopkins University, Baltimore, Maryland, is studying a process called **chemotaxis by which cells migrate in response to naturally-occurring chemical cues** in the human body. This process is essential for normal cellular movements as well as for the spread of cancer cells (metastasis).

Daniel H. Kim, PhD, with his sponsor Jeannie T. Lee, MD, PhD, at Massachusetts General Hospital, Boston, Massachusetts, is studying how noncoding RNAs (unique RNAs that do not make proteins) control gene expression during a developmental process in females called X-inactivation. His work may provide insights into **the roles these RNAs may play in silencing tumor suppressor genes**.

Liana F. Lareau, PhD [HHMI Fellow] with her sponsor Patrick O. Brown, MD, PhD, at Stanford University, Stanford, California, is investigating how the cell regulates translation, the process that turns the information in our genes into proteins. **Misregulation of protein production is a hallmark of many forms of cancer**.

Josselin Milloz, PhD, with his sponsor Sharad Ramanathan, PhD, at Harvard University, Cambridge, Massachusetts, aims to understand how **autophagy, the process of cellular "self-cannibalism,"** is involved in a large number of cancers.

Taiowa A. Montgomery, PhD, with his sponsor Gary Ruvkun, PhD, at Massachusetts General Hospital, Boston, Massachusetts, is studying mechanisms of **gene silencing** by a class of small regulatory molecules called microRNAs. In addition to having essential roles in development, **microRNAs can act as oncogenes or as tumor suppressors**.

Benjamin R. Myers, PhD, with his sponsor Philip A. Beachy, PhD, at Stanford University, Stanford, California, is studying the function of the **Hedgehog signaling pathway**, in particular how inappropriate activation of this pathway can lead to the initiation and growth of tumors.

Jared T. Nordman, PhD [HHMI Fellow] with his sponsor Terry L. Orr-Weaver, PhD, at the Whitehead Institute for Biomedical Research, Cambridge, Massachusetts, is working to identify genes that are necessary to ensure **accurate and efficient duplication of the genome**. Understanding this process is critical for deciphering how a normal cell can become a tumor cell.

Sharsti L. Sandall, PhD, with her sponsor D. Leanne Jones, PhD, at the Salk Institute for Biological Studies, La Jolla, California, is investigating the mechanisms governing **stem cell fate within the native environment or "niche."** These studies may reveal how this environment can be converted to one that supports cancer self-renewal.

Ilan Wapinski, PhD [HHMI Fellow] with his sponsor Roy Kishony, PhD, at Harvard Medical School, Boston, Massachusetts, is studying how changes in gene regulation impact cell growth rates. Understanding these processes will help to understand **how cancer cells can outgrow healthy ones** in the human body.