

## Nearly 130 present their latest research during Cancer Research Day

By Mary Hardin

There was nothing simple about the science unveiled on the detailed and, to the unfamiliar viewer, complex 128 posters on display May 17 at the IUPUI Campus Center. The 3'x4' posters, covered with scientific symbols and charts, were tacked to dozens of display panels in the ballroom-sized multi-purpose room during the 2017 IU Simon Cancer Center Cancer Research Day.

Each scientific poster – and there were 128 in all – represented first-rate cancer research and summarized the dreams of many young researchers hoping to help solve the mystifying puzzle of cancer. The principal investigator for each poster was present to summarize his or her work to the judges.

Students, fellows, and faculty conducting cancer research at IUPUI, Indiana University-Bloomington, Purdue University, and the Harper Cancer Research Institute, a collaboration between the IU School of Medicine and the University of Notre Dame, participated in the poster competition. [See the list of winning posters.](#)

Romero Moreno



Traveling from the Mike and Josie Harper Cancer Research Institute at the University of Notre Dame was Ricardo Romero Moreno, whose research looks at different cytokines, chemokines and growth factors that have a >possible role in determining how breast cancer bone metastases become dormant. The chemokine CXCL5 is his current focus as a protein that contributes to breast cancer dormancy in metastatic bone disease. His mentor for this project is Laurie Littlepage, Ph.D., the Campbell Family Assistant Professor of Cancer Research at Notre Dame.

Romero Moreno, 26, is completing his doctorate. A native of Mexico City, Romero Moreno completed his undergraduate degree in genomic sciences in Mexico before moving to the United States to work in bioinformatics at UCSF while reviewing graduate school options.

“I applied to several schools and I had cousins who were undergraduates at Notre Dame, but I ended up applying there because I found a program I really liked – integrated biomedical sciences,” he said.

Romero Moreno

Romero Moreno said he has done research in many other areas of human disease, including malaria and multiple sclerosis, as well as researching signaling pathways in plants and the bioengineering of bacterial plasmids. His current research, he said, is his “most rewarding.”

Community outreach that focuses on sharing information about cancer prevention and treatment to Spanish speakers is one of the things Romero Moreno enjoys. It was at such an event when he became more resolute about his research.

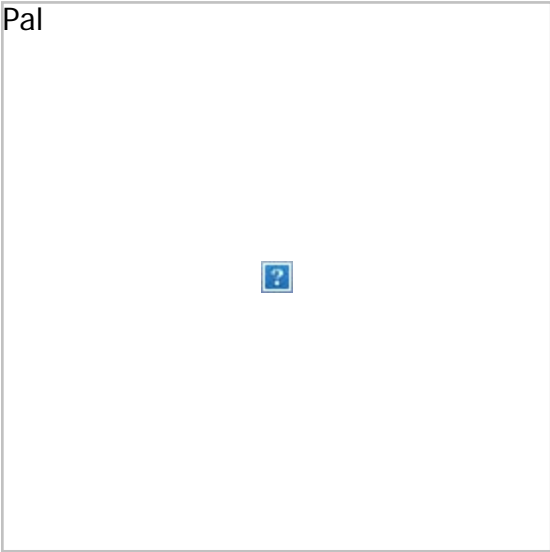
He had finished speaking to a group of Hispanic women about breast cancer awareness when a woman approached to tell him she had heard one of his earlier presentations, which prompted her to get a mammogram. That test revealed a tumor in the early stage of development and the surgery that followed was a success.

“That was that one single moment when I realized the research I do is worth doing,” Romero Moreno said.

Romero Moreno is interested in continuing this research while completing a postdoctoral fellowship. Ultimately, patent law is his target. He is studying independently for the patent bar exam and his long-term aspiration is to be a patent agent.

One of the students representing the Purdue University integrated life sciences graduate program and the Department of Biological Sciences was Arpita Pal, 29, who hopes to complete her doctorate in biological sciences in December 2018. She is working in the lab of Andrea Kasinski, Ph.D.

Co-authors of her research include IU Department of Medical and Molecular Genetics Assistant Professor Jun Wan, Ph.D., director of the Collaborative Core for Cancer Bioinformatics at the IU Simon Cancer Center and Purdue



Pal

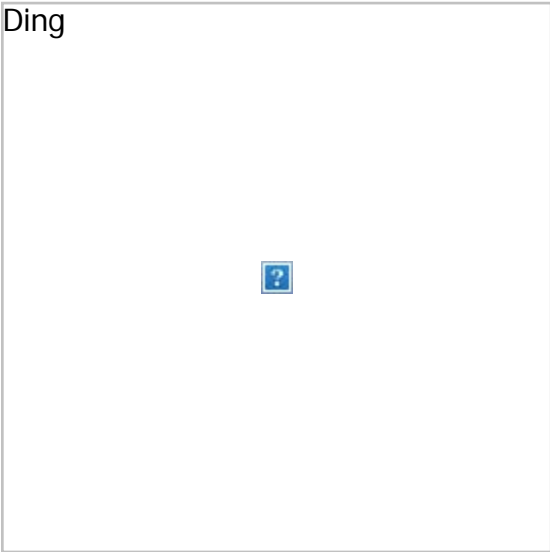
University Center for Cancer Research, and Xi Rao, Ph.D., postdoctoral scholar in computational biology and bioinformatics at IUPUI.

Pal hopes to continue her research in microRNAs, especially as therapeutics, after she completes a post-doctoral degree.

Pal completed an undergraduate degree in biotechnology in her native India and a master’s degree in molecular medicine in the United Kingdom. It was while studying at the University of Sheffield in England that she first became interested in microRNAs. Her research there profiled microRNA changes in oral cancer cells before and after treatment with cigarette smoke condensate.

Now her research is in lung cancer. Specifically, she is looking at microRNAs that drive the process of development of resistance to therapeutic drugs such as erlotinib.

Pal is the first in her family to work in cancer research. She is intrigued by microRNAs and sees this as a “groundbreaking time” in cancer research. “It has been less than 50 years that microRNAs have been implicated in cancer,” she said.



Ding (left)

How inflammation induces cancer is the puzzle Ning Ding, 30, is trying to piece together. His National Institute of Environmental Health Services (NIEHS )-funded research in the lab of Heather O’Hagan, Ph.D., assistant professor of medical and molecular genetics at the Medical Sciences Program at IU-Bloomington, focuses on the cytokine protein Jak2.

His research merited publication in the Journal of Molecular Cell Biology in 2016.

Ding believes Jak2 has a potentially significant role in the production of abnormal cells or tumors. Conversely, a Jak2 inhibitor may reduce or interrupt that process, he thinks.

“Cancer is a disease people don’t understand very well, and I want to help treat it,” Ding said.

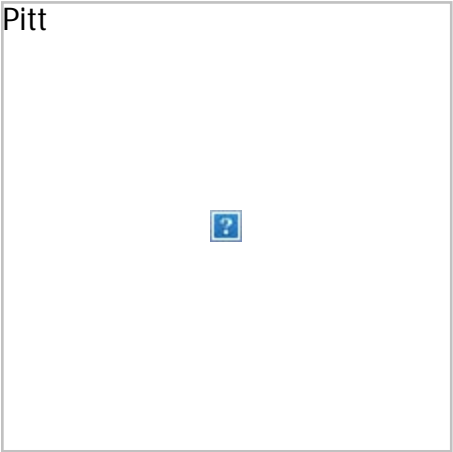
He is the first cancer researcher in his family.

Ding is a native of Wuhan, China. He has been in the United States for six years studying on the Bloomington campus. He completed his undergraduate and master’s degrees in China in kinesiology and exercise physiology, respectively. His target is to complete his doctorate next year and immediately commence additional cancer research as a postdoctoral fellow.

Two IUPUI undergrads with their eyes on medical school also participated in Cancer Research Day. Natalie Pitt, 21, shared her findings of mice and a specific kinesin that may promote tumor growth. Four days before the event, Rachael Redmond, 23, had marched through Lucas Oil Stadium in a gown and mortarboard. Her degree in chemistry is another step toward her ultimate goal of being an Air Force doctor.

Both women were mentored by George E. Sandusky, DVM, Ph.D., a senior research professor in the IU School of Medicine Department of Pathology and Laboratory Medicine.

Pitt is on target to graduate in December after 3½ years at IUPUI with a major in biology and minors in chemistry and medical humanities. She is in the process of applying to medical schools in the Midwest, including IU and Marian University College of Osteopathic Medicine. Preventative care is her primary interest in medicine; however, she has always been fascinated by

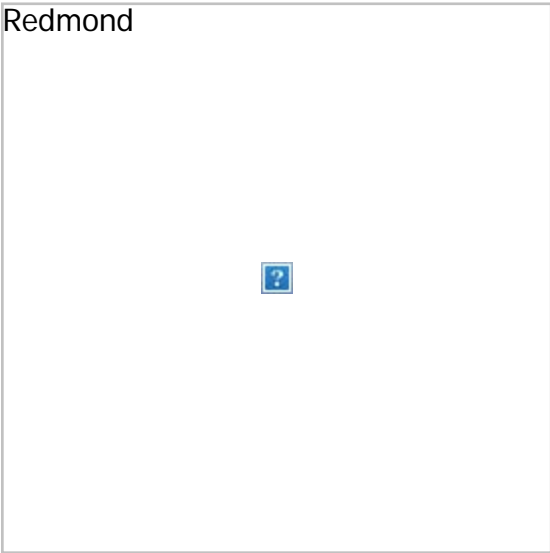


Pitt

pathology and jumped at an opportunity to work in Dr. Sandusky’s lab.

A native of Evansville, Ind., Pitt applied for an IUPUI Life-Health Sciences internship her freshman year. Over the course of that internship, she met Dr. Sandusky who asked her to join his lab where she interned 10 hours a week engrossed in a pixel analysis of pancreatic tumors in cancer stages one through four.

In 2015-16, Pitt was hired at the lab and worked part-time on a project involving mitotic kinesin, Kif14, and its potential as an oncogene. That research earned her an opportunity in March to present at the American Association of Cancer Research in Washington, D.C., and was the subject of her poster presentation at Cancer Research Day.



Redmond

Redmond said working with Dr. Sandusky afforded her many opportunities – observing surgeries and an autopsy, among other things – which increased her resolve to be a physician. Her lab project is to look at the tissue slides from four patients with renal cell cancer and evaluate how effective folate analog combined with an intraoperative fluorescence is in differentiating kidney tumors from normal tissue during laparoscopic surgery.

A native of Greenwood, Ind., Redmond plans to get a master’s degree in physiology before applying to medical school.

“Cancer Research Day is always an inspiring day as it brings together both future and veteran scientists not only from the IU Simon Cancer Center but also from Purdue and the University of Notre,” Hari Nakshatri, B.V.Sc., Ph.D., associate director of education at the IU Simon Cancer Center, said. “The annual event highlights the collaborative nature of cancer research in Indiana.”

What is Cancer Research Day?

Cancer Research Day is an annual event that aims to increase understanding and awareness of IU Simon Cancer Center research endeavors and encourage collaboration with other cancer research institutions in Indiana. Students, fellows, and faculty conducting cancer research at IUPUI, Indiana University-Bloomington, Purdue University, and the Harper Cancer Research Institute, a collaboration between the IU School of Medicine and the University of Notre Dame, are eligible to present. Cash awards are given for best poster(s) in each research category

Abstracts are submitted into the following research categories:

- basic science
- behavioral
- population science/epidemiology
- translational/clinical research

Poster abstracts for next year’s [Cancer Research Day](#) will be accepted in early 2018.



This year's Cancer Research Day attracted nearly 130 people who presented poster abstracts. Tim Yates photo

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# **Walther Oncology Physical Sciences & Engineering Research Embedding Program**

## **Request for Embedding Project Proposals**

**Initial Tier One Planning Projects (\$40,000 each)  
Tier Two Follow-up Projects (Up to \$200,000 - \$250,000 each)**

**Tier one Due Dates: September 6, 2017, and January 10, 2018**

The Walther Oncology Physical Sciences and Engineering Research Embedding Program (Walther Embedding Program), a joint program between the Indiana University Simon Cancer Center (IUSCC) and Purdue Center for Cancer Research, announces Phase 2 of the Embedding Program. The program is funded by the Walther Cancer Foundation with the goal of creating an environment where clinical perspectives drive the design of new technologies and predictive models to increase the effectiveness of cancer detection, diagnosis, and treatment. The program funds interdisciplinary, collaborative projects between Purdue University and IUSCC. Each team must include: 1) at least one Purdue faculty PI either from the physical or chemical sciences, computer science, mathematics, or engineering, 2) at least one senior clinical faculty PI from the IUSCC, 3) a Purdue postdoctoral trainee/senior graduate student, and 4) an IUSCC medical fellow/resident/junior faculty. There is an expectation that each funded trainee will spend significant time embedded in the other team members' laboratory/environment or clinic.

Successful *Research Embedding Teams* will be awarded funds to support the following:

1. Postdoctoral trainee/senior graduate student salary
2. Medical fellow/resident/junior faculty salary
3. Project supplies as appropriate to the project
4. Travel between institutions

The program is structured in a two-tier award system.

### Tier One

Tier One projects (\$40,000/project) will support small, "embedding" pilot projects for the development of innovative ideas for the clinical translational of new technologies. Successful Tier One projects, upon completion, will have demonstrated: 1) an in-depth, impactful, and implemented embedding plan for the junior trainees (postdocs, senior graduate students, medical fellows/resident, or IUSCC junior faculty) in each research team; 2) a carefully developed research plan that demonstrates the clinical influence in the design of advanced technologies/models/tools; and 3) preliminary prototype/data/technology that demonstrates the feasibility and clinical impact of the project. The project period is five months and no-cost extensions are not allowed. There are two application deadlines for the Tier One program: September 6, 2017, and January 10, 2018. Online submission will be open on August 1, and December 1, 2017.

### Tier Two

Based on the successful implementation of the embedding plan, and scientific and technical merit, the three most successful Tier One projects will be awarded up to an additional \$200,000 - \$250,000 each during the Tier Two, or implementation phase of the project. During this phase, a continued iterative refinement will occur through scheduled progress meetings with the Walther Embedding Program leadership team. Tier Two project period is one year and six months.

All project are expected to result in a high impact on the career direction of the funded trainees, high quality publications and as appropriate, applications to federal funding agencies for fellowships or grants or advancement to commercialization of new technologies/tools.

Interested faculty in need of collaborators should contact Luanne Bermel at Purdue University ([lm1@purdue.edu](mailto:lm1@purdue.edu); 765.496.9316) or Elizabeth Parsons at the IUSCC ([eparsons@iupui.edu](mailto:eparsons@iupui.edu); 317.278.0078).

## APPLICATION PROCESS

### TIER ONE

#### The Application

The electronic application is available at <http://discoverypark.itap.purdue.edu/oncological/walther/>.

**Section 1: Applicant Information** – The following information should be completed using the online application form.

- Contact Information for the Purdue PI(s) and IUSCC PI(s)
- Statement (not to exceed the allowed space) for each Purdue PI(s) and each IUSCC PI(s) describing:
  - Specific role in the project
  - Expertise relevant to the project

#### **Section 2: General Information**

- Identify conflict of interest associated with the project
- If animal or human use is involved in the research, indicate the status of regulatory approval. All approvals must be in place prior to release of funds. If no regulatory approvals are necessary, select “No Human or Animal Use”.

#### **Section 3: The Proposal**

- Sections A-D indicated below must be uploaded as a **single PDF document** to the electronic submission site.
- Formatting: single spacing; font size of 11 points or larger; ½ inch margins around; consecutively number pages

The project must represent a collaborative effort between the Purdue and IUSCC investigators and include sections A-D below.

- Section A - Lay Description (1/2 page)
- Section B – Abstract (1/2 page)
- Section C – Project Plan (2 pages maximum)
  - Project Goals
  - Embedding Plan (the leadership places significant importance on the embedding plan, see below)
  - Research Plan – brief overview of anticipate specific aims addressing the disparate expertise of the research team and how the collaboration will result in a novel clinical impact
- Section D – Biosketches
  - Provide a NIH Biosketch, including Other Support, for the IUSCC and Purdue PI(s) named in Section 1
  - Provide a *curriculum vitae* or NIH Biosketch for the postdoctoral trainee/senior graduate student and medical fellow/junior faculty

**Embedding Plan Expectations** - The goal of this program is to expose junior trainees to an additional training experience that is different, but highly relevant to their current research environment. Junior trainees in the physical, mathematical, computational sciences or engineering disciplines will be expected to gain a deep and meaningful understanding of: 1) the cancer patient’s perspective on their disease, and 2) the clinical decision making process that goes into the diagnosis and treatment plan for cancer patients.

Junior trainees in the clinical sciences will be expected to: 1) develop an understanding of the scientific research process, and 2) an appreciation for the high failure rate of an individual experimental approach and the iterative nature of scientific research.

## REVIEW CRITERIA

- Depth of the embedding plan for junior trainees
- Clinical Impact and scientific merit
- Integration of physical/chemical/engineering/computer sciences and clinical research
- Cancer focus
- Potential for national funding or commercialization

The Walther Embedding Leadership Team will review the applications. The team reserves the right to consider previous funding from Cancer Center (IUSCC and/or PCCR) sources in awarding Embedding Projects. Proposals funded through the Walther Oncology Physical Sciences & Engineering Research Embedding Program cannot exhibit scientific overlap with other funded projects.

## **TIER TWO**

### **The Application**

The electronic application is available at <http://discoverypark.itap.purdue.edu/oncological/walther/>.

**Section 1: Applicant Information** – Fill out the following information using the online application form.

- Contact Information for the Purdue PI(s) and IUSCC PI(s)
- Statement (not to exceed the allowed space) for each Purdue PI(s) and each IUSCC PI(s) describing:
  - Specific role in the project
  - Expertise relevant to the project (Tier Two projects are encouraged to include others in disciplines relevant to the translation of the project, including, but not limited to individuals with experience in public health, behavioral sciences, nursing, commercialization.)

### **Section 2: General Information**

- Identify conflict of interest for any personnel involved in the project.
- If animal or human use is involved in the research, indicate the status of regulatory approval. All approvals must be in place prior to release of funds. If no regulatory approvals are necessary, select “No Human or Animal Use”.

### **Section 3: The Proposal**

- Sections A-E indicated below must be uploaded as a **single PDF document** to the electronic submission site.
- Formatting: Single spacing; font size of 11 points or larger; ½ inch margins around; consecutively number pages

The project must represent a collaborative effort between the Purdue and IUSCC investigators and include sections A-E below.

- Section A - Lay Description (1/2 page)
- Section B – Abstract (1/2 page)
- Section C – Project Plan (5 pages maximum)
  - Project Goals
  - Description of the Embedding Plan including a brief discussion of the Tier One embedding plan, its successes and challenges, and the impact the embedding experience had on the design of the final research project
  - Research Plan
    - Tasks
    - Timeline
  - Statement addressing the collaborative nature of the project
  - Statement clearly defining the potential clinical impact
- Section D – Literature Cited
- Section E – Biosketches
  - Provide a NIH Biosketch, including Other Support, for the IUSCC and Purdue PI(s) named

in Section 1

- Provide a *curriculum vitae* or NIH Biosketch for the postdoctoral trainee/senior graduate student and medical fellow/junior faculty

## **REVIEW CRITERIA**

- Success of the Tier One embedding plan for trainees and fellows/junior faculty
- Scientific merit and potential clinical impact
- Integration of physical/chemical/engineering/computer sciences and clinical research
- Cancer focus
- Potential for extramural funding; high impact publications, sustainability and/or commercialization

The Walther Embedding Leadership Team will review the applications. The team reserves the right to consider previous funding from Cancer Center (IUSCC and/or PCCR) sources in awarding Embedding Projects. Proposals funded through the Walther Oncology Physical Sciences & Engineering Research Embedding Program cannot exhibit scientific overlap with other funded projects.





## IUSCC news

May 2017

### News briefs

#### World's leading organization for oncology professionals honors Dr. Loehrer on June 5 in Chicago

The world's leading organization for oncology professionals is honoring Patrick Loehrer, MD, director of the IU Simon Cancer Center, for his extraordinary leadership.



Loehrer

Dr. Loehrer will receive the inaugural Allen S. Lichter Visionary Leader Award on June 5 during the American Society of Clinical Oncology's (ASCO) annual meeting in Chicago. The award will be presented at 1:15 p.m. (Central) in McCormick Place, Room S100b.

Dr. Loehrer is recognized as a prolific clinical researcher and specialist in the treatment of a variety of cancers, including testis, bladder, colon, pancreas, and, most notably, thymic, a rare cancer of the thymus gland. His research on the drug ifosfamide led to its approval by the FDA. Dr. Loehrer was the founding chair of the Hoosier Oncology Group (now Hoosier Cancer Research Network), which conducted trials in 20

countries around the world.

The inaugural annual award honors the society's 2006-16 chief executive officer, Allen S. Lichter, MD, who retired last year after a decade of service in the role. An ASCO member since 1980, Dr. Lichter served the society in several prominent volunteer roles, including president (1998-99) and founding chairman of the Conquer Cancer Foundation Board of Directors (1999), before accepting the position of CEO in 2006. During Dr. Lichter's tenure as CEO, ASCO reached more than 40,000 members, including more than 13,000 international members and many allied health professionals.

#### NCI Almanac: A new tool for research on cancer drug combinations

The NCI has released a new, easy-to-use resource called the NCI ALMANAC to help researchers identify potentially promising combinations of cancer drugs.  
[full story>](#)

#### IU Simon Cancer Center fellows in the news



Durm

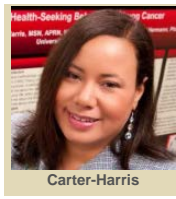
Greg Durm, MD, assistant professor of clinical medicine at IU School of Medicine, was one of two young investigators to earn \$10,000 at the recent prIME Oncology Young Investigators Forum in Non-Small Cell Lung Cancer. Dr. Durm presented "A Phase II Trial of Concurrent Chemoradiation with Consolidation Pembrolizumab in Unresectable Stage III NSCLC." Dr. Durm completed his hematology-oncology fellowship at the IU Simon Cancer Center in 2016. The other winner represented Massachusetts General Hospital Cancer Center.

Olumide Gbolahan, MD, a current hematology-oncology fellow at the IU Simon Cancer Center, is the 2016 recipient of the [George and Sarah Jane Fisher Young Investigator Award](#).

#### Cancer center members in the news

- **Melissa Kacena**, PhD, has been named a full professor at Indiana University School of Medicine, becoming the first female to obtain this status within the Department of Orthopaedic Surgery since its origination in 1948. Advancement to full professor requires the demonstration of a sustained and sustainable national reputation as evidenced by invited talks, service on national societies, editorial boards, study selections and a robust body of scholarship aligned with the area of excellence.

- **Lisa Carter-Harris**, PhD, is developing a [new framework to understand lung cancer screening participation](#) from the perspective of the individual. The NCI awarded her a \$458,334 grant for the study.



- **Kenneth White**, PhD, has been named a Chancellor's Professor, which recognizes his extensive record of accomplishment and leadership in teaching, research, and service.



- A prostate cancer patient talked with [WTHR](#) about his treatment plan -- a plan that includes a special diet prescribed by **Roberto Pili**, MD, a nationally recognized prostate, renal, and bladder cancer expert.
- **Bryan Schneider**, MD, and **Milan Radovich**, PhD, explain their work of studying the genetic codes of breast cancer patients and identifying the most effective treatment for each individual woman to the Fort Wayne CBS affiliate, [NewsChannel 15](#).
- **Matthew Johnson**, MD, is participating in a live [Onclive broadcast](#) on hepatocellular carcinoma at noon Eastern on June

15.

- **Charles Kahi**, MD, presented at the recent Digestive Disease Week [results of a colonoscopy study among veterans](#).
- **Hari Nakshatri**, BVSc, PhD, and **Bryan Schneider**, MD, have been selected again for a three-year term as Komen Scholars. Komen established the Komen Scholars program in 2010 to recognize and benefit from the extraordinary expertise and leadership within the scientific and research advocacy communities. The Komen Scholars provide expertise to Susan G. Komen in a variety of capacities, particularly in connection with Komen's research and scientific programs, but also for other mission programs related to education, advocacy, and community health both in the United States and globally. **Sunil Badve**, MBBS, MD, and **Kathy Miller**, MD, are also current Komen Scholars.
- **Mark Kelley**, PhD, has been selected to serve as a member of the Basic Mechanisms of Cancer Therapeutics Study Section of the NIH's Center for Scientific Review. According to the center, members are selected on the basis of their demonstrated competence and achievement in their scientific discipline as evidenced by the quality of research accomplishments, publications in scientific journals, and other significant scientific activities, achievements, and honors. Study sections review grant applications submitted to the NIH, make recommendations on these applications to the appropriate NIH national advisory council or board, and survey the status of research in their fields of science.
- **Douglas Rex**, MD, was interviewed by NBC 4 New York about how he and colleagues are working to make preparation for colonoscopy easier. The story was broadcast on more than [50 NBC affiliates](#).

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National Cancer Institute