Making the world a different place
ANNUAL REPORT 2010-2011
PURDUE UNIVERSITY CENTER FOR CANCER RESEARCH
“I have learned to use the word impossible with the greatest caution.”

~ Wernher von Braun
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“One degree of chance and make the world a different place.”

~ Timothy Ratliff
One degree of chance and make the world a different place. One degree seems so small, but this is the difference between hot water and boiling water. Between a rainy day and freshly falling snow.

Just one degree can change what you see and how you feel. This simple philosophy pertains to our entire team at the Purdue University Center for Cancer Research. We each take that extra degree of dedication, passion and skill, and our results indicate that.

Over the past fiscal year, our faculty have published more papers, discovered new ways to treat and detect cancer and have more developments entering or near clinical trial phases. Our development team has also taken my challenge of giving one extra degree and hosted and planned more than 50 events in an effort to showcase the wonderful happenings at the center. I am so honored to be a part of this amazing team — a team that takes one extra step towards finding a cure for cancer every day.

As you read this issue of our annual report, I hope you will get as excited as we are about some of the new advances in cancer research that are happening at the Purdue University Center for Cancer Research. Be sure to check out the research highlight from Dr. Babak Ziaie on page 23, where you will learn about new nanotechnology and radiation techniques.

Thank you all for your support, dedication and passion for the Purdue University Center for Cancer Research. Our mission is discovery. Our goal is to cure cancer.

Boiler Up!

Dr. Timothy L. Ratliff
Robert Wallace Miller Director
Purdue University Center for Cancer Research

LETTER FROM THE DIRECTOR
NCI-Designated Cancer Center

NCI-designated cancer centers are characterized by scientific excellence and the capability to integrate a diversity of research approaches to focus on the problem of cancer.

The National Cancer Institute currently has 66 designated cancer centers, seven of which are basic cancer centers, including the Purdue University Center for Cancer Research.

New Center Members

Three researchers have recently joined the Purdue University Center for Cancer Research:

- Keith Stantz, associate professor, School of Health Sciences
- Ulrike Dydak, assistant professor, School of Health Sciences
- Connie M Weaver, head and distinguished professor, Department of Foods and Nutrition
Professor **Graham Cooks** was awarded the 2011 Royal Society of Chemistry Cetenary Prize for pioneering contributions to molecular mass spectrometry over the past 30 years, including seminal work in tandem mass spectrometry and desorption ionization. He also received Sigma Xi’s Monie A. Ferst Award, which honors science and engineering teachers who have inspired their students to significant research achievements. In addition, he was named the Office of the Provost Outstanding Graduate Mentor for 2011.

Cooks, who is the Henry B. Hass Distinguished Professor of Analytical Chemistry, received Ph.D. degrees from the University of Natal (now QuaZulu-Natal) and Cambridge University. Early in his career, he worked on energy partitioning during metastable ion fragmentation and contributed to the concept and implementation of tandem mass spectrometry and to desorption ionization, especially matrix-based methods. His interest in minimizing sample work-up and avoiding chromatography contributed to the development of the ambient ionization methods, including desorption electrospray ionization (DESI). Applications of this method in tissue imaging, forensics and pharmaceutics are in progress.

Professor **Tim Ratliff** has received a faculty award for excellence from the Purdue University School of Veterinary Medicine. The monetary award honors faculty who have demonstrated dedication and excellence in research.

Ratliff, who is the Robert Wallace Miller Director of the Purdue University Center for Cancer Research, received his bachelor’s degree in biology and chemistry from the University of Texas, Arlington. He received his master’s degree in biology at Texas A&M, Commerce, and his doctorate in microbiology at the University of Arkansas. The focus of his research career has been prostate and urinary bladder cancer. He was the scientific leader of an interdisciplinary team that evaluated the utility of screening for serum prostate specific antigen (PSA) for early detection of prostate cancer. He pioneered gene therapy for prostate cancer and immunotherapy for bladder cancer, and he is recognized worldwide as an authority on BCG treatment for bladder cancer.

Professor **Mary Wirth** has been named one of Purdue University’s inaugural Distinguished Woman Scholars. The award honors alumnae who have earned a Purdue doctorate and have made significant scholarly contributions to their academic communities.

Wirth’s research focus is the separation and isolation of biomarker candidates in blood for early detection of cancer, and her teaching focus relates the principles of chemistry to current issues in the real world. She received her bachelor’s degree in chemistry from Northern Illinois University in 1974 and a doctorate in chemistry from Purdue in 1978 under the direction of Professor Fred E. Lytle. After graduation from Purdue, she served in various positions from coast to coast before returning to West Lafayette as a faculty member in 2009. She currently serves as the W. Brooks Fortune Professor of Chemistry.
1971
President Richard Nixon declares war on cancer.

1976
The Purdue Cancer Center is created as a separate administrative unit within the University with Dr. D. James Morré as the first director.

1978
The Purdue Cancer Center is awarded its first NCI Cancer Center Support Grant, which has been renewed continuously ever since.

1981
Four floors of the Hansen Life Sciences Research Building are established as the permanent home for the Purdue Cancer Center.

1985
The Purdue Board of Trustees takes a tour of the new building.

1986
A scientific partnership begins with Walther Cancer Institute.

1989
William Baird becomes the center's second director.

1986
The center's first flow-cytometry laboratory is built and equipped.

1989
President Steven C. Beering and Vice President Emeritus Frederick Andrews undrape a sign in front of Hansen during a dedication ceremony.

1975
With the aid of a two-year planning grant from the National Cancer Institute (NCI), a University Cancer Research Committee is established.
The center forms an executive committee with Cynthia Stauffacher, Debbie Knapp, Rick Borch, B.J. Taparowsky, Marietta Harrison and Don Bergstrom.

1998

2004
The center launches a partnership with the IU Simon Cancer Center.

2005
The Oncological Sciences Center is launched at Discovery Park.

2007
A new sign for the Purdue Cancer Center is unveiled by Dr. Richard Borch, benefactor Linda Rohrmann and President Emeritus Art Hansen.

2007
The center officially changes its name to the Purdue University Center for Cancer Research.

2009

2008
The first Purdue Cancer Center 5k Challenge is held.
The 4th annual Challenge: 5k run/walk was held on April 9, 2011. It had 1,810 participants and raised more than $52,000 for cancer research. A special thanks to everyone who participated, volunteered, planned and cheered on the runners and walkers.

The morning started out beautiful, but right before race time, the sky turned gray and there were imminent threats of thunderstorms coming from our helpers at TEMA. But after a little warm-up from the Rec Sports trainers, Coach Hope hit the World's Largest Drum at 8:30 a.m. and off went the participants. However, around 8:50, the rain set in. Luckily, it was just rain and no damaging storms hovered over Ross-Ade. The participants didn’t seem to mind and were able to check their placement and enjoy food and drinks after the race.

Great job to everyone who participated! For official race results and photos from the event, visit www.thepurduechallenge.com.

All of the money raised at The Challenge goes directly into cancer research happening here at the Purdue University Center for Cancer Research. Each year, a grant is awarded to a researcher to help fund a new and novel idea. This year’s winner was Dr. Daniel Raftery. Raftery is a professor of chemistry at Purdue and focuses on developing diagnostic tests for early cancer detection as well as for fundamental studies in cancer biology using metabolite profiling methods. Metabolite profiling combines high resolution chemical analysis methods with advanced statistical methods to provide new ways to analyze complex samples such as blood, urine and tissues. Raftery’s group is discovering new metabolite biomarkers that can provide a means for early detection of several cancers and other diseases, as well as for monitoring therapy and for detecting disease recurrence.

The Challenge grant will allow Raftery and his team to develop a new metabolite profiling diagnostic test for esophageal cancer, which is a leading cause of death worldwide. Of the 16,470 new cases of esophageal cancer in the United States, 88% resulted in death.

Raftery's group hypothesizes that metabolites linked to the genetic alterations in the cancer cells distinguish esophageal cancer patients and individuals at risk of developing cancer from each other and from healthy controls, and can be measured in serum using advanced bioanalytical methods. Based on preliminary findings, they are seeking to validate and establish metabolite markers that are potentially diagnostic and linked to the development of esophageal cancer using the combined analysis of serum samples. The grant money will help gather, analyze, and compare data.
The following took top honors at the Challenge:

The Challenge offers student and community groups participation awards named in honor of cancer survivor Cuonzo Martin and Purdue’s football coach Danny Hope. The winners each receive a plaque and a pizza party at Puccini’s. We congratulate the following:

- **The Hageman Group**: Danny Hope Community Award winner
- **Sisters for Life**: Danny Hope Community Award winner
- **Follett’s Purdue Bookstores**: Danny Hope Community Award winner
- **InnverVision Advanced Medical Imaging**: Danny Hope Community Award winner
- **Purdue Men’s Basketball team**: Cuonzo Martin Student Award winner
- **Purdue Women’s Basketball team**: Cuonzo Martin Student Award winner
- **Purdue Men’s Swimming and Diving team**: Cuonzo Martin Student Award winner

**MEN** | **WOMEN**
--- | ---
Alexander Hubartt: 17:40 | Sarah Mustillo: 21:39
Ryan Harrington: 17:50 | Olivia Johnson: 21:42
Christopher Burkett: 17:58 | Amy Lindblad: 22:06
David Przybyla: 18:12 | Rachel Bales: 22:12

Thank you to the following organizations that supported the 2011 Challenge:

**SPONSORSHIPS**

**MEDIA SPONSORS**

**IN-KIND DONATIONS**

Students from the Cancer Prevention Internship Research Program participated in the race.

**THE CHALLENGE: 5K RUN/WALK**
During a recent visit with a Purdue alumnus and friend of the Purdue University Center for Cancer Research, we had a terrific conversation about the state of cancer research and the effect private funding has on the success of that research. The conversation helped me reflect on the impact of your generosity and how the researchers at the center benefit from your gifts.

Some statistics will demonstrate the progress in cancer research. According to a report dated December 2009, rates of new diagnoses and rates of death from all cancers combined declined significantly in the most recent time period for men and women overall and for most racial and ethnic populations in the United States. Cancer deaths decreased 1.6 percent per year from 2001 to 2006.

These findings are from a report authored by researchers from the National Cancer Institute, part of the National Institutes of Health; the Centers for Disease Control and Prevention; the American Cancer Society (ACS); and the North American Association of Central Cancer Registries. The report was published in the journal Cancer.

You contributed to these positive statistics. Your gifts made it possible for our researchers to pursue with vigor the answers to basic science questions, providing direction for new methods of preventing, diagnosing and treating cancer. Your generosity, combined with the knowledge and fortitude of our scientists, will continue to generate new ideas, technologies and cures.

Over the course of this year, we have received support from so many families and institutions. Here are a few examples:

- Supporters John and Linda Kelver identified the center as a beneficiary in their estate plans.
- In August, Dr. Tim Ratliff addressed the Ladies Auxiliary of the VFW at its national convention in Indianapolis. President Jan Tittle presented him with a $50,000 grant, which was used to support the clinical trial for prostate imaging being conducted in Indianapolis.
- Martin University founder Father Boniface Hardin organized a presentation in Indianapolis by Tim Ratliff on prostate cancer.
Supporters Pete and Sally Kay and Bob and Marcy Ziek planned and hosted a grand event at the Peterloon Estate in Cincinnati for more than 100 people. On a gorgeous, moonlit fall evening, guests were serenaded by the Purduettes and heard vignettes of research from seven cancer researchers.

The Carroll County Cancer Association continued its support of the undergraduate research program, ensuring that Purdue undergraduates receive research opportunities in the laboratories of our scientists.

Once again, Jenny Pickett and Robin Walsh hosted the Jordan-Rieger Fund Dinner in Indianapolis. In three years, this growing event has raised more than $97,272 for pancreatic cancer research.

Dr. Thomas Halloran from Northwestern University presented the second West Lafayette Sagamore Lions Club Cancer Research Lecture. The Lions’ generosity allows us to host leaders in cancer research.

The Indiana Extension Homemakers Association established the IEHA Cancer Research Fund. I was invited to present to each of the ten district meetings in March of this year. I had a terrific time traveling the state with the officers of the IEHA: Barb Keyes, president; Jan Harlow, state president-elect; and Cricket Brown, state vice president.

Dr. Tim Ratliff and I were hosted by the Purdue Club of Southern Arizona, and I attended my first rodeo with Alan Schrope and Gordon Graham.

In collaboration with the Purduettes, we hosted the Purdue Cancer Benefit Concert in March.

And you know of the tremendous success of The Challenge.

These are a few of the generous contributors to cancer research at Purdue. Thanks to all of you. Your interest in our success and support of our work will mean even greater progress and better results ahead. I look forward to reporting even better statistics in the future. 😊

— Tim Bobillo, Director of Development
Purdue University Center for Cancer Research
“My father died of pancreatic cancer, so this is very special to me. It’s one of the most terrible cancers, and this is our opportunity to try to do something.”

~ Claudio Aguilar
Professor Claudio Aguilar has a personal as well as professional motivation for seeking new treatments for cancer of the pancreas.

“My father died of pancreatic cancer, so this is very special to me. It’s one of the most terrible cancers, and this is our opportunity to try to do something.”

The opportunity Aguilar speaks of is the understanding of Epsin-3 in cancer development. For a few years now, researchers have known that epsin proteins are upregulated — found in overabundance — in cancer cells, but have been unclear on its role. Now, new evidence from Aguilar and his collaborators has shown that Epsin-3 not only promotes cell invasion but also is specifically associated with invasive, aggressive cancers. In fact, the Aguilar lab experimentally demonstrated that Epsin-3 plays a role cancer invasion by increasing the dose of Epsin-3 in normal cells: “Once we overexpressed it, the cells became invasive,” he explains.

Collaborating with Professor Stephen Konieczny, Aguilar discovered that Epsin-3 is also overabundant in pancreatic cancer cells. Importantly, when the team decreased the amount of Epsin-3 protein in human pancreatic cancer cell lines, the cells become less invasive.

Preliminary research with Professor Tim Ratliff, PCCR director, has shown similar effects in bladder tumor cells. “But normal cells don’t express Epsin-3 as much, so it’s a potential therapeutic target — it could constitute a marker for invasive behavior,” Aguilar says. “That’s what we are investigating right now, to see if that correlation exists.”

Pancreatic cancer is an insidious disease, spreading rapidly and exhibiting symptoms typically only in its later stages when it’s too late to remove the full tumor. With the majority of patients dying within five years of diagnosis — and many not surviving the first year — researchers continue to seek more effective treatments.

Aguilar, a member of the cell growth and differentiation signature area, has roots in basic research, which seeks to understand fundamental principles of cancer development. But increasingly, the biologist has focused his efforts in applied research to ensure that laboratory discoveries are transformed into effective therapies for patients. He hopes to collaborate with Ratliff and others in developing novel therapeutic strategies targeting Epsin-3.

“On the one hand, we are trying to identify pathways misregulated in cancer, and on the other hand, we want to use our understanding of endocytosis for novel therapeutic approaches,” he says.
“This is the importance of doing the basic sciences — to find these underlying mechanisms that may be important in a variety of cancers.”

~ Andrew Mesecar
Professor Andy Mesecar wants to discover the statin for cancer. “The cardiovascular field has demonstrated that you can take a pill that’s aimed at prevention of one of the primary killers, and monitor decreases in cholesterol and triglycerides as a marker of progress,” says Mesecar, the Walther Professor in Cancer Structural Biology and deputy director of the Purdue University Center for Cancer Research. “We need to do that for cancer — identify the best markers for breast cancer, the best markers for colon cancer, for instance, and then have natural products or therapeutic agents that can lower those marker levels and prevent cancer. That is our goal.”

A recent addition to Purdue’s cancer research team, Mesecar studies natural products isolated from venues such as the United States, Vietnam and Thailand; through foods such as tomatillos, shallots, ginger and hops; and through marine microbe natural products isolated from bacteria in deep sea sediments. His aim: to understand how specific molecules within these substances interact with Nrf2 and Keap1.

Nrf2 is a transcription factor that controls the flow of genetic information from DNA to mRNA; it’s considered to be a master regulator of antioxidant activity. Keap1 is a protein that detects the presence of dietary compounds like sulforaphane (found in cruciferous vegetables) and binds to Nrf2, thereby controlling its levels in the cell.

“The Nrf2 region is tied to genes which encode for enzymes and proteins that are cytoprotective,” he explains. “The activation is like making an army of protective soldiers in the cell to combat harmful substances, such as cigarette smoke and pollutants in the environment. Increasing their amounts through foods or possibly through a pill or therapeutic agent will give our cells protective advantages.”

As a researcher in the Chemical and Structural Biology Program, Mesecar seeks to understand cancer-causing mechanisms, identify unique biological targets for cancer chemotherapy and develop potential chemical approaches to cancer treatments. His research has shown that Keap1 is a promising new target for cancer-preventive therapies.

“We’re not biased to any particular cancer; what we are studying is a fundamental process,” he says. “This is the importance of doing research in basic sciences — to find these underlying mechanisms that may be important in a variety of cancers.”
“I’d really like to be able to let them know more about where their disease condition is, whether they’re cancer free or at the earliest time point that there’s something that needs to be treated.”

~ Daniel Raftery
For people who have survived cancer, recurrence can be agonizing — especially if the tumor is caught in later stages when there are fewer options for treatment. Professor Daniel Raftery hopes to give breast cancer survivors more peace of mind through a new blood test that detects recurrence much sooner than traditional methods.

Last fall, the peer-reviewed journal Cancer Research published the findings of Raftery and his colleagues, showing that their VeraMarker™-BCR blood test correctly identified 86 percent of breast cancer recurrences, and detected the recurrence of breast cancer in 55 percent of the patient survivors an average of 13 months before their diagnosis using currently available tests.

“Knowing there’s a test that can detect the recurrence of cancer at a far earlier time point when the cancer may be more treatable should provide tremendous hope to breast cancer survivors and also relieve the tremendous worry they feel with each visit to their doctor,” says Raftery, a professor of analytical and physical chemistry, member of the PCCR’s Drug Delivery and Molecular Sensing Program and co-founder of Matrix-Bio, which has licensed the test. “Its accuracy and early stage detection should offer a much better window for treatment.”

Most breast cancers that recur do so within three to five years after initial treatment. While survivors are closely monitored during this time, current biomarker tests may yield false positives or may not detect evidence of cancer until it has spread and is more difficult to treat.

VeraMarker™-BCR blood test, which combines the measurements of multiple small molecules or metabolites that are sensitive to the development of recurrent breast cancer, holds promise for an earlier, more accurate diagnosis. It’s also easy to use: Blood is drawn from the patient and sent to a lab for analysis. If the test yields positive results, the oncologist can order additional tests such as a bone scan, MRI, CAT scan, chest X-ray or liver blood tests to identify and locate the tumor.

Raftery hopes his test, which is undergoing clinical validation trials and may become commercially available late this year, will lead to more treatment options for patients. “Existing cancer recurrence tests are inadequate to meet the needs of a large and growing population of breast cancer survivors,” Raftery says. “I’d really like people to know more about the status of their disease, whether they’re cancer free or at the earliest time point that there’s something that needs to be treated.”
“At the global level, I’m hoping to help African and African-American women be aware of the problem of cancer, seek early detection and go to the hospital when tumors are more treatable.”

~ Sulma Mohammed
Dr. **Sulma Mohammed** hopes to change the fate of people with cancer in Africa.

A native of Sudan, Mohammed is devoted to not only understanding breast cancer development and progression in African-American and African women, but also helping to increase access to cancer treatment on the world’s second-largest continent, where health care is often out of reach for many.

“Most cancers in Africa are not treatable because people come to the doctor too late,” says Mohammed, an associate professor of cancer biology in the Department of Veterinary Pathobiology at the Purdue University School of Veterinary Medicine, and adjunct associate professor at IU School of Medicine. “Usually people end up dying because of lack of awareness, lack of early detection and lack of trained oncologists and nurses to deal with the whole problem.”

This past summer, Mohammed traveled to her home country of Sudan with a convoy of 15 medical professionals to provide community health education and medical treatment. Surgeons removed breast tumors and provided reconstructive surgery, while other team members educated Sudanese people on cancer symptoms and the need for early intervention.

“Purdue has well trained scientists who can contribute to cancer detection and treatment. The strategic globalization plan of Purdue University encourages international engagement activities,” says Mohammed, a council member of the African Organization for Research and Training in Cancer (AORTIC), which collaborates with such organizations as the National Cancer Institute, American Society of Clinical Oncology, American Cancer Society, World Health Organization and Union Against Cancer.

Once back at Purdue, Mohammed returned to her other mission: finding better biomarkers for early detection of a kind of breast cancer that’s especially prevalent among women of African descent.

“The majority of African and African-American women develop a particular kind of tumor, called ER-negative, at a young age,” says Mohammed, who collaborates with scientists in different departments at Purdue, around the country and around the world. “We’re trying to discover ways to improve early detection, which is critical to keeping these tumors at a controllable stage.”

For several years now, Mohammed has been studying spontaneously occurring mammary tumors in dogs and cats; her goal is to characterize an animal model of spontaneously occurring ER-negative tumors that, as in humans, start with premalignant lesions and end with metastasis through the lymphatic system to the bones. Right now, there are no targeted therapies to prevent recurrence. In the hopes of developing new adjuvant treatments, she is also examining potential biomarkers in tissues from African and African-American women with ER-negative tumors.

“On a small level, I hope to find some targeted therapies for ER-negative tumors in African women,” says Mohammed, a member of the Medicinal Chemistry signature area, which seeks to develop small organic molecules as chemotherapeutic agents. “At the global level, I’m hoping to help African and African-American women be aware of the problem of cancer, seek early detection and go to the hospital when tumors are more treatable.”
“My goal is — before I retire — to commercialize these devices, to get something useful in the hands of physicians and patients, the people who could really benefit from these things.”

~ Baback Ziaie
For grand challenges like cancer, much hope lies in devices as tiny as a grain of rice. Just ask Professor Babak Ziaie, who is helping to revolutionize radiation treatment through biomedical microdevices.

“The main goal for radiation oncology is to try to reduce the radiation dose that the patient is receiving,” says Ziaie, a professor of electrical and computer engineering and co-founder of the Purdue Research Park company NanoSense Inc. “Our goal with these microdevices is to help physicians give the maximum dose to the patient but leave surrounding tissue unharmed.”

Working in conjunction with Dr. Song-Chu “Arthur” Ko in the Department of Radiation Oncology in the Indiana University School of Medicine, Ziaie has created an IMOG, a micro-oxygen generator. Their idea: to replace some of the oxygen lost when portions of tumors outgrow their blood supply, rendering them more vulnerable to radiation damage.

Housed inside a capsule, the IMOG is designed to be implanted into a tumor with a needle and then exposed to ultrasound, generating oxygen. Once radiation therapy begins, the tumor will hopefully be more likely to generate the free radicals necessary for cancer cell destruction.

For both the IMOG and another device in development — a mini-dosimeter that measures radiation doses within tumors — Ziaie and his colleagues intend to maximize outcomes of ionizing radiation while minimizing unintended consequences. “Tumors can be close to sensitive organs; for instance, when they treat prostate cancer, not only is the tumor radiated, but so is the rectum,” he explains. “The less radiation, the fewer side effects and the less damage to healthy tissue.”

Since the early 1990s, Ziaie has married his dual interests in medicine and engineering, with a specific objective in mind: “My goal is — before I retire — to commercialize these devices, to get something useful in the hands of physicians and patients, the people who could really benefit from these things.”

With his IMOG device in phase two of animal trials and his dosimeter in the later stages of development, he may very well get his wish.
“It’s exciting to be part of a research revolution, especially in the field of cancer research, because we now know that one size does not fit all.”

~ Marietta Harrison
Purdue University Center for Cancer Research Administration

Tim Ratliff, Robert Wallace Miller Director, Purdue University Center for Cancer Research
Professor Timothy Ratliff came to the center in 2001 from the University of Iowa. His research is directed toward the understanding of the role of the immune response in cancer. His lab focuses on understanding inflammation and its role in cancer development and progression, and the development of effective immunotherapy treatments for prostate and bladder cancer. Dr. Ratliff loves outdoor activities in his spare time, including canoeing, kayaking, hiking, backpacking and capturing the beauty of nature on camera.

Andy Mesecar, Deputy Director, Purdue University Center for Cancer Research
Professor Andy Mesecar came to the center in 2010 as the Walther Professor of Cancer Structural Biology. His lab focuses on the underlying molecular bases for how natural products and dietary components exert their cancer-preventive effects. His lab combines enzymology, X-ray crystallography and novel screening approaches to the discovery of new molecules that can serve as drug candidates for therapeutic development. Mesecar is an avid college football fan and enjoys tailgating with family and friends. He also enjoys building radio control boats and cars and other arts and crafts that he can do with his daughters.

Marietta Harrison, Director, Oncological Sciences Center
Professor Marietta Harrison has held a leadership position in the center for the past 15 years and assumed the directorship of the Oncological Sciences Center in Discovery Park when it was formed in 2005. She is also currently the associate vice president for research at Purdue. She spearheads a large multi-institutional project focusing on identifying molecular signatures in the blood that indicate the early presence of colon cancer and are predictive for the most effective treatment. Her lab focuses on signal transduction in the immune system. Marietta loves to travel, especially when the destination is visiting her two children.

Doug Cuttell, Managing Director, Purdue University Center for Cancer Research
Doug facilitates research, oversees center operations, administers the core grant and launches new initiatives for the center. Recently he launched the PCCR’s newest initiative, Affecting Cancer Together™, focusing on the underserved community in Marion County, Indiana. This unique program aims to recruit barbers to serve as lay health educators and patient navigators for men to understand their risks for prostate cancer. In his spare time, he loves spending time with his family and watching his children (2 years and 9 months) grow and learn about the world.

Sophie Lelièvre, Associate Director, Discovery Groups
Dr. Sophie Lelièvre joined the Department of Basic Medical Sciences in the Purdue University School of Veterinary Medicine in 2000. Her research focuses on early detection and prevention of breast cancer, including public health issues. Most recently, she launched an international program and symposium on breast cancer prevention, epigenomics and nutrition. As the new associate director of the cancer center’s discovery groups, Lelièvre assists with breast cancer, bladder cancer, pancreatic cancer and prostate cancer groups and is initiating new groups as well. In her spare time, she enjoys traveling to her home country of France and looks forward to attending the 2nd Annual International Breast Cancer Prevention Symposium in Rennes, France, in October.
Purdue University Center for Cancer Research Staff
Timothy Bobillo, Director of Development
Kimberly Crist, Administrator, Milestone-based Funding Program/ Development Assistant
Lanie Foster, Business Office Clerk
Andrea Gregory-Kreps, Senior Research Administrator
Michelle Liratni, Secretary
Catherine Reedy, Business Office Manager
Elizabeth Steuer, Director of Donor Relations

Interdisciplinary Research Programs at the Purdue University Center for Cancer Research

**Cell Growth and Differentiation**
- Program Leader: Elizabeth Taparowsky (Biological Sciences)
- Program Co-Leader: Scott Briggs (Biochemistry)

**Chemical and Structural Biology**
- Program Leader: Cynthia Stauffacher (Biological Sciences)
- Program Co-Leader: David Thompson (Chemistry)

**Drug Delivery and Molecular Sensing**
- Program Leader: Donald Bergstrom (Medicinal Chemistry & Molecular Pharmacology)
- Program Co-Leader: Alex Wei (Chemistry)

**Medicinal Chemistry**
- Program Leader: Richard Gibbs (Medicinal Chemistry & Molecular Pharmacology)
- Program Co-Leader: Debbie Knapp (Veterinary Clinical Sciences)

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- Mark Walter, Professor and Director, Structural Biology – University of Alabama at Birmingham Comprehensive Cancer Center, Birmingham, Alabama
- Peter Wipf, University Professor of Chemistry – University of Pittsburgh/Chevron Science Center, Pittsburgh, Pennsylvania

PEOPLE
The Purdue University Center for Cancer Research is continually exploring new methods of treating cancer, techniques to detect cancer and preventive measures that we can share with our partners in the medical industry. By working together with cancer specialists on what patients need, we are able to expand our expertise, provide headway in clinical trials and get valuable information to the public more efficiently.

New ideas cost money, which is why your contributions to the Purdue University Center for Cancer Research are valued and appreciated. It’s because of your generosity that we are one of the leading NCI basic cancer centers in the United States. Thank you for believing in us and for being a valued partner.

In an effort to save on the cost of printing and to reduce the amount of paper we use, we have provided an online Donor Honor Roll that lists support we received this fiscal year from donors, corporations and foundations.

Please visit www.cancerresearch.purdue.edu/links/communications to view the 2010-2011 Donor Honor Roll, or call 765-494-1109 to request a printed version.
The Purdue University Center for Cancer Research is one of seven NCI-designated basic cancer centers in the United States.

The Purdue University Center for Cancer Research is the oldest NCI funded Cancer Center in Indiana. We are now entering our 33rd consecutive year with this important designation.

An equal access/equal opportunity university
Produced by the Office of the Vice President for Research
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