

# *Personalized Medicine*

## Research Project



## Prostate cancer: study seeks more effective screening methods

A common tool for prostate cancer screening is the prostate-specific antigen (PSA) blood test. PSA is a protein produced by cells of the prostate gland. An elevated level of PSA can indicate a cancerous tumor.

But a high PSA result can also be caused by benign conditions such as enlargement of the prostate. In fact, two-thirds of the prostate biopsies performed due to a high PSA are negative for prostate cancer. This leads to unnecessary expense and distress for the individual.

Deanna Cross, Ph.D., project scientist, has completed a study that takes the first step toward establishing new, better screening

models that would use newly discovered genetic and environmental risk factors to identify men who are either at increased or reduced risk of prostate cancer.

The study included 466 men in the Personalized Medicine Research Project who were diagnosed with prostate cancer. They were compared with the entire Marshfield Clinic population to determine cancer screening characteristics such as rate of PSA screening and average age at cancer diagnosis. All 4,659 men in the PMRP who have had a PSA test were genotyped for at least 12 genetic markers that have been associated with prostate cancer. Dietary history was collected, if available.

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## From the Director



**Cathy McCarty, Ph.D.**

As I write this column it is the first official day of summer, the longest day of the year, and the forecast calls for more rain. I am finding it hard to keep up with the grass and to find time

when it isn't raining to mow the lawn!

I enjoyed the opportunity to meet PMRP participants at our celebration for reaching the 20,000th participant on May 18. We had a fun evening and learned about some of the current research projects. For those of you who weren't able to join us, we hope to make this an annual event, giving us another way besides this newsletter to share exciting research news.

We provided some information about the Wisconsin Genomics Initiative (WGI) in a prior newsletter. You will recall that it was launched by Governor Doyle in September 2008, and received \$2 million in 2009 to get it started. The member institutions of WGI include Marshfield Clinic; University of Wisconsin, Madison; Medical College of Wisconsin; and University of Wisconsin, Milwaukee. Several pilot research projects are underway involving the member institutions. One project, led by Dr. Elizabeth Burnside at UW Madison, hopes to identify genetic predictors of breast cancer in women who have had biopsies. The ultimate aim of this project would be to decrease unnecessary biopsies. Researchers at UW Milwaukee will be conducting pilot studies to work with inner city and racially and ethnically diverse communities to gauge their interest in genetic studies like the PMRP. The WGI recently released a Request for Applications, or RFA. The purpose of the RFA was to solicit ideas for collaborative research projects to promote personalized medicine research discoveries. An external scientific advisory board will review the proposals and decide this summer which ones will be funded.

We welcome your feedback and questions. Please visit our Web site at <http://www.marshfieldclinic.org/pmrp>, or call us toll free at 1-888-334-2232.

## Summer students assist in PMRP research



*From left: Christopher Roginski, Lacie Strobush, Deborah Chasman.*

For more than 40 years, Marshfield Clinic Research Foundation has provided hands-on research experience for college students through summer internship programs. Successful applicants, each mentored by a research scientist, contribute to the development, data collection, analysis, and presentation of results of research projects.

This summer, three students conducted work related to PMRP and the genome-wide association project of the electronic Medical Records & Genomics (eMERGE) Network.

- Deborah Chasman, Mendota Heights, MN, is a graduate student at the University of Wisconsin, Madison, working toward a Ph.D. in computer science, with a focus on artificial intelligence and biomedical informatics. Chasman worked in the Biomedical Informatics Research Center, extracting non-coded phenotype information on peripheral arterial disease from the electronic health record. (Mentor: Luke Rasmussen.)
- Christopher Roginski, Wisconsin Rapids, graduated from the University of Wisconsin, Whitewater, with a bachelor's degree in psychology (biology minor). Roginski also recently completed an associate's

degree in clinical research coordination from Mid-State Technical College, Marshfield. He worked on the Family History Project, which examines the accuracy of the self-reported histories of participants. (Mentor: Deanna Cross, Ph.D.)

- Lacie Strobush, Neillsville, is a senior majoring in biomedical science at the University of Wisconsin, La Crosse. She worked on several projects, including development and testing of computer-based informed consent programs for the participant enrollment process. (Mentor: Cathy McCarty, Ph.D.)

Chasman, Roginski and Strobush are scheduled to join five other interns in giving presentations at the 2010 Summer Student Internship Program Research Symposium, August 12, in Froehlke Auditorium, Marshfield Center. The 2010 program is under the direction of Laura Coleman, Ph.D., R.D.

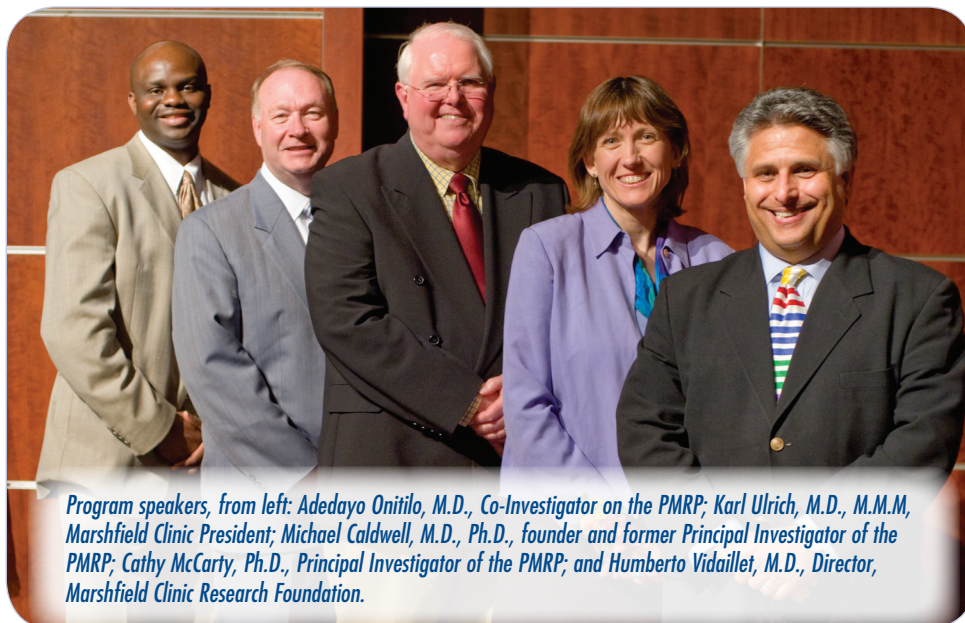
The internships are made possible through the generous support of donors. For more information on the summer student program, visit [https://www.marshfieldclinic.org/research/pages/default.aspx?page=educational\\_opportunities](https://www.marshfieldclinic.org/research/pages/default.aspx?page=educational_opportunities).



## PMRP celebrates, looks to future

Participants joined researchers and others in celebrating the 20,000th enrollee in the Personalized Medicine Research Project (PMRP) on May 18, 2010, at Froehle Auditorium, Marshfield Center. Scientists provided updates on research projects, and the presentations were followed by an informal reception.

The gathering was so well-received that planning is underway to hold the event annually, said Cathy McCarty, Ph.D., Principal Investigator of the PMRP. The second event is scheduled for April 25, 2011. Please watch this newsletter for details.



*Program speakers, from left: Adedayo Onitilo, M.D., Co-Investigator on the PMRP; Karl Ulrich, M.D., M.M.M., Marshfield Clinic President; Michael Caldwell, M.D., Ph.D., founder and former Principal Investigator of the PMRP; Cathy McCarty, Ph.D., Principal Investigator of the PMRP; and Humberto Vidaillet, M.D., Director, Marshfield Clinic Research Foundation.*



*Members of the PMRP Community Advisory Group in attendance, from left: Colleen Kelly, Margy Frey, Margaret Brubaker, Jodie Gardner, Mike Warren, Sharon Bredl, Darlene Krake.*



*Retired Marshfield Clinic physician/researcher Tarit Banerjee, M.D., left, and PMRP collaborator Philip Giampietro, M.D., Ph.D., University of Wisconsin.*



*The reception was held in the Erdman Lobby.*

## Prostate cancer *(continued from page 1)*

Results showed that men with more genetic risk factors for the disease were more likely to have positive biopsies and men with fewer genetic risk factors were more likely to have negative biopsies. These risk factors were independent of PSA level as none of the genetic risk factors were associated with whether a person received a biopsy or not.

"From these results we can conclude that men in the PMRP population who have experienced at least one PSA screen represent a viable population for testing new screening algorithms," Dr. Cross said. "These new algorithms will incorporate genetic and environmental factors for better identification of prostate cancer risk."

### Award to aid Dr. Cross in further research

Deanna Cross, Ph.D., has been named to the prestigious KL2 Scholars Program by the University of Wisconsin Institute for Clinical and Translational Research (ICTR), funded by the National Institutes of Health. Dr. Cross will use the support to investigate genetic markers as a way to make better predictions on secondary complications of radiation therapy for prostate cancer patients.

"We are very pleased to welcome Deanna to the ICTR KL2 Scholars Program," says Marc Drezner, M.D., Senior Associate Dean, UW School of Medicine and Public Health and ICTR Director. "Dr. Cross, the first ICTR scholar from our partner Marshfield Clinic, is pursuing vital research that promises to produce important new insights to prostate cancer. Her research is an excellent example of the multi-site, interdisciplinary research ICTR is designed to foster."

Dr. Cross' study will use the medical record to see if certain other diseases like diabetes or behaviors like smoking – or the type of radiation treatments – are also important for determining who will react poorly to radiation treatment. Between 400 and 500 men will be included in the study. The program will run two to four years at 75 percent funding by ICTR and a \$25,000 research stipend.

"The hope is that one day we can use both genetics and clinical facts to predict if a man will do badly with radiation, so that we can do something to change it in the future," Dr. Cross said. "Physicians might try reducing the radiation dose, offering a different type of radiation treatment, or maybe a different treatment option like surgery. This is what the idea of personalized medicine is all about, tailoring the treatment to the individual by using all the information we know about him or her to make more informed decisions."

For more information, go to <https://ictr.wisc.edu/>.

## Contact Us

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