OCRC
OVARIAN CANCER RESEARCH CENTER

Penn Medicine

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Director's Message


Ronny Drapkin, MD, PhD

At Penn Medicine's Abramson Cancer Center (ACC), the Gynecologic Oncology Program takes a team approach to patient care. Our team includes gynecologic oncology surgeons, medical oncologists, radiation oncologists, pathologists, radiologists, oncology nurses under the incredible direction of our Division Chief, Dr. Mark Morgan, and scientists working in the labs at Penn's Ovarian Cancer Research Center (OCRC). This approach ensures each patient receives the benefit of a highly personalized, multi-disciplinary team working together to provide the best treatment options and therapeutics, from bench to bedside.


Mark Morgan, MD

At the OCRC, we are committed to finding curative treatment options that will improve outcomes and better the lives of our patients. Today, there are more encouraging treatment options for women with gynecologic cancers than ever before. Our ultimate goal is to improve the quality of life for women with gynecologic malignances, with a focus on ovarian cancer.

In this issue of the OCRC Newsletter is a Q&A with Daniel J. Powell, Jr., PhD, a scientist at OCRC who is actively investigating the application of immune-based therapies, with a strong focus on T cell-based therapy for gynecologic cancers. You will also read about the newly established Ovarian Cancer Translational Center of Excellence, the success of the inaugural Helene Ross Bogutz Ovarian Cancer Early Detection Symposium, and the story behind Walk 4 Family and Friends with Cancer, a New Jersey-based grassroots organization who selected the OCRC to be the recipient of their 2017 fundraising efforts.

We look forward to continuing to update you on our research advancements and successes.

Ronny Drapkin, MD, PhD
Franklin Payne Associate Professor of Pathology in Obstetrics & Gynecology
Director, Penn Ovarian Cancer Research Center

Walk 4 Family and Friends

Walk 4 Family and Friends with Cancer (W4FFwC) is a grassroots organization based in Voorhees, New Jersey that is committed to raising funds for cancer research and patient care with the goal of one day eradicating cancer. W4FFwC hosts an annual 5k Run/Walk at the Voorhees Middle School. Proceeds from this annual event support two causes: the Financial Assistance for Cancer Patients Program and the Abramson Cancer Center (ACC) at the University of Pennsylvania. Each year the board of W4FFwC selects a different disease area at the ACC to receive their event proceeds, and this year the Ovarian Cancer Research Center was the recipient of their generous $25,000 donation, which was directed to support the Gynecologic Oncology Clinical Research Unit. To learn more about W4FFwC, or to participate in their annual 5k, please visit: ***www.walk4ff.org/home***.

An Interview with Daniel J. Powell, Jr., PhD

Associate Professor of Pathology and Laboratory Medicine
Director, Cellular Therapy Tissue Facility
Director of Education, Parker Institute for Cancer Immunotherapy

How would you explain the broader significance of your research to a layperson?
My lab is using the patient's own immune system to eliminate cancer, much like it eliminates infections. One of our major approaches uses genetic engineering to convert non-reactive immune cells into potent killers of cancer cells. Since women with ovarian cancers that contain immune cells generally live longer, a second major research goal is to identify and overcome the factors that limit the natural immune response to their cancer. We then use this information as a guidepost to design new, cutting-edge clinical trials to improve patient outcomes.

What does an average day as a scientist look like for you?
Busy! As a translational researcher, my time is often divided between research and clinical areas. In the research lab, much of my time is spent writing grant applications and manuscripts, reviewing the latest literature, meeting with collaborators, and training the next generation of cancer researchers. For clinical efforts, I spend time directing new translational research projects, studying samples from patients on trials to understand how to improve the therapies, and designing next generation clinical trials for women with ovarian cancer with my clinical colleagues.

What led you to gynecologic oncology?
I was fascinated by the well-established role that the immune system plays in controlling ovarian cancer. This implies that enhancing a patient's own anti-cancer immunity can improve their outcome. During my time at the National Cancer Institute (NCI), we demonstrated this effect in patients with malignant melanoma by using immunotherapy, and I am convinced that the same opportunity now exists in gynecologic cancer.

How many years have you been at Penn's Ovarian Cancer Research Center (OCRC)?
I was recruited from the NCI to Penn's OCRC to help develop an immunotherapy program for gynecologic cancers in 2007. As the first outside faculty recruit for the new OCRC, I've been fortunate to witness and participate in its remarkable growth and game-changing translational efforts that are providing hope and benefit to many of our patients.

Who have been your most influential mentors in your career so far?
I was fortunate to train under Dr. Steven A. Rosenberg, the Chair of the Surgery Branch, NCI, and a world leader in cancer immunotherapy. Since arriving at the OCRC, my list of influential scientific mentors and valued colleagues has grown significantly, and includes Drs. Carl June, Robert Vonderheide, Robert Burger, Ronny Drapkin, and countless others that have shaped my thinking, and collaborated openly.

What has been your proudest moment or greatest achievement so far in your career?
While I have made several valuable contributions to the scientific community, my proudest career achievement thus far is based on a single patient experience. Nearly 15 years ago, we delivered curative therapy to a middle-aged patient with chemotherapy-refractory cancer using the patient's immune cells that I grew with my own hands. I was completely awe-struck by the power of the immune system, humbled by its potential, proud of our achievement, and motivated to provide effective immunotherapy to every cancer patient - we are making great strides to do so!

What is your hope for the future of ovarian cancer research?
My greatest hope is that one day ovarian cancer can be effectively cured by whatever means, or at least rendered a highly manageable disease. My hope is that current toxic therapies, which mediate severe toxic side effects and are susceptible to cancer recurrence, are replaced with safer and more effective immune therapy. Just as our immune system fights off viruses and other pathogens, natural immunity plays an established role in fighting ovarian cancer, and I believe that by bolstering this immunity, either through genetic engineering or targeted immune modulation, we will one day look back upon ovarian cancer as a devastating disease of a bygone era, much like polio.

When you are not in your lab, what are your hobbies?
I enjoy spending much of my time with my family and friends. My wonderful wife Amelia and I are fans of good music, art, food and travel. I enjoy hiking, fishing, exercising, attending my kids' activities, playing guitar, and singing with our local band. I am also an avid football fan.

Go E-A-G-L-E-S!

To learn more about the Powell Lab, please visit ***http://www.med.upenn.edu/cci/powelllab***.

Ovarian Cancer Translational Center of Excellence:

In January, the Abramson Cancer Center established the Ovarian Cancer Translational Center of Excellence (TCE). TCE's are narrowing the gap between the clinic and the laboratory bench, accelerating the pace of discoveries that will help today's patients become – and remain – cancer-free. The Ovarian Cancer TCE is directed by Drs. Ronny Drapkin and Fiona Simpkins of the OCRC. It will focus on developing innovative and transdisciplinary approaches to study the evolution of ovarian cancer from diagnosis, response to treatment, and recurrence. Our long-term goal is to functionally define the factors which directly contribute to disease recurrence and, in turn, translate those findings into diagnostic tools and therapeutic strategies which can be directly translated into the clinical setting. To achieve these goals, our TCE is establishing three platforms:

1 **A 'Live' Tumor Bank.** The goal of this bank will be real-time specimen collection from all ovarian cancer patients treated within the greater University of Pennsylvania Health System. This tumor bank will collect fresh tissue, blood, and other biological materials at all stages of disease, and use these precious samples to develop novel animal models (#3) that will help us test new drug combinations with the goal of finding potentially curative therapies. These samples will also be a catalyst for a range of comprehensive studies aimed at understanding disease recurrence at the molecular level.

2 **A Rapid Autopsy Program (RAP).** Unfortunately we have not yet found a cure for ovarian cancer, and many patients succumb to their disease. RAP will help us understand how a tumor evolves from a state of being initially chemosensitive to ultimately being chemoresistant. The only way to comprehensively do this is to study the tumor at the end of life. This Program will be the first of its kind at the Abramson Cancer Center, and we hope will set a standard for cancer research in other areas with the goal of improving outcomes for other patients.

3 **A Patient-Derived tumor Xenograft (PDX) program.** Our PDX platform will allow us to build on our expertise in growing human tumors in mice. These animal models are being characterized at the genomic level to define the underlying mutations and are permitting us to develop novel therapies to test in the clinic. However, even robust PDX models lack the full complement of microenvironmental factors (e.g. immune system, blood supply, stroma) that contribute to drug response, immune evasion, and recurrence. A novel "humanized" PDX program will be developed that not only captures important microenvironmental factors but also models disease at presentation, recurrence, and death (through RAP). These models will be used to optimize front-line therapies, as well as maintenance therapies, to prevent ovarian cancer recurrence.

A key component of this approach is the integration of Investigator-Initiated Trials. These trials capture bench-to-bedside research at Penn's OCRC and hit on key phases of ovarian cancer: early detection, upfront treatment, and treatment for recurrent disease. These represent new and innovative approaches that are unique to OCRC and Penn Medicine.

Although systematic genomic studies, including international efforts like The Cancer Genome Atlas and the International Cancer Genome Consortium, have provided an unprecedented catalog of driver mutations in human ovarian cancer, most of these studies used primary, pre-treatment tumor material obtained at primary surgery. There is an urgent need to identify and characterize recurrence- and drug resistance-mechanisms by evaluating tumors at these more advanced clinical stages to understand how cancers can evade even the best medical efforts and kill patients. Our TCE platforms will provide unparalleled access to early stage, in-treatment, recurrent and end-stage tumor with matched blood, and stool samples. Specifically, the tumor bank, RAP, and PDX programs will enable us to perform longitudinal 'omic' profiling of biospecimens at various levels including the genome, epigenome, microbiome, metabolome, and proteome. Insights from these studies will enable us to understand the natural evolution of this disease and develop novel therapies, hopefully enabling our patients to live longer, healthier lives. Long-term sustainability of this important effort will require partnering with grateful patients, industry, foundations, and the federal government.

The Inaugural Helene Ross Bogutz Early Detection Ovarian Cancer Symposium:

On October 16, 2017, the OCRC hosted the inaugural Helene Ross Bogutz Early Detection Ovarian Cancer Symposium, held in conjunction with the 3rd annual John J. Mikuta Endowed Lectureship in Gynecologic Oncology at the Abramson Cancer Center. The Symposium brought together clinicians and investigators from across the country and across many disciplines and institutions with one goal in mind: to encourage collaboration that would lead to new and innovative approaches for early detection of ovarian cancer. Nearly 200 medical professionals attended the first year of the Symposium. The Symposium was generously supported by Helene Ross Bogutz' family in her memory, including her husband, Jerome Bogutz, Esquire; son Marc Bogutz, Esquire; and daughter Tami Bogutz Steinberg, Esquire. Pictured is the Bogutz family with presenting scientists.

OCRC Faculty Awards and Recognition:

Ronny Drapkin, MD, PhD: Tina's Wish Consortium Grant: Integration of Advanced Genomic and Bioengineering Approaches for Early Detection and Prevention of Ovarian Cancer.

Robert L. Giuntoli, II, MD: University of Pennsylvania Academy of Master Clinicians 2017-2018 Award Winner.

Daniel J. Powell, Jr, PhD: 2017-18 Emerging Inventor of the Year Award at Penn Center for Innovation.

Fiona Simpkins, MD: V Foundation Translational Grant: "Novel PARP and ATR inhibitor therapies for BRCA-mutant ovarian cancer".

A *Shout Out* to the Next Generation of Scientists:

Daniele Chaves-Moreira, PhD, a postdoctoral researcher in the Drapkin lab, was awarded the American Association for Cancer Research (AACR)-Takeda Oncology Scholar-in-Training Award. Scholar-in-Training Awards are highly competitive and are presented to those with high-quality abstracts and applications from a large candidate pool. The award helped support Daniele's attendance and participation at the Annual AACR meeting in Chicago in April.

Erin George, MD a gynecologic oncology fellow, was awarded a Feature Poster presentation at the 2018 Society for Gynecologic Oncology conference.

Sarah Gitto, PhD, a postdoctoral fellow in the Powell lab, recently received the University of Central Florida Alumni 30 Under 30 Award.

Jagmohan Hooda, PhD, a postdoctoral researcher in the Drapkin lab, was selected from a highly competitive pool of applicants to participate in the Center for Cell Circuits Visiting Scientist Program at the Broad Institute of MIT and Harvard. This is a four-week program where researchers from all over the country work side-by-side with investigators at the Broad Institute to learn new experimental and computational techniques that will benefit their own research.

Yasuto Kinose, MD, PhD, a Visiting Assistant Professor working with Drs. Drapkin and Simpkins, received the 2018 Kaleidoscope of Hope research award and the Rivkin Center for Ovarian Cancer Research Scientific Scholar award.

Alba Rodriguez Garcia, PhD, a postdoctoral fellow in the Powell lab, received a Travel Award to attend the 2018 American Society of Gene and Cell Therapy conference.

Mireia Uribe-Herranz, PhD, a research associate in the Facciabene lab, earned 1st place-Young Investigator Award for her oral presentation at the 2018 Annual Meeting of the Translational Research Cancer Centers Consortium.

Dr. Jie Wang, a hematology/oncology fellow in the Powell lab, received a grant from the Laffey McHugh Foundation.

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Please consider becoming a philanthropic partner!
To support penn's Ovarian Cancer Research Center
please contact Carolyn Brown at 215-573-0550 or browncа@upenn.edu.