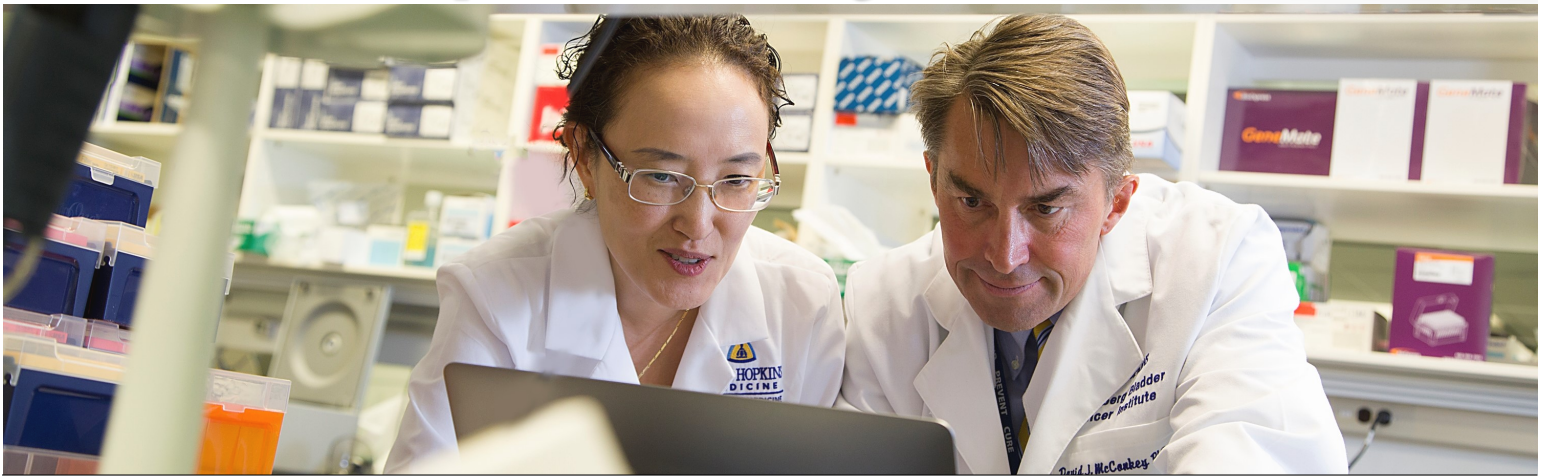
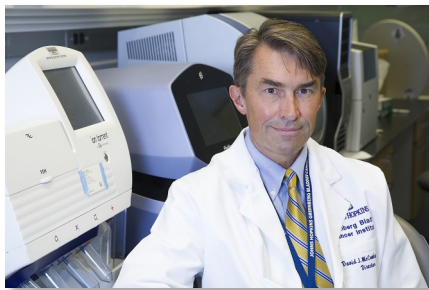


# Johns Hopkins Greenberg Bladder Cancer Institute



JHGBCI Newsletter

Issue 1 | Fall, 2018



## A Letter from the Director

At the Johns Hopkins Greenberg Bladder Cancer Institute, we work each and every day with one mission in mind - to come to a better understanding of bladder cancer coupled with a fire to discover new and more effective treatments for our patients. As Director of the Johns Hopkins Greenberg Bladder Cancer Institute, I am happy to report that there has never been a more energetic, exciting or hopeful time. Around here, we all say "It's about time!"

In this first issue of our JHGBCI Newsletter,

we want to share some of our team's discoveries with you and also introduce you to our new patient care models - Precision Medicine Centers of Excellence and the new JH Multi-Disciplinary Clinic. In this issue, you'll meet our newest team member and superstar, Max Kates, MD, a surgeon-scientist who has risen in the ranks from chief resident to Co-Director of the new JH Bladder Cancer Multi-Disciplinary Clinic.

This issue also highlights the work of beloved surgeon-scientist Trinity Bivalacqua, MD, PhD, this time highlighting his "scientist" side, which we often don't get to hear about. Trinity has been hard at work tinkering with BCG to make it more effective for patients with Non Muscle Invasive Bladder Cancer (NMIBC). We think you will enjoy learning about the promise his research holds.

Bladder Cancer oncologist Noah Hahn, MD, director of the JHGBCI's robust clinical trials program, will be featured in our next newsletter. Worth a big mention, Noah is a marathon runner, who exudes a great deal

of natural calm, patience and drive, exquisite skills needed for directing the JHGBCI's clinical trials program but which also come in handy as a runner. Dr. Hahn is the Captain of our JHGBCI Baltimore Running Festival team, and plans to run a marathon on October 20, 2018 to raise funds (the hard way) for the Institute and its research. You can support Dr. Hahn and the team, one step at a time. The ADAPT Bladder Cancer trial, which he directs, will be featured in our next issue.

Here at the JHGBCI, we are energized and excited about the research, patient care and novel discoveries we strive for every day for patients with bladder cancer. Thank you for putting your faith in us, and for allowing us to be of service.

David J. McConkey

Director  
Johns Hopkins Greenberg Bladder Cancer Institute

### In this issue:

- Turbo-Charged BCG
- What is a PMCOE?
- Baltimore Running Festival

## What is a PMCOE?

At Johns Hopkins, we seem to love acronyms, and, as puzzling as they are, they have everything to do with bladder cancer and the JHGBCI's efforts to cure it. So what do all these acronyms mean?

What's the JHGBCI?

The JHGBCI is the Johns Hopkins Greenberg Bladder Cancer Institute.

A PMCOE is a Precision Medicine Center of Excellence. It is a place

where research and patient care come together.

An MDC is the JHGBCI's new Bladder Cancer Multi-Disciplinary Clinic, the "patient care" part of the PMCOE. It is where patients come to learn about and consider their best informed treatment options, with all caregivers and stakeholders present. It is a one stop, "all-in" appointment model.

RNA and DNA: ribonucleic acid and deoxyribonucleic acid. What is that and what does it have to

do with Tumor Sequencing? And what does that have to do with the JHGBCI and the PMCOE?

Cancer is a genetic disease which is caused by changes to DNA and RNA. DNA is the coding system which provides the genetic information for all cells. RNA are nucleic acids that serve as messengers for DNA in those same cells. DNA and RNA control the way cells function, especially how they grow and divide.

*Continued on p.2*

## What is a PMCOE?

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These changes can be inherited, but most arise randomly (and sometimes unluckily) during a person's lifetime, either as a result of errors that occur as cells divide or from exposure to DNA-damaging carcinogens, such as cigarette smoke.

Each person's cancer has a unique combination of genetic changes to their DNA and RNA. Tumor sequencing, which uses advanced computation, identifies these unique changes. Knowing the genetic alterations in your cancer tumor can help determine a treatment plan. Some treatments – particularly some targeted therapies – are especially effective for people whose cancer cells have specific genetic alterations that cause the cells to grow out of control. These are sometimes called “driver” mutations.

PMCOEs and tumor sequencing are at the apex of a new approach to care called “precision medicine”: care tailored to the molecular characteristics of each patient's disease.

At the JHGBCI, patients who are part of the PMCOE (Precision Medicine Center of Excellence) come to the MDC (Multi-Disciplinary Clinic), the place where patients are seen in an all-in-one-day comprehensive evaluation where resources are made available for the education, diagnosis, treatment and research of bladder cancer. It's where a “team of minds” comes together to review individual cases and review pre-supplied sequencing reports (sequenced in advance of the visit) to collaboratively develop a consensus of care.

Max Kates, MD, is the Co-Director of the Johns Hopkins Bladder Cancer Multi-Disciplinary Clinic. Dr. Kates offers the

following:

**“There are two arms to the MDC – it's where research meets patient care.”**

Relating to research, Dr. Kates means that each patient who comes to the MDC, by consent, contributes their genetic information, or sequencing, into an ever-growing bladder cancer repository, or “tumor library,” which helps researchers better understand different types and sub-types of bladder cancer tumors. This invaluable information helps researchers begin to see patterns, and helps them attain a better understanding of the different presentations of bladder cancer and its genetic makeup. By sharing their sequencing, patients add immense value to our understanding of bladder cancer, contribute to our “tumor library” and to the JHGBCI's research efforts overall.

**“Bladder cancer is trying to complicate our patients' lives, with what may seem like endless tests, procedures, treatments, and decisions. Our goal for the MDC is to simplify and consolidate care by bringing everyone together in one room-- from the radiologist who read your CT scan to the pathologist who first identified cancer cells in your bladder. Together, we will discuss our findings and come up with a plan that addresses the patient's cancer plan.”**

**Max Kates, MD**

When a patient comes to the MDC, the patient's case and information is reviewed by a conference room of JHGBCI urologists, oncologists, radiation oncologists, genomics experts, pathologists, clinical trial nurses and others, all in the same room at the same time, in advance of the patient's appointment. Based on this “meeting of the minds”, a care plan for the patient is recommended and all options are discussed. If a clinical trial is suggested, the MDC staff will guide the patient through the process. Dr. Kates offers “...the future of treating complex cancers like bladder cancer is a multi-disciplinary team approach, where every team member who has a specialized expertise in bladder cancer is present.” The point of the MDC is to provide the best collaborative input from across divisions (urology, oncology, etc.) for the care of patients with bladder cancer. Our patients also help the JHGBCI make research advances by partnering with us.

*To request an appointment to the MDC, call the main Johns Hopkins appointment number at 410 955-6100 and ask to be seen in the Bladder Cancer Multi-Disciplinary Clinic.*



### About Dr. Max Kates

Dr. Max Kates is an Assistant Professor of Urology and Oncology within The Brady Urological Institute. He received his undergraduate degree from Wesleyan University in Connecticut, and his medical degree from Mount Sinai School of Medicine in New York.

Dr. Kates has expertise in all areas of urologic oncology, including prostate, bladder, kidney, testicular, and genital cancers. With training in open, laparoscopic, and robotic surgical approaches, Dr. Kates' surgical philosophy is to assess the unique needs of each patient, and develop the right treatment plan for their malignancy. He is very hands-on in his approach in the clinic and the operating room, and believes open communication with the patient, the patient's family, and referring providers is key to ensuring a speedy recovery.

As the Co-Director of the bladder cancer multi-disciplinary clinic, Dr. Kates works with the team at the Johns Hopkins Greenberg Bladder Cancer Institute to deliver a personalized approach to bladder cancer utilizing cutting edge precision medicine approaches.

Dr. Kates' research interests parallel his clinical practice, with an emphasis on novel treatments for cancers of the urinary tract. He has a particular interest in developing novel therapies for bladder cancer, and has a provisional patent for a novel intravesical chemotherapy he developed with nano-engineer collaborators. Additionally, Dr. Kates has made important discoveries into the mechanism of action of intravesical BCG, the most common treatment for bladder cancer.

## Turbo-Charged BCG

At the JHGBCI, our surgeon-scientists are always trying to find ways to better serve patients with bladder cancer. There is a constant drive to discover new remedies to arrest the spread of bladder cancer, be it at the earliest stages of diagnosis or in its advanced state. We have some tools in our tool box, but we think they are not enough. Few are aware that behind the laboratory doors, a few floors away from the outpatient clinic, there is a whole beehive of discovery happening aimed at tackling bladder cancer's most exasperating challenges.

Trinity Bivalacqua, MD, Ph.D, bladder cancer expert and surgeon-scientist, thinks a lot about BCG and non-muscle invasive bladder cancer, (NMIBC), something he sees a lot of in his clinical practice.

BCG is named for two French scientists, Albert Calmette and Camille Guerin, who won the Nobel Prize in 1923 for their work developing a vaccine against tuberculosis (TB). Interestingly, BCG has been used as a cancer therapy since the 1930s, and more specifically as a therapy for NMIBC since the early 1970s. BCG is used as an intravesical (placed in the bladder) immunotherapy to treat superficial bladder cancer, and is commonly instilled into the bladder for a 6-week course of treatment. The challenge with BCG is that it works very well in some patients, and not as well in others.

Dr. Bivalacqua is troubled about the “non-responders” to BCG and has set out to do something about it. He, along with investigators from the Johns Hopkins Greenberg Bladder Cancer Institute, have set out to create a new and improved higher octane “BCG cocktail”, one that hyper-activates a patient's immune system to attack superficial tumors. Since intravesical BCG has been around for decades, maybe it's time to pump it up and make it more turbo-charged?

“BCG is still the best thing we have” says Dr. Trinity Bivalacqua, “so why re-invent the wheel and why not make it more effective?”

Dr. Bivalacqua, and his Johns Hopkins colleague, William Bishai, MD, Ph.D, Co-Director of the JH Center for Tuberculosis Research and a specialist in TB therapies, are collaborating to create a more potent genetically modified BCG (called recombinant, or “rBCG”). This is how it works: this “super rBCG” is instilled in the bladder, which then turbo-charges the patient's immune system, which then attacks the lining of the bladder and NMIBC. In short, they are working on a new and improved, more powerful and tolerable form of BCG to keep NMIBC in check.

Drs. Bivalacqua and Bishai have recently been awarded a State of Maryland Innovation Initiative Award to commercially develop this new and improved rBCG, soon to be used in clinical trials to treat NMIBC.

But there's more. In addition to “super rBCG” Dr. Bivalacqua and his colleagues are also working on a brand new therapy for NMIBC, called Instiladrin, an intravesical gene therapy created to treat NMIBC which is different from BCG. In science terms, it is a virus that genetically delivers interferon alpha, a potent protein that activates the immune system to fight bladder cancer and prevent superficial tumors from recurring. Instiladrin is now being tested in humans in a Phase 3 FDA registration clinical trial. It was developed at the MD Anderson Cancer Center by Colin Dinney, MD, a very close collaborator and friend of the JHGBCI. In phase 2 clinical trials in bladder cancer patients with BCG-resistant disease, it was approximately three times more effective than the current frontline therapy (intravesical valrubicin chemotherapy).

In the clinical trial world, getting to Phase 3 is akin to getting to third base in the baseball World Series before hitting a home run - no small thing. Dr. Bivalacqua believes that Instiladrin may be the first intravesical agent in 20 years to receive FDA approval. Home run, here we come.

To support the work of Dr. Bivalacqua and to help make this new recombinant

rBCG and other exciting discoveries possible, please consider a gift to the Johns Hopkins Greenberg Bladder Cancer Institute.



### About Dr. Trinity Bivalacqua

Trinity J. Bivalacqua, M.D., Ph.D., is the R. Christian B. Evensen Professor of Urology and Oncology and Director of Urologic Oncology at The James Buchanan Brady Urologic Institute. Born in New Orleans, Louisiana, he graduated from Tulane University with undergraduate, graduate and medical degrees. He serves as Co-Deputy Director of the Johns Hopkins Greenberg Bladder Cancer Institute.

Dr. Bivalacqua is a surgeon-scientist in urologic cancers, especially bladder cancer, and is known as a gifted surgeon, and leading authority on the topic of Sexual Dysfunction and Intimacy for those with Bladder Cancer. Although he has a robust surgical practice, he maintains an active research portfolio in order to improve outcomes for cancer patients. A major focus of his research lab is the development of pre-clinical models of urothelial carcinoma to test systemic and intravesical immunotherapies, such as BCG, nanoparticle based chemotherapies, and other novel treatments. The Bivalacqua Lab also focuses on tissue-engineering and regenerative medicine. He is the winner of numerous awards and grants, all of which fund his active research career.



# The Greenberg Bladder Cancer Institute

## HELP SUPPORT THE JHGBCI!

Your support of the JHGBCI is invaluable and helps serve those with bladder cancer. We hope that you will consider, among many needs, helping the JHGBCI underwrite the cost of our **tumor sequencing program** (not otherwise reimbursed). The cost of sequencing is approximately \$400 per sample, and contributes greatly to our understanding of bladder cancer and to the discovery of new treatment protocols.

We appreciate your partnership and belief in our mission.

To make an online gift to the Johns Hopkins Greenberg Bladder Cancer Institute, please Google :

### JHGBCI CHARITABLE GIVING

Or click the image below:



For gifts of CASH, please make your check payable to Johns Hopkins and send it to the following address:

The Brady Urological Institute  
Development Office  
600 North Wolfe Street, CMSC 130  
Baltimore, MD 21287

Please reference the Johns Hopkins Greenberg Bladder Cancer Institute or the faculty member to be supported by your gift on the memo line of the check.

### Fall Bladder Cancer Support Group meetings:

Thursday, Oct. 4, 2018

Speaker: Max Kates, M.D.

Thursday, Nov. 1, 2018

Thursday, Dec. 6, 2018

1:30—3:00 p.m.



Johns Hopkins Outpatient Center (JHOC)  
601 N. Caroline Street, Baltimore, MD 21231  
2<sup>nd</sup> Floor, rooms 2140-2150



Please join Dr. David McConkey, Dr. Noah Hahn, Dr. Jeannie Hoffman-Censits, and Dr. Max Kates for JHGBCI's first year as part of the Baltimore Running Festival.

Come run or walk with the JHGBCI and join the fight against bladder cancer!

#### When:

Saturday, Oct. 20, 2018

#### Where:

McKeldin Square  
East Pratt Street  
Baltimore, MD 21230

#### Start times:

7:30 a.m.— 5K

8:00 a.m.— Marathon

9:45 a.m.— Half Marathon



Register as a team member and receive the Early Bird registration discount, a technical team t-shirt, and a special hospitality tent with pre- and post-race refreshments.

There is no fundraising requirement to join our team, but we are accepting contributions and encourage team members to advocate for bladder cancer research.

Help us to raise awareness about bladder cancer by running with our team!

Please register at  
[RunWithJHGBCI.myevent.com](http://RunWithJHGBCI.myevent.com)

For more information, visit  
[www.thebaltimoremarathon.com](http://www.thebaltimoremarathon.com)



Johns Hopkins Greenberg Bladder Cancer Institute

600 N. Wolfe Street | Park 2 | Baltimore, MD 21287

Request an appointment: (410) 955-6100

<https://www.hopkinsmedicine.org/greenberg-bladder-cancer-institute/>

