



Center for Cancer Research  
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Summer 2018

# CCR Fellows & Young Investigators Newsletter



## 18<sup>th</sup> CCR-FYI colloquium special edition

The 2018 CCR-FYI Colloquium Planning Committee: (left to right) Namratha Sheshadri, Snehal Gaikwad, Kyster Nanan, Zaw Phyoo, Sarwat Naz, Daniel Connors, Rachel Lokanga, Jessica Eisenstatt, Patty Wiley, Amy Funk, Melissa Fernandez, Ancy Nalli, Pedro Torres-Ayuso, Molly Congdon, NK Egbukichi, Amelie Vezina, Jonathan Wiest, Brandi Carofino

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***From the Editor-in-  
Chief's Desktop***

***Manasi S. Apte***

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Hello all! We are so excited to present you with our summer CCR-FYI newsletter issue. This is a special edition where we provide glimpses from the recent 18<sup>th</sup> CCR-FYI annual colloquium.

CCR-FYI in association with the NCI-CCR administration organizes the annual colloquium that acts as an excellent platform for all fellows to share their science as well as effectively network and collaborate with colleagues. This event also gives fellows an opportunity to meet with experts in the field of cancer. Each year, the colloquium also features an inspiring talk by a brave cancer survivor. All in all, a great experience in any trainee's tenure!

This year's colloquium was planned on March 1<sup>st</sup>-2<sup>nd</sup> 2018 at the NCI Shady Grove campus and more than 250 fellow attendees enjoyed and gained valuable experiences on day one. Unfortunately, due to unexpected weather conditions, events from day two were cancelled. Our excellent colloquium planning committee didn't lose heart and still managed to give the fellows a second chance to partly enjoy the missed events from day two by arranging a special event in May. Here in this issue of our newsletter, we have a brief overview of the entire colloquium. We have compiled special Q&A sessions with NCI's directors, an inspirational interview with the cancer survivorship speaker -Megan Pischke and chat with our talented group of outstanding post-graduate fellow award finalists. Further, we also have a detailed write-up summarizing the experiences from the day one. We also have interviews with our intramural speakers as well as a career advice from the science administrator panelist -David Taylor. We hope this overview makes you curious and interested to participate in the upcoming 2019 CCR-FYI annual colloquium.

Have an enjoyable read!...

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CCR-FYI Association is supported by the CCR Office of the Director, National Cancer Institute.



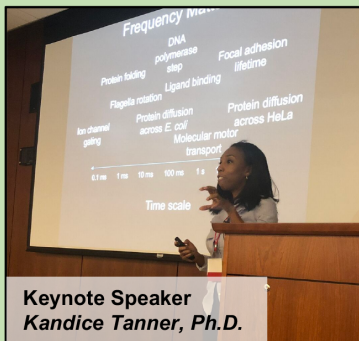
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# Highlights from the 2018 CCR-FYI Colloquium



**NCI Director  
Ned Sharpless, M.D.**



**Keynote Speaker  
Kandice Tanner, Ph.D.**



**Outstanding Postdoc  
Thomas Ciucci, Ph.D.**



**Keynote Speaker  
Nikhil Wagle, M.D.**



**Social Networking**



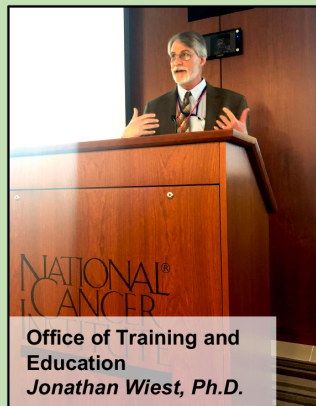
**Industry Career Panel**



**Opening Remarks  
CCR-FYI Leadership**



**2018 Planning Committee chairs  
and vice-chairs**



**Office of Training and  
Education  
Jonathan Wiest, Ph.D.**

Photos courtesy of  
the Colloquium  
Planning  
Committee

## 18<sup>th</sup> Annual CCR-FYI Colloquium: What a Blowout!

By Molly D. Congdon and Melissa V. Fernandez

The 2018 Annual CCR-FYI Colloquium “Working Together to Break Through the Barriers of Cancer Research” promised to be a memorable event, and boy did it deliver! Eager NCI fellows descended upon the NCI Shady Grove Campus as the sun rose on the first day, which was jam-packed with Keynote Speakers, NCI fellow presentations, and informative career panels.

The day started with Dr. Jonathan Wiest, OTE director and CCR-FYI advisor, encouraging fellows to communicate and network. He even included his favorite saying, reminding fellows, “Whose career is it anyway?” This was followed by an engaging, laid-back, PowerPoint-less, advice-filled talk from NCI Director Dr. Ned Sharpless. He encouraged fellows to “work on interesting stuff”, be good mentees and collaborators, and acquire multiple mentors. More importantly he stressed the importance of time management and focused research design.

The upbeat, casual atmosphere continued with a presentation from the first keynote speaker, Dr. Kandice Tanner (CCR-Laboratory of Cell Biology). Her presentation “Visualizing Rare Events in Metastasis During Organ Colonization *In Vivo*” examined mechanisms of tumor cell motility and tissue properties in a novel zebrafish model. A physicist at heart, Dr. Tanner actually stopped her talk to tell the fellows to “stop being so polite”, encouraging fellows to interrupt and ask questions throughout the presentation instead of waiting until the end, even if it means stealing her punchline.

The morning continued with the first half of fellows’ oral and poster presentations. The rooms were packed with inquisitive minds and fellows looking to share their research, learn, and network. “I was able to present my poster to around 20 NCI/CCR colleagues, sharing my work and getting feedback from them!” (Limin Wang, Ph.D., Fellow in the Laboratory of Human Carcinogenesis).

The afternoon began with an inspiring keynote talk by Dr. Nikhil Wagle from Harvard Medical School, who leads a translational research program in the field of breast cancer genomics and precision (or “personalized”) cancer medicine. The major goals of his work are to better understand the biology of metastatic breast cancer and to develop new ways to overcome or prevent drug resistance in patients with advanced breast cancer. He also leads The Metastatic Breast Cancer Project (twitter: @MBC\_Project, web: MBCproject.org), a nationwide direct-to-patient research initiative that engages patients with advanced breast cancer through social media and seeks to empower them to accelerate cancer research through sharing their samples and clinical information. The project’s outreach program, developed in collaboration with advocacy organizations and



patients, serves to connect thousands of patients around the U.S. with metastatic breast cancer research, allowing them to participate regardless of where they live.



**Tanner\_Lab** @Tanner\_Lab · Mar 1

Had a great time today, Thanks CCR Fellow committee, #CCRFY18



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**Dr. Sadhana Jackson** @DrSadhanaJ · Mar 1

Enjoying my time at the #CCRFY18 listening to Dr. Kandice Tanner talking about #cancer #metastasis and cell interaction relating to her love of #physics #womeninstem #WomenOfColorDay @NCIResearchCtr #CancerResearch #womeninscience



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During his presentation, Dr. Wagle unveiled that his team has expanded the nationwide direct-to-patient research format to the rare cancer, Angiosarcoma (twitter: @ASCaProject, web: ASCproject.org), and Metastatic Prostate Cancer (twitter: @PrCaProject, web: MPCproject.org). After his compelling presentation, Dr. Wagle expressed his gratitude and congratulations to the CCR-FYI Colloquium organizers for the wonderful program in a tweet to the CCR-FYI 2018 Colloquium Co-Chair Dr. Melissa Fernandez (@Roseblite).



**Nikhil Wagle, MD** @Nikhilwagle · Mar 2

Thanks for inviting me! It was an honor to join the @NCIResearchCtr #CCRFY18 Colloquium and meet so many incredible trainees & young investigators. Congrats on a fantastic program!



**Melissa Victoria Fernandez** @roseblite

@Nikhilwagle from Harvard Med giving an amazing talk on his incredible efforts to empower cancer patients and collect valuable patient data to further & accelerate cancer research #CCRFY18

The exceptional presentations continued with Outstanding Postdoctoral Fellow Award winner Dr. Thomas Ciucci, a postdoctoral fellow in Dr. Rémy Bosselut's group within the Laboratory of Immune Cell Biology. Dr. Ciucci pioneered the use of single-cell RNAseq to investigate the transcriptome of anti-viral T-cells. These studies led to his identification of a novel transcriptional checkpoint controlling the emergence of memory T-cells during immunization. His keynote presentation, "Anti-tumor and anti-viral T-cell responses", described his approach in characterizing T-cell responses during disease in more detail and the implications of his novel findings on manipulating T-cells for cell therapy. After his incredible presentation, Dr. Ciucci tweeted his gratitude for being able to present his work to the CCR community and directed his appreciation for the organization of the Colloquium to the Co-Chair and Outstanding Postdoctoral Fellow Chair, Dr. Melissa Fernandez.



**Thomas Ciucci** @CiucciThomas · Mar 2

Thank you for the opportunity to share our work and for the flawless organization from @roseblite and the whole #CCRFY18 team.



**Melissa Victoria Fernandez** @roseblite

@theNCI I spearheaded the #CCRFY18 awards committee to select our 2018 CCR Outstanding Postdoctoral Fellow @CiucciThomas and presented him with his award yesterday. We wish him the best in his...

The enthusiasm continued into the afternoon with the first half of the career panels and skill development workshops offered at this year's colloquium. Academic and industry panels were packed with fellows planning for the next stage of their careers. The academic panel featured distinguished scientists and keynote speakers Drs. Nikhil Wagle (Harvard Medical School) and Sara Courtneidge (Oregon Health and Science University), as well as, assistant professors Drs. Kirill Afonin (University of North Carolina at Charlotte) and Karen Reddy (John Hopkins School of Medicine). "It was great to hear the panelists' personal stories on how they became academics" (Aislinn McMillian, Fellow in the Chemical Biology Laboratory). Those interested in pursuing a career in industry were able to obtain career advice from professionals in a variety of positions within the Food and Drug Administration, Novavax Inc., Thermo Fischer Scientific, and Booz Allen Hamilton.

Fellows were also able to improve their scientific management skills in a workshop with Timothy Quigg, M.P.A.. During the inspiring and engaging workshop, fellows were presented with various confrontational situations and asked how they would respond. Throughout the discussion, he emphasized that no single supervisor personality is perfect

and that the method a supervisor employs should vary based on the circumstances and individuals involved in any given situation. “It felt good to realize that while supervising a group is a difficult task, it is something that anyone can do given that they are prepared to view a problem from different angles” (Jessica Eisenstatt, Ph.D., Fellow in the Cancer Genetics Branch). Other topics covered in the workshop included time- and project management, effective communication techniques, and the importance of priorities. He highlighted that even though we all aspire to achieve the ideal work/life balance, there will be times in our career when the priority of work will overtake that of family and vice versa.

The discussions did not end as the first day adjourned. Fellows, keynote speakers, panelists, committee members, and NCI personnel migrated to Gordon Biersch for the most well-attended Colloquium social networking event to date! Even survivorship speaker Megan Pischke Porcheron attended, although she was not scheduled to present until the next day. For over 3.5 hours, attendees talked about science, the Colloquium, politics, sports, and life. In other words, they networked! As day one came to a close, the CCR-FYI Colloquium Planning Committee and fellows were excitedly awaiting to continue benefiting from the next day’s events. We were not going to let the wet weather rain on our parade.

However, as the hours ticked towards the morning, the wind speed climbed higher and higher. Around 4 AM the federal government in the D.C. metro area closed due to safety concerns; thereby forcing us to close this chapter of the 2018 CCR-FYI Colloquium a day early. The subsequent articles expand upon the events from the first day of the Colloquium and provide interviews from the keynote speakers who were unable to share their wisdom on the second day.

At this time, we would like to thank everyone who made this colloquium one of the best yet. Thank you to Jonathan Wiest for your guidance and support. Thank you to Nicole Garner for your logistical assistance and organization. Thank you to Erika Ginsburg and Angela Jones for providing support throughout the Colloquium. Thank you to everyone on the CCR-FYI Colloquium Planning Committee who organized this stellar event only to spend the early morning hours on Friday contacting speakers and panelists informing them of the cancellation. Finally, thank you to all of the fellows who attended. Thank you for your participation, enthusiasm, emails of support and encouragement on Friday while we picked up the pieces. Despite the windy setback this year, the CCR-FYI forecast calls for an amazing 19<sup>th</sup> CCR-FYI Fellows’ Colloquium next year. We hope to see you there!



# Meet the new NCI Director- Dr. Ned Sharpless

By Julie Nyman

On March 1, 2018, the 18<sup>th</sup> Annual CCR-FYI Colloquium kicked off with a stimulating talk given by Dr. Norman “Ned” Sharpless.

Prior to his appointment as the NCI Director in 2017, he served as the director of the Lineberger Comprehensive Cancer Center at the University of North Carolina. He worked as an oncologist and interacted with patients. He adroitly led a research group that studied the cell cycle and its role in aging and cancer. He published many papers, book chapters, and reviews. Dr. Sharpless was also a member of several professional organizations and was the co-founder for two clinical-stage biopharmaceutical companies- HealthSpan Diagnostics and G1 Therapeutics.



Surprisingly, while presenting at the Colloquium, Dr. Sharpless did not use slides to supplement his talk. As most scientific talks are accompanied by a slide presentation of some sort, the absence of slides was refreshing. He did not even engage in scientific topic discussion but instead, proceeded to talk about the role of a mentee in a mentee-mentor relationship. Many talks discuss the importance of mentorship; however, few focus on the role of the mentee in the relationship.

His talk outlined how to develop an effective mentee-mentor relationship. As a mentor, Dr. Sharpless' enthusiasm for science and his projects would be infectious and would spread to potential mentees. When a mentor's enthusiasm for a project is apparent, the mentee feels free to show enthusiasm and to bring his or her own ideas to the project. As the mentee/mentor relationship grows, the mentee advocates for himself or herself and is not be afraid to ask questions. Additionally, the mentee works hard to further develop the relationship with the mentor; a key ingredient to a successful master's or Ph.D. student is communication, which can be established and developed by meetings and interactions with the mentor. If the mentee and mentor rarely communicate, the chances of failure are greater. It is the mentee's responsibility to regularly communicate his/her findings to the mentor and to seek direction.

Dr. Sharpless touches on a topic that has been traditionally ignored in educational systems- the mentor-mentee relationship. Only by developing this relationship can a mentee be truly successful. He also shows awareness of the tough funding environment into which young scientists enter; “we realize that there are intense pressures on young faculty to get data together.... I’m a little worried that young investigators are becoming demoralized... I want to send the message that we are very receptive to proposals from young investigators and we are committed to their success” (Kaiser, 2017). As the new NCI Director, he is in a position to change how mentee-mentor relationships are viewed and to better the research environment as a whole.

To read more about his background, visit this webpage <https://www.cancer.gov/about-nci/leadership/director> Kaiser, Jocelyn (2017 December 21). “New NCI Director expects big data to revolutionize cancer research, care.” *Science*, Retrieved from <http://www.sciencemag.org/news/2017/12/new-nci-director-expects-big-data-revolutionize-cancer-research-care>.

## Insights from CCR Directors

By Ancy D. Nalli & Melissa V. Fernandez

The Center for Cancer Research (CCR) is the largest division of the NCI and comprises nearly 250 basic and clinical research groups at Bethesda, Shady Grove and Frederick campuses. CCR Investigators pursue some of the most difficult, high-risk problems in cancer and HIV/AIDS research. How does CCR facilitate translation of basic research into clinical applications? How can NCI trainees make the most of their time at NCI?

We invited CCR Directors, Dr. William Dahut, Dr. Glenn Merlino, and Dr. Tom Misteli along with CCT director Dr. Jonathan Wiest to address these questions at the 18<sup>th</sup> Annual Colloquium on March 2<sup>nd</sup>, 2018. But, bad weather conditions led to NIH closure on that day. Fortunately, these Directors have graciously agreed to be interviewed and shared their advice and insights into some key issues facing CCR today. Here’ the compilation of all those interviews.

## **Bridging Basic and Clinical Science: Reach Out and Collaborate – Dr. William Dahut**

***You seem to wear many hats at the CCR: CCR Clinical Director, Scientific Director for Clinical Research, Head of the Prostate Center Clinical Research Section, and Senior Investigator. How do you manage your time effectively at work and how do you ensure sufficient downtime outside of work?***

- This is great question. I think, in general, most of us balance our work life with activities that we really want to be involved with, those that we “need” to be involved with and those that we can delegate to someone else. Overtime one discovers that others can easily “share” many of your needed responsibilities and often have the time and skills to perform at a higher level.

It’s very important to have sufficient downtime outside work and thus maintaining active friendships with folks outside of the NIH is very critical. Many of us remain engaged while we are off, but only become actively involved when it’s necessary. Thus, we can respond but don’t get mired in detail 24/7.



**William L. Dahut, M.D.**  
Senior Investigator  
Head, Prostrate Cancer Clinical Research Section  
CCR Scientific Director for Clinical Research  
CCR Clinical Director

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***“it’s really important to allow your team to have the freedom to think independently and to be absolutely certain that they will have your attention and guidance when needed...”***

***Our pre-med post-bacs are in a supremely unique environment with some for the best facilities and faculty. What advice do you have for pre-med students seeking***



***shadowing experience at the NIH? Is there an NIH-run program to match our pre-med post-bacs with clinicians that work at the NIH or outside of the NIH?***

- We are sensitive to the needs of post-bacs to shadow, as it is often now a medical school requirement. We don't have a one-size fits all program and do want the experience to be meaningful. Post-bacs should feel free to reach out to clinical investigators, to me or one of the Clinical Deputies for suggestions.

***What advice do you have for Basic science researchers interested in collaborating with clinicians to show clinical relevance to their findings before completing their project?***

- Don't be bashful about reaching out! Most of our clinicians are very interested in speaking with more basic folks to offer suggestions. Dr. Patricia Steeg and Dr. Douglas Figg who Chair the Drug Development Collaborative (DDC) are also spectacular resources in helping scientists translate findings in to the clinic.

***What are some important issues at the CCR facing our clinicians and clinical researchers?***

I think the quality of our facilities is perhaps our greatest current hurdle. Unfortunately, this is area that is hardest for CCR to improve without the help from others. It is truly amazing what some have been able to accomplish in less than ideal space, but we could really accelerate progress were our facilities improved.

We need to find ways to improve the depth of some our clinical programs and even ensure more redundancy. We at times become overly dependent on one-two "stars" and this is vulnerable when changes arise. Increasing the number of woman and underrepresented groups is a major focus on the clinical side and efforts are being made to improve our recruitment of fellows and PIs from these groups. We are thankful to the WSA for offering support in this area.

*([Dr. William Dahut](#) received his M.D. from Georgetown University in Washington, DC. In 2009, Dr. Dahut was appointed as CCR Clinical Director where he oversees and assures the quality of medical care delivered to patients participating in CCR clinical trials. In 2012, Dr. Dahut was appointed as a CCR Deputy Director then in 2016 was selected to become the CCR Scientific Director for Clinical Research)*

## Get Involved, Network, and Plan your Career Ahead – Dr. Glenn Merlino

***You seem to wear many hats at the CCR: Scientific Director for Basic Research, Head of the Cancer Modelling Section, and Senior Investigator. How do you manage your time effectively at work and how do you ensure sufficient downtime outside of work?***

The most important answer is that I have outstanding administrative help. The CCR Office of the Director has numerous devoted, talented and caring individuals who spend their time doing the many unheralded tasks that make our leadership effective. For me, Ms. Cynthia Gordon-Butler is the most important, as she takes care of my calendar, and the many daily changes that it experiences. In my other life, working in the lab, I am incredibly fortunate to have amazing colleagues, postdoctoral fellows, technical masters and Staff Scientists, who can already function as Principal Investigators. Our research discussions are as equals, and I can count on my lab mates to be brilliant and creative (as well as really fun to be around). In terms of being effective at multitasking every day, you must learn to fully focus on whatever is in front of you, from one meeting to the next. This is harder for some than others, but I find it a most critical key to success, or at least sanity. Finally, as far as home goes, I never work on Friday night!



**Glenn Merlino, Ph.D.  
Senior Investigator  
Head, Cancer Modeling Section  
CCR Scientific Director for Basic Research**

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***“In terms of being effective at multitasking every day, you must learn to focus on whatever is in front of you, from one meeting to the next...a most critical key to success...”***

***What are some important issues at the CCR facing the Basic Science community?***

The top ones at the moment are likely to be the top ones most of the time - budget and hiring. We are fortunate this fiscal year to finally have an approved budget, which may give us a bit more spending power, and is good through the end of September. Also, after much deliberation, NIH has a process in place through which we can now hire who we need to make CCR successful. This includes new Lab and Branch Chiefs, and basic and clinical personnel at all levels of need. Another issue that will have to be dealt with is the failing infrastructure of buildings on the NIH campus. Many of them are in an appalling state and will need substantial funding to rectify. And the other one worth mentioning that is always an issue is space. Tom Misteli has already created a new RNA Biology Lab headed by Dr. Sandy Wolin, initiated a Cancer Datascience Lab headed by Dr. Eytan Ruppin, and fortified the Laboratory of Pathology by hiring its new Chief, Dr. Ken Aldape. There are many more things we want and are planning to do, but finding the space in which to do them can be a more intractable hurdle than funding.

***At the Academic Panel held at this year's colloquium, Karen Reddy from John Hopkins mentioned that she's been re-branding her "basic science" as "discovery science", especially when communicating with the public about her work. How do you feel about re-branding "Basic Science" to "Discovery Science"?***

Karen Reddy is a very gifted communicator. She probably meant that the lay public does not have the training to understand the intricacies of her reductionist basic research efforts. However, if the goal is recast in terms of discovery, this makes a lot of sense. However, I think of discovery science as an approach where a true hypothesis is not being tested; rather, an experiment is set up to reveal novel data from which new hypotheses can be generated. Various screening methods used today are good examples.

***Any advice to postdocs interested in transitioning to independent academic research careers? What sort of activities should they be engaged in outside of the lab in order to stand out during the application review process?***

Networking is very important. You have to do it your entire career to be successful, and the postdoc is an important time to start in earnest. Your peers and colleagues will be involved in reviewing your papers, reviewing your grants, writing you letters of recommendation, inviting you to give talks at meetings, etc. Publishing high impact papers, although not necessarily in the highest impact journals, is of course of paramount importance. Try to always plan ahead, so when you are getting ready to leave to start your own lab, you will have a great project and all the reagents you need to hit the ground running. Talk to your supervisor, a lot, not just about ongoing experiments, but about your future. Learn as much as you can from him/her about all aspects of running a lab. Get



involved in supervising lab mates, and in community service. Talk every advantage of the courses and programs that are offered here.

*(Dr. Glenn Merlino obtained his Ph.D. in 1980 from the Department of Cellular and Molecular Biology at the University of Michigan. He has served as the NIH Ombudsman for Animal Welfare, on the Editorial Board of Cancer Research, on the Steering Committees of the Center of Excellence in Integrative Cancer Biology and Genomics and CCR Science Board, and as Executive Editor of Pigment Cell and Melanoma Research. Dr. Merlino is currently the Scientific Director for Basic Research, CCR)*

## **Explore Academic Careers through the K-grant mechanism at CCR – Dr. Tom Misteli**

### ***What are some CCR-wide issues that you are currently working on?***

Our priority is always to work towards building an even better research and training environment than we already have and to create new research opportunities for PIs and trainees. These efforts include implementation of new technology platforms for use by all CCR scientists such as, most recently, the new Genome Modification Core or the Single Cell Analysis Core. We also continue shaping of our research portfolio by new recruitments both at the senior level such as the recent arrival of Ken Aldape as the new Chief of Pathology who will implement a pipeline for the molecular pathology or of Eytan Ruppin, the inaugural Chief of the new Cancer Data Science Laboratory, which will be a hub for computational activities in the CCR. Despite the recent hiring restrictions, we have still been able to also recruit several tenure track investigators, including several internal hires of outstanding post-docs from CCR labs.

One of the issues I am very concerned about these days is the transition of post-doc fellows into new positions, be it on the academic track or in one of the many other areas of the biomedical enterprise. A troubling development on the academic track is the trend for the need for candidates for junior faculty positions to secure their own funding to be competitive for faculty positions. My view is that institutions should commit to a candidate based on their science and potential, as we do in the intramural program, rather than based on the ability of a candidate to raise funds. Regardless, this is a reality we have to deal with. I strongly encourage post-docs who are considering an academic career to apply for K99 and K22 grants while they are in the CCR. The NCI Center for Cancer Training offers very effective K-grant writing classes which walk fellows through the application process and provide grant-writing coaching. A call for the next class just went

out. One measure we have taken internally in this area is the establishment of the CCR Post-Doctoral Excellence in Research Transition Award which was launched in the fall of 2017 and recognizes outstanding CCR post-docs who are ready to go on the job market. The award offers support for laboratory work and allocation of a post-bac to catalyze the awardee's work on projects that they will use to launch their own laboratories. The first group of awardees was announced early in 2018 and a new call will go out in early summer. For fellows who are not pursuing an academic career, we continue to make efforts to expand training opportunities in areas of interest, these are offered through the NCI Center for Cancer Training, office of Training and Education.

***Many fellows struggle with work-life balance. Do you have any advice for how to manage work and life, maintain productivity, and find fulfillment?***

This is a very personal issue in the sense that everyone needs to find their own balance and explore what works for them. There are many different approaches that work for different people. For example, I have a good friend who is a highly successful scientist, who periodically disconnects completely from his laboratory life for a few days. While he feels this approach "re-charges his batteries", this cold turkey approach would not work for me. Each their own! I think one important aspect of finding that balance, and to find out what works, is to be honest with oneself as to when a slower pace or break is needed, and to ask what one truly needs in those moments. Another aspect in finding live-work balance is to ask for help, be it from family, friends, partners or co-workers depending to what is needed to provide relief from pressure at work or support with domestic issues. Despite the pressures that come with our careers, as is the case for most professions, it strikes me that biomedical research is one of the professions that lends itself quite well to be fulfilling since many of us enter this profession because of our passion for what we do, rather than just pursue a job. In addition, our work schedules, despite often going far beyond the typical 40h work week, are relatively flexible. Taking full advantage of this flexibility helps explore our individual options for how to balance our needs at work and at home.

***The NCI has visiting fellows from all over the world and several fellows are interested in starting labs in their home countries after their fellowship. What opportunities do NCI fellows have to establish collaborations with international scientists or seek international mentors?***

The CCR fellows' workforce is indeed remarkably international. Many fellows come here and have plans to return to their home countries after their training. As such it is indeed

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***“Biomedical research is one of the professions that lends itself to be quite fulfilling and flexible. Taking full advantage of this flexibility helps explore our individual options for work-life balance...”***



**Tom Misteli, Ph.D.  
NIH Distinguished Investigator  
Head, Cell Biology of Genomes Group  
CCR Director**

important that ties are established and maintained while they are in the CCR. There are no restrictions for fellows to collaborate internationally to build relationships for their future careers and such interactions are encouraged. Just like PI collaborations, these interactions may occur informally as part of a joint project done by the two laboratories, but they may also be formalized in the training plan that each fellow develops every year, including regular mentoring sessions etc., if desired. I encourage fellows to develop clear plans for their career progression and to include interactions with their home countries in their training plans.

*([Dr. Tom Misteli](#) trained at the University of London, UK, and the Cold Spring Harbor Laboratory, NY, where he initiated the use of imaging approaches to study genomes in living cells. Dr. Misteli has received numerous awards for his work, acts as an advisor for several national and international agencies and serves on numerous editorial boards)*

## Take Advantage of CCT Training Opportunities and explore the new Electronic IDP.

– Dr. Jonathan Wiest

***I'll start the short Q&A on you with a short blurb about who you are and what your role is in the CCR. I heard a rumor your office was moved out of the CCR, is that true? If so, this would be a great opportunity to teach us where you are now in terms of acronym hierarchy.***

I originally joined the NCI/CCR in November of 2001 to build the Office of Training and Education (OTE) under the CCR Office of the Director. During the first few years I was able to build a number of training activities, support the CCR-FYI as a liaison to the CCR leadership and further develop the annual colloquium. Subsequently, my responsibilities expanded, and I was afforded the opportunity to be involved in broader NCI training activities. As we developed the Center for Cancer Training (CCT) it became clear that moving the OTE to CCT would simplify daily operations and allow for greater interaction with other NCI intramural training opportunities.

***What are the various grant writing training opportunities that the NIH and the CCR have for fellows to learn what it takes to write a fundable research proposal?***

Dr. Terry Moody of the CCT offers a grant writing workshop in the spring of every year. This is not a lecture, but a 10-week workshop designed to get an in-depth grant writing experience. The Program Directors who hold K22 and K99/R00 mechanisms in their portfolios come and give an overview of the mechanism and information on what makes a successful application. There are also tips on how to navigate the online application system as well as an opportunity for the attendees to gain valuable feedback on various sections of the grant application they prepare and share during the workshop. More information can be found at: <https://ccr.cancer.gov/training/trainee-resources/courses-workshops/wcga>. This workshop is held on both the Bethesda and Frederick campuses.

***You have worked very hard to design programs for fellows to learn about non-bench careers in science and to improve their experimental design skills. Can you describe what programs are currently in place, and when they take place? What programs are you developing for the future?***

- There two courses by Dr. Ravi Dhar (<https://ccr.cancer.gov/training/trainee-resources/courses-workshops/ppsc> and <https://ccr.cancer.gov/training/trainee-resources/courses-workshops/njflf>) in the domain of private sector careers.



**Jonathan Wiest, Ph.D.**  
**Director, Center for Cancer Training,**  
**Office of Training and Education,**  
**Center for Cancer Research**

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*“The CCT has developed numerous courses, workshops and experiences to help our trainees to transition into various career paths...”*

- The EXPOSE program managed by Erika Ginsburg. In this program fellows have the opportunity to visit local industry and other employment sectors to network and learn about life and work in these sectors. A site visit to the local company is a very different experience than a panel discussion on campus.
- We also built a fellowship partnership with the FDA for fellows to learn about regulatory review (<https://www.cancer.gov/grants-training/training/at-nci/iotf>). This two year fellowship program places fellows at the FDA for hands-on experience in regulatory review.
- Additionally, we developed the Fellows Editorial Board a number of years ago to help trainees further develop their writing and editing skills as well as learn about what a career in science writing/science editing might entail. Fellows on any campus can join the meeting by videoconference.
- The Scientific Management Training is designed to help our trainees build their skills to effectively manage a lab or other type of work setting.

These and other opportunities can be found at: <https://ccr.cancer.gov/training/trainee-resources/courses-workshops>. It is important to note that all training experiences offered by the CCT Office of Training and Education can be accessed from any NCI campus through one form or another.



***At this year's colloquium, you unveiled the new digitized Individualized Development Plan (IDP). When should fellows expect the new IDP to be in place? Are there any new features fellows should be prepared for to streamline their first usage of the new system?***

We are very hopeful the electronic Individual Development Plan (IDP) system will be fully rolled out this summer or early fall. Beta testing will be starting in May. We have tried to obtain input from PIs and trainees as we developed the system to make it as streamlined and intuitive as possible.

There are a few things the fellows should consider when utilizing the system. First, it is intended to facilitate communication between the trainee and their mentor. It should augment their interactions, not supplant them. Second, this should be seen as a way to give voice to the trainee. As we are building the system there will be sections completed by the trainee, and sections completed by the mentor. Therefore, trainees will be empowered to discuss their expectations for their training experience as well as to detail their short and long-term career goals. Third, it will provide an opportunity for the trainee to describe their research projects, the goals and milestones, and planned presentations and publications. Lastly, the IDPs will be completed on an annual basis allowing the trainee to review, monitor and redesign their goals and expectations in their research and careers.

*([Dr. Jonathan Wiest](#) obtained a bachelor's degree in analytical chemistry from the University of Wisconsin-Milwaukee in 1980. Dr. Wiest received a Ph.D. in Biochemistry in 1988 from the Medical College of Ohio in Toledo and then did a Postdoc at the National Institute of Environmental Health Sciences in Research Triangle Park, North Carolina. He joined the Center for Cancer Research at the National Cancer Institute as the Associate Director for Training and Education in 2001. In 2008, the NCI Director appointed Dr. Wiest to lead the formation of the Center for Cancer Training (CCT) as the Director).*

## Keynote talk: Mechanisms of Metastasis

by Dr. Kandice Tanner

By Claire E. McCarthy, PhD

On March 1, 2018 at the 18<sup>th</sup> Annual CCR FYI Colloquium, [Dr. Kandice Tanner](#) gave a keynote presentation on “Visualizing Rare Events in Metastasis During Organ Colonization *In Vivo*.” The talk focused on her research studying mechanisms of cancer metastasis as the Chief of the Morphodynamics Unit and NIH Stadtman Investigator in the NCI CCR Laboratory of Cell Biology.

She began the seminar by discussing the “seed and soil” hypothesis that patterns of cancer metastasis are nonrandom. This theory, which was first proposed by Dr. Stephen Paget in 1889, suggests that cross-talk between cancer cell “seeds” and specific organ micro-environmental “soils” promotes metastasis to certain tissues<sup>1</sup>. Moreover, the hypothesis is supported by observations that different types of cancers have different organ specificity in their metastatic outgrowth. For example, prostate tumors often metastasize to the bone while colon cancer tends to initially spread to the liver<sup>1</sup>.



**Kandice Tanner, Ph.D.**  
**Stadtman Investigator**  
**Laboratory of Cell Biology**  
**NCI CCR**

Dr. Tanner also described the steps of the metastatic cascade: 1) local invasion of tumor cells into nearby tissue and vasculature, 2) spread of cancer cells in the bloodstream, 3) arrest of cancer cells at a distal site, 4) extravasation of cancer cells from circulation into the tissue, 5) survival of a small subpopulation of the cancer cells, and 6) growth and proliferation of the cancer cells at the organ<sup>1</sup>. With this background knowledge, Dr. Tanner asked the research question, “What is the earliest stage of the metastatic cascade at which nonrandom cancer cell targeting to a distal site occurs?” Additionally, based on her previous training in physics, she hypothesized that physical cues from the environment promote the metastatic behavior of cancer cells.

To study both biological mechanics and early stages of metastasis *in vivo*, Dr. Tanner’s lab developed a zebrafish model<sup>2</sup>. They injected fluorescent brain- or bone-

targeting human breast cancer cells into larval fish and followed the movement of the cells over the time by microscopy. Also, optical tweezers were used to study the role of mechanical properties of the brain and CVP environments, specifically their tissue stiffness, during metastasis<sup>2</sup>. Her lab found that there was no difference in the migration of the cells to target tissues. However, both types of breast cancer cells preferentially arrested in the zebrafish caudal vascular plexus (CVP), which is analogous to human bone marrow, rather than the brain. Characterization of the physical properties of the zebrafish CVP and brain suggested that this result was related to the more complex vessel architecture of the CVP<sup>2</sup>.

Further, Dr. Tanner's group identified extravasation as a critical step in metastatic organ selectivity. Specifically, brain-targeting breast cancer cells occluded at the CVP could not efficiently move into the distal tissue, while bone-targeting breast cancer cells showed high rates of extravasation at the CVP. Protein analysis indicated that bone-targeting breast cancer cells have greater expression of  $\beta 1$  integrin, which is an important mediator of adhesion and migration into the CVP<sup>2</sup>.

In summary, Dr. Tanner described her recent work examining the role of the interplay between cancer cells and their environment during metastasis. She discussed her lab's novel, *in vivo* findings that physical vessel structure and nonrandom extravasation leads to organ specific-targeting of metastatic cells.

#### References:

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## Keynote talk: ‘Overcoming Obstacles’ – Advice from Dr. Michael Gottesman

By Molly D. Congdon

The first keynote talk scheduled for the second day of the 18<sup>th</sup> Annual CCR-FYI Colloquium was to be delivered by the NIH’s own Dr. Michael M. Gottesman, chief of the CCR Laboratory of Cell Biology (LCB) and Deputy Director of Intramural Research. He has helped broaden diversity in the scientific community by initiating multiple training and mentoring programs for students, educators, and scientists ranging from high school to early career clinical investigators, as well as for under-represented, minority, and disadvantaged groups. Through his research, he has improved the understanding of potential drug resistance mechanisms, and identified methods selectively target resistance to specific drugs. Due to the unanticipated cancellation of the second day of the colloquium, Dr. Gottesman was unable to deliver his highly anticipated talk “The Clinical Relevance of Mechanisms of Anti-Cancer Drug Resistance.” Fortunately, Dr. Gottesman agreed to an interview, in lieu of his presentation, so that he could share his wisdom on overcoming obstacles and getting the most out of your time at the NIH.

### ***What drove you to become a research focused M.D.?***

As part of the baby boom generation, I grew up after World War II at a time when the U.S. was in direct competition with the Soviet Union. The launch of Sputnik on October 4, 1957 was a wake-up call for the U.S. to invest much more in science education, and I benefited from many programs that encouraged young people to become interested in space science and biomedical research. I received NSF support for a summer program in high school that allowed me to work directly in a research lab run by a physician-scientist and I was intrigued by the burgeoning opportunities in medical research. I majored in biochemical sciences at Harvard College, and decided that medical training would give me the broad perspective I needed to choose important research problems. During medical school, I used all of my elective time to work in the lab. At that time, there were only two M.D.-Ph.D. programs in the country and most physicians who were interested in research came to the NIH to get advanced research training without the Ph.D. At the same time, the war in Vietnam resulted in 100% of U.S. recent M.D.s being drafted, and service in the Public Health Service at the NIH was a very attractive alternative for me and many of my colleagues. Once I had the experience of full-time laboratory training working on DNA ligase with Marty Gellert in what is now NIDDK, I was smitten by the research bug. I returned to Harvard to complete my medical residency and then, after a brief period as an Assistant Professor, I decided that NIH was the best

place in the world to pursue my goals as a physician-scientist to understand the molecular basis of drug resistance in cancer.



**Michael M. Gottesman, M.D.**  
**Chief, Laboratory of Cell Biology**  
**Senior Investigator and Head,**  
**Multidrug Resistance Section**  
**Deputy Director of Intramural**  
**Research- NIH**

***What was the biggest challenge during your postdoctoral/postgraduate training career and how did overcome it?***

During my formative education and early career as a physician-scientist, NIH investment in training and early career investigators was increasing at a rapid pace, and I never had any doubts that I would be able to obtain a good job and support for my research. The situation now is far more competitive and early career scientists generally have some anxiety about whether they will be able to get their dream jobs. The major impediments at that time to my career included the doctor's draft, which was resolved by NIH offering alternative service in the Public Health Service, and my uncertainty about whether I wanted a career in a University or at the NIH. I was married with one child at that time, and both my wife Susan and I needed to find a place where both of our careers

could flourish. The NIH solved all of these problems for us!

***During your tenure as Deputy Director of Intramural Research at the NIH, you have been involved in initiating a multitude of training programs for minority, underrepresented, and disadvantaged groups ranging from the high school level to early stage investigators. For fellows interested in starting similar programs in their home communities, what is the hardest part of establishing these types of programs and how do you suggest overcoming it?***

I have been Deputy Director for Intramural Research at NIH for 25 years, serving under three different NIH Directors (Drs. Varmus, Zerhouni, and Collins) and two acting Directors (Drs. Kirschstein and Kington). All of the programs that we have established have been strongly supported by this leadership, who have committed resources and have been persistent in their view that diversifying the biomedical workforce is one of the most important goals of the NIH. So, the most important part of establishing programs such as this is to enunciate the paramount importance of diversity and to secure the

commitment of leadership. Second, I have been fortunate to work with Scientific Directors of the 23 Institutes and Centers (ICs) at the NIH that have intramural programs also dedicated to the essential need for diversification, inclusion, and mentoring. NIH has always been a very international community, and the contributions of scientists from all over the world are well-recognized here; it has not been very difficult to make the case that diversity is, in itself, a valuable goal in advancing scientific research. Finally, talented individuals must be engaged to design and manage programs that work well; again, I am fortunate to have an outstanding staff in the Office of Intramural Research, including Sharon Milgram who directs the Office of Intramural Training and Education, and the many training directors at the NIH.

***One the large obstacles facing scientist is bridging the gap from basic research to clinical applications. What do you believe is the key to overcoming this challenge within the scientific community and with the public?***

This is a key issue for the management of any translational research program such as the NIH. There are no easy prescriptions to enable laboratory scientists to see their ideas translated into new treatments, and for clinical investigators to be able to bring their observations into the laboratory for detailed study that enables improved clinical care. There are a few principles that I think are helpful, and some specific programs that we have piloted at the NIH. The first principle is enhanced communication so that laboratory scientists can convey the excitement and promise of their discoveries to clinical investigators. The second is education of both laboratory and clinical scientists about the steps needed to go from a laboratory observation to a clinical study. The third is availability of extra funding to narrow the gap. Finally, staffing to oversee the elements of translation and technology transfer is essential. At the NIH, we have programs that enable several of these principles. There is coursework at the Clinical Center and at the FAES on how translation of laboratory observations into clinical studies can occur. Our seminars frequently emphasize the translational aspect of laboratory observations, as object lessons in how to go about this process. The Bench-to-bedside grant program, overseen by John Gallin, Associate Director for Clinical Research, provides funding to encourages promising translational projects. And many ICs, especially NCI, offer specific funding and advice through their technology transfer coordinators on how to patent and license new discoveries of possible clinical utility. Still, we have much more to do to assure that our best lab-based ideas have the clinical impact that can make a difference for the public.

***In your opinion, what is/are the most important thing(s) to do and/or focus on during a fellowship, of any level, today?***



Fellowship training at the NIH is advanced training in a field that is likely to become the area of career specialization of the fellow. So, the number one focus of a prospective fellow should be on choosing a laboratory in which they will get the training that they need and mentoring from their direct supervisor and others in the laboratory that enhances the likelihood of achieving their research goal. It is important to talk to current fellows in the lab, and others who have left the lab, about the research and mentoring environment, to find out where fellows in the lab have gone after leaving (the type of positions and the places where people end up), and what the expectations in the lab are about work/life balance and training experiences outside of the lab. For clinical fellows, in addition to the same issues outlined above, will the training be broad enough to enable clinical practice if that is the goal, or focused enough on specific research objectives to enhance the prospects of an academic career as a physician-scientist? We are privileged at the NIH to be at the epicenter of some of the most exciting developments in biomedical research, and any fellow should be able to take full advantage of the seminars and have access to scientific leadership at all levels at the NIH.

*Dr. Gottesman is a graduate of Harvard College and Harvard Medical School. He completed an internship and residency at the Peter Bent Brigham Hospital in Boston, MA. During his tenure at the NIH, he has served as Chief of the Laboratory of Cell Biology in the National Cancer Institute (1990 – present), Acting Director of the National Center for Human Genome Research (NCHGR, 1992 – 1993), Acting Scientific Director of the NCHGR (1993) and Deputy Director for Intramural Research (1993 – present). Dr. Gottesman is a Commissioned officer who served for 26 years in the U.S. Public Health Service and obtained the rank of two-star Rear Admiral as Assistant Surgeon General. He is a highly published scientist; whose current research efforts focus on identifying additional mechanisms of multidrug resistance in cancer. Throughout his career, Dr. Gottesman has been recognized with numerous awards and memberships for his scientific accomplishments and service to the scientific community.*

*More information about Dr. Gottesman can be found at <https://ccr.cancer.gov/Laboratory-of-Cell-Biology/michael-m-gottesman>*

## Keynote talk: Leaders in Science- Dr. Sara Courtneidge

By **Melissa V. Fernandez**

Breast cancer researcher and professor at Oregon Health & Science University (OHSU), Dr. Sara Courtneidge was invited to give a keynote presentation at the 2018 CCR-FYI Fellows' Annual Colloquium. There was much excitement surrounding her upcoming keynote presentation. Unfortunately, severe weather prevented her from giving her highly anticipated talk scheduled on the second day of the 18<sup>th</sup> Annual CCR-FYI Colloquium. Thankfully Dr. Courtneidge had also agreed to serve on the Academic Panel held Thursday, March 1<sup>st</sup>, 2018, the first day of the 18<sup>th</sup> Annual CCR-FYI Colloquium. Those who attended the Academic Panel obtained insight on Dr. Courtneidge's journey and her views on how to succeed in academia today. She graciously agreed to an interview where we could delve a little deeper into some of the issues touched upon during the Academic Panel.

### ***Why did you move from Academia to Industry? What precipitated the move back to Academia?***

I moved from academia to industry because I wanted to gain firsthand knowledge of what it takes to move basic cancer research findings into new treatment ideas. As head of Research, I was responsible for our efforts in identifying and validating new therapeutic targets. But as part of the leadership team, I was also exposed to drug discovery, pharmacology, clinical research, regulatory issues etc. It was a challenging but rewarding job and set the stage for my future research. Upon leaving industry, we set out to take an understudied area of cancer biology, invasion and metastasis, and dissect the underlying mechanisms as well as identify and validate new therapeutic approaches. Combining the fundamental discovery with the translational aspects of this research would have been very hard in the industrial setting, where the focus must necessarily be on getting new drugs into clinical testing as fast as possible.

### ***Any advice for fellows interested in pursuing a career in industry? What skills do they need to develop before applying to help them stand out among the candidate pool?***

I think that what makes candidates stand out for industry jobs is these days, very similar to skills important for an academic career: the ability to collaborate and work in teams, to set goals and assess progress towards them within a defined timeline, and flexibility.




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***“a successful scientist is one who is interested in, and engaged with, the research and careers of others, and creates “networks” in these ways ...”***

**Professor, Dept of Cell, Developmental & Cancer Biology & Biomedical Engineering  
Asso. Director for Translational Sciences,  
Knight Cancer Institute,  
Oregon Health & Science University**

***You mentioned during the 2018 Fellows' Colloquium Academic Panel that you participate on hiring committees. What characteristics will strengthen their chances?***

The single most important factor when applying for a job in academia (apart from the obvious of having the appropriate qualifications) is to personalize the application to the institution. Spell out why you would be a good fit (possible collaborative interactions, filling a technical gap, etc.), and leave the search committee with the impression that you have done your homework.

***How important is networking? Should scientists make social networking a priority?***

I think, the term networking can be overused, especially when it seems to imply a separate activity from your daily science life. For me, a successful scientist is one who is interested in, and engaged with, the research and careers of others, and creates “networks” in these ways. These can be invaluable and allow you to reach out if you have a scientific question, want to collaborate, or to help place one of your trainees. In a nutshell, I think the best networking comes from a genuine interest in others and can be a win-win for all involved.

***Switching topics from career development questions to some questions about your research, have your lab's findings in breast cancer research led to any interesting new therapeutic targets? What sort of next steps do you take when you have a potential target?***

We use both melanoma and breast cancer models to study underlying mechanisms of invasion and metastasis, with a particular focus on membrane protrusions called invadopodia. One intriguing finding we have made is that while invadopodia appear to be dispensable for growth of cancer cells on tissue culture plastic, when we place cells in physiologically appropriate 3-dimensional systems (in our case native type I collagen) growth is severely impaired if we prevent invadopodia formation. While we are still working out the underlying mechanism, we have found that tumor growth in vivo is also facilitated by invadopodia. These are the data that suggested to us that there might be therapeutic benefit to targeting invadopodia. To that end, we established a high content screening assay, and have used it to screen all kinases (“the kinome”) for their role in invadopodia formation and function. For one of these kinases we have completed full validation, deciphered its mechanism, and, in collaboration with colleagues at the Sanford-Burnham-Prebys Medical Discovery Institute, begun to develop small molecule inhibitors. Our goal is to establish proof of principle in cancer models in vitro and in vivo, as a prelude to a full drug discovery effort (likely by or in collaboration with industry).

*D. Courtneidge's research focuses on the Src family of protein tyrosine kinase. She has contributed to the understanding of Src transformation, regulation, substrate selection, and function. Her research on Src and its substrates focuses on cancer invasion and metastasis, with emphasis on the role of podosomes. She also retains interest in translational research, with the goal of defining novel therapeutic points of intervention for cancer treatment.*

## An Interview with Cancer Survivor -Megan Pischke

By Zaw Phyo



Megan Pischke was selected as this year's Cancer Survivor Speaker for her steadfast battle with breast cancer and her continued work as an advocate for cancer patients. In 2012, after an illustrious professional snowboarding career and giving birth to her second child, Megan was diagnosed with Stage III breast cancer. While undergoing treatment, Megan embarked on a documentary film called "Chasing Sunshine" to share her story in hopes of educating viewers on the reality of a cancer patient. Today, Megan works as a Marketing + Wellness Manager at Boarding for Breast Cancer (B4BC.org), advocating for and empowering newly diagnosed patients. Megan was scheduled to deliver her keynote talk on March 2nd, 2018, but due to severe weather her presentation was cancelled. Megan agreed

to an interview where we discussed her personal and professional journey with breast cancer and all the lessons and experiences she's had since her diagnosis.

***Can you talk about your life and professional career before being diagnosed with cancer?***

Life before diagnosis was fun just like it is now! I am just a mountain girl at heart. I was blessed with a professional snowboarding career in my 20s and 30s where I was being sponsored by various brands. I made a great living and bought my home in my 20s. I had a very active lifestyle where I participated in X Games, yoga and physical therapy. I met my husband who at the time was a coach at a training camp. My snowboarding career slowed down a bit after having my daughter, but I continued to stay very active.

***When were you diagnosed and what was your first reaction when you were told that you had cancer?***

I had always suffered from thyroid issues with my primary symptom being extreme fatigue, so feeling exhausted was normal for me. It was only after a snowboarding accident in my mid-twenties where I ruptured my spleen and broke several ribs that I

noticed the lump in my breast. I monitored the lump that but was told it was fibrous tissue and therefore didn't need a biopsy. I continued to have issues with the lump during my first pregnancy and that breast was extremely painful. During my second pregnancy the same problems persisted but this time the breast was even more painful. My son was born 6 weeks prematurely, but I was fortunately able to nurse him just without issue. After losing baby weight the lump had grown even bigger than it had ever been. Ultrasounds showed a problem, and this is when my cancer story started. At the time, my son had just turned a year old I was diagnosed with Stage III breast cancer in October 2012.

It was a traumatic experience to say the least, and initial shock was huge- to have your life literally flash in front of your eyes but in slow motion as you try to then move your feet in the direction of some sort of path to heal the crazy mess. I was told about my diagnosis over the phone, which felt crazy to me. The doctor, upon our request, drove over to our house to deliver the news again in person but I would have liked to be told in person to begin with. I was shocked and horrified with the bad news but there was also a bit of relief that this problem that I had been dealing with and seeing so many doctors about for years had been identified.

Honestly, it just felt like having breast cancer was the last thing that would ever happen to me, especially when I live such an active and healthy lifestyle. I am conscious of the food I eat, I don't smoke or drink, and I had no family history of breast cancer. All the things you could possibly associate with cancer just didn't exist in my world, so the news was truly shocking. I instantly started thinking about the past: What could have caused this? Was I to blame? Was it something I ate? Was my water contaminated? Or was it just my luck of the draw?

***One important aspect to your story is the fact that you were a mom at the time of your diagnosis. What was that like and how did you explain the diagnosis to them?***

When the doctor drove over to our house to explain my diagnosis, my six-year-old daughter was present in the room. The doctor tried to tell her that mommy is very sick, but they are going to try their best to take care of her. In retrospect, I would have preferred to explain to my daughter myself since it's such a heavy subject to communicate. She would frequently ask me throughout my treatment if mommy was feeling ok. I had to always reassure her that I'm OK, it's just that my breast is sick. I was always of the mindset that everything was going to be fine. I tried to tell them that going through cancer and all these appointments with doctors is going to be Mommy's new job.

My son was barely a toddler just around one year old at the time. I wanted to breastfeed him until he was two, just like I did with his sister, but the treatment cut it short around 13-14 months. He couldn't speak at the time, but I just had an intimate conversation with him that I'm going to have to stop nursing him because I'm starting treatment soon. Fortunately, the transition was smooth, and he never once complained!



***As you were undergoing cancer treatment, you made a very touching documentary called “Chasing Sunshine”. What drove you to embark on this project and what did you want the viewers to get out of it? How did sharing your story affect your journey with cancer treatment?***

The film started out really as a small thing. I wanted to document my experience with cold cap therapy to save my hair. We didn't know at the time if it was going to work or not. My daughter was really strong throughout my treatment but something about losing my hair from treatment really broke her. I tried to tell her that it's just hair and that it goes away with the treatment temporarily, but it will grow right back. But she was persistent; she would beg me to try not to lose my hair. I eventually decided to give this cold cap therapy thing a shot since it had worked on some women.

We had a family friend who knew about videography and it was great for him since he got a cool contrast between Megan going through chemotherapy and then Megan doing outdoor activities like paddle boarding and jogging. Later, the organization that I work for (B4BC), suggested that it should document not just my cold cap therapy but also my overall journey with treatment and some of the decisions that I made to supplement my treatment. In that sense, it became a very raw film that documents the various aspects of cancer that people are not necessarily aware of and I hope that the film empowers patients to be informed and proactive with their treatment.

We didn't really put the film out until eight months or so after I finished treatment. Going through treatment was an incredibly intense time of my life and I needed a breather to reflect afterwards. I was also dealing with post-treatment complications, like getting surgery for chemo-induced cataracts.

***What was your support system like as you were going through treatment?***

I was very fortunate to have a great tribe of people around me. My mom stayed around with me for the first part of chemo to support me and help with the kids. My husband and kids were there with me every step of the way. I had neighbors and friends sending me well wishes, flowers and cards. My friends at B4BC even decided to fundraise for parts of the treatments that were not covered by insurance. Part of this process was learning to accept that it's ok to receive and be vulnerable since that was not what I was used to. It was a humbling time and was quite the contrast from my life before where I was juggling between my job, snowboarding and being a mom.

***You've been involved in Boarding for Breast Cancer (B4BC) since before your cancer diagnosis. Can you speak more on the organization and its mission?***

B4BC was started in 1996. We had a young woman and fellow snowboarder, Monica Steward, who battled with cancer at age twenty-six and passed away two years later. Had she been diagnosed earlier, she may have had a different outcome.

This incidence was an important wake-up call that young women are not immune to this disease and that there needs to be a discussion about this disease even among young, active women. B4BC's founders, Lisa Hudson, Kathleen Gasperini, Dawn Kish, Tina Basich and Shannon Dunn held the first ever B4BC Snowboard + Music Festival. Through their passion of snowboarding, the mission of this organization is to raise awareness, inspire sustainable lifestyle changes, build a supportive community, and empower young women.

***After your ordeal with cancer, you continue to advocate for cancer patients as the Marketing + Wellness Manager at Boarding for Breast Cancer (B4BC). Can you talk more about your role at B4BC?***

As the Marketing and Wellness Manager, I feel passionate about people knowing about B4BC and what we do. I plan about 35 events annually and they range from educational booths at surf events where women can learn to do a breast self-exam to planning retreats for breast cancer survivors. I am responsible for getting the word out about our organization to the surfing and snowboarding community and that our messaging and branding are clear. I am looking to expand beyond the action sports industry. As a mother especially, I think it's important to teach young people to be advocates for their health and wellness in a broader sense.

***Can you elaborate more on the retreats that you plan for breast cancer survivors?***

So, the idea of a retreat started between a friend and I in Colorado. We started a little fundraiser so that we can take these young women for a weekend retreat filled with activities like yoga, snowboarding and spa treatments. Eventually, we started getting sponsors like North Face and we expanded the scope of our retreats. We were able to hire chefs who would cook healthy food and instructors on meditation and yoga. Most applicants to the retreat are women who have dealt with treatment or surgery in the past year. It's been a thoroughly rewarding program. I've received a lot of letters from many participants. Many didn't even realize that they needed a weekend retreat. It's truly a life-changing experience for some of them. They are able to meet and connect with similar individuals who have gone through the same path. My hope is that they can take something home from the retreat with them, whether it's the yoga or contact information of their new best friend they made during the retreat, so that when they have moments of self-doubt, they can take part in activities that are healing to them or reach out to someone who can relate.

***Having gone through diagnosis and treatment yourself, how can the medical field and professionals adapt to serve the patients better?***

Every single medical professional that I encounter, I am grateful for, even if I don't fully agree with them all the time. I was very lucky to have an incredible team of doctors that guided me throughout my treatment.

Simultaneously, I sometimes felt like a number or a statistic. Doctors being as busy as they are, sometimes it was hard to find a doctor that would give you more than three minutes of their time. Sometimes, I kind of have to force my way and have the doctor stay until I was done with all of my questions. In that sense, I really had to be prepared to go to all of my appointments. At times, I felt lost with certain aspects of my life, like diet, and figuring out what I should eat to really supplement my treatment.

I would have also preferred to learn about my diagnosis in person than over the phone. In my circle of friends, it is unfortunately too common for learn about your diagnosis over the phone. I feel like the patient should at least be brought into the office and be handled personally. After my whole experience with treatment, one of the doctors who was monitoring my breast lump watched my film and wrote to me. She apologized for not taking action sooner and expressed that she had learned and grown from the experience she had with me. I was very grateful for that letter.

***What does it mean to you, to be a cancer survivor? In what ways has it changed your life?***

At the end of the day, cancer does not define me. I definitely check in with myself way more in terms of my diet and exercise than I did before. I am definitely glad to be done with that part of my life. I certainly have fears that pop up from time to time.... Is it in my bones now? What are the follow-up tests going to reveal? I'm looking forward to the day where these chest X-rays and blood work will no longer be things that I do. But most days, I've learned to be grateful and view each day as new and full of opportunities.

***What have you learned from your experience with cancer and what advice would you give to those newly diagnosed with breast cancer?***

I would say stay strong. I think that you're probably going to be really challenged to take a deeper look at yourself and your convictions. Remember that it's ok to be vulnerable. Do not blame yourself or try to attribute your diagnosis to things you did in your past. Do the best to find a team of doctors that cater to you as a person. Keep loving yourself.

## Interview with the 18<sup>th</sup> Annual CCR-FYI Colloquium Outstanding Post-Graduate Fellow Candidates

By **Melissa V. Fernandez**

This year's six Outstanding Postgraduate Fellows (OPGF) were selected to give oral presentations at the 18<sup>th</sup> Annual CCR-FYI Colloquium. Due to the unfortunate cancellation of the second half of the 18<sup>th</sup> Annual CCR-FYI Colloquium, the Colloquium Committee decided to feature them in this year's Special Edition of the newsletter. In this interview, the OPGFs share their inspirations, motivations, mentorship, and scientific passions of these young, up-and-coming scientists.

*All fellows interested in learning more about the OPGF Candidates' research are encouraged to reach out to the candidates and attend the 19<sup>th</sup> Annual CCR-FYI Colloquium Poster and Oral Presentation sessions to meet next year's rising stars.*



(2018 Outstanding Post-Graduate Fellow Candidates and Awards Committee Chair, from left to right: Paula Rote, Simona Patange, Génesis M. Rivera Márquez, Emily M. King, Melissa V. Fernandez, and Bridget C. Marcinkowski. Not pictured: Irianna M. Torres).



**Bridget C. Marcinkowski**

Mentor: Dr. Christian Hinrichs

***-What is your current position and what do you currently study?***

I am currently a post-baccalaureate fellow in Dr. Hinrichs' Lab within the Experimental Transplantation and Immunology Branch of the National Cancer Institute (NCI). I am investigating T-cell immunotherapies for the treatment of cancer. My current work involves characterizing a novel T-cell receptor that targets a cancer germline antigen expressed in many epithelial cancers.

***-What moment and/or person inspired you to pursue a scientific career?***

I was first inspired to pursue a career in science at a young age. Watching my mother's battle with breast cancer was hugely impactful. Seeing a loved one suffer from cancer was all the motivation I needed to set on this path.

***-Who do you consider your mentors? Where do they work? What are their positions?***

I have been fortunate to have several inspiring and supportive mentors. While I was an undergraduate I did two summer research internships at the Johns Hopkins School of Medicine. There, my advisor Dr. Leisha Emens was instrumental in my decision to pursue a career in research and medicine. Her advocacy for patients and unwavering leadership are tenets of her character that I try to emulate. Additionally, one of my professors at Virginia Tech, Dr. Mike Hochella, was another source of inspiration; he taught several of my science classes with a childlike excitement and love for science that was contagious. Finally, my advisor here at the NCI, Dr. Hinrichs, has been an outstanding mentor in innumerable ways. He manages to foster a laboratory environment that is collaborative, academic, and so focused on doing good science to help patients in need. Dr. Hinrichs constantly reminds me why putting in long days in the lab is not only necessary but also a privilege.

***-What is it like in your lab?***



My lab is a tight-knit and diverse group of brilliant minds. I am fortunate to do research in an environment where I can turn to my lab-mates with any problems that I encounter. They are always eager to help. Every late night, weekend, or holiday I have come into lab expecting the lights off, I've been surprised to find numerous others hard at work. Everyone operates with a sense of determination and urgency, knowing that there are patients desperately awaiting the treatments we are working on.

***-What parts of your training experience at the NIH have you enjoyed the most?***

The most rewarding part of my training at the NIH thus far has been meeting the patients enrolled in clinical trials who are receiving the therapies that were developed in my lab. It is one thing to have a breakthrough on the bench, but it is a vastly different experience to see the tangible impact that scientific discovery has on a person's life. It has truly been humbling to meet the patients that selflessly undergo experimental therapies, elective biopsies, and countless follow-ups. Their motivations are not self-serving, rather they participate to help advance the science and pave the way for cures that may benefit patients down the line.

***-What is the next step in your career? Where do you see yourself in 5 years, 10 years, 20 years?***

In the upcoming months, I will be applying to medical school. I will actively pursue research opportunities throughout my training, as I would like research to be a prominent aspect of my future career. I foresee myself someday specializing in pediatric oncology/hematology. I hope that 20 years from now, I will be regularly seeing patients while simultaneously helping to advance the field of cancer immunotherapy.

***-Can you quickly summarize your research findings?***

My findings pertain to the cross-reactivity of a novel T-cell receptor that targets a cancer-germline antigen called KK-LC-1. Using a method called amino acid scanning, I identified the critical residues in the target epitope that are required for recognition by the T-cell receptor (TCR). Then, using a focused database search, I identified highly homologous non-cognate epitopes that may be potentially cross-reactive and tested them for recognition by the TCR.



**Génesis M. Rivera Márquez**

Mentor: Dr. Leonard M. Neckers

***-What is your current position and what do you currently study?***

Currently, I'm a post-baccalaureate CRTA Fellow working in the Urologic Oncology Branch (UOB) of the NCI. I'm studying the effects of the inhibition of heat shock proteins Hsp40 and Hsp70 in castration-resistant prostate cancer.

***-What moment and/or person inspired you to pursue a scientific career?***

The moment that made me want to pursue a scientific career was when my father passed away. Even though it was one of the saddest moments of my life, it inspired me to be part of the community involved in finding treatments and cures to help others. I hope to inspire others to become involved in biomedical research to ultimately turn scientific discoveries into meaningful health impacts.

***-Who do you consider your mentors? Where do they work? What are their positions?***

Dr. Len Neckers, Dr. Michael Moses, and Dr. Abbey Zuehlke have been my mentors since I arrived at the NIH. Dr. Neckers is a Senior Investigator and Dr. Moses is a Postdoctoral Fellow in the UOB. Dr. Zuehlke currently works as a Science Writer and Analyst at the Office of the Director, she served as my mentor during her Postdoctoral Fellowship in the UOB.

***-What is it like in your lab?***

I consider my lab to be very dynamic and diverse. Due to its cultural and intellectual diversity, it has helped me to recognize different ways of thinking and expand upon multiple ways of doing science. The scientists that work in my lab are very knowledgeable and helpful, which creates a very comfortable and enthusiastic working environment.

***-What parts of your training experience at the NIH have you enjoyed the most?***

What I have enjoyed the most about my training at NIH has been the ability to learn more about cancer from renowned scientists and medical professionals. My entire training experience at the NIH has been life-changing and I wouldn't be the person I am today without it. I consider Dr. Jonathan Wiest, the Director for Training and Education, the most important person of my entire training experience at the NIH. I can't thank him enough for seeing potential in me and choosing me to be part of this amazing community.

***-What is the next step in your career? Where do you see yourself in 5 years, 10 years, 20 years?***

I plan to continue to obtain research experience at the NIH and eventually transition my scientific journey into something more clinical. In 5 years, I see myself in an MD/PhD program working to become a physician-scientist. In 20 years, I see myself working in a research hospital like the NIH Clinical Center to continue to promote bench-to-bedside translational medicine.

***-Can you quickly summarize your research findings?***

Despite efforts to inhibit full-length androgen receptor (AR) function with ligand-binding domain (LBD) targeted (LBDD) therapy to improve prostate cancer patient survival, castration-resistant prostate cancer (CRPC) eventually emerges. Based on published and preliminary data, it is known that full length AR and a constitutively active AR splice variant, ARv7, depend on the Hsp40/Hsp70 chaperone axis for their activity. Treatment of 22Rv1 cells, which is a CRPC cell line (expressing endogenous AR and ARv7), with C86 (Hsp40 inhibitor) and JG98 (Hsp70 inhibitor) leads to a time and dose-dependent decrease in AR and ARv7 protein and cell viability. These data confirm the continued dependence of AR and ARv7 on the Hsp40/70 axis.



**Irianna M. Torres**

Post-baccalaureate Fellow  
Genetics Branch, Cancer Genomics Section  
Mentor, Dr. Thomas Ried

***-What moment and/or person inspired you to pursue a scientific career?***

My fervor for developing a greater understanding of the scientific processes in medicine culminated with my aunt's diagnosis of ovarian cancer. Although only a sophomore in high school, this was the first time a disease threatened to take the life of someone precious to me. The idea of becoming a physician scientist captivated me as I learned how biological contributions and medical advancements of the profession contributed to the miracle of my aunt's remission.

***-Who do you consider your mentors? Where do they work? What are their positions?***

My mentors are the principal investigators, staff scientists, PhD students and medical students who have taught and prepared me to be a good scientist and physician. Many of my mentors have worked at the NCI, however there are many others from my undergraduate institution of the University of Buffalo and the Roswell Park Cancer Institute.

***-What is it like in your lab?***

We are a wonderfully collaborative lab, full of students and scientists from all over the world. We work hard to see one another succeed and we truly value teaching others.

***-What parts of your training experience at the NIH have you enjoyed the most?***

My favorite parts have been passing my knowledge onto younger students by training them throughout the year and having an abundance of learning opportunities on campus. There is so much offered at the NCI and I have enjoyed taking advantage of all the opportunities that I can.

***-What is the next step in your career? Where do you see yourself in 5 years, 10 years, 20 years?***

In August of 2018 I am very excited to begin medical school! In the next few years, I see myself becoming a physician scientist working in the field of oncology and taking care of underserved patient populations within the United State and other countries.

***-Can you quickly summarize your research findings?***

Following our understanding of genome dynamics in breast cancer progression, we suggest a multicolor fluorescence *in situ* hybridization test comprising probes for 1q, 8q (MYC), 16q, 17p and 17q (HER2) could become a valuable clinical tool to potentially identify and characterize the majority of ductal carcinoma patients.



**Simona Patange**

Mentor, Dr. Daniel R. Larson

***-What moment and/or person inspired you to pursue a scientific career?***

I was motivated to pursue a scientific career when my high school class took a field trip to the Oregon Health & Science University (OHSU) in Portland, Oregon, the medical school in my hometown. One of the investigators I met was Dr. Tania Vu of the Biomedical Engineering Department. She was using fluorescent quantum dot nanocrystals to track serotonin receptor trafficking in living neurons. After giving us a tour of her lab, she invited us to look at one of their neuron samples under the microscope.

What I saw when I peered through the eyepiece took my breath away – there on the glass coverslip, under the microscope, was a galaxy of twinkling stars in the night sky. It remains to this day one of the most beautiful things I have ever seen. Seeing those quantum dots sparkle and light up the signaling activity of neurons replaced my genial feelings for science with something more powerful and inescapable- transfixed wonder, ravenous curiosity. I could not walk away from it. Shortly after that field trip, before I even graduated high school, I started learning cell culture and the art of working with microscopes and

fluorescent labels so that I could face the unknown, the wondrous, the mysterious, head on.

***-What is your current position and what do you currently study?***

I am a Ph.D. candidate in Biophysics with the National Cancer Institute-University of Maryland Graduate Partnership Program. I work in the lab of Dr. Daniel Larson at NCI, studying how the MYC oncogene affects the kinetics of transcription in single, living cells. In addition to Dr. Larson, I am co-advised by Dr. David Levens at NCI and Dr. Michelle Girvan at UMD.

***-Who do you consider your mentors? Where do they work? What are their positions?***

I am fortunate that the PIs who serve as my thesis advisors- Dan, Dave, and Michelle- are incredibly inspiring scientists whom I also consider my close mentors as this stage in my career. My other mentors include scientists from labs I previously worked in at NHLBI, NIBIB, and the OHSU.

***-What is it like in your lab?***

Being the only graduate student in the lab, my lab members have taken an enthusiastic interest in seeing me succeed. They lead by example and set the bar high. They are great to work with, and I wouldn't be the scientist I am today without them.

***-What parts of your training experience at the NIH have you enjoyed the most?***

What I enjoy most about my training experience at the NIH is the people. Pursuing high-risk, high-impact research is a long road to travel and is not without its roadblocks. At the NIH I am never at a loss to find someone willing to share their reagents, equipment, protocols, and first-hand experience to help one of my projects get to the next step. There is a strong sense of community here and a willingness to share ideas and experiences that makes it a productive and inspiring place to work.

***-What is the next step in your career? Where do you see yourself in 5 year, 10 years, 20 years?***



Five years from now I hope to have received my Ph.D. and be nearing the completion of my postdoctoral research. For now, I enjoy being the one to design and carry out the experiments myself. I am still driven by wonder and curiosity about what I will see under the microscope in my latest experiment. But as I progress in my career, ten or twenty years from now, I hope to broaden the impact I have as a scientist by leading my own lab and utilizing my other skills in writing, public speaking, outreach, and leadership. I hope to promote public support for science and would like to shape scientific policy in this country.

***-Can you quickly summarize your research findings?***

My findings show how the c-MYC oncogene acts on gene expression from a living, single cell perspective. The MYC transcription factor was one of the first discovered oncogenes and it has long been known that its dysregulation causes a global increase in gene expression. However, the precise mechanism as to how MYC amplifies transcription, and why that promotes cancer, has remained notoriously elusive. To address these questions, I used single cell fluorescence imaging techniques to perturb MYC expression and quantitatively measure its effects on gene expression. I have obtained the first living, single cell evidence of how MYC acts as a transcription amplifier. I am currently surveying a panel of different genes to determine how universal the behavior of MYC behavior.



**Emily M. King**

Mentor, Dr. Ira Pastan

***-What moment and/or person inspired you to pursue a scientific career?***

My mom was the first scientist I met, and I seem to have inherited her scientific curiosity and fascination with nature. My childhood was filled with baking soda and vinegar volcanoes, bug collections, and photo albums exclusively of fungi. Her PhD training was in genetics, so as I began learning about cell and molecular biology in middle and high school, she was always ready with answers to my questions. She knew interesting facts and gave me science articles to feed my curiosity. By the time I finished high school, having studied general biology, plant biology, and organic chemistry, I had already planned to pursue a PhD in molecular biology.

***-What is your current position and what do you currently study?***

I am currently in my second year as a post-baccalaureate research trainee in the lab of Ira Pastan, MD. My current project focuses on testing combination therapy of mesothelin-targeted immunotoxins with anti-CTLA4 checkpoint blockade in mouse models of mesothelin-expressing tumors.

***-Who do you consider your mentors? Where do they work? What are their positions?***

My mentors in my current position are the postdocs who have been training me, as well as my PI Dr. Pastan. Dr. Mazor mentored me when I first arrived at NIH. She has since moved to MedImmune but still advises me. I am now working with Dr. Leshem, and I have frequent communication with Dr. Pastan. In addition to my mentors in my lab, I still maintain contacts with scientists I worked with in my previous labs and my professors from college.

***-What is it like in your lab?***

The Pastan lab is big and busy, but there are postdocs and staff scientists with expertise who are always willing to teach and help. There are several other post-baccalaureate students with whom I share the journey to medical school. It is a collaborative environment, and the weekly lab meetings, journal clubs, and seminars provide opportunities to discuss projects and learn about interesting findings in our fields.

***-What parts of your training experience at the NIH have you enjoyed the most?***

During my two years as a post-baccalaureate I have enjoyed the opportunity to work on clinically-relevant projects, to learn how to write scientific papers, to meet other curious students, and to attend lectures by great scientists from the NIH and beyond.

***-What is the next step in your career? Where do you see yourself in 5 year, 10 years, 20 years?***

I am finishing the second year of my post-baccalaureate CRTA fellowship, and this summer I will be moving to Denver to begin my MD-PhD training at the University of

Colorado. I plan to study cancer immunology and immunotherapy for my PhD research, and pursue clinical training in oncology.

***-Can you quickly summarize your research findings?***

My lab develops and tests antibody-drug conjugates for cancer therapy. The cytotoxic payload is pseudomonas exotoxin A, and the targeting domain is an antibody fragment binding to mesothelin, an antigen found on many types of solid tumors. The AE17-M mouse mesothelioma cell line expresses human mesothelin yet grows as subcutaneous tumors in wild-type mice. AE17-M cells are sensitive to mesothelin-targeting immunotoxins *in vitro*, and intratumoral injection of immunotoxin suppresses tumor growth temporarily. However, addition of systemic anti-CTLA4 checkpoint blocking antibody with intratumoral immunotoxin synergized to eradicate tumors and induce immunity against tumor rechallenge. These results implicate the development of a clinical trial for mesothelin-expressing cancers based on this treatment paradigm.



**Paula Rote**

Medical Student  
Mentor, Dr. Frank Maldarelli

***-What moment and/or person inspired you to pursue a scientific career?***

There are so many moments! Alleviating suffering has always motivated my career decisions—from an administrator at a youth homeless shelter, to a medical student dedicated to serving the poor, to a future physician scientist seeking to cure disease. But, my molecular biological fate was sealed during a cell biology course prior to beginning medical school. The professor—Dr. Girish Shukla at Cleveland State University—gave a lecture on his lab’s field of interest, the spliceosome. After the lecture, I had to learn more.

***-What is your current position and what do you currently study?***

I am a post-baccalaureate CRTA fellow in the lab of Dr. Frank Maldarelli. I am taking a research year between my third and fourth years of medical school at Northeast Ohio Medical University (NEOMED).

***-Who do you consider your mentors? Where do they work? What are their positions?***

I have been fortunate to have many encouraging and scientifically curious mentors. Dr. Adrian Grozav—my organic chemistry professor at Cleveland State University—encouraged me to press on to medical school and apply my talents in chemistry to serving patients. Dr. Girish Shukla and his lab members at the Center for Gene Regulation in Health and Disease gave me an incredible foundation of wet lab and *in-silico* research skills. Dr. James Hardwick, a professor with NEOMED's Integrative Medical Sciences, is the reason I am here at the NIH this year. He has taught me how to question critically, to design experiments that test my theories, but most of all to maintain curiosity in the pursuit of discovery.

Here at NCI, I am grateful to have gained gifted mentor and teacher in Dr. Frank Maldarelli with NCI's HIV Dynamics and Replication program. Through his guidance, I applied my curiosity and drive to interrogating the early HIV epidemic through stored patient samples. Even working with 30-year old samples, there is still a sense of urgency to this work as HIV has no cure and the epidemic continues to grow. I am thrilled to be part of these collaborative efforts to eradicate this deadly virus.

***-What is it like in your lab?***

My lab is amazing! There is a clinical component and a bench component to our work. Each of us in Frederick — the bench researchers — have a main project to focus on, which we present to our group members on a regular basis. I love learning about everyone else's projects and seeing them develop over time. As a future clinician, I also appreciate the opportunity to observe our clinical group members sharing their perspectives on planning and executing a clinical trial.

***What parts of your training experience at the NIH have you enjoyed the most?***

The depth of resources — in the lab, educationally, and in expert advice from peers and mentors — is unlike anything I have experienced previously. Through the excellent guidance of Dr. Maldarelli and the abundance of available resources, I have seen my

work progress remarkably quickly during my short time here. There is nothing like the feeling of success after a concerted effort.

***-What is the next step in your career? Where do you see yourself in 5 year, 10 years, 20 years?***

My immediate next steps will be to return to NEOMED this fall for my fourth-year clinical rotations. I will be applying to residency in internal medicine, where I hope to continue my involvement with the research community throughout my training. As a National Health Service Corps scholarship recipient, I will spend at least four years providing primary care services for a medically underserved community. From there, I plan to continue my training as a physician-scientist so that I can eventually run my own lab. Though research fascinates me, I hope to always maintain as least some clinical exposure, so that I am regularly reminded of the courage and resilience of my patients as we in the research community endeavor to address their unmet needs.

***-Can you quickly summarize your research findings?***

My focus has been investigating the kinetics of development of antiretroviral drug resistance in HIV-1 infected patients treated with zidovudine (AZT) monotherapy during the Three Arm Study (1988 - ongoing) comparing AZT alone, interferon alone, or both. My project explores the kinetics of antiretroviral drug resistance in the context of AZT plus interferon.

*The 18<sup>th</sup> Annual CCR-FYI Colloquium Planning Committee thanks the OPGF candidates for their time and participation at the 18<sup>th</sup> Annual CCR-FYI Colloquium, at the 2018 Annual Retreat, and with this interview.*

## **From Attendee's perspective: 18<sup>th</sup> Annual colloquium day one- Focus on Breast Cancer**

**By Debashree Basudhar**

I had the pleasure of attending 18<sup>th</sup> Annual CCR-FYI Colloquium in March. It was a well-organized meeting covering diverse fields of research from cancer epidemiology to molecular biology of cancer progression and prognosis, and translational research. March 8<sup>th</sup>, 2018 was celebrated as International Women's Day, thus it was fitting to see presentations at the Colloquium focused on women's health hazards such as breast cancer.

Being a researcher in metastatic breast cancer, I was particularly fascinated by Dr. Nikhil Wagle's research. He is a medical oncologist at Dana-Farber Cancer Institute and works on understanding how the genomic landscape of metastatic breast cancer differs from primary site. His research also highlighted new signaling pathways that can be targeted to develop new therapeutics and hopefully overcome drug resistance in patients. He is an excellent role model for young researchers. He is both a prominent investigator in breast cancer research and precision medicine, as well as a strong advocate of collaboration and open-access of current information for both patients and researchers. He is also the main lead in 'The Metastatic Breast Cancer Project' ([mbcproject.org](http://mbcproject.org)), a one of a kind platform that gathers data for research purposes directly from advanced breast cancer patients through social media. Dr. Wagle's incredible ability to engage audience during his talk and willingness to mentor researchers interested in academic career was admirable.

Another interesting talk by Dr. Kandice Tanner, from Laboratory of Cell Biology, discussed in intricate detail how remodeling of tumor micro-environment leads to metastasis. This presentation provided a very different take on tumor micro-environments by applying biophysics to quantify minute forces that are important in understanding the dynamics of breast cancer metastasis. This talk was a perfect example to show how different viewpoints converge, leading to a better understanding of tumor biology and improved treatment options and emphasized the need for collaborations in science. It was also motivating to see the career trajectory of a woman scientist who was recipient of prestigious Earl Stadtman tenure track investigator award and has thrived to become a successful investigator.

To provide human context to the fantastic cancer research being carried out at the NCI, the Colloquium highlighted the story of breast cancer survivor Megan Pischke. Her story highlights the importance of bench science and cutting-edge research, and how they benefit society. For young researchers, trying to build a career in science can often be



lonely and frustrating at times. Frustration with mounting deadlines, career insecurity, and difficult experiments can cause one to wonder on occasion if they made the right career choice despite their passionate in research. Even though we were not able to hear her story due to cancellation of the talk, reading about her journey underscored the importance of new research in this field and motives researchers to be more passionate about our work. Moreover, it emphasizes that when life throw a curveball, being optimistic is key to success.

Even though the colloquium was sadly cut short by inclement weather conditions, it still was able to achieve its goals by bringing together researchers from different fields out of their laboratories. It provided a platform to discuss science, as well as feel the purpose and implications of their research. Moreover, it was a perfect opportunity for networking, a soft-skill that is not only helpful during job search, but also a way to cope with work related stress with the help of friends and co-workers. I feel that attendees of this year's colloquium, like me, left with a renewed energy for research and better understanding of different career choices.

## **Careers in Science Administration: Informational Interview with Dr. David Taylor**

**By Namratha Sheshadri**

Dr. Taylor was invited to be a speaker for the panel discussion on Careers in Science Administration to be held at the 18<sup>th</sup> Annual CCR-FYI Colloquium on March 2<sup>nd</sup>, 2018. After an exciting first day of the Colloquium packed with keynote talks, oral and poster presentation by trainees, inspiring career workshops for Academia and Industry and a well-attended social networking hour, the CCR-FYI Colloquium planning committee eagerly looked forward to continued success on Day 2. Unfortunately, the weather was not on our side and Day 2 of the Colloquium stood cancelled. The committee was disappointed that a year of event planning eventually led to this cancellation and invited guest speakers were cancelled and travel arrangements rescheduled.



**Dr. David Taylor,  
Assistant Director  
Office of Postdoctoral Affairs  
Children's Hospital of Philadelphia**

At a time of dismay, Dr. Taylor was quick to stand above the unexpected situation and encouraged us to view this incident as a crucial lesson in emergency preparedness—an essential part of event management. We were honored that he arrived early to witness Day 1 of the Colloquium and commended the Colloquium Planning Committee for organizing the event for over 200 post doctoral and post-baccalaureate fellows. I was delighted to have had the opportunity to connect with him and conduct an informational interview by phone.

David Taylor earned his doctoral degree in Pharmacology from the University of Virginia. He undertook a brief postdoctoral fellowship at the Children's Hospital of Philadelphia (CHOP) before transitioning to a unique Research Administration Fellowship Program at CHOP. This program offered him the opportunity to conduct rotations in multiple areas of science administration including clinical trials management, technology transfer, scientific communication and strategic planning. This experience facilitated the evolution of his career to an Academic Programs Officer in the Office of Postdoctoral Affairs at CHOP. His responsibilities involved developing infrastructure, programmatic support, and performance evaluations for postdocs, graduate students and physician fellows. His role at the Office of Postdoctoral Affairs transformed over the years to include developing orientation programs for research trainees, project management, event planning, and career counseling. He is currently the Assistant Director at the Office of Postdoctoral Affairs at CHOP. Additionally, he developed a faculty-led advisory committee to build a line of communication with the organization leadership, in addition to working on programs promoting diversity within the academic community.

David also volunteers his time to advocate for national and local non-profit initiatives. He has served on the Board of Directors at the National Postdoctoral Association (NPA), which fosters resource development for postdocs and administrators to promote community building. He served as an Oversight Officer with the NPA for

approximately four years (2009-13), focusing on providing a national voice to postdoctoral scholars. He additionally served on the NPA Meeting Committee where he helped organize the Annual Meeting for fellows and administrators. He is a member of CHOP's community advisory board, as well as, the founder and officer of CHOP's LGBTQ Resource which supports the institution's inclusiveness training program. He also volunteered with Delaware Valley Legacy Fund which builds endowment and philanthropic apparatus to serve fundraising and grant making for the emerging needs of the LGBTQ community.

Upon the cancellation of the science administration panel, I spoke with David to learn about his outlook of the postdoctoral training period and preparing for career transitions. He recommended beginning one's career exploration through individual development plans which help match interests, skills, and talents with a preferred work-life balance. (For instance: [MyIDP-Science careers](#)). Upon narrowing down to a couple of career paths, he recommended revisiting one's resume and working toward gaining experience in the chosen tracks. Informational interviews are great to learn about the daily job realities and opportunities for growth in each path. Brief internships, as little as two hours a week for a few months can help garner experience in the field. Informational interviews and internships can serve as great networking options in addition to the LinkedIn platform. Subsequently, he suggested keeping an eye out for open positions through job search portals such as the [NPA Career Center](#) and institutional websites. For administrative positions in particular, David recommended job listings at [The Chronicles of Higher Education](#) and [HigherEdJobs](#).

David was quick to point out that postdocs have the talents that represent the cream of the workforce in any institution and that these talents, developed as a researcher, are amenable to a variety of career paths. The breadth of knowledge in combination with the drive and passion to solving problems are key skills that make postdocs invaluable in avenues away from the bench – in administration, non-profit and corporate sectors. These job profiles provide ample opportunities for the suitable recognition of the advanced degree.

Aside from developing scientific temperament at the bench, David highlighted the importance of engaging with the office of postdoctoral affairs, as well as the postdoc association to take on administrative roles. Here at the NIH, these types of opportunities are offered by the [CCR Office of Training and Education](#) (OTE) as well as [NIH Office of Intramural Training and Education \(OITE\)](#). These training activities open doors to advance career development options in several ways: 1) increasing the understanding of the institution/organization's structure, 2) serving as a voice for the community, 3) managing/effecting changes in the work environment, and 4) learning team building and project management skills. This type of training opportunity produces measurable

accomplishments that one can highlight in his/her CV and during interviews for positions away from the bench.

Personally, my conversation with David helped me realize the diverse career options that are available to postdocs and ample resources to explore these paths while pursuing research in the laboratory. If you are interested in pursuing training opportunities for careers away from the bench, you can find more information about OTE and OITE's current offerings at <https://ccr.cancer.gov/training/office-of-training-and-education> as well as at <https://www.training.nih.gov/trainees>

Resources:

1. MyIDP - <http://myidp.sciencecareers.org/>
2. NPA Career center - <https://careers.nationalpostdoc.org/>
3. The Chronicle for Higher Education - [https://chroniclevitae.com/job\\_search/new?cid=UCHETOPNAV](https://chroniclevitae.com/job_search/new?cid=UCHETOPNAV)
4. HigherEdJobs - <https://www.higheredjobs.com/search/>
5. CCR OTE training opportunities: <https://ccr.cancer.gov/training/office-of-training-and-education>
6. NIH OITE training opportunities: <https://www.training.nih.gov/trainees>



NCI Center for Cancer Research  
*Fellows & Young Investigators*



**MARK YOUR CALENDARS**

# **19<sup>TH</sup> ANNUAL CCR-FYI COLLOQUIUM**

**Thursday and Friday,  
February 28<sup>th</sup> and March 1<sup>st</sup>  
NCI Shady Grove Campus, Rockville MD**

**Oral and Poster Presentations • Career Networking and  
Development Workshops • Keynote Speakers • Outstanding  
Post Doc. Presentation • Survivor Speaker •**

**TRAVEL AWARDS!**

Supported by CCR Office of Training and Education and CCR Office of the Director

## Join the Colloquium Planning Committee!



Are you interested in networking with extramural scientists, exploring alternative careers in science, or giving back to the community? The 2019 planning committee forms in May 2018. To join, begin attending the CCR-FYI monthly meetings in Bethesda and Frederick on the last Thursday of the month, at 11am.

### Subcommittees and descriptions:

- **Schedule** – Plans and maintains the meeting schedule
- **Theme** - Selects the theme for the colloquium
- **Survey** – Manages surveys to vote for speakers, themes, and workshop/panel topics
- **Keynote speakers** – Invites extramural and intramural speakers, the survivorship speaker, and the training directors for opening and closing remarks
- **Panels and Workshops** – Invites panelists and presenters
- **Abstract Book** – Prepares the Colloquium abstract book
- **Abstract Judging** – Manages abstract judging and notifies selected abstracts for oral and poster presentations
- **Logistics and Publicity** – Raises community awareness about deadlines for abstract submission and registration. Improves awareness throughout the CCR community to strengthen attendance and participation.
- **Awards** – Manages nominations and judging for Outstanding Postdoctoral Fellow, Outstanding Postgraduate Fellow, and travel awards

## Providing Valuable Training Experiences for CCR Fellows

For more information, please contact:

**Molly.Congdon@nih.gov and Sarwat.Naz@nih.gov**



**Rescheduled CCR-FYI Summer  
Outing: Boating on Little Seneca  
Lake in Black Hill Regional Park**



**Saturday August 25<sup>th</sup>, 2018 at 10AM**

**20920 Lake Ridge Drive Boyds, MD 20841**

Come on out for some fun in the sun! Join the CCR-FYI and other fellows as we enjoy summer and relax on the water by boating around Little Seneca Lake in Black Hill Regional Park. Everyone is welcome! We will meet on the grass next to the boathouse for a group photo before renting boats. Boat rentals are \$14/hr for a kayak (single or tandem), canoe (up to 3 people), rowboat (up to 5 people) or paddleboard and include personal flotation devices. Remember to pack sun screen and plenty of water and snacks.



**For more information contact**

**[molly.congdon@nih.gov](mailto:molly.congdon@nih.gov)**

**CCR-FYI Frederick Social Chair**

# National Postdoctoral Association



## **What the NPA Does:**

- Promote positive change in the postdoctoral experience.
- Develop and provide resources that postdoctoral scholars and administrators need for success.
- Provide opportunities for the postdoctoral community to connect.

## **NPA Highlights:**

- Recommendations for postdoctoral policies and practices
- International postdoc survival guide
- Resources for developing mentoring plans for postdocs
- Responsible conduct of research toolkit
- The Elsevier Foundation New Scholars Grant
- PDA and PDO toolkits

## **NPA Membership Benefits:**

- Leadership and professional development opportunities through volunteer service
- Opportunities to make your voice heard on national postdoctoral issues
- Subscriptions to the NPA e-alerts and The POSTDOcket (quarterly newsletter)
- Reduced meeting registration fees, as well as other discounts
- Access to members-only Web content

**Providing a National Voice and Seeking Positive Change**

**To join the NPA, please visit: [www.nationalpostdoc.org](http://www.nationalpostdoc.org)**



## Join the CCR-FYI Newsletter Team!

**Are you interested in a career in science journalism or mass media communication? Join the CCR-FYI Newsletter Team to gain valuable experiences and skills!**

### **Open positions:**

- **Writer** – propose article ideas and spearhead article writing
- **Editor** – proofread and copyedit articles
- **Advertisement Designer** – recruit and design adverts for the CCR Newsletter

### **Skills:**

- Professional writing
- Presenting academic information in a popular manner
- Non-science investigatory writing
- Communicating non-science related topics to the public

### **Benefits:**

- Supportive team environment
- Flexible writing topics
- Gain experience in non-scientific writing
- Share your personal experiences to benefit other fellows
- Network with fellows outside of your group
- Positively influence the training experience with valuable information
- Plump up your resume

**Providing a Voice for CCR Fellows**

**To join, please contact: [Manasi.Apte@nih.gov](mailto:Manasi.Apte@nih.gov)**

