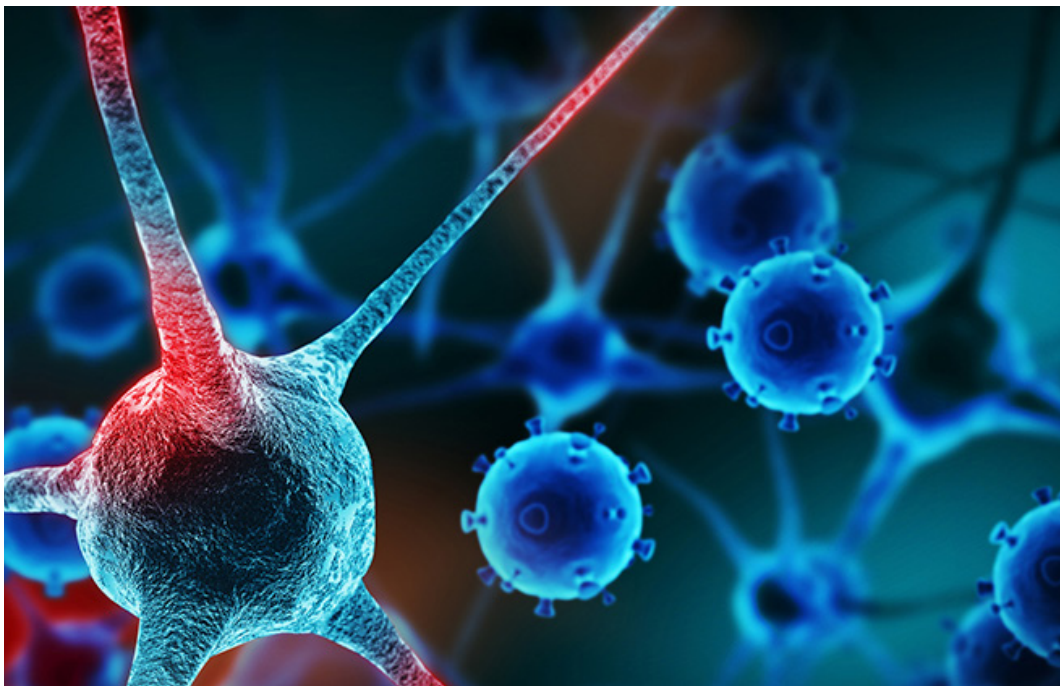
2018 Newsletter
XXXIII Edition

William Guy Forbeck Research Foundation

WGFRF.org
William Guy Forbeck Research Foundation

Cancer's Leading Thinkers. Together in one room.

Contents



Why Hasn't Cancer Been Cured Yet?

So much money and so much time and still our loved ones are dying from this disease. In 2017 it is predicted that cancer will overtake heart disease as the number one killer in men and according to the CDC will be the number one killer of people around the world by 2020. Why does it feel like after spending hundreds of billions of dollars we are not making progress? I have heard brilliant scientists ask this question of one another. The standard response seems to be that cancer is a really complicated problem.

It is not just one disease, each cancer type is different. Even grouping them into types such as breast cancer or colon cancer, does not fully explain the diversity. Within a single disease type, tumor cells can behave very differently, some growing very slowly and spreading throughout the body and other doing exactly the opposite. Below are a few observations from past Forbeck Forums that further support the suggestion that we are making a lot of progress but it is not as fast as anyone would like.

Cancer cells are really smart!!!
Or 2012 Meetings

One thing that people often don't realize is that cancer cells are extremely smart. This seems like a strange thing to say but they have mechanisms that give them an ability to survive and thrive in situations where other cells would die. In 2012 during a Forbeck meeting on the way tumor cells uptake and metabolize nutrients we discussed how cancer cells can outsmart their normal counterparts giving them a growth advantage. Now that we understand how this is happening, scientists are trying to outsmart the tumor by targeting the machinery within the cells that allows them to outgrow their normal counterparts.

The human body is very complicated....
or 1995 and 2016 Meetings

Cells within our bodies all turn-over and are replaced a different rates. There are mechanisms in place to ensure that under normal conditions if cells are damaged in certain ways they are simply eliminated. Obviously, if something goes wrong with these mechanisms and if either damaged or dysfunctional cells do not die then conditions are rife for cancer to take off. Several Forbeck Forums from 1995 to 2016 have addressed this very complex question and over the years significant progress has been made into our understanding of the mechanisms underlying the control of cell death and what happens to the genetic machinery that allows damaged cells to survive with a growth advantage.

(continued on page 2)

Why Hasn't Cancer Been Cured Yet?

...continued

Or 1987 & 2013 Meetings
It is clear that even for one particular cancer type, some patients respond well to treatment while other do not respond at all. What is not understood is whether this relates to how the patient handles drugs and/or how the tumor cells respond to therapy. This topic was first addressed in a Forbeck meeting held in 1987 entitled Reasons for Drug Failure. The Foundation held a more focused discussion on this area of medicine in 2013 where we debated how cancer cells were capable of developing processes to resist the drugs administered to eliminate them. Whilst we know so much more that we did two decades ago there is still so much more to learn about this phenomenon and it is likely that the Foundation will touch on this topic again in the future .

Immunotherapy and Precision Medicine Or 1999 and 2017 Meetings
In 1999 we were looking into the future holding a meeting entitled Targeting Gene Therapy- A Reality? Back then the approach was certainly not a reality but today things have changed. In 2017 the Forum discussed the application of targeted gene therapy for patients with blood cancers and how this approach could be also applied to solid tumors. This is one of the hottest topics in cancer medicine today with some phenomenal results being obtained in patients with leukemia and lymphoma. Bringing together clinicians working in different disciplines and allowing a free exchange of ideas certainly helped attendees to understand some of the issues associated with this type of treatment and how it can be applied to solid tumors as well as blood borne caners.

The recent explosion of information...
In an article put out by McKinsey it was stated that "nearly ninety percent of the data ever created has originated in the past two years. " They also mentioned the enormous increase in novel ideas that have come out of these endeavors. In the world of cancer medicine our knowledge base has exploded, with scientists now being able to sequence the genes in an individuals cancer cells.

The Foundation has been in the forefront of these developments in childhood cancer with a particular focus on Neuroblastoma. We originally funded an international effort to ensure that this disease was staged in the same way in the majority of the western world. From this initiative the project has grown and grown so there is now data that can be shared amongst investigators on the biochemical and genomic changes that have been observed in several thousand Neuroblastoma patients, this being collected from all over the world. Now the initiative is being expanded even further and will soon include information on all childhood cancers that occur in patients in the USA. This information will unquestionably help in finding better treatments for the disease in the future.

Recently the Foundation has also funded a meeting on Precision medicine, discussing many of the issues that arise by trying to tailor treatment to a individuals disease. Following on from this, an initiative is underway to form a Scientific Society for driving this approach to treatment forward and the Foundation is helping to ensure that this is successfully set up.

This massive increase in our ability to accumulate data on different cancer types, means two things. First, it can only help drive to the cure we all want to see but secondarily for the Foundation, it indicates that our approach to helping share and disseminate ideas amongst researchers who do not normally get together has never been more important.

Over the lifetime of the Foundation we have stayed focused and expanded our efforts in the belief that this is the most effective way for a small non profit to make a big impact on cancer research. This is also proven by our history.

We also realize that it is important to share information amongst our supporters in a way that is understandable to a lay audience. Sometimes in response to this we get comments that really indicate people do not understand the complexity of the problem to hand. For example, it is simply not true that "Big Pharma' have a cure for the disease but they do not want to release it to the public. Our scientific advisors know that if a company were to come up with a universal cure for cancer this would make them one of the richest organizations on the planet. Let us hope that this will happen on day, but in the interim we must keep striving to accelerate the day when a cure for all type of the disease becomes a reality.

Written by:
Jamie F. Collins

Scientific Apprval by:
John T. Kemshead, Ph.D., FRCPath

For a complete list of past forums, please refer to page 7

"I was indirectly involved in the treatment of Billy Forbeck. Subsequently, I attended the first Forbeck Forum on Neuroblastoma and I was impressed about the novel approach they were proposing to try and drive to a cure for the disease. I am the longest serving member of the scientific advisory board which I have run for the Foundation for several years. I think it is a major achievement that a relatively small Foundation has accomplished so much over the years."

- John Kemshead, Ph.D., FRCPath

Annual Forum 2017 – Summary

Convergence of Myc and Ras in cancer

Karen Cichowski, Ph.D., Brigham and Women's Hospital
Gerard Evan, Ph.D., FRS, FMedSci, University of Cambridge

Meeting Focus

Myc and Ras are two of the most commonly deregulated genes in human cancer. Nonetheless, we still lack a clear understanding of how these cancer-causing genes work, how they cooperate during tumor development, or how we may convert our biological insights into therapies. This Forbeck Foundation Forum brought together thought leaders from both the Myc and Ras fields to address critical questions about these two cancer causing genes and to think outside the conventional biopharmacological box. Specifically, we discussed 1) how these two tumor causing pathways converge to drive specific cancers, 2) the broad metabolic, transcriptional, and proteomic consequences of Ras and Myc activation, 3) novel approaches to identify targetable vulnerabilities in Ras and Myc driven tumors, and 4) new strategies to pharmacologically target Myc and Ras. Importantly, this meeting resulted in a significant cross-fertilization of ideas between these investigators and stimulated numerous collaborations.

Summary and Outlook

This Forbeck Forum provided the ideal environment to discuss the most current (unpublished) advances and collectively outline the most important "big picture" questions in the field. An additional unique aspect of this meeting was bringing together individuals from both the Ras and Myc fields. While these two oncoproteins, cancer causing proteins, clearly converge to drive human cancer, investigators from each of these fields do not have the opportunity to interact very often, and certainly not in such an intimate environment. All of the attendees lauded the format of this Forum and walked away from this meeting with greater insight and new collaborations. For example, Drs. Haigis, Cichowski, and Der have each developed independent collaborations with Dr. Westover. At the conclusion of the meeting at least 12 different collaborations between attendees had been planned.

One of the most exciting aspects of this meeting was the increasing number of new therapeutic approaches and targets that were being discovered. For example, several strategies to target Ras and Myc proteins were presented. These included various structure-driven approaches aimed at directly targeting Ras and Myc, strategies designed to inhibit kinases that regulate oncoprotein stability, as well as epigenetic approaches to suppress expression, to name a few. However, many new therapeutic vulnerabilities in Ras and Myc-driven tumors were also discussed. This has and will continue to lead to the development of an increasing number of novel combination therapies. The goal for the field moving forward is to continue to deconstruct the mechanisms by which Ras and Myc drive tumor development so that we may continue to identify new therapeutic targets, and to begin to bring these new therapeutic approaches to the clinic. This Forbeck Forum has played an important role in cross-fertilizing new ideas between investigators that work in different fields, disciplines, cancer types (and in different parts of the world). As such it has played an invaluable role in shaping our work for years to come.

Geneva National Resort
Lake Geneva, Wisconsin
November 9 - 12, 2017

Participants

I: Convergence of Myc and Ras in cancer

Gerard Evan, PhD
University of Cambridge
Channing Der, PhD
UNC Lineberger Comprehensive Cancer Center
Rosalie Sears, PhD
Oregon Health and Science University
Mara Sherman, PhD,*
Oregon Health and Science University

II: identifying new therapeutic vulnerabilities in Ras and Myc driven cancers

Andrew Aguirre, MD, PhD *
Dana-Farber Cancer Institute
Karen Cichowski, PhD
Brigham and Women's Hospital
Dafna Bar-Sagi, PhD
NYU Langone Health
Kimberly Stegmaier, MD
Dana-Farber Cancer Institute
Bruno Amati, PhD
European Institute of Oncology (IEO)

III: Broadening our perspectives of oncogenic Myc and Ras function

Martin Eilers, PhD
Biocenter, University of Würzburg
Kevin Haigis, PhD
Beth Israel Deaconess Medical Center
Doug Green, PhD
St. Jude Children's Research Hospital
Dave Tuveson, MD
Cold Spring Harbor Laboratory
Donita Brady, PhD *
University of Pennsylvania

IV: Targeting the "untargetable"

W. Clay Gustafson, MD *
University of California San Francisco
Steve Fesik, PhD
Vanderbilt University School of Medicine
Ken Westover, MD
UT Southwestern

* Forbeck Scholar

2018 Annual Forum Cancer Predisposition

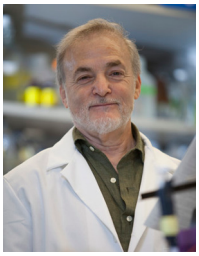
Judy E. Garber, MD, MPH, Harvard University
John M. Maris, MD, University of Pennsylvania

There has been an exponential increase in our discovery of heritable DNA variants that predispose to cancer, but we still have only a rudimentary understanding of the mechanistic underpinnings of cancer initiation and epistatic interactions. We also know that that cancer predisposing events shape the somatic genome, and that genetic, epigenetic and/or stochastic events often select for oncogenic drivers that initiate tumorigenesis. Finally, we have catalogued the majority of cancer predisposing mutations in protein coding genes, but are only at the beginning of understanding how both common and rare DNA variation in the noncoding genome influence malignant transformation and clonal evolution.

The 34th annual Forbeck Foundation meeting will bring together leaders in the field of cancer predisposition, with scientists having expertise in both pediatric and/or adult malignancies. We will review the landscape of what is known about cancer predisposition, but highlight current gaps including understanding polygenic risk and epistatic interaction at the cellular level. We will highlight ongoing efforts to understand the translatable lessons from large association studies on risk prediction and consider the implications of germline mutations for various mechanisms of therapeutic interventions, including immune modulation. We will ask questions such as: "How do we define the spectrum of tumors, adult and pediatric, associated with germline mutations?" and "How much heritability is yet to be discovered?". But we will also delve into cellular mechanisms of tumor initiation, as well as practical issues of variant curation and genetic counseling. Finally, we will attempt to define research priorities and short- and long-term milestones for the cancer predisposition field moving forward.

The 2018 Forum on Cancer Predisposition will be chaired by Dr. John Maris from the Children's Hospital of Philadelphia and the University of Pennsylvania, and Dr. Judy Garber from the Dana Farber Cancer Institute and Harvard Medical School. While we expect to explore mechanisms of cancer initiation in great depth, the meeting will also seek to focus on how research in the field of cancer predisposition should impact patient care now and in the future.

Epigenetic Therapy



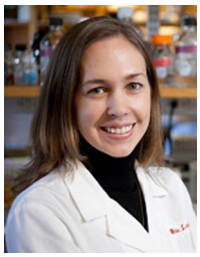
Stephen Baylin, MD, Johns Hopkins University
Jean-Pierre Issa, MD, Temple University
Peter Jones, PhD, Van Andel Research Institute

Epigenetics is the study of stable patterns of gene expression that determine cellular identity. Epigenetic information is substantially altered by multiple mechanisms in cancer cells. An important development in the field has been the ability to reprogram the epigenome through drugs that target the epigenetic machinery (epigenetic therapy). Early positive results with DNA methylation and Histone Deacetylase inhibitors led to an explosion of drug development, with more than 30 drugs targeting more than 6 different pathways currently in early stage clinical trials. Epigenetic reprogramming is also viewed as an exciting way to reverse drug resistance and sensitize cancers to chemotherapy and immunotherapy.

There are key basic and translational issues that remain unsolved in the field, particularly as it is moving to wide acceptance in combination clinical trials. Which epigenetic target will provide optimal chemo or immunosensitization? What are the mechanisms of response and resistance to this therapy? Are the effects of epigenetic "priming" through modulation of tumor or host cell epigenetics?

The 2017 Forum on Epigenetic Therapy will be co-chaired by Dr. Jean-Pierre Issa of Temple University, Dr. Stephen Baylin of Johns Hopkins University and Dr. Peter Jones of Van Andel Research Institute. It will bring together investigators with expertise in diverse areas (different epigenetic targets, immunotherapy, basic investigators, clinical-translational investigators) to discuss how synergies across different fields can help move epigenetic therapy forward to improve cancer outcomes.

Metabolic Signaling and the Epigenome



Julie-Aurore Losman, MD, PhD – Dana-Farber Cancer Institute
Kathryn Wellen, PhD – University of Pennsylvania

Metabolic reprogramming and epigenetic deregulation have both emerged as hallmark features of cancer cells. Although cancer epigenetics and cancer metabolism have been largely viewed as distinct fields, there is a growing appreciation that the metabolic and epigenetic states of cells are highly intertwined. Metabolic programs determine the abundance of key metabolic intermediates such as methyl and acetyl donors that are substrates for the epigenetic enzymes that covalently modify histones and DNA. Conversely, epigenetic programs regulate the expression of metabolic genes, thereby altering the metabolome. As such, epigenetic regulators are highly responsive to metabolic cues and vice versa. In cancer in particular, metabolic signaling to the epigenome plays a critical role in tumorigenesis by coordinating gene expression programs and cellular differentiation, energy supplies, proliferation, and apoptosis. Understanding the links between metabolism and epigenetics has the potential to identify novel molecular targets to treat cancer.

The 2018 Focus Meeting on Metabolic Signaling and the Epigenome will bring together current and emerging leaders whose work bridges the metabolism-epigenetics interface to discuss their work and to explore its potential as a novel area for therapeutic intervention.

"The format that the Forbeck Foundation has used for these forums is absolutely, 100% different than what everybody else uses at their conferences. And, really is able to generate collaborations at a much faster rate, accelerate the pace of research going forward…. Just by being in the same room in this environment where you're forced to, to use very little data and instead present big ideas, you feel an intimacy with the other participants of the forum. And, that is unlike anything else that you have, and it's because of that you can really make large amounts of progress very quickly at these forums, and in the collaborations that result from them."
- Kristopher Sarosiek, Ph.D.

Tumor Microenvironment

Lisa M. Coussens, Ph.D., Knight Cancer Institute
Rakesh K. Jain, Ph.D., Massachusetts General Hospital

All cancers contain diverse populations of cells, including those harboring genetic mutations, aka "tumor" or "cancer" cells, as well as other "normal" cell types activated and/or recruited to local tumor microenvironments. Both preclinical and clinical data indicate that components of the tumor microenvironment (e.g., blood and lymphatic vessels, fibroblasts and other mesenchymal support cells, innate and adaptive immune cells, as well as extracellular matrix, hypoxia, and low pH), while regulating hallmark features of cancer development, can also thwart efficacy of cytotoxic, targeted and new-age immune therapies. This Forbeck Foundation meeting will bring together existing and emerging thought leaders spanning the breadth of tumor microenvironment, immune-oncology and computational biology disciplines to discuss novel approaches to identify critical mechanisms regulating crosstalk between neoplastic and "host" cells, with an emphasis on those that subvert anti-tumor immunity. We will also discuss therapeutic approaches to target aspects/components of the tumor microenvironment that effectively liberate anti-cancer immunity for durable tumor control, how these strategies are being deployed in patients, and initial clinical findings.

The 2018 Forum on Tumor Microenvironment will be chaired by Dr. Rakesh K. Jain of Massachusetts General Hospital and Harvard Medical School, and Dr. Lisa M Coussens from the Knight Cancer Institute at Oregon Health & Science University. The goal will be not only to discuss the current state of the tumor microenvironment field, but also discuss approaches towards applying that knowledge to the development of effective and broadly applicable anti-cancer therapies for long-term management of disease.

The Society for Functional Precision Medicine

In the spring of 2017, the Forbeck Foundation organized a meeting on Precision Cancer Medicine by Functional Biomarkers, chaired by Anthony Letai, MD, PhD of Dana-Farber Cancer Institute. This strategy of matching patients with the drugs that will best treat their tumors by exposing living tumor cells to actual drugs is called functional precision medicine. Many things came out of this meeting but one ongoing development, which the Forbeck Foundation has assisted in creating, is The Society for Functional Precision Medicine (SFPM). This is an international society unites those with a stake in the success of this strategy: academicians, diagnostic companies, drug companies, device companies, regulators, and clinical trialists.

The mission of the SFPM is to improve patient care and outcomes by facilitating implementation of functional assays into clinical care. The purposes are to foster research and development of functional precision medicine solutions across medicine; to accelerate the dissemination of new and relevant research findings among interested parties; to promote education and training about functional precision medicine; to foster solutions for clinical testing of functional precision medicine approaches; and to improve efficiency of adoption of functional precision medicine solutions through interaction with academia, regulatory bodies, and industry.

In December 2017, the Society for Functional Precision Medicine (SFPM) was founded and in April SFPM held a reception at the AACR meeting in Chicago. The group already had 50 plus members by the time the meeting began. Several made excellent suggestions about tasks the SFPM could take on. They will now be planning a working meeting to pave the way for the Societies endeavors. We look forward to great advancements in this field through this collaboration.

"I think supporting the Forebeck Foundation is a great idea because of their innovative approach to accelerating cancer progress. I think they're unique in bringing people together in really small groups with diverse expertise in secluded areas. And they have maximized the potential for collaborations. Just for example, this morning I was eating breakfast and I remembered that I saw some genetic alterations in the tumors that I study that I did not understand. I asked around at the table like if anyone has seen this in their cancers and I found someone, there was a researcher from Italy that's actually very interested in these specific genetic alterations. He asked that I share some of our models with him and together, we can study it more quickly. Just because he already has this expertise in this particular genetic alteration that I noticed in our model approach. So I think again, it's one of those interesting situations where you can have a convergence of different expertise that can accelerate progress." - Oren Becher, M.D.

A Model for all Pediatric databases...

The International Neuroblastoma Research Group database (INRGdb)

For many years the Forbeck Foundation has funded the create of a database for Neuroblastoma patients. It has become the largest and really only usable data set for the rare but deadly disease. Susan Cohn, MD and Samuel Volchenboum, MD, PhD of the University of Chicago paved the way to collect data on over 19,000 patients with neuroblastoma from around the world. To put that into perspective there are approximately 800 cases of neuroblastoma annually in the United States. They then connected the database to a genomic data commons, tumor banks, etc. This has been working for several years and has already started reducing toxicity levels for patients and improved treatments for children with Neuroblastoma.

So what's next? The Pediatric Cancer Data Commons. The model worked so well they are building on it the Neuroblastoma database to help all children's cancers. Volchenboum believe that they could have this up and running in 2-3 years depending on funding.

"The PCDC has the promise of leveraging the success of the INRG to other pediatric cancers, accelerating research and hopefully improving survival," Cohn said. "As the genomic data gets more rich, additional studies will be able to be conducted that we hope will lead to a better understanding of the genomic factors that drive clinically aggressive tumor growth."

For more information please visit the University of Chicago's website for the full article.

www.uchicagomedicine.org/pediatrics-articles/pediatric-cancer-data-commons-aims-to-accelerate-research

Cancer Research throughout the Decades

2019 – Cancer And Aging
2018 – Cancer Predisposition
2017 – Myc/Ras
2016 – Chromosomal Instability/Aneuploidy
2015 – Cancer Immunotherapy
2014 – Invasion And Metastasis
2013 – Resistance Mechanisms
2012 – Tumor Metabolism
2011 – Epigenetics
2010 – Cancer Genomics
2009 – The Biology And Treatment Of Primary Brain Tumors
2008 - Immunotherapy And Breaking Tolerance
2007 – Micro Rna And Cancer
2006 – Stem Cells
2005 - Innovations In Imaging In Cancer Research
2004 - Molecular Targets In Pediatric Malignancies
2003 - Dna Damage & Cancer Susceptibility Syndromes
2002 - Cellular Senescence & Cancer
2001 - Differentiation As Cancer Therapy
2000 – Allogeneic Stem Cell Transplantation
1999 - Targeting Gene Therapy – A Reality?
1998 - Angiogenesis And Accessibility
1997 - Second Malignancies
1996 - Specific Simple Models To Clinical Disease
1995 - Apoptosis
1994 - Cell Cycle Checkpoints
1993 - Growth Factors
1992 - Gene Therapy & Tumor Vaccines
1991 - Dose Intensification In Pediatric Malignancies
1990 - Molecular Origins Of Ped. Embryonal Malignancies
1989 - Infectious Complications
1988 - Improved Drug Delivery To Brain Tumors
1987 - Reasons For Drug Failure
1986 - Tumor Progression & Differentiation
1985 - Neuroblastoma

This list does not include focus meetings and many other scientific events funded and organized by the Forbeck Foundation.

Thank you to our esteemed Scientific Advisory Board Members. Without their hard work and dedication throughout the years none of this would have been possible. It is their forward thinking and ability to always be on the cutting edge of research and technology that allows the Foundation to continue to give back to the scientific community in this race for a cure.

Scientific Advisory Board Members

John T. Kemshead, PhD, FRCPath
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Philip A. Pizzo, MD
Jean Wang, PhD

"The best and fastest way to make progress in the treatment of cancer is to create a forum for the exchange of ideas between people trained in related but different disciplines. We have a great track record but we are not complacent; we want to do more if our funding base permits." - John T. Kemshead, Ph.D., FRCPath

2017 Scholar Retreat Top Takeaways

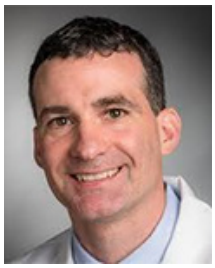
The meeting brought together Scholars from areas of research in Resistance Mechanisms, Invasion and Metastasis, Immunotherapy and Chromosomal Aneuploidy. The overall goals of the Scholar Retreats are to stimulate cross-disciplinary discussion between researchers, to provide mentorship on career development from senior scientists, and to create camaraderie among the group leading to research collaborations.

The meeting was kicked off by a keynote address from Dr. Raul Mostoslavsky, Associate Professor of Medicine, at Massachusetts General Hospital Cancer Center and Harvard Medical School. He spoke about his journey as a scientist from being a medical student in a provincial town in Argentina to studies across 3 continents leading to his establishment of his own laboratory in Boston. He stressed the serendipity of discovery and the values of open-mindedness, curiosity, and collaboration. Emphasizing the privilege of being able to do scientific research. He motivated all who attended.

Those mentors (senior scientists who had not previously been to a Forbeck event) found that the Retreat was a revelation in how scientific communication should work, and were in great admiration for the commitment of the Foundation to create and maintain such a great legacy of contribution to the cancer research community. The Foundation plays a truly unique role in the cancer research world, and it is extraordinary that its contributions remain as fresh and important as ever.

Nabeel Bardeesy, Ph.D.
Massachusetts General Hospital
Harvard Medical School

Focus on the Future Forbeck Scholar Awards



Andrew Aguirre, MD, PhD
Dana Farber Cancer Institute
Boston, Massachusettes

Andrew Aguirre, MD, PhD, is a physician-scientist at Dana-Farber Cancer Institute and the Broad Institute of Harvard and MIT. Dr. Aguirre received his undergraduate degree from University of Michigan and then earned his Doctor of Medicine and Doctor of Philosophy from Harvard Medical School. Dr. Aguirre's graduate work focused on developing mouse models of pancreatic cancer in the laboratory of Ronald DePinho, MD.

Donita Brady, PhD
University of Pennsylvania
Philadelphia, Pennsylvania

Donita C. Brady, PhD joined the department of Cancer Biology in the Perelman School of Medicine at the University of Pennsylvania on July 1, 2015 as an Assistant Professor. The research interests of her laboratory lie at the intersection of how cells use metals like copper to communicate and when to leverage those unique connections to forestall cancer progression.

W. Clay Gustafuson, MD, PhD
University of California
San Francisco, California

W. Clay Gustafson, MD, PhD is a pediatric oncologist/physician scientist at the University of California San Francisco. His laboratory focuses on leveraging the basic biology of pediatric cancers for the discovery and development novel targeted therapies to treat MYC driven cancers. Dr. Gustafson also has a clinical focus on novel therapeutics and early phase clinical trials for the MYCN driven cancer neuroblastoma.

Mara Sherman, PhD
Oregon Health & Sciences University
Portland, Oregon

Mara Sherman, PhD received her undergraduate degree from Cornell University, where she graduated cum laude in Biological Sciences. She got her Ph.D. in Molecular Biology from the University of California, Los Angeles, where she studied transcriptional regulation of B cell development and dysregulation of these key transcriptional networks during lymphomagenesis

2018 SCHOLAR RETREAT ATTENDEES

Consider sponsoring one of the remaining unsponsored scholars. You will receive invitation to special dinner with the participants, receive Blue Jean Ball Tickets as well as follow the career of your scholar and are associated with them on all Forbeck publications.

2017 FORBECK SCHOLARS

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Dana- Farber Cancer Institute
Sponsored By: The Gage Family

Donita Brady, PhD,
Unviersity of Penssylvania
Sponsored By: The Bates Foundation

W. Clay Gustafson, MD, PhD,
University of California San Francisco
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Mara Sherman, PhD,
Oregon Health & Science University
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Mia Levine, PhD,
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Massachusetts Inst of Technology
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University Hospital Berlin
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University of Chicago
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National Cancer Institute

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Cold Spring Harbor Lab
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University of North Carolina Chapel Hill
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Louise van der Weyden, PhD
Wellcome Trust Sanger Inst., UK
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Blue Jean Ball 2017

Thank you to the Blue Jean Ball Chairs
Tricia Forbeck | Linda Tonge

Music performed by Jeff Trudell
Wine Tasting presented by Terlato Wines

This event directly funds the Scholar Retreat

In Memory of

Charlie Boehland
Valerie Britt-Kalberg
Leslie Connaughton
Muriel Covert
Lisa Evans
George Forbeck
William Guy Forbeck
William H. Frackelton
Jane Frackelton
Jean Marie Frick
Thomas A. Geldermann
Rev. Dr. Larry Kent Graham
Cyndi McKee Hinman
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Robert McCurdy
Irv Milstein
Bertha O'Neal
Mary Powell
Rose and Jim Proesel
Glenn & Carol Solheim
Helen & Willard Wageman
Thomas J. Ward
Christopher Wemple

In Honor of

Harris and Margaret McMurry
David and Dorcas Collins
MaryKay and Dick Ring
Jo and Tony Terlato

Thank you for your contribution, and support in 2017! We look forward to reaching our new fundraising goal in 2018!

To make a contribution please visit www.wgfrf.org/donate

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