GBM AGILE

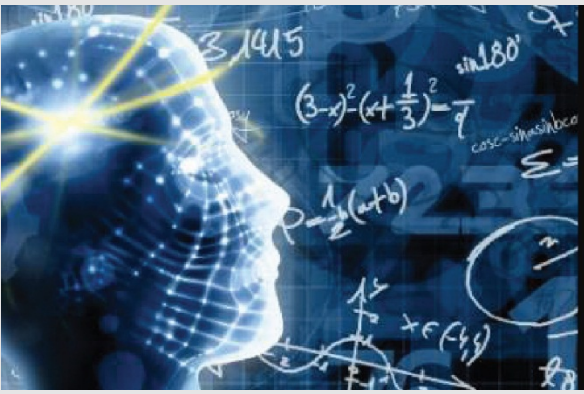
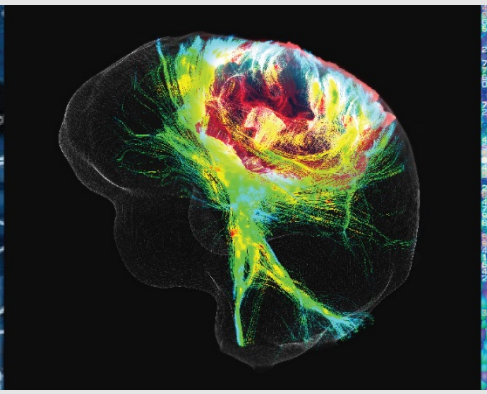
AN ADAPTIVE GLOBAL INNOVATIVE LEARNING ENVIRONMENT

GBM AGILE
Adaptive Global Innovative Learning Environment

A Global Clinical Trial Initiative for GBM

November 12, 2015
National Press Club
Murrow, White & Lisagor Room
529 14th Street, NW
Washington, D.C.

PROGRAM


ACKNOWLEDGEMENTS

The GBM Executive Committee and the GBM Global Team wish to Acknowledge:

- *The brave and inspiring GBM patients we know and have known for making it so clear that this is just all very "unacceptable"*
- *Drs. Web Cavenee, Ann Barker and Al Yung who convened and funded the two "think tanks" in 2013-14 where GBM AGILE started as an idea – and grew to a "movement"*
- *Robert Mittman who facilitated the "think tanks " and all of the GBM AGILE workshops since- remarkable talent – unmatched commitment*
- *The GBM AGILE Executive Committee who donate the time and effort to create GBM AGILE – along with their day jobs*
- *The contributions of every member the GBM AGILE Global Team who are committed to changing the lives of GBM patients for the better*
- *The institutions that serve as homes for the many GBM AGILE team members*
- *The Chairs and Co-Chairs of the GBM AGILE Trial Committees*
- *Dr. George Poste of our Executive Committee, the absolute emperor of acronyms, for our name - it was inspired*
- *For the GBM Logo – CBCF's Cath Stace who, believe us, "knows" logos*
- *The Cure Brain Cancer Foundation (CBCF) for the resources to aid in the planning and design of GBM AGILE*
- *The National Foundation for Cancer Research and Dr. Sujuan Ba who makes it possible for our Chinese colleagues to join us - and so much more*
- *Drs. Janet Woodcock, Rick Pazdur, and the soon-to-be Commissioner, Rob Califf – all of whom embrace, lead and set the bar high in terms of all things innovative in clinical trials (and all things regulatory science)*
- *Our colleagues who travel far – from Australia, China and Europe to contribute to the plan and design for GBM Agile*
- *NBTS who co-sponsored an early meeting where the GBM global adaptive trial was explored and consensus reached to proceed*
- *The NBDA team that has donated hundreds of hours to make GBM AGILE reality*
- *Dr. Michael Crow, President of Arizona State University, who has supported the creation and development of GBM AGILE through the NBDA; and for his belief that universities have an obligation to contribute to solving the toughest societal problems*
- *The GBM Advocacy Groups and the NBDA who serve as "sponsors" for GBM AGILE: Accelerate Brain Cancer Cure (ABC2); Cure Brain Cancer Foundation CBCF); National Brain Tumor Society (NBTS); National Foundation for Cancer Research (NFCR); and the National Biomarker Development Alliance (NBDA)*

AGENDA

- GBM AGILE: Who are we? What is GBM AGILE? And Reaching Our Ultimate Destination?
  Anna D. Barker, Ph.D.
  GBM AGILE (Project Director), Director, NBDA, Co-Director of Complex Adaptive Systems, Professor, ASU

- GBM: What We Know and Don't Know and the Transformative Potential of GBM AGILE
  Webster (Web) Cavenee, Ph.D.
  GBM AGILE Co-investigator; EC Member; and Director, Strategic Alliances CNS, Ludwig Institute for Cancer Research and University of California San Diego

- The Power of Adaptive/Innovative Trials like GBM AGILE for Rare Disease: FDA's Perspective
  Janet Woodcock, M.D.
  Director, Center for Drug Evaluation and Research, U.S. Food and Drug Administration

- GBM AGILE: Why a Global Adaptive Trial and How Will It Help Us Learn Faster and Learn Better
  Donald (Don) Berry, Ph.D.
  GBM AGILE (Co-Principle Investigator), Founder, Berry Consultants; Professor, Department of Biostatistics, M.D. Anderson Cancer Center

- The GBM AGILE Trial: What You Need to Know About How the Trial Will Work
  Timothy (Tim) Cloughesy, M.D
  GBM AGILE (Co-Principle Investigator) Director, UCLA Neuro-Oncology Program; Clinical Professor, UCLA Medical Center

- Identifying Targets and Choosing Agents for GBM AGILE
  Amy Heimberger, M.D.
  GBM AGILE (Committee Chair), Professor, Department of Neurosurgery, MD Anderson Cancer Center

- GBM AGILE: China's Critical Role in "the Collation of the Willing"
  Wenbin Li, M.D., Ph.D.
  GBM AGILE (Committee Member), Director, Glioma Program, Beijing Shijitan Hospital Cancer Center, Capital Medical University, China

- GBM-AGILE: A View from the Patient's Perspective
  Catherine (Cath) Stace
  GBM AGILE (Committee Co-Chair, Sponsor and Fundraiser), Chief Executive Officer, Cure Brain Cancer Foundation (CBCF), Sydney, NSW, Australia

- Question-and-Answer Period

SPEAKERS

ANNA D. BARKER, PHD

Co-Director, Complex Adaptive Systems;
Director, National Biomarker Development Alliance
Professor, School of Life Sciences, Arizona State University

Complex Adaptive Systems (CAS) at ASU serves as an organizing construct to approach understanding and solving multi-dimensional problems in biomedicine. In her role as Co-Director of CAS, Dr. Barker designs and implements transformative knowledge networks specifically directed toward solving major problems in biomedical research and biomedicine. These multi-sector networks serve as a foundation for the development of new research models that leverage convergent knowledge, innovative teams and novel funding approaches to better prevent and treat acute and chronic disease and address major healthcare problems. The GBM AGILE trial represents an example of the power of "crowdsourcing knowledge" to address the lack of progress against a deadly disease like GBM. Several other initiatives are underway including: a national effort in biomarker development for rare diseases and biomarker qualification initiatives. Prior to joining ASU, Dr. Barker served several years as the Deputy Director and Deputy Director for Strategic Scientific Initiatives for the National Cancer Institute (NCI), National Institutes of Health (NIH). At the NCI she developed and led or co-led a number of trans-disciplinary programs including the: Nanotechnology Alliance for Cancer; The Cancer Genome Atlas (TCGA); Clinical Proteomics Technologies Initiative for Cancer and the Physical Sciences- Oncology Centers – PS-OCs. Under her leadership the NCI also developed major initiatives in biospecimen science and bioinformatics. Dr. Barker was founding co-chair of the NCI-FDA Interagency Task Force (IOTF) and was founding co-chair of the Cancer Steering Committee of the FNIH Biomarkers Consortium (FNIH-BC). Among achievements in the policy and regulatory areas were the IOTF's development of the "exploratory IND" and oversight of the design and implementation of the ISPY-2 Trial through the FNIH-BC. While at the NCI, as the co-founder and co-director of TCGA with the National Human Genome Research Institute (NHGRI), she enabled the selection of Glioblastoma Multiforme (GBM) as the inaugural tumor sequenced in the TCGA pilot project. In this regard GBM served as a model for the creation of a new generation of multi-dimensional cancer genomics data bases; which has attracted broad interest and increased engagement by all sectors to undertake research on GBM. As a volunteer, she has served in a number of capacities and led key programs for several government and professional organizations including the American Association for Cancer Research (AACR), founding member and subsequent Chair of the Department of Defense Breast Cancer Program Integration Panel, Chair of the NCI Cancer Center Study Section, Chair of the C-Change Research Committee, and a number of others. Her service to the AACR has included leadership of the Scientist-Survivor Program, and Public Forum and Chair of the Science Policy and Legislative Affairs Committee. Dr. Barker has received a number of awards for her achievements in science and her advocacy for cancer research and innovation in research. She served for over 18 years as a senior scientist and subsequently as a senior executive in biomedicine at Battelle Memorial Institute; and co-founded and served as the CEO of a public biotechnology drug development company. Her research interests include complex adaptive systems (CAS) and cancer, cancer biomarkers, experimental therapeutics and free-radical biochemistry in cancer etiology and treatment. Dr. Barker completed her M.A. and PhD at the Ohio State University, where she trained in immunology and microbiology.

DONALD A. BERRY, PHD

Founder and Senior Statistical Scientist, Berry Consultants, LLC
Professor, Department of Biostatistics, The University of Texas MD Anderson Cancer Center

Dr. Berry is a professor in the Department of Biostatistics of The University of Texas MD Anderson Cancer Center. He was founding chair of this department in 1999 and founding head of the Division of Quantitative Sciences, including the Department of Bioinformatics and Computational Biology, in 2006. Dr. Berry received a PhD degree in statistics from Yale University and previously served on the faculties of the University of Minnesota and Duke University. He held endowed faculty positions at Duke University and at MD Anderson. Since 1990 Dr. Berry has served as a faculty statistician on the Breast Cancer Committee of the Cancer and Leukemia Group B, a national oncology group. He has designed and supervised the conduct of many large U.S. intergroup trials in breast cancer. A principal focus of Dr. Berry's research is the use of biomarkers in cancer and other diseases for learning which patients benefit from which therapies, based on genomics and phenotype. He designed and is a co-PI of I-SPY 2 (www.ispy2.org), a Bayesian adaptive platform clinical trial in high-risk early breast cancer whose goal is matching experimental therapies with patient subsets defined by tumor molecular characteristics. Since 1997 Dr. Berry has served on the NCI's PDQ Screening and Prevention Board, for which he received the NIH Award of Merit in 2010. Through Berry Consultants, LLC, he has designed many innovative clinical trials for pharmaceutical and medical device companies and for NIH cooperative groups. Dr. Berry is the author of several books on statistical methodology and over 400 published articles, including first-authored articles in the major medical journals. He has been the principal investigator for numerous research grants from the NIH and the National Science Foundation and is a fellow of the American Statistical

Association and the Institute of Mathematical Statistics. He has been listed by ScienceWatch.com as one of The World's Most Influential Scientific Minds in Clinical Medicine.

WEBSTER CAVENEE, PHD

Director, Strategic Alliances CNS, Ludwig Institute
Distinguished Professor, University of California San Diego

Dr. Cavenee's research is directed at defining the genetic lesions in human cancer, determining their physiological significance and using such information for therapeutic approaches. His current interests include the malignant progression of astrocytic (brain) tumors, the role of DNA methylation in tumor initiation, the differentiation pathways of astrocytes and the role of fusion transcription factors in pediatric neoplasms.

Dr. Cavenee received his PhD with honors in 1977 from the University of Kansas Medical School and then did postdoctoral work at the Jackson Laboratory, MIT and the Howard Hughes Medical Institute at the University of Utah. He has held professorial faculty positions at the University of Cincinnati and McGill University. Since 1991, he has been the Director of the Ludwig Institute for Cancer Research and Distinguished Professor at the University of California at San Diego.

Dr. Cavenee is a member of the National Academy of Sciences, a member of the Institute of Medicine NAS, a member of the Leopoldina German Academy of Science, a Past-President of the American Association for Cancer Research and a Fellow of the newly established AACR Academy, a Fellow of the American Academy of Microbiology, a Fellow of the International Union Against Cancer and an elected member of the American Society for Clinical Investigation. He serves on the editorial boards of several journals as well as the scientific advisory boards of several companies and private foundations and has also served on the Boards of Scientific Counselors of the National Cancer Institute and the National Institute of Environmental Health Sciences. He has published more than 330 scientific papers and received more than 90 honors, most notably the Rhoads Award of the American Association for Cancer Research, the Charles S. Mott Prize of the General Motors Cancer Research Foundation and the Albert Szent-Gyorgyi Award from the National Foundation for Cancer Research.

TIMOTHY CLOUGHESY, MD

Director, University of California, Los Angeles Neuro-Oncology Program
Professor of Clinical Neurology, Neurology, David Geffen School of Medicine at UCLA
The Ronald Reagan UCLA Medical Center

Dr. Cloughesy is a Professor of Neurology at the David Geffen School of Medicine at UCLA. He received his B.A. degree with Honors in Chemistry in 1983 at University of California, Santa Barbara, and his MD degree in 1987 at Tulane University. He completed his Neurology Residency at University of California, Los Angeles and fellowships in Clinical Neurophysiology (UCLA 1991-1992) and Neuro-Oncology (Memorial Sloan Kettering Cancer Center 1992). Dr. Cloughesy is board certified in Neurology and Clinical Neurophysiology. He joined the faculty of the David Geffen School of Medicine at UCLA in 1992 with the Department of Neurology. He is the director of the Neuro-Oncology Program at UCLA and the Director of the Henry Singleton Brain Cancer Research Program. He is a member of the Brain Research Institute and Jonsson Comprehensive Cancer Center at UCLA.

Dr. Cloughesy's research has focused on clinical trials in brain cancer using targeted molecular therapies with novel clinical trial design and biomarkers in brain cancer. He provided principal leadership for the approval of bevacizumab for recurrent glioblastoma. This was the first drug approved for recurrent glioblastoma in over 30 years. He is recognized as a world expert in the brain cancer research and has been asked to lead several first-in–human studies to treat glioblastoma. He has developed a brain cancer bioinformatics database which combines clinical outcomes, imaging, and molecular analysis to enhance translational research and has the goal of using biomarkers to provide individualized care for brain cancer patients. He has authored or co-authored over 250 peer-reviewed articles on brain cancer.

AMY B. HEIMBERGER, MD

Professor, Department of Neurosurgery,
The University of Texas MD Anderson Cancer Center

Dr. Amy Heimberger is a Professor in the Department of Neurosurgery at the University of Texas MD Anderson Cancer Center in Houston. She has an extensive research program focused on immune therapeutic strategies for glioma patients and studies tumor-mediated mechanisms of immune suppression. Dr. Heimberger's laboratory has: 1) co-developed from bench to bedside a peptide (PEP-3-KLH/CDX-110/ rindopepimut) vaccine that targets the epidermal growth factor receptor variant III (EGFRvIII) that has extended median survival to 24 months in glioblastoma patients and which is now in final registration clinical trials (licensed to Celldex Therapeutics); 2) clarified that the signal transducer and activator of transcription 3 (STAT3) pathway is a key molecular hub of gliomagenesis and tumor-mediated immune suppression and conducted the pre-clinical development of a novel small molecule inhibitor of STAT3, WP1066, which will be introduced into clinical trials in the next 6 months for melanoma patients with CNS metastasis and glioblastoma patients; 3) showed that tumor-associated microglia/ macrophages do not participate in anti-tumor immune responses but rather assist in potentiating gliomagenesis via STAT3; 4) established that glioblastoma-associated cancer stem cells exert immune suppressive properties on both the adaptive and innate arms of the immune system and showed this could be reversed with inhibitors of the STAT3 pathway; and 5) demonstrated that microRNAs could target immune suppressive mechanisms and be exploited as immune modulatory therapeutics. Dr. Heimberger is the only faculty member at MD Anderson that has been awarded the Presidential Early Career Award for Scientists and Engineers. She holds multiple NIH and foundation grants and is a project leader in the Brain SPORE and is the PI of the glioblastoma Moonshot. Dr. Heimberger has a clinical interest in awake mapping and resection of gliomas within eloquent cortex. She has been named by the US News and World Report as a Top Doc.

WENBIN LI, MD, PHD

Director, Glioma Program; Director, Medical Education,
Associate Dean, Oncology System, Capital Medical University

Dr. Wenbin Li is Director of the Department of Glioma at Beijing Shijitan Hospital, Capital Medical University. He holds appointments as Director for Hospital Administration and is the Associate Dean for the Oncology System at Capital Medical University. Dr. Wenbin's research interests include immunotherapy and combined chemotherapy-radiotherapy for GBM and other types of cancer. He also conducts research to determine miRNA-containing exosome levels in glioma patient cerebrospinal fluid are associated with poor prognosis and recurrence.

He currently serves as Director of the Chinese Anti-Cancer Association, and the Beijing Medical Education Association. He is an Honorary Researcher at the University of South Florida. He has published broadly on his research and authored, co-authored and served as editor for several books in a number of areas including neurosurgery, oncology practice and internal medicine. Dr. Wenbin received his Bachelor of Medicine from Nanhua University , College of Medicine; Master of Surgery from the University of South Central University, Xiangya Medical College; and the Doctor of Medicine from Capital Medicine from Capital Medical University.

CATHERINE STACE

Chief Executive Officer, Cure Brain Cancer Foundation and Co-Founder, SW/TCH Festival

Catherine joined the Foundation in 2011 and has more than 20 years' experience in the corporate and not-for-profit sectors. Her expertise is in developing disruptive change strategies and leading the business growth across reputation, revenue and relationships.

Catherine has an interest in systems change and collaboration and understands the chaordic pathway and deep inquiry based on the core principles of relational partnerships to change environments, mindset and behavior aligned to purpose and values.

As CEO at Cure Brain Cancer Foundation, her role is to raise awareness of brain cancer, develop business innovation and excellence and lead the commercial sustainability, community engagement, brand and awareness on behalf of the Foundation. Catherine previously developed strategies including the internationally recognised 'Hope' cancer infographic campaign for Cancer Council NSW.

Prior to her roles in the Not-For Profit sector Catherine was Founder and Managing Director of a national marketing communications agency where she led In-market and global strategies for leading brands including Virgin Money, Toyota, Australian Electoral Commission and Phillips.

Catherine has post graduate certificates in Marketing and English Literature and is an accomplished speaker in the Not For Profit and Chief Strategy sectors on innovation and disruption.

JANET WOODCOCK, MD

Director, Center for Drug Evaluation and Research, U.S. Food and Drug Administration

Dr. Woodcock joined the U.S. Food and Drug Administration (FDA) in 1986, assuming the leadership of the Center for Drug Evaluation and Research (CDER) in May 1994. Prior to joining CDER, she served as Acting Deputy Center Director of the Center for Biologics Evaluation and Research (1990-1992) and Director of the Office of Therapeutics Research and Review (1992-1994), where she oversaw approval of the first biotechnology- based treatments for multiple sclerosis and cystic fibrosis. From 2004 to 2008, Dr. Woodcock provided support to FDA's Commissioner, serving as Deputy Commissioner and Chief Medical Officer, Deputy Commissioner for Operations, and Chief Operating Officer, overseeing various aspects of scientific and regulatory operations.

During her tenure at FDA, Dr. Woodcock's achievements have been substantial. Under her leadership, CDER has streamlined review processes for new and generic drugs while improving standards for quality, safety, and effectiveness.

The processes for submitting marketing applications and adverse events reports and for reviewing submissions in FDA have been automated. CDER's regulatory decision-making processes also have been streamlined, making decisions more open and transparent. CDER's regulatory procedures and policies are publicly available — scores of technical guidance describing FDA's thinking on regulatory standards have been issued. Many CDER processes are carried out with an unprecedented degree of participation on the part of consumer and patient representatives. An extensive CDER Web site hosts a myriad of helpful information on drug approvals, safety issues, and other critical information targeting consumers, patients, health care practitioners, regulated industry, and other audiences.

Highlights of select recent accomplishments include negotiating the 2012 Generic Drugs User Fee Act, which will speed access to safe and effective generic drugs to the public and reduce costs to industry and renegotiating the Prescription Drug User Fee Act (PDUFA V) to support timely evaluation and approval of prescription drugs.

In 2011 and 2012, Dr. Woodcock launched multiple efforts to support development of new therapies for rare and neglected diseases, molecularly defined disease subgroups, and new antibacterial therapies. She oversaw the implementation of innovative policies to foster adaptive trial designs (2010) and trial enrichment strategies (2012) and encourage the qualification of new drug development tools (2010) to help speed drug development and evaluation.

Following enactment in March 2010 of the Patient Protection and Affordable Care Act (Affordable Care Act), Dr. Woodcock developed and launched the biosimilars effort to create an abbreviated licensure pathway for biological products; she then negotiated the Biosimilar User Fee Act of 2012 (BsUFA) to support approval using this new pathway.

Dr. Woodcock continues to lead FDA's Pharmaceutical Quality for the 21st Century initiative to modernize pharmaceutical manufacturing and the Safe Use/Safety First initiatives, which are critical to drug safety throughout the drug lifecycle and ensuring frequent and clear communications to the public about the risks and benefits of drugs.

As Acting Deputy Commissioner for Operations, in 2004, Dr. Woodcock began the Critical Path Initiative, which continues to encourage and foster the development of new and better tools to support medical product research so that drug, device, and biologics development is more predictable and more informative. As Deputy Commissioner and Chief Medical Officer, Dr. Woodcock launched the Sentinel Initiative with the goal of building a new active surveillance system to augment FDA's existing adverse events monitoring systems.

As Director of CDER, Dr. Woodcock maintains contact with a variety of diverse constituencies, including the clinical and scientific communities, members of Congress and the Administration, patient and consumer advocacy groups, the international drug regulatory community, regulated industry, and representatives of Federal and State agencies. She frequently appears in or is quoted by the national media and has testified repeatedly before Congress.

Dr. Woodcock has earned numerous awards, most recently the Arthritis Foundation's Floyd B. Odlum Making a Difference Award and the Luminary Award from the Personalized Medicine World Conference. She has been the recipient of the Presidential Rank Meritorious Executive Award and three HHS Secretary's Distinguished Service Awards among many others. She has authored more than 60 publications. Dr. Woodcock received her M.D. degree from Northwestern University Medical School in 1977, following an undergraduate degree in chemistry from Bucknell University. She has held teaching appointments at Pennsylvania State University and the University of California at San Francisco. Dr. Woodcock lives in Maryland with her husband and is the mother of two daughters.

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THE GLOBAL GBM AGILE TEAM