BIOMEDICAL SCIENCE ADVISORY BOARD

2017 Board Meeting

DECEMBER 7-8, 2017
NASHVILLE, TENNESSEE
Agenda for 2017 Meeting

Summary of 2016 Meeting

Questions for Consideration

Biomedical Science Advisory Board Members

Vanderbilt Leadership

Vanderbilt Faculty Presenters
Thursday, December 7, 2017

6:00 PM  Cocktail Reception - Vanderbilt University Student Life Center Ballroom

6:30 PM  Dinner and Introductory Session

*Health Policy Update*

Melinda B. Buntin, Ph.D.
Chair, Department of Health Policy
Professor of Health Policy
Vanderbilt University Medical Center

Friday, December 8, 2017

7:30 AM  Light plated breakfast served - Vanderbilt University Student Life Center Ballroom

8:00 AM  Session 1: *Young Scholars*  
*Moderated by Jennifer A. Pietenpol, Ph.D.*  *(Each, 15-minute presentation, 10-minute discussion)*

8:05 AM  *A Novel LNK Between Inflammation, Hypertension, & Aortic Dissection*
Meena S. Madhur, M.D., Ph.D.
Assistant Professor of Medicine, and of Molecular Physiology & Biophysics

8:30 AM  *Therapeutic Repurposing of Human IgE Monoclonal Antibodies (mAbs)*
Scott A. Smith, M.D., Ph.D.
Assistant Professor of Medicine, Division of Infectious Diseases

8:55 AM  *The Opioid Epidemic and Neonatal Abstinence Syndrome*
Stephen W. Patrick, M.D., M.P.H., M.S.
Assistant Professor of Pediatrics, and of Health Policy

9:20 AM  *Development of M₃ Muscarinic Acetylcholine Receptor Negative Allosteric Modulators for the Treatment of Opioid Use Disorder*
Carrie K. Jones, Ph.D.
Director, *In Vivo* and Translational Pharmacology, Vanderbilt Center for Neuroscience Drug Discovery
Assistant Professor of Pharmacology

9:45 AM  20-minute break

**SCHOOL OF MEDICINE**
**VANDERBILT UNIVERSITY**
10:05 AM    Session 2: New Centers  
Moderated by Jennifer A. Pietenpol, Ph.D. and Lawrence J. Marnett, Ph.D. (Each 20-minute presentation, 10-minute discussion)

10:10 AM    The Vanderbilt Institute for Infection, Immunology, and Inflammation (VI4) 
Eric P. Skaar, Ph.D., M.P.H. 
Ernest W. Goodpasture Chair and Professor of Pathology, Microbiology, and Immunology 
Director, Division of Molecular Pathogenesis 
Director, Institute for Infection, Immunology, and Inflammation (VI4) 
Vice Chair for Basic Research, Department of Pathology, Microbiology, and Immunology

10:40 AM    The Vanderbilt Center for Addiction Research (VCAR) 
Danny G. Winder, Ph.D. 
Bixler-Johnson-Mayes Chair in Molecular Physiology and Biophysics 
Professor of Molecular Physiology and Biophysics; Pharmacology; and of Psychiatry and Behavioral Sciences 
Director, Vanderbilt Center for Addiction Research (VCAR)

11:10 AM    15-minute break

11:25 AM    Session 3: Physician-Scientist and Investigator Career Development  
Moderated by Gordon R. Bernard, M.D. (20-minute presentation, 10-minute discussion)

11:30 AM    Edge for Scholars: Developing & Retaining Talented Scientists 
Katherine E. Hartmann, M.D., Ph.D. 
Associate Dean, Clinical & Translational Scientist Development 
Deputy Director for the Institute of Medicine and Public Health 
Professor of Obstetrics and Gynecology, and of Medicine 
Lucius E. Burch Chair of Reproductive Physiology and Family Planning

12:00 PM    Discussion/Plated lunch served

Research Highlights and New Initiatives 
Jennifer A. Pietenpol, Ph.D. 
Lawrence J. Marnett, Ph.D.

2:00 PM    Meeting Adjourns
General Overview

The Board expressed strong enthusiasm for the programs and science presented at the meeting. They were particularly interested to learn about the discovery platform available to Vanderbilt in the state of Tennessee, and especially appreciative of the emphasis on diversity.

The Board noted that from an industry perspective, there is a general lack of new knowledge that enables translation. Vanderbilt is well positioned to fill this gap, and is encouraged to push to do more translational research at every level, while continuing to “dig deep” into fundamental research as well. In fact, the Board characterized the funding situation for basic science as “very positive”, and the right path for Vanderbilt. The Board commented that Vanderbilt has great people to advance its broad biomedical research goals; it will be imperative to maintain the highest standards for hiring, especially internationally, and to ensure robust approaches to retention and promotion of outstanding faculty across the research enterprise.

In terms of the advances in science, Board members were pleased to learn more about the exciting research coming from young investigators as well as the robust programs enabled by more senior faculty members. Relevant to all the highlighted research efforts, the Board continues to strongly urge Vanderbilt to ensure that all areas are aware of how BioVU can catalyze new discoveries, validate ongoing efforts and impact clinical practice for improved patient outcomes. This was especially emphasized in context of support for basic science endeavors.

Trainees and development of young investigators

Vanderbilt is clearly seen as a leader in the area of biomedical research training; the environment and resources available are outstanding. The Board advised promoting increased access to basic research for medical students, who may enable breakthroughs by relating physiologic processes to molecular discoveries. This will also provide an opportunity for students to begin to understand the many ways that fundamental discoveries can rapidly impact medical practice.

Vanderbilt is to be congratulated on the outstanding young investigators featured at the meeting. The Board offered several recommendations to develop and enable young faculty:

- Develop fellowship programs that provide research support for medical students and/or clinical fellows in basic-science laboratories.
- Aggressively pursue a “grow your own” strategy for physician-scientists as 1) they are natural translators and 2) it is easier to retain than recruit.
- Hire young people with already demonstrated ability to advance discovery. Then provide modest resources, effective mentorship, and “get out of the way”.
- Reward collaboration and partnerships, particularly those that cross disciplines and professions.
- Encourage and reward high-impact publications, especially by junior faculty.
- Recognize and accelerate the success of emerging leaders by providing leadership training as well as additional support to allow them to build and enhance their overall productivity.
Enhancing impact across the overall research enterprise

Many comments from Board members highlighted how Vanderbilt has been extremely effective in promoting a collaborative and collegial environment, and the Board expressed that it is heartened to see how the core funding for basic science has been established. The Board encouraged Vanderbilt to enable the “magic” of the collaborative engagement across the entire biomedical research enterprise, which has been both interdepartmental and multi-level, by:

- Encouraging clinical departments to give secondary appointments to basic-science faculty.
- Aligning shared goals across all administrative, scientific, and clinical operations.
- Creating comprehensive interdisciplinary teams to consider new directions and how to consolidate existing strengths.
- Developing metrics that will drive the right thinking and behavior across the organization.

Collaborations and partnerships

The Board emphasized that it is important for Vanderbilt to consider ways to diversify funding sources, especially given the uncertainty with regard to NIH funding. The collegial, collaborative environment at Vanderbilt should lead to opportunities to establish new centers that achieve primary support from a wider matrix of sources, not limited to federal resources. Vanderbilt would also obviously be an attractive partner with pharmaceutical and biotechnology companies for any precision medicine trials. Other suggestions from the Board include:

- Engage all the participating healthcare delivery organizations across the Vanderbilt healthcare network in considering the potential value of supporting research over the next decade. This could enable great contributions to our understanding of health among the poor and underrepresented populations.
- Leverage other regional research resources, for example at Oak Ridge. Many will be highly motivated to develop collaborations that provide access to Vanderbilt’s regional population health platform.
- Across Vanderbilt itself, enhance connections to Engineering, which could yield valuable interactions. This will enhance technology development that can result in increased IP licensing.
- Pursue development of a multicenter consortium for genomically-guided clinical trials based at Vanderbilt.

Resources for Personalized/Precision Medicine discovery

The Board noted that the role of Vanderbilt in the Precision Medicine Initiative (PMI) is truly exciting, and as with BioVU, it is critical for Vanderbilt researchers to understand how they can leverage these resources for their own science. Because of the focus on health disparities and underrepresented groups, PMI could also involve an even broader set of Vanderbilt scholars in social sciences and even humanities, who have much to add to the challenges of including and listening to all. Vanderbilt has a unique potential for greater convergence between PMI, BioVU, the Southern Community Cohort (SCC), and patients in the health system.
There is a strong need to understand conceptually and contextually what is happening in patients before a health crisis occurs, and pre-empt that crisis with new therapies. The genomics and phenomics efforts at Vanderbilt are obvious translational opportunities; the rest of biotechnology depends on discoveries from groups like Vanderbilt. To maximize the potential of these personalized/precision medicine platforms, the Board therefore recommends:

- Increasing investments aimed at understanding the importance of non-coding DNA, epigenetics, and the microbiome.
- Refining methods developed through PMI based on real life situations, and continuing to iterate.
- Considering the gradation of socioeconomic status across different racial, ethnic groups in all areas of translational research.

**Fundamental discovery, mechanisms, and pathways**

The Board was impressed with the fruits from Vanderbilt’s investments in VICTR, BioVU, EMRs, Chemical Biology, and Imaging, and with the rich cell biology and structural biology research being conducted. The Board expressed that Vanderbilt is clearly poised to be a leader in integrating genomics into both clinical research and routine clinical care; they strongly recommended continuing efforts to expand its leadership in bioinformatics, decision analysis, dissemination, and outcomes research. Vanderbilt is in a great position to study the genetic basis of common disease, and should capitalize on that, but should also seize opportunities to pursue single molecule measurement technology platforms as a great balance to the more clinical and translational efforts. Specific recommendations include:

- Develop or enhance programs that will be routinely available and offer training for use of BioVU and related resources. It is critical to address any challenges in making these resources part of fundamental discovery efforts across the Vanderbilt research enterprise.
- Consider a high-risk molecular/cell biology approach that would deliver molecules like siRNA, oligonucleotides and gene editing molecules safely into cells of tissues other than liver and perhaps especially the brain. This is very challenging, but also an enormous opportunity.
- Pursue CRISPR-based gene editing, in both cells and animals, which will be increasingly important for determining whether genetic changes cause, and don’t merely correlate with, various phenotypes.

The Board noted that Vanderbilt is at the forefront of cancer biology, with excellent funding for both basic and translational research. The Board made several recommendations as future directions for research in this field:

- Use genomics and phenomics tools made available through BioVU and PMI to develop new ways to detect cancers at a much earlier stage of development — for all cancers, not just skin, colon, and breast.
- Continue to invest in chemical biology efforts aimed at “undruggable” targets.
- Develop a rational approach to designing combinations of immune and targeted therapies.
The broader Vanderbilt community
The effective dissemination of best practices based on new knowledge into clinical care is a great unsolved problem. The Board noted that Vanderbilt is well positioned to attack this issue, with established deep research efforts into the health of poor and underrepresented populations – a huge strength. This is where Vanderbilt’s growing regional healthcare network can intersect with BioVU, PMI, and the SCC in a tremendously valuable way. For example, expanding the PMI cohort into the Tennessee area population would be a great way to have an “extra” cohort for special discovery and focused interventions. Other recommendations include:

- Develop an implementation network and introduce electronic surveillance of the uptake of interventions. This could be a revolutionary demonstration project as well as a way to improve competitiveness of the Vanderbilt network affiliates.
- Given the regional challenges around tobacco use and its impact on health, there is opportunity for early detection and monitoring. Would it be possible to actually profile every lung cancer diagnosed across the Vanderbilt network? Could this result in long term savings in healthcare costs?

Topics for future meetings
The Board offered several recommendations for focus at future meetings including:

- Population health
- Developing and retaining young leaders
- Regional expansion of the Vanderbilt health network as a business and research platform
- EPIC implementation
- Lessons learned that can be shared with other academic medical centers
- Technology licensing and industry partnerships
In general, from what you have seen today, what are our key opportunities for:
- Enhancing impact from the overall research enterprise?
- Supporting fundamental research discoveries?
- Translating research discoveries to improved patient care and outcomes?

More specifically, what are the areas of discovery that we should pursue or further develop?
- What are the high risk activities that may lead to great leaps in scientific knowledge?
- What non-traditional approaches should we consider to achieve discoveries?
- What are the types of partnerships or alliances outside Vanderbilt we should pursue to better enable discovery and innovation?

From an academic medical center perspective, how can we better enable the translation of these discoveries to clinical impact?
- What are the limiting factors for enabling broader integration of new knowledge and innovation into clinical practice?
- Are we optimally equipped to achieve translation of discovery into change of medical practice?
- What changes or improvements in administrative culture, scientific practice, or clinical process would lead to greater returns in discovery and impact?

Are there areas of research at Vanderbilt that you would like to see presented in depth at next year's board meeting?

If you would like to provide additional feedback, please submit your replies directly to Megan Smallwood at megan.smallwood@vanderbilt.edu.
Russ Biagio Altman is a professor of bioengineering, genetics, medicine, and biomedical data science (and of computer science, by courtesy) and past chairman of the Bioengineering Department at Stanford University. His primary research interests are in the application of computing and informatics technologies to problems relevant to medicine. He is particularly interested in methods for understanding drug action at molecular, cellular, organism, and population levels. His lab studies how human genetic variation impacts drug response (e.g., http://www.pharmgkb.org/). Other work focuses on the analysis of biological molecules to understand the actions, interactions, and adverse events of drugs (e.g., http://feature.stanford.edu/). He helps lead an FDA-supported Center of Excellence in Regulatory Science & Innovation.

Dr. Altman holds an AB from Harvard College, an MD from Stanford Medical School, and a PhD in Medical Information Sciences from Stanford. He received the U.S. Presidential Early Career Award for Scientists and Engineers and a National Science Foundation CAREER Award. He is a fellow of the American College of Physicians (ACP), the American College of Medical Informatics (ACMI), the American Institute of Medical and Biological Engineering (AIMBE), and the American Association for the Advancement of Science (AAAS). He is a member of the National Academy of Medicine (formerly the Institute of Medicine, IOM). He is a past-president, founding board member, and a fellow of the International Society for Computational Biology (ISCB), and a past-president of the American Society for Clinical Pharmacology & Therapeutics (ASCPT). He has chaired the Science Board advising the FDA commissioner, currently serves on the NIH Director’s Advisory Committee, and is co-chair of the NAM Drug Forum. He is an organizer of the annual Pacific Symposium on Biocomputing, and a founder of Personalis, Inc. Dr. Altman is board certified in Internal Medicine and in Clinical Informatics. He received the Stanford Medical School graduate teaching award in 2000 and mentorship award in 2014.
Dr. Bates is an internationally renowned expert in patient safety, using information technology to improve care, quality-of-care, cost-effectiveness, and outcomes assessment in medical practice. As a practicing general internist, he is a Professor of Medicine at Harvard Medical School and a Professor of Health Policy and Management at the Harvard School of Public Health, where he co-directs the Program in Clinical Effectiveness. He directs the Center for Patient Safety Research and Practice at Brigham and Women’s Hospital, and serves as external program lead for research in the World Health Organization’s Global Alliance for Patient Safety. Dr. Bates is the immediate past president of the International Society for Quality in Healthcare (ISQua) and the editor of the Journal of Patient Safety. He serves as the principle investigator of the Health Information Technology CERT.

He has been elected to the National Academy of Medicine, the American Society for Clinical Investigation, the Association of American Physicians, the American College of Medical Informatics, and was chairman of the Board of the American Medical Informatics Association.

Dr. Bates has published over 700 peer-reviewed papers and has an h-index of 115, which ranks him among the 400 most cited biomedical researchers of any type.
Kevin P. Campbell, Ph.D.

Investigator, Howard Hughes Medical Institute
Department Executive Officer, Molecular Physiology and Biophysics
Roy J. and Lucille A. Carver Biomedical Research Chair, Molecular Physiology and Biophysics
Professor, Neurology and Internal Medicine, University of Iowa Carver College of Medicine
Director, Senator Paul D. Wellstone Muscular Dystrophy Cooperative Research Centers (MDCRCs)

Kevin Campbell, who joined the University of Iowa faculty in 1981, is internationally known for his neuromuscular disease research and directs the Wellstone Muscular Dystrophy Cooperative Research Center at the University of Iowa. Campbell is also a professor of neurology.

Dr. Campbell’s work has led to the identification of the molecular and genetic basis of several forms of muscular dystrophy and provided a clearer understanding of muscular dystrophy disease processes. Dr. Campbell’s findings have already greatly improved the diagnosis of muscular dystrophy, and they point to strategies for developing therapies for these devastating inherited neuromuscular diseases.

“Our laboratory’s early studies at the University of Iowa focused on elucidating the structure and function of calcium channels in skeletal muscle. For the past twenty years, however, we have actively investigated the molecular pathogenesis of muscular dystrophy. Our laboratory has used biochemical, cell biological, genetic, and physiological techniques to identify and define disease mechanisms that cause various forms of muscular dystrophy. In doing so, we cloned and characterized dystroglycan and demonstrated that it links the cytoskeleton to the extracellular matrix in skeletal muscle. Our studies on dystroglycan have since led to significant insights into its basic function as an extracellular matrix receptor in skeletal muscle and its role in the maintenance of muscle-cell membrane integrity. We also showed that complex post-translational processing of dystroglycan, including extensive glycosylation, is required for its ability to function as an extracellular matrix receptor that abnormal glycosylation results in a variety of congenital and limb-girdle muscular dystrophies with or without associated defects in brain development and function.”
In 1978, Thomas R. Cech joined the faculty of the University of Colorado Boulder, where he became a Howard Hughes Medical Institute investigator in 1988 and Distinguished Professor of Chemistry and Biochemistry in 1990.

In 1982 Dr. Cech and his research group announced that an RNA molecule from Tetrahymena, a single-celled pond organism, cut and rejoined chemical bonds in the complete absence of proteins. Thus RNA was not restricted to being a passive carrier of genetic information, but could have an active role in cellular metabolism. This discovery of self-splicing RNA provided the first exception to the long-held belief that biological reactions are always catalyzed by proteins. In addition, it has been heralded as providing a new, plausible scenario for the origin of life because RNA can be both an information-carrying molecule and a catalyst, perhaps the first self-reproducing system consisted of RNA alone.

In January of 2000, Dr. Cech moved to Maryland as president of the Howard Hughes Medical Institute (HHMI), which is the nation’s largest private biomedical research organization. In addition, HHMI has an $80 million/year grants program that supports science education at all levels (K-12 through medical school) and international research.

In April of 2009, Dr. Cech returned to full-time research and teaching at the University of Colorado Boulder, where he also directs the University of Colorado BioFrontiers Institute.

Dr. Cech’s work has been recognized by many national and international awards and prizes, including the Heineken Prize of the Royal Netherlands Academy of Sciences (1988), the Albert Lasker Basic Medical Research Award (1988), the Nobel Prize in Chemistry (1989), and the National Medal of Science (1995). In 1987 Dr. Cech was elected to the U.S. National Academy of Sciences and awarded a lifetime professorship by the American Cancer Society. In 2000 he was elected to the National Academy of Medicine.
Thomas O. Daniel, M.D.

Former President of Research and Early Development, Celgene Corporation

Founding Executive Director, Catalysis Advisors

Former Hakim Professor of Medicine and Cell Biology at Vanderbilt University, Thomas O. Daniel practiced nephrology, founded translational research efforts in the Vanderbilt-Ingram Cancer Center, co-directed the MD/PhD program, funded and led research efforts defining molecular determinants of endothelial function, and served on numerous NIH and other national funding committees.

In 2000, Dr. Daniel joined Immunex Corporation as Sr. Vice President of Research. There he built an oncology research division, enabled therapeutic antibody capability, and advanced collaborations leading to development of panitumumab (Vectibix).

As Vice President of Research at Amgen, he led the Inflammation Therapeutic Area and headed the Seattle research site, advancing etanercept (Enbrel) into new indications, fli3-L, and several anti-angiogenic programs.

In 2003, Dr. Daniel joined founders as Chief Scientific Officer and Director of Ambrx, a venture backed start-up deploying a novel platform technology for enhancing performance of protein therapeutics. At Ambrx, the team he built advanced its first drug candidate into clinical testing within three years, raised multiple rounds of venture funding, and created projects partnered with four pharma collaborators.

Dr. Daniel joined Celgene in late 2006, formulating and executing on a strategy that has yielded a robust and diversified pipeline in oncology and immune-inflammatory diseases, including four new INDs and to address serious unmet medical need. In August of 2016, Dr. Daniel left Celgene full-time and founded Catalysis Advisors, where he serves as Executive Director.

Dr. Daniel has served on the National Academy of Sciences/National Research Council, NIH Committee on Manpower Planning, chaired the 2008 Gordon Research Conference on Endothelial Phenotypes in Disease, and currently serves on the Boards of Directors for Ferrumax Corporation and Carbon Capture Corporation, and the Vanderbilt Biomedical Science Advisory Board. Dr. Daniel trained in Molecular Genetics with Nobelists Michael Brown and Joseph Goldstein, was a Howard Hughes Medical Institute Associate, and a recipient of over 20 years of NIH research funding.
Dr. de Lange earned her Ph.D. in biochemistry from the University of Amsterdam and the Netherlands Cancer Institute in 1985. From 1985 to 1990 she was a postdoctoral fellow in the laboratory of Nobel laureate Harold Varmus at the University of California, San Francisco, where she was one of the first to isolate the telomeres of human chromosomes.

Telomeres are highly specialized DNA-protein structures that cap the ends of linear chromosomes and prevent the activation of the DNA damage response. Impaired functioning of telomeres can lead to genomic instability, and so to cancer, as well as accelerate the aging process.

Dr. de Lange is the Leon Hess Professor and the Director of the Anderson Center for Cancer Research at the Rockefeller University. Sir Paul Nurse, Nobel laureate, and Marc Tessier-Lavigne, Ph.D., then President of Rockefeller University, nominated de Lange for the Vanderbilt Prize in Biomedical Science.

Dr. de Lange is the winner of the 2011 Vanderbilt Prize in Biomedical Science and also the recipient of the 2014 Gairdner International Award, the 2013 Breakthrough Prize in Life Sciences, the 2011 Vilcek Prize in Biomedical Science, the 2010 AACR Clowes Memorial Award, the 2008 Massachusetts General Hospital Cancer Center Prize, and the first Paul Marks Prize for Cancer Research, in 2001.

She is an elected member of the Royal Dutch Academy of Sciences, the European Molecular Biology Organization, the American Academy of Arts and Sciences, the National Academy of Medicine, and a foreign associate of the National Academy of Sciences.
A Colorado resident, J. William (Bill) Freytag has over twenty-five years experience as an entrepreneur and executive leader in the biotechnology and pharmaceutical industries. Freytag currently serves as a member of the board of directors for three health care companies: GlobeImmune, Inc., BaroFold, Inc., and BiOptix Inc.

Dr. Freytag was Chairman and Chief Executive Officer of Aspreva Pharmaceuticals from July 2007 until its merger with Galenica AG in January 2008. Prior to Aspreva, Dr. Freytag was President, Chief Executive Officer, and Chairman of the Board of Directors of Myogen, Inc. from July 1998 until Myogen was acquired by Gilead Sciences in November 2006. From October 1994 to May 1998, Dr. Freytag was a Senior Vice President at Somatogen, Inc. Prior to Somatogen, he was President of Research and Development at Boehringer Mannheim Corporation, an international healthcare company, from May 1990 to September 1994. Previously, Dr. Freytag spent ten years with DuPont in various research and business positions in the Medical Products Department.

In May 2011, Dr. Freytag was the recipient of the University of Colorado University Medal and an honorary degree in recognition of his instrumental role in the success of the Colorado Initiative in Molecular Biotechnology, which partners bioscience entrepreneurs with the University of Colorado. Dr. Freytag is a member of the Board of the Colorado University Institute for Molecular Biology.
David Glazer is an engineering director at Verily, and the founder of the Google Genomics team, where he helps life science organizations use cloud computing to accelerate and scale their work with big data. He is active in the NIH Precision Medicine Initiative, as a PI for the Data and Research Center and a member of the Steering Committee, and is active in the Global Alliance for Genomics and Health (GA4GH), as co-chair of the Cloud Workstream and a member of the Steering Committee. His previous projects at Google include creating and leading the Google+ Platform team, overseeing the company’s developer-facing offerings, and leading product and infrastructure teams for Google Apps. Prior to joining Google in 2006, he successfully started two companies: Verily in 1988 (IPO 1995), which did full-text search, and Eloquent in 1995 (IPO 2000), which used rich media to power business communications. Eloquent was later acquired by Open Text, an enterprise software firm, where David served as CTO. David grew up in Massachusetts, where he earned a BS in physics from MIT.
Institute Professor, Department of Brain and Cognitive Sciences, Massachusetts Institute of Technology

Principal Investigator, McGovern Institute for Brain Research, Massachusetts Institute of Technology

In a line of pioneering experiments beginning with her discovery of the modular organization of the striatum, Ann Graybiel has systematically elucidated the functional architecture of the basal ganglia and has documented the existence of major plasticity in striatal electrical activity and molecular cell signaling related to habit learning and repetitive behaviors. The basal ganglia were known to underlie disorders such as Parkinson’s disease and Huntington’s disease, but were largely unexplored due to their complexity and inaccessible position deep in the forebrain. Graybiel and her group were the first to demonstrate a systematic functional architecture in the striatum, the largest structure of the basal ganglia. The work of Graybiel and her group on habit formation has been transformative in identifying neural circuits and activity patterns underlying the development of habits and their persistence, and in identifying circuit functions related to the control of mood and motivation.

The work of the Graybiel laboratory is leading to an integrated view of the basal ganglia as forebrain structures concerned with learning and expressing the action plans that guide motor and cognitive-affective behavior. Taken together, the scientific work of Graybiel and her coworkers has major implications for neurological and neuropsychiatric disorders, their cellular and genetic basis, and therapeutic strategies to relieve them.

On the basis of her work, Graybiel was elected to the National Academy of Sciences of the USA (1988), to the American Academy of Arts and Sciences (1991), and to the National Academy of Medicine of the USA (1994). She was awarded the Dow Award in 2002, the Prix Plasticité Neuronale IBSEN in 2005, and the Vanderbilt Prize in 2008. In 2001, Graybiel was awarded the National Medal of Science of the United States, the nation’s highest science award. In 2012, Graybiel received the Kavli Prize in Neuroscience.
Dr. William N. Hait is Global Head of Janssen Research & Development, LLC, the global research and development arm of Janssen, the pharmaceutical companies of Johnson & Johnson. In this role, he leads the global R&D group in its mission to discover and develop innovative new medicines to address the world’s most serious unmet medical needs.

Dr. Hait joined Johnson & Johnson in 2007 and assumed the role of Global Therapy Area Head, Oncology, in 2009. Before that he was the founding Director of The (Rutgers) Cancer Institute of New Jersey, which he led to receive the National Cancer Institute’s highest designation of Comprehensive Cancer Center in 2002. From 1993 to 2007 he was Professor of Medicine and Pharmacology and Associate Dean for Oncology Programs at the University of Medicine and Dentistry of New Jersey -- Robert Wood Johnson Medical School.

After earning his B.A. from the University of Pennsylvania, Dr. Hait received his M.D. and Ph.D. (Pharmacology), cum laude, from the Medical College of Pennsylvania, where he was elected to Alpha Omega Alpha. He joined the Yale University School of Medicine faculty in 1984 and became Associate Professor of Medicine and Pharmacology, Chief of the Division of Medical Oncology, Associate Director of the Yale University Comprehensive Cancer Center, Director of the Breast Cancer Unit, and Co-Director of the Lung Cancer Unit. Dr. Hait is board certified in Internal Medicine and Medical Oncology.

Dr. Hait has devoted his time to numerous advisory and editorial boards. He was Editor-in-Chief of Clinical Cancer Research and Associate Editor of Cancer Research; served as President of the American Association for Cancer Research from 2007 – 2008 and currently serves as Treasurer. He has served on various committees for the American Association of Cancer Research (Chair, Clinical Cancer Research Committee), the American Society of Clinical Oncology, the Association of American Cancer Institutes (Board of Directors), the National Cancer Institute Board of Scientific Advisors, and was founding Chairman of the Executive Management Committee of Stand Up to Cancer. He is currently a member of the Rutgers Cancer Institute of New Jersey Director’s Advisory Board, Board of External Advisors for the Dana Farber/Harvard Cancer Center, the Stand Up to Cancer Scientific Advisory Board, The Board of Directors of Research America!, and the Vanderbilt University Biomedical Science Advisory Board.

Dr. Hait has received numerous awards and honors including the Burroughs Wellcome Award in Clinical Pharmacology, election to the American Society of Clinical Investigation, and in 2013 he was elected as a Fellow of the AACR Academy.
William Kaelin, Jr., M.D.

Professor of Medicine, Dana-Farber Cancer Institute and Brigham and Women’s Hospital, Harvard Medical School

Investigator, Howard Hughes Medical Institute

Associate Director, Basic Science, Dana-Farber Cancer Institute/Harvard Cancer Center

William Kaelin is a Professor in the Department of Medicine at the Dana-Farber Cancer Institute and at the Brigham and Women’s Hospital, Harvard Medical School, where he currently serves as Associate Director, Basic Science, for the Dana-Farber/Harvard Cancer Center and Chair of the Executive Committee for Research. He obtained his undergraduate and M.D. degrees from Duke University and completed his training in internal medicine at the Johns Hopkins Hospital, where he served as chief medical resident. He was a clinical fellow in medical oncology at the Dana-Farber Cancer Institute and later a postdoctoral fellow in the laboratory of David Livingston, during which time he was a McDonnell Scholar.

Dr. Kaelin is a member of the National Academy of Sciences, the National Academy of Medicine, the American Society of Clinical Investigation, and the American College of Physicians. He recently served on the National Cancer Institute Board of Scientific Advisors, the AACR Board of Trustees, and the National Academy of Medicine National Cancer Policy Board. He is a recipient of the Paul Marks Prize for cancer research from the Memorial Sloan-Kettering Cancer Center; the Richard and Hinda Rosenthal Prize from the AACR; a Doris Duke Distinguished Clinical Scientist award; the 2010 Canada International Gairdner Award; ASCI’s Stanley J. Korsmeyer Award; the Scientific Grand Prix of the Foundation Lefoulon-Delalande; the Wiley Prize in Biomedical Sciences; the Steven C. Beering Award; the AACR Princess Takamatsu Award; and the Science of Oncology Award from ASCO.

A Howard Hughes Medical Investigator since 1998, Dr. Kaelin’s research seeks to understand how, mechanistically, mutations affecting tumor-suppressor genes cause cancer. His laboratory is currently focused on studies of the VHL, RB-1, and p53 tumor suppressor genes. His long-term goal is to lay the foundation for new anticancer therapies based on the biochemical functions of such proteins. His work on the VHL protein helped to motivate the eventual successful clinical testing of VEGF inhibitors for the treatment of kidney cancer. Moreover, this line of investigation led to new insights into how cells sense and respond to changes in oxygen, and thus has implications for diseases beyond cancer, such as anemia, myocardial infarction, and stroke.
Dr. Mark Keating graduated from Princeton (A.B. Biology, 1976) and Johns Hopkins (M.D., 1980), and completed his internship and residency in Internal Medicine at Johns Hopkins Hospital (1980-1983). Keating then completed a Cardiology fellowship (1983-1985) and a postdoctoral research fellowship with Lewis T. Williams (1985-1989) at University of California, San Francisco (UCSF).

Dr. Keating began his independent laboratory as a faculty member in the Departments of Human Genetics, Medicine, and Pediatrics (1989-2000) and the Howard Hughes Medical Institute (1994-2000) at the University of Utah. There, Keating focused on the molecular genetics and physiology of cardiovascular disease. His laboratory did pioneering work on long QT syndrome (LQTS), discovering LQTS genes such as HERG and the first HERG assay, and also developed the diagnostic test for Williams Syndrome.

Keating moved his laboratory to the Howard Hughes Medical Institute and the Departments of Cell Biology and Pediatrics at Harvard Medical School and Children’s Hospital (2000-2005). His work at Harvard focused on developing zebrafish as a molecular genetic model for studying regeneration, particularly cardiac regeneration. In 2001, Keating co-founded Hydra Biosciences, a venture-backed biotechnology company in Cambridge, Massachusetts.

Dr. Keating joined Novartis in 2005, founding the Department of Ophthalmology. His group created an innovative pipeline aimed at atherosclerosis, diabetes, and inherited disorders. In 2016, Keating transitioned to Cambridge Therapeutics in Cambridge, MA, where he currently serves as President and CEO. Keating was elected to the National Academy of Sciences in 2004 and the American Academy of Arts and Sciences in 2006.
Dr. Marletta returned to the University of California, Berkeley in 2015 and was appointed to the CH and Annie Li Chair in Molecular Biology of Diseases, and as professor in the Departments of Chemistry and Molecular and Cell Biology. This comes after holding appointments at The Scripps Research Institute (TSRI), MIT, the University of Michigan, the Lawrence Berkeley National Lab, and the University of California, San Francisco and Berkeley, where he served as Chair of the Department of Chemistry from 2005-2010. He served as President and CEO of TSRI from 2012-2014.

Named an investigator in the Howard Hughes Medical Institute in 2007, other awards he has received include the MacArthur Fellowship awarded by the John D. and Catherine T. MacArthur Foundation (1995); election to the National Academy of Medicine (1999); election to the American Academy of Arts and Sciences (2001); and fellow of the American Association for the Advancement of Science. He was elected to the National Academy of Sciences in 2006 and in 2016 to the American Philosophical Society.

Dr. Marletta is a member of the American Chemical Society and American Society for Biochemistry and Molecular Biology, Senior Editor for the journal *eLife*, serves on the editorial board for a number of journals, including *PNAS*. He is a consultant for multiple pharmaceutical companies and serves on the scientific advisory boards of others. He is a co-founder of Omniox, Inc. and is a member of the Fredonia College Foundation Board of Directors, currently serving as Vice-Chair.

His primary research interests lie at the interface of chemistry and biology with emphasis on the study of protein function and enzyme reaction mechanisms. He has made fundamental discoveries concerning the biological action of nitric oxide (NO). His studies have provided the basis for understanding at the molecular level of this unique cell signaling pathway and the function of nitric oxide in the immune system. He has uncovered several novel structure/function relationships in nitric oxide synthase and guanylate cyclase. His continued studies on NO signaling have recently led to a molecular understanding of general gas sensing mechanisms in biology. A new research direction involves novel oxidative enzymology of cellulose degradation with application to biofuel production and a role in pathogen biology.
Professor Olufunmilayo I. Olopade is the Walter L. Palmer Distinguished Service Professor of Medicine and Human Genetics, Dean for Global Health and Director, Center for Clinical Cancer Genetics at The University of Chicago. Professor Olopade is an internationally renowned expert in cancer risk assessment and management of the most aggressive forms of breast cancer. Using innovative high throughput genomic technologies and bioinformatics, her laboratory research is focused on molecular mechanisms of cancer through studies of genetic and non-genetic factors contributing to tumor progression in at-risk individuals and diverse populations. The overall goal of her research is to accelerate progress in global cancer research, and thereby improve health outcomes by developing novel management strategies based on an understanding of the altered genetic pathways in cancer cells.

Dr. Olopade is an elected member of several honor societies, including the National Academy of Medicine, the American Academy of Arts and Sciences, and the American Philosophical Society. She has received numerous honors and awards, including honorary degrees from Bowdoin University, and Princeton University; MacArthur Foundation “Genius” Fellowship; Doris Duke Distinguished Clinical Scientist and Exceptional Mentor Award; American Cancer Society Clinical Research Professorship; Officer of the Order of the Niger Award; and the Franklin D. Roosevelt Freedom from Want Award. Dr. Olopade has served on the Board of Directors for the National Cancer Advisory Board and the American Board of Internal Medicine. Currently she serves on the Board of Directors for the Susan G. Komen for the Cure, Lyric Opera of Chicago, and the MacArthur Foundation.

Dr. Olopade earned her medical degree from the University of Ibadan College of Medicine in Nigeria. She trained in Internal Medicine at Cook County Hospital in Chicago and in Oncology, Hematology and Cancer Genetics at the Joint Section of Hematology and Oncology at the University of Chicago.
Neil R. Powe, M.D., M.P.H., M.B.A.

Neil R. Powe trained in internal medicine, epidemiology, and health services research. He completed residency at the Hospital of the University of Pennsylvania where he was also a Robert Wood Johnson Clinical Scholar. Dr. Powe is a member of the National Academy of Medicine, American Society of Clinical Investigation, the Association of American Physicians, the American Society of Epidemiology, and a Master of the American College of Physicians. He is the former chair of the National Advisory Committee of the Agency for Healthcare Research and Quality. Among his honors are the John M. Eisenberg National Award for Career Achievement in Research from the Society of General Internal Medicine, the Distinguished Educator Award from the Association for Clinical Research Training, the Belding H. Scribner Award from the American Society of Nephrology, and the Diversity Award from the Association of Professors of Medicine.

Prior to his position at University of California, San Francisco (UCSF), Dr. Powe was the inaugural James F. Fries Professor of Medicine and University Distinguished Service Professor of Medicine in the Department of Medicine at the Johns Hopkins University School of Medicine, where he directed the Welch Center for Prevention, Epidemiology, and Clinical Research, and the Training, Education, and Career Development Program for the Clinical and Translational Science Institute.

Dr. Powe’s research has involved clinical epidemiology, health services research, and patient outcomes research using prospective methods of randomized controlled trials and cohort studies, cost-effectiveness analysis, meta-analysis, retrospective analyses of administrative databases, and survey research. He has extensive experience in developing and measuring outcomes in chronic kidney disease. Dr. Powe is author of more than 400 articles including studies of early referral of chronic kidney disease patients, patient-physician contact in dialysis care, cost-effectiveness of screening for proteinuria, racial differences in cardiovascular procedure use among CKD patients, effect of treatment modalities on survival, outcomes of dialysis care by type of ownership, access to transplantation, and organ donation.
Elliott Sigal, M.D., Ph.D. is a former Executive Vice President and Director of Bristol-Myers Squibb, serving as Chief Scientific Officer and President of Research and Development (R&D) from 2004 until 2013. He was a principal architect of the successful Biopharma Transformation Strategy of the company which is fully dedicated to innovative therapies for unmet medical needs. He has been instrumental in increasing R&D productivity, acquiring external innovation, and helping to develop the company’s strategy in biologics.

Under his leadership, fourteen new medicines have come to market including Abilify (Schizophrenia, Bipolar Disorder); Reyataz (HIV/AIDS); Erbitux (Colon Cancer); Baraclude (Hepatitis B); Orenica (Rheumatoid Arthritis); Sprycel (Leukemia); Atripla (HIV/AIDS); Ixempra (Breast Cancer); Onglyza and Kombiglyze (Diabetes); Nulojix (Transplantation); Eliquis (Anticoagulant); Yervoy (Melanoma); and Forxiga (Diabetes). Among his accomplishments in various therapeutic areas was building BMS research into a lead position in the promising area of immuno-oncology.

Dr. Sigal has been in leadership positions at Bristol-Myers Squibb in both Research and Development. He started as Vice President of the newly created department of Applied Genomics in 1997. In 1999, he became Senior Vice President for Early Discovery and Applied Technology. He was named Head of Drug Discovery & Exploratory Development in 2001, Head of Development in 2002, and Head of R&D in 2004.

Dr. Sigal has more than 25 years of combined experience in medicine, research, and management. In 1992 he joined the pharmaceutical company, Syntex, and held positions of increasing responsibility in drug discovery. In 1995 Dr. Sigal joined the genomics firm, Mercator Genetics, as Vice President of Research and Development and later served as CEO. While there he provided the research leadership that resulted in the discovery of the gene for hemochromatosis, a common disorder that leads to iron overload, diabetes, and liver disease.

Dr. Sigal received his M.D. from the University of Chicago in 1981 and trained in Internal Medicine and Pulmonary Medicine at the University of California, San Francisco (UCSF). He received his research training at the Cardiovascular Research Institute at UCSF. Dr. Sigal served on the faculty of the UCSF Department of Medicine from 1988 to 1992. Prior to medical school he studied engineering at Purdue University, where he received a B.S., M.S., and Ph.D. Dr. Sigal also serves as a member of the Board of Directors for the Mead Johnson Nutrition Company and is a Board member of the private foundation, Melanoma Research Alliance.
Susan Serota Taylor, a protein chemist and structural biologist, received her B.A. from the University of Wisconsin, Madison, and her Ph.D. from the Johns Hopkins University with Edward Heath. She was a postdoctoral fellow at the MRC Laboratory of Molecular Biology, Cambridge, England, working with B.S. Hartley. She then returned to the U.S. and carried out an additional year of postdoctoral studies with N.O. Kaplan at the University of California, San Diego, where she has remained ever since. Rising from the rank of Assistant Professor in Residence in the Chemistry Department to full Professor of Chemistry and Biochemistry (1985) and Professor of Pharmacology in (2004), her research led to solving the crystal structure of the first protein kinase in 1991, providing a template for this entire family of essential regulatory enzymes. Understanding the molecular basis for function, visualizing this one protein kinase and its structure, function, and dynamics, and translating that information to other related protein kinases continues to provide an ideal interdisciplinary system for coupling technological advances in computation and biophysics with exciting biological questions. She is a member of the National Academy of Sciences (1996), American Academy of Arts and Sciences (1994), National Academy of Medicine (1997), a fellow of the American Academy of Arts & Sciences (1993), and a Fellow of the American Association for the Advancement of Science (2008). She won the Gavin Olin Medal from the American Chemical Society (2001), the FASEB Excellence in Science Award (2009), the Vanderbilt Prize in Biomedical Sciences (2009), the Centennial Medal from the Biochemical Society (2014), the ASBMB Earl and Thressa Stadtman Distinguished Scientist Award (2017), and was a Howard Hughes Medical Institute Investigator (1997-2014). She has published over 400 articles. Her research has been funded by NIH, American Cancer Society, American Heart Association, Michael J. Fox Foundation, and NSF. She is a past president of American Society for Biochemistry and Molecular Biology and served or is still serving on the Board of Counselors for the National Cancer Institute, Heart, Lung and Blood Institute, NIDDK, GM Council for NIH and NICHD.
JEFFREY R. BALSER, M.D., PH.D.
President and CEO, Vanderbilt University Medical Center
Dean, Vanderbilt University School of Medicine

After receiving both an M.D. and a Ph.D. in pharmacology from Vanderbilt in 1990, Dr. Balser undertook residency training in anesthesiology and fellowship training in critical care medicine at The Johns Hopkins Hospital in Baltimore, MD. He joined the faculty at Johns Hopkins in 1995, where he practiced cardiac anesthesiology, ICU medicine, and led an NIH-funded research program aimed at the genetics of cardiac rhythm disorders, such as sudden cardiac death. Dr. Balser returned to Vanderbilt in 1998 as Associate Dean for Physician Scientist Development, and soon appointed Chair of the Department of Anesthesiology, directing one of the medical center’s largest clinical service programs. He became VUMC’s chief research officer in 2004, leading a period of scientific expansion that moved VUMC into the nation’s top 10 in NIH funding, launching big-science programs integrating health informatics and genomics that stimulated VUMC’s national leadership in personalized medicine. In 2008 he was named the eleventh dean of Vanderbilt’s School of Medicine since its founding in 1875, and in 2009 he was named Vice Chancellor for Health Affairs with executive responsibility for all health-related programs at Vanderbilt including the hospitals, clinics, research programs, and its highly-ranked medical and nursing schools. He has led VUMC through a period of marked service-volume growth with Children’s Hospital and Adult Critical Care Tower expansions, and the development of a multi-state network, while completing a two-year 8% ($250M) cost reduction to improve VUMC’s competitive position in a rapidly evolving and price-sensitive healthcare marketplace. Beginning in 2014, in coordination with Vanderbilt University and its Board of Trust, he led VUMC through an historic restructuring process that concluded April 30, 2016, placing its clinicians, hospitals, clinics, research, and graduate medical education programs into a financially and legally separate, $3.2B not-for-profit corporation. As the first President and CEO of VUMC he serves, and participates on, an independent 11-member board of directors, and continues to serve as dean of the Vanderbilt University School of Medicine. Dr. Balser also serves on the Board of Tulane University.
GORDON R. BERNARD, M.D.

Melinda Owen Bass Professor of Pulmonary Medicine
Executive Vice President for Research (Clinical Sciences)
Senior Associate Dean for Clinical Sciences
Director, Vanderbilt Institute for Clinical and Translational Research (VICTR)

Dr. Bernard is board certified in internal medicine, pulmonary medicine, and critical care medicine. In 2000, he received the Melinda Owen Bass Professor in Medicine Chair. He has continued to receive wide recognition of his professional accomplishments, not only as a physician but also as a researcher, teacher, and leader. In 2007, he assumed the position of Assistant Vice Chancellor for Research, relinquishing his role as Director of the Division of Allergy, Pulmonary, and Critical Care Medicine. He remains on the faculty as a valued physician, researcher, and mentor. In 2009 he was promoted to Associate Vice Chancellor for Research and retains the role as Senior Associate Dean for Clinical Sciences. In these roles, he has the resources and authority to improve the clinical research landscape at Vanderbilt and accelerate the translation of new discoveries to medical practice.

Dr. Bernard’s clinical and research areas of specialty are Acute Respiratory Distress Syndrome and Sepsis. As a researcher he has many significant accomplishments. He is among an elite class of investigators who have participated in the design and outcome of two successful trials that clearly reduced the mortality of the patients under study. He led the NIH NHLBI ARDS Clinical Trials Network (from 1994-2014) in the design and management of that organization’s work. In 2008, he was selected a second time (also selected in 2002) to receive the coveted Roger C. Bone Memorial Award for excellence in Sepsis Research awarded by the American College of Chest Physicians.

In September 2007, Vanderbilt became one of the NIH Clinical and Translational Science Award (CTSA) sites. This grant is the largest single grant award in Vanderbilt’s history and one that is highly sought after by other major academic institutions. It provides almost $50 million of support for clinical research at Vanderbilt over five years; it was recently renewed. As principal investigator of the grant, Dr. Bernard coordinates the efforts of a team of six co-program directors to fulfill the vision of the CTSA at Vanderbilt. In June 2011, Vanderbilt University Medical Center was awarded a five-year $20 million federal CTSA Coordinating Center grant to coordinate a national consortium that aims to advance biomedical research nationwide. Dr. Bernard was principal investigator for the duration of the award.
Robert S. Dittus, M.D., M.P.H.

Executive Vice President for Public Health and Health Care
Albert and Bernard Werthan Professor of Medicine
Senior Associate Dean for Population Health Sciences
Director, Institute for Medicine and Public Health

Robert Dittus has devoted over 30 years to healthcare quality improvement, and his research has led to the improvement of the effectiveness, efficiency, timeliness, safety, and equity of health care. He has led or been co-investigator of over $350 million in grant funding. He has advanced the methodology of medical decision-making and conducted numerous studies delineating the comparative effectiveness of alternative strategies for clinical care. He has conducted numerous studies examining the Microsystems of health care that have improved health care delivery and on the Macrosystems of health care that have led to improvements in health policy. He has numerous ongoing projects designed to examine and improve healthcare systems and health outcomes throughout the Vanderbilt University Medical Center and the VA’s Tennessee Valley Healthcare System through efforts with his fellows in the Quality Scholars Program and through collaborations with faculty in many other specialties. Over the past ten years, he has guided the discovery of critical illness associated delirium and long-term cognitive impairment and development of new treatment paradigms with global impact on reducing the mortality, morbidity, and costs of critical care. He is PI of a large CMS Innovation Project to improve health care delivery through care coordination.

Dr. Dittus has served as PI of fourteen federally funded fellowship training grants in clinical research and was the principal investigator of Vanderbilt’s NIH funded K30 award. He has trained over 100 fellows and junior faculty of whom over 90% remain in academic medicine. He has served as the President of the Association for Clinical Research Training and received the 2013 Distinguished Educator Award from the Association for Clinical and Translational Science.

Dr. Dittus serves on numerous professional academic and local health care Boards of Directors. He has been named Teaching and Research Scholar of the American College of Physicians and the Harvey Branscomb Distinguished Professor at Vanderbilt University; he has awarded the Outstanding Industrial Engineer Award from Purdue University, the Distinguished Alumni Award from Indiana University, the Duncan Neuhauser Award for Curricular Innovation from the Academy for Healthcare Improvement, and the Innovation with Distinction Award in Research Training and Education from the AAMC. He served as the founding President of the Academy for Healthcare Improvement, an international professional society for those engaged in scholarship and the practice of improving health care quality and safety. He is an elected member of the Association of American Physicians.
John F. Manning, Jr., led the Office of Research for nearly a decade and in 2009 was appointed Associate Vice Chancellor for Health Affairs, Chief Administrative Officer for Vanderbilt University Medical Center, and Senior Associate Dean for Operations and Administration for the School of Medicine (SOM). In 2016 he was named Chief Operating Officer and Corporate Chief of Staff of Vanderbilt University Medical Center. Dr. Manning has oversight over administrative activities throughout the Medical Center, business centers, School of Medicine, and is responsible for the operations and business activities of the academic enterprise, including the allocation of space and financial resources.

After receiving his Ph.D., Dr. Manning continued his training at the Harvard School of Public Health, where he worked on biological solutions to environmental problems. He served on the faculty at the University of Alabama-Birmingham School of Public Health for four years and later joined Argonne National Laboratory as the head of a research group focused on “bioremediation” -- the application of microbes to the cleanup of hazardous waste sites. While he was a group leader at Argonne, Dr. Manning earned his MBA at the University of Chicago. He worked with the Argonne director on strategic planning and budgetary issues before coming to Vanderbilt.
Dr. Larry Marnett received a Bachelor of Science from Rockhurst College and a Ph.D. in Chemistry from Duke University. He did his postdoctoral work at the Karolinska Institute and Wayne State University. He began his academic career at Wayne State University where he rose to the position of professor of Chemistry before joining Vanderbilt in 1989.

Among the leadership positions he has held since joining Vanderbilt, Dr. Marnett was associate director for Basic Research Programs for the Vanderbilt-Ingram Cancer Center from 1993 – 2002. In 2002, he was named the founding director for the Institute of Chemical Biology and held the position until 2016. From 2014-2016, he was Associate Vice Chancellor for Research in VUMC and in 2016 was named Dean of Basic Sciences of the School of Medicine.

Dr. Marnett’s research focuses on the role of the enzyme cyclooxygenase-2 in cancer and inflammation, as well as on the contribution of oxidative metabolism to the generation of DNA damage and mutation. His laboratory has used structure-based approaches in conjunction with medicinal chemistry to design selective cyclooxygenase-2 inhibitors as potential anti-inflammatory, cancer preventive, and cancer-imaging agents.

Dr. Marnett has received awards including the Wayne State University President’s Award for Excellence in Teaching; the American Cancer Society Faculty Research Award; the Sigma Xi Research Award; the Wayne State University Distinguished Graduate Faculty Award; an Outstanding Investigator Award and a MERIT Award from the National Cancer Institute; the Harvey Branscomb Distinguished Professorship; the first Stanley Cohen Prize at Vanderbilt University; the first Founders Award of the American Chemical Society Division of Chemical Toxicology; and the first George and Christine Sosnovsky Prize for Cancer Research by the American Chemical Society.

Dr. Marnett is a Fellow of the American Association for the Advancement of Science and the American Chemical Society and is the author of over 500 research publications and 14 patents. He was the founding editor-in-chief of the American Chemical Society journal, *Chemical Research in Toxicology*, which position he held from 1987-2012. He has trained 45 Ph.D.s and 49 postdoctoral fellows.
Jennifer A. Pietenpol, Ph.D. is Director of the Vanderbilt-Ingram Cancer Center, Executive Vice President for Research at Vanderbilt University Medical Center, the B.F. Byrd Jr. Professor of Molecular Oncology, and professor of biochemistry, cancer biology, and otolaryngology. Pietenpol’s research focuses on breast cancer and the p53 family signaling network—the most frequently targeted network for mutation in human tumors. Pietenpol has integrated her research expertise in tumor suppressor genes and molecular genetics to molecularly subtype difficult-to-treat, triple negative breast cancer. Most recently, her lab discovered that one of the family members, p73, is required for the generation of multiciliated cells in the body. Loss of ciliary biogenesis can lead to hydrocephalus, hippocampal dysgenesis, sterility, and chronic inflammation/infection. Her results are being translated to clinical trials and alignment of patients to appropriate, molecularly targeted therapy.

Pietenpol has influenced cancer policy through her service on the National Cancer Policy Forum of the National Academies of Sciences, Engineering, and Medicine. In 2008, she was appointed by the president to the National Cancer Advisory Board. She was a member of the board of directors of the American Association of Cancer Research, served on the Blue Ribbon Panel advising the former vice president’s National Cancer Moonshot and serves on numerous other cancer-related scientific advisory boards. Most recently in April 2017, she was appointed Chief Scientific Advisor for Susan G. Komen.

Pietenpol has received numerous awards, including the Burroughs Wellcome New Investigator Award, the Carleton College Distinguished Alumni Achievement Award, the T.J. Martell Medical Research Advancement Award, and the Charles R. Park Award for fundamental research into the pathophysiology of cancer. She was inducted into the Johns Hopkins Society of Scholars, and was elected as a fellow of the American Association for the Advancement of Science.

After graduating from Carleton College with honors in biology and as a member of Sigma Xi, Pietenpol earned a Ph.D. in cell biology at Vanderbilt University School of Medicine in 1990. She continued her postgraduate training at Johns Hopkins Oncology Center (now Sidney Kimmel Comprehensive Cancer Center) before returning to Vanderbilt in 1995 as an assistant professor of biochemistry. She achieved the rank of full professor in 2002.
C. Wright Pinson, M.B.A., M.D.

Deputy Chief Executive Officer, Vanderbilt University Medical Center
Chief Health System Officer

C. Wright Pinson graduated with distinction in Physics, 1974 and while an engineer for IBM, MBA, University of Colorado, 1976; Vanderbilt University School of Medicine, 1980. He trained in general (OHSU), hepatobiliary (Lahey Clinic) and transplant surgery (Harvard/Deaconess Hospital). Boards in surgery and in critical care. He joined the faculty at Oregon Health Sciences University in Surgery and in Physiology in 1988. Dr. Pinson initiated the first liver transplantation program in the Pacific Northwest and the first liver transplantation program in the Veterans Administration system. He was recruited in 1990 to Vanderbilt University as Professor of Surgery to start the liver transplant program and liver surgery division. In 1993-2004 he was the Interim Chair, Vice-Chair and Chairman of the Department of Surgery growing the size by 40%. He was program director for the Vanderbilt General Surgery Residency Program (1993-1995). He was Director of the Transplant Center (1993-2011) overseeing 6500 transplantations and driving 50% growth and producing one of the highest margin service lines for VUMC. He has been an active clinical and laboratory investigator in transplantation surgery leading to 300 publications, receiving numerous grants, and the Grant Liddle research-mentoring award. He served as Chief of Staff of the Vanderbilt Hospitals (1997-2004). He co-founded in 2008 the Masters in Management in Health Care program and is a Professor in the Owen Graduate School of Business.

From 2004 to 2009, as the Associate Vice-Chancellor for Clinical Affairs and Chief Medical Officer, he was responsible for VUMC business development and VUMC quality and safety programs, developing 800 clinical care pathways. Dr. Pinson became the Deputy Vice-Chancellor for Health Affairs and Chief Executive Officer of the Vanderbilt Health System in 2009. This integrated system includes 2,000 academic clinical physicians, four hospitals, 800 clinics in 130 locations with a budget over $3.0 billion/yr. The system has grown 50% during his tenure, including several hospital bed expansions, the 100 Oaks clinic, and many other outpatient, walk-in, and retail clinic facilities and acquisitions. As President of Vanderbilt Health services, he reorganized the operations of this holding company. Beginning in 2011, he championed organization of the fastest growing provider network in the nation, becoming President and Chairman of the Board of the Vanderbilt Health Affiliated Network, a 63 hospital affiliated system covering Tennessee and now expanding outside the state. He received the Nashville Business Journal Health Care Hero Award as an Innovator in Health Care in 2009, the TJ Martell Lifetime Achievement Award in 2012, the AHPBA Distinguished service award in 2015, and the IHPBA distinguished service award in 2016, highlighting his accomplishments as an academic surgeon. Also in 2016, he received the Regional Healthcare Executive of the Year Award from The American College of Healthcare Executives. He is the current Chairman of the Board of the Nashville Healthcare Council, President of the American Heart Association of Middle Tennessee, Chair of the Board of the Governor’s Foundation for the Health and Wellness of Tennessee, is a member of the AHA Health Care Systems Governing Council, and the board of the Nashville Area Chamber of Commerce. He is chair elect of the Tennessee Hospital Association.
Padma Raghavan, a distinguished computer scientist, is Vice Provost for Research at Vanderbilt University. In this role, she works closely with university and medical center leadership and faculty to advance the quality of research and scholarship while overseeing the implementation of the university’s trans-institutional strategies.

Prior to joining Vanderbilt in February 2016, she was a Distinguished Professor of Computer Science and Engineering at the Pennsylvania State University and served as the Associate Vice President for Research and Director of Strategic Initiatives, in addition to being the founding Director of the Institute for CyberScience, the coordinating unit on campus for developing interdisciplinary computation and data-enabled science and engineering and the provider of high-performance computing services for the university.

Raghavan specializes in high-performance computing and computational science and engineering. She has led the development of "sparse algorithms" that derive from and operate on compact yet accurate representation of high-dimensional data, complex models, and computed results. She has developed parallel sparse solvers that limit the growth of computational costs and utilize the concurrent computing capability of advanced hardware to enable the solution of large-scale modeling and simulation problems that are otherwise beyond reach. She was also among the first to propose the design of energy-efficient supercomputing systems by combining results from sparse scientific computing with hardware features for embedded mobile processors.

Raghavan is deeply involved in education and research, with 46 Masters and Ph.D. theses supervised and over 100 peer-reviewed publications. Her research has been recognized by the NSF CAREER Award (1995), the Maria Goeppert-Mayer Distinguished Scholar Award (2002, University of Chicago and the Argonne National Laboratory), and selection as an IEEE Fellow (2013).

Raghavan is a prominent member of major professional societies including SIAM (Society for Industrial and Applied Mathematics) and IEEE (Institute of Electrical and Electronics Engineers). She is the Chair of the Technical Program of the 2017 IEEE/ACM Conference on Supercomputing and a member of the SIAM Committee on Science Policy and the SIAM Council, which lead SIAM together with its Board and officers. Raghavan currently serves on the Advisory Board of the Computing and Information Science and Engineering Directorate of the National Science Foundation, the National Academies Panel on Computational Sciences at the Army Research Laboratory, and the Board of the Department of Energy’s Oak Ridge National Laboratory.
Dr. Raiford serves as Senior Associate Dean for Faculty Affairs in the Vanderbilt University School of Medicine and as Chief of Clinical Staff for Vanderbilt University Medical Center. He is a Professor of Medicine with broad experience in clinical hepatology, including hepatic transplantation. Areas of particular interest include autoimmune liver diseases, primary biliary cirrhosis, non-alcoholic steatohepatitis, drug hepatotoxicity, primary hepatic tumors, and the extrahepatic manifestations of viral hepatitis. Dr. Raiford received his medical degree from Johns Hopkins University School of Medicine. He completed his residency, as well as Gastroenterology and Hepatology fellowship, at Johns Hopkins. He was recruited to Vanderbilt in 1991 to help establish an interdisciplinary program in liver disease which has achieved national stature. He has served in numerous appointed leadership roles for the American Association for the Study of Liver Diseases, the American College of Gastroenterology, and the Association of American Medical Colleges.
Dr. William Stead is Chief Strategy Officer for Vanderbilt University Medical Center (VUMC). In this capacity he facilitates structured decision making to achieve strategic goals and concept development to nurture system innovation.

Dr. Stead received his B.A., M.D., and residency training in Internal Medicine and Nephrology from Duke University. He remained on Duke’s faculty in Nephrology as the physician in the physician-engineer partnership that developed The Medical Record (TMR), one of the first practical electronic medical record systems. He also helped Duke build one of the first patient-centered hospital information systems (IBM’s PCS/ADS).

He came to VUMC in 1991 and holds appointments as the McKesson Foundation Professor of Biomedical Informatics and Professor of Medicine. For two decades, he guided development of the Department of Biomedical Informatics and operational units providing information infrastructure to support health care, education, and research programs of the Medical Center. He aligned organizational structure, informatics architecture, and change management to bring cutting-edge research in decision support, visualization, natural language processing, data mining, and data privacy into clinical practice. His current focus is on system-based care, learning and research leading toward personalized medicine and population health management.

Dr. Stead is a Founding Fellow of both the American College of Medical Informatics and the American Institute for Engineering in Biology and Medicine. He served as founding Editor-in-Chief of the Journal of the American Medical Informatics Association. His awards include the Collen Award for Excellence in Medical Informatics and the Lindberg Award for Innovation in Informatics. Most recently, the American Medical Informatics Association named the Award for Thought Leadership in Informatics in his honor.

He served as President of the American College of Medical Informatics, Chairman of the Board of Regents of the National Library of Medicine, Presidential appointee to the Commission on Systemic Interoperability, Chair of the National Research Council Committee on Engaging the Computer Science Research Community in Health Care Informatics, and Co-Chair of the National Academy of Medicine Committee on the Recommended Social and Behavioral Domains and Measures for Electronic Health Records. He chairs the National Committee for Vital and Health Statistics (NCVHS) of the Department of Health and Human Services and the Technical Advisory Committee of the Center for Medical Interoperability. He is a member of the Council of the National Academy of Medicine and the American Medical Association’s Journal Oversight Committee. In addition to his academic and advisory responsibilities, Dr. Stead is a Director of HealthStream.
Susan R. Wente, a distinguished biomedical scientist, is Provost and Vice Chancellor for Academic Affairs at Vanderbilt University. In this role, she has responsibility for academic programs, including Blair School of Music, the College of Arts and Science, the Divinity School, the School of Engineering, the Graduate School, the Law School, Owen Graduate School of Management, and Peabody College of Education and Human Development, as well as student affairs, housing, admissions and financial aid, and research. She is also responsible for co-directing implementation of the university’s academic strategic plan, which sets the course for Vanderbilt University’s future.

Provost Wente was recruited to Vanderbilt in 2002 as Professor and Chair of the Department of Cell and Developmental Biology. In 2008, she was named Assistant Vice Chancellor for Research and was promoted to Associate Vice Chancellor for Research and Associate Dean for Biomedical Sciences in 2009. In that role, she spearheaded the basic science education and post-doctorate training of more than 600 graduate students and 500 post-doctoral fellows, and several trans-institutional graduate programs. She was named Provost and Vice Chancellor for Academic Affairs in July 2014.

Provost Wente has received a number of awards and honors, including the Kirsch Investigator Award and Beckman Foundation Young Investigator Award, as well as an American Cancer Society Junior Faculty Research Award.

In 2008, Wente received the John H. Exton Award for Research Leading to Innovative Biological Concepts. In 2010, she received a coveted NIH MERIT award, given only to the best scientists in the nation, from the National Institutes of Health to continue her research on nuclear pore complexes. In the same year, she was elected a Fellow of the American Association for the Advancement of Science (AAAS). In 2011, Provost Wente was honored with the American Society for Cell Biology’s Women in Cell Biology Senior Award. She was also recently named one of Ten Women to Watch by Nashville Medical News.

Provost Wente runs an internationally respected research program that has made fundamental, groundbreaking discoveries in the mechanisms that control the selective, bidirectional exchange of proteins and RNA between the nucleus and the cytoplasm. In 2008, her laboratory reported a link between the Gle1 gene and a lethal human fetal disease. She is also an esteemed educator, having mentored over 20 predoctoral and postdoctoral trainees.
Melinda Buntin joined Vanderbilt School of Medicine in 2013 as professor and chair of the Department of Health Policy. She was previously Deputy Assistant Director for Health at the Congressional Budget Office where she evaluated legislative proposals and directed studies related to health care financing, including reports on prescription drugs under Part D, beneficiaries dually eligible for Medicare and Medicaid, and care coordination demonstrations. Prior to that Dr. Buntin was deputy director of RAND Health’s Economics, Financing, and Organization Program, director of Public Sector Initiatives for RAND Health, and co-director of the Bing Center for Health Economics. Her research at RAND focused on insurance benefit design, health insurance markets, provider payment, and the care use and needs of the elderly. Dr. Buntin’s work at Vanderbilt is focused on health care delivery and costs, with an emphasis on improving the value created by the health care system. She is an elected member of the National Academy of Medicine, and currently serves on the National Academy of Medicine’s Board on Health Care Services. Dr. Buntin has an A.B. from the Woodrow Wilson School at Princeton and a Ph.D. in Health Policy with a concentration in economics from Harvard.
Dr. Hartmann is Associate Dean for Clinical & Translational Scientist Development and leads Education, Training, and Career Development for the CTSA (K and T). She is also Deputy Director of the Institute for Medicine and Public Health with oversight of the core graduate programs aligned with the Vanderbilt CTSA. Hallmarks of her leadership in career development are steadfast interdisciplinary focus and service to investigators. The latter is achieved by providing cross-cutting, practical resources such as internally-funded career development awards; two monthly seminar series tailored to career stage; workshops on timely topics like rigor and reproducibility and sex and gender biology; work-in-progress and peer mentoring groups; manuscript sprints; an institutional library of >160 funded grants; grant pacing workshops; internal study sections providing >120 reviews each year; and coordination of translational science pathways to facilitate individualized didactic and experiential learning in six foundational areas of translational research. For mid-career faculty and mentors, resources include assistance with K24 and K12 grant development; workshops on topics like obtaining minority supplements and guiding mentees in developing career timelines; and conducting annual confidential mentor evaluations to provide aggregated feedback. Her office supports tracking systems to gather suggestions and continuously improve resources, and to measure outcomes for career development programs that serve more than 350 funded trainees each year. Dr. Hartmann is embedded in activities that reach across the entire trajectory of research careers from an intensive program in our public schools to support STEM experience, through initiatives to engage senior faculty in collaborative research in new areas. Nationally she is co-PI for the Innovation Labs collaborative grant development program and related RCT funded by NCATS. Her own research expertise includes conduct of large cohorts, behavioral interventions, clinical trials, assessment of medical tests, and quantitative methods. She currently chairs the NIH Pelvic Floor Disorders Network.
Carrie K. Jones, Ph.D., is currently Director of In Vivo and Translational Pharmacology for the Vanderbilt Center for Neuroscience Drug Discovery and an Assistant Professor in the Department of Pharmacology at Vanderbilt University Medical Center, Nashville, TN. She received a B.S. in biology from Indiana University followed by a Ph.D. degree in the Program in Medical Neurobiology at the Indiana University School of Medicine in Indianapolis, IN. Dr. Jones has been involved in small molecule discovery both in industry and academia for more than two decades. Prior to joining the faculty at Vanderbilt, she served as an in vivo pharmacologist at Eli Lilly and Company on several scientific teams focused on the development of novel therapeutics for schizophrenia and chronic pain. Her efforts contributed to four clinical candidates, including the M1/M4 preferring muscarinic receptor agonist xanomenline for schizophrenia, the balanced serotonergic and noradrenergic reuptake inhibitor duloxetine, the mixed AMPA/kainate receptor antagonist LY293558, and an iGluR5 antagonist for chronic pain. Her characterization of duloxetine in several preclinical models of inflammatory and persistent pain directly contributed to the ongoing drug discovery effort for this molecule that culminated with the approval of Cymbalta® (duloxetine HCl) for the treatment of chronic pain and depression associated with painful diabetic neuropathy and fibromyalgia.

As Director of In Vivo and Translational Pharmacology for the Vanderbilt Center for Neuroscience Drug Discovery, Dr. Jones’ group provides the *in vivo* characterization of novel mGluR and mAChR subtype-specific ligands for the ongoing development of novel hit and lead molecules as well as preclinical efficacy for potential clinical candidates for psychiatric and neurologic disorders; several preclinical drug candidates have advanced from these efforts to clinical collaborations with pharmaceutical companies, including Johnson and Johnson, Bristol-Myers Squibb, AstraZeneca, and others. She has received funding from the Barrus Foundation, Autism Speaks Foundation, NIMH, NIDA, and NIA. She has published >90 peer-reviewed manuscripts and served as mentor and/or co-mentor to over 10 graduate students and 15 postdoctoral fellows that have advanced to leadership positions in both academia and industry.
Meena Madhur, M.D., Ph.D. is currently an Assistant Professor of Medicine with a secondary appointment in the Department of Molecular Physiology and Biophysics at Vanderbilt University. She graduated summa cum laude from Duke University with a B.S. in Biomedical Engineering and Biology before receiving her MD and PhD degrees as part of the Medical Scientist Training Program at the University of Virginia. She then returned to Duke University for her internship and residency in Internal Medicine. She completed her cardiology fellowship at Emory University and joined the faculty at Vanderbilt as Assistant Professor in July 2012. The overarching goal of Dr. Madhur’s research program is to understand how and why immune cells are activated in hypertension and vascular disease and how best to target the immune system to limit end-organ damage without causing global immunosuppression.

Dr. Madhur has received grant funding from the National Institutes of Health (K08 Award and DP2 New Innovator Award), Gilead Sciences, and the American Heart Association. She is the author of several peer-reviewed scientific manuscripts and reviews, and is an active member of the American Heart Association (AHA), American College of Cardiology (ACC), American Society of Nephrology (ASN), and American Physiological Society (APS). She is currently the chairperson of the Academic Working Group within the Early Career Leadership Council of the ACC, on the editorial board of the *Journal of the American College of Cardiology: Basic to Translational Science*, and on the programming committee for ASN Kidney Week.
Stephen W. Patrick, M.D., M.P.H., M.S., is an Assistant Professor of Pediatrics and Health Policy at Vanderbilt University School of Medicine and an attending neonatologist at Monroe Carell Jr. Children’s Hospital at Vanderbilt. He is a graduate of the University of Florida, Florida State University College of Medicine, and Harvard School of Public Health. Dr. Patrick completed his training in pediatrics, neonatology, and health services research as a Robert Wood Johnson Foundation Clinical Scholar at the University of Michigan.

Dr. Patrick joined the faculty of Vanderbilt University in 2013. His National Institute on Drug Abuse-funded research focuses on improving outcomes for opioid-exposed infants and women with substance-use disorder and evaluating state and federal drug control policies. He previously served as Senior Science Policy Advisor to the White House Office of National Drug Control Policy and has testified before Congress on the rising numbers of newborns being diagnosed with opioid withdrawal after birth. He served as an expert consultant for the Substance Abuse and Mental Health Services Administration’s development of a *Guide to the Management of Opioid-Dependent Pregnant and Parenting Women and Their Children*, as a member of the American Academy of Pediatrics Committee on Substance Use and Prevention, and previously served as a board member on the US Office of Personnel Management’s Multi-State Plan Program Advisory Board. Dr. Patrick’s awards include the American Medical Association Foundation Excellence in Medicine Leadership Award, the Academic Pediatric Association Fellow Research Award, Tennessee Chapter of the American Academy of Pediatrics Early Career Physician of the Year, and the Nemours Child Health Services Research Award. His research has been published in leading scientific journals including the *New England Journal of Medicine*, *JAMA*, *Pediatrics*, and *Health Affairs*. 
Dr. Skaar earned his Bachelor of Science degree in Bacteriology at the University of Wisconsin–Madison in 1996, and his Ph.D. in Immunology and Microbial Pathogenesis and Master’s Degree in Public Health in Biostatistics and Epidemiology at Northwestern University in 2002. After completing a postdoctoral fellowship in Microbiology at the University of Chicago, Dr. Skaar joined the Vanderbilt faculty in 2005 as an assistant professor, and was named to the endowed Ernest W. Goodpasture Chair in Pathology in 2012. He is the Vice Chair for Basic Research in the Department of Pathology, Microbiology, and Immunology, the Director of the Vanderbilt Institute for Infection, Immunology, and Inflammation, and he is an investigator in several collaborative research efforts including the Mass Spectrometry Research Center, the Center for Structural Biology, the Vanderbilt University Institute of Imaging Science, and the Vanderbilt Institute for Chemical Biology. The Skaar laboratory focuses on the impact of nutrition on the outcome of infectious diseases. They investigate this topic through a number of projects that seek to understand (i) nutrient acquisition by bacterial pathogens, (ii) how vertebrate immune proteins sequester nutrients during the pathogenesis of infection, and (iii) competition for nutrients between pathogens and the healthy microbiome, and (iv) the impact of diet on infection. His research has resulted in over 100 invited talks and over 130 published research articles. Dr. Skaar has been the recipient of numerous awards including the Pfizer Aspire Award, the Searle Scholars Award, the ICAAC/IDSA Young Investigator Award, the Chancellor’s award for Research, the Stanley Cohen Award for Research, the Postdoctoral Mentor of the Year from Vanderbilt University, and he was named a Burroughs Wellcome Investigator in the Pathogenesis of Infectious Diseases. Dr. Skaar is Fellow in both the American Academy of Microbiology and the American Association for the Advancement of Science.
Dr. Smith is a physician-scientist who is also trained as an adult infectious diseases clinical specialist. He has over 15 years experience in the area of viral pathogenesis and immunity. His initial training gave him a broad understanding of poxvirus immunovirology, and of the biology of xenotransplantation, which principally involves the innate immune system. His more recent work, which forms the basis of the science in the current application, is focused on generation and study of naturally occurring human monoclonal antibodies. Dr. Smith developed a highly efficient method to produce human hybridomas from peripheral blood B cells. This technology was developed for the specific purpose of studying the human antibody response to viral infections, and to use the information obtained regarding their epitope targets to assist in the rational design of vaccines. While performing these studies, Dr. Smith recognized that this technology could be taken across scientific fields to allow for the very first time the study of naturally occurring human allergen- and helminth-specific IgE antibody responses – the adaptive targeting molecule that orchestrates a very different branch of the human immune system. He acknowledges the many parallels that can be drawn between the infectious diseases antibody fields and this new area for which he has focused his effort. Natural human monoclonal IgG, IgM, and IgA have been studied for many decades. All of the knowledge and techniques used can now be applied to studies of the pathological and potentially protective human antibody response to innocuous allergens and helminth infections to aide in the development of helminth vaccines and new allergy therapeutics.
Dr. Winder received his B.S. from North Georgia College, and his Ph.D. in Neuroscience from Emory University in 1995. After completing a postdoctoral fellowship with Nobel Laureate Eric Kandel, M.D., at Columbia University College of Physicians & Surgeons, he joined the Vanderbilt faculty in 1999 as assistant professor of Molecular Physiology & Biophysics. He was promoted to full professor in 2010. A neuroscientist focused on addiction, Dr. Winder has been particularly interested in determining mechanisms that modulate synaptic plasticity, and how and when these processes are disrupted in alcoholism and addiction. To accomplish these goals, he and his colleagues have pioneered the use of whole cell patch clamp and extracellular recordings in *ex vivo* brain slice preparations containing key stress circuits. In 2013, Dr. Winder received a NARSAD Distinguished Investigator Award and in 2016 a MERIT Award from NIAAA. He is founding director of the Vanderbilt Center for Addiction Research, which was established in 2016 to define events that drive addictive behavior and develop new treatments to sustain recovery. At the national level, he is associate editor of *The Journal of Neuroscience*, section editor of *Neuropharmacology* and a member of the editorial board of *Molecular Pharmacology*. 