The Bioengineering Road-mapping Summit gathers select leaders from multi-disciplinary fields to identify and characterize the challenges and enabling technologies ahead in engineering tissues and organs for patients in need.
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About the Alliance

The New Organ Alliance aims to bring about the day when new tissues and organs are readily available for all patients in need. The Alliance’s “Roadmap to Ending the Organ Shortage” defines the research strategies, challenges ahead, and potential enabling technologies in accelerating solutions to achieve this goal. This Roadmap provides a foundation upon which the Alliance pursues new prizes, awards, and other opportunities to help accelerate innovative solutions to these challenges.

Oversight Committee

Dr. Anthony Atala  
Wake Forest Institute for Regenerative Medicine.

Dr. Christopher Breuer  
Nationwide Children’s Hospital

Dr. Scott Collins  
CTO, TeVido Biodevices  
New Organ Alliance, Roadmap Chair

Dr. Wendy Dean  
Medical Officer, DoD USAMRMC  
VT Challenge, Judging Committee

Mr. David Gobel  
CEO, Methuselah Foundation

Dr. Timothy Hammond  
Professor, Duke University Veterans Affairs Medical Center; VT Challenge Judging Committee

Dr. Antony Jeevarajan  
Deputy Division Chief, Biomedical Research & Environmental Sciences, NASA JSC

Dr. Armand Keating  
Professor, University of Toronto  
VT Challenge, Judging Committee

Dr. Robert Langer  
Harvard/MIT

Dr. Robert Nerem  
Georgia Institute of Technology

Mr. Joshua Neubert  
CEO, Institute of Competition Sciences  
Managing Partner, New Organ Alliance

Ms. Kristy Pottol  
Information and Regulatory Director, NIIMBL, University of Delaware

Dr. Maria Rapoza  
Executive Director, Duke University Cardiovascular Research Center

Mr. Brock Reeve  
Executive Director, Harvard Stem Cell Institute

Dr. Michael Roberts  
Deputy Chief Scientist, CASIS

Ms. Jana Stoudemire  
Director of Commercial Innovation, Space Tango

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ALLIANCE SUCCESS TO DATE

$1,000,000
Liver Engineering Prize

$500,000
Vascular Tissue Challenge

$200,000
Innovations In Space

$1,700,000 in incentivized innovation prize programs

$350,000+ in philanthropic support

$100,000+ in conference grants & sponsorship

300+ academic, government, and philanthropy participants

Co-hosted 2015 White House meeting on Bioengineering Road-mapping

Participation in 2016 White House Organ Summit launching the VTC with NASA

12 Research Teams registered for Liver Engineering Prize

10 Research Teams registered for Vascular Tissue Challenge

NASA VESGEN research collaboration with VTC Teams where NASA computational mapping experts are supporting the development of vascular maps for the teams.

Published paper on preliminary road-map in peer reviewed journal, “Current Stem-Cell Reports.”

Generation of the $1,800,000 CASIS/NSF collaboration for Tissue Engineering on the International Space Station to Benefit Life on Earth, developed through discussions from the 2016 Road-Mapping Workshop.

3 NSF grants received to support the road-mapping activities.
New Organ Alliance Road-mapping Committees

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<th>Research Strategy Committees</th>
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<td><strong>Muscle Wasting Committee</strong></td>
<td><strong>In Vivo Regeneration Committee</strong></td>
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<td>• Dr. Mauris DeSilva, 3Dpars (Chair)</td>
<td>• Dr. Armand Keating, U. of Toronto (Chair)</td>
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<tr>
<td>• Dr. Jeff Ross, Miromatrix</td>
<td>• Dr. Ming-Sing Si, U. of Michigan</td>
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<tr>
<td><strong>Liver Engineering Committee</strong></td>
<td>• Dr. Peiman Hematti, U. Wisconsin-Madison</td>
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<tr>
<td>• Dr. Stephen Badylak, UPMC (Chair)</td>
<td>• Dr. Dhvanit Shah, Harvard Stem Cell Inst.</td>
</tr>
<tr>
<td>• Dr. Jason Wertheim, Northwestern U.</td>
<td><strong>3D Bioprinting Committee</strong></td>
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<tr>
<td>• Dr. Clifford Steer, U. of Minnesota</td>
<td>• Dr. Scott Collins (Interim Chair)</td>
</tr>
<tr>
<td>• Dr. Raj Aravalli, U. of Minnesota</td>
<td>• Dr. Joshua Hunsberger, WFIRM</td>
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<td>• Dr. Byron Peterson, U. of Florida</td>
<td>• Dr. Mauris DeSilva, U. of Minnesota</td>
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<td>• Dr. Ibrahim Ozbolat, Penn State U.</td>
<td>• Dr. John Fisher, U. of Maryland</td>
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<td>• Dr. Geoffrey Gurtner, Stanford U.</td>
<td>• Dr. Jordan Miller, Rice U.</td>
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<tr>
<td><strong>Kidney Engineering Committee</strong></td>
<td>• Dr. Yong Huang, U. of Florida</td>
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<tr>
<td>• Dr. Timothy Hammond, Duke U. (Chair)</td>
<td>• Dr. Brenda Ogle, U. of Minnesota</td>
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<tr>
<td>• Mrs. Melissa West, Kidney Health Initiative</td>
<td>• Dr. Kunal Mitra, Florida Inst. of Tech.</td>
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<td>• Dr. Yunzhi “Peter” Yang, Stanford U.</td>
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<tr>
<td>• Dr. R. Brookes Robey, Dartmouth U.</td>
<td>• Dr. Gene Boland, Techshot</td>
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<td>• Dr. Maria Grant, University of Alabama</td>
<td>• Dr. Kristy Pottol, USAMMDA</td>
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<td><strong>Cardiovascular Engineering Committee</strong></td>
<td>• Dr. Nicanor Moldovan, IUPUI</td>
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<tr>
<td>• Dr. Maria Rapoza, Duke U. (Chair)</td>
<td><strong>Enabling Technology Committees</strong></td>
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<td>• Dr. Howard Rockman, Duke U.</td>
<td><strong>Microgravity Committee</strong></td>
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<tr>
<td>• Dr. Jeff Ross, Miromatrix</td>
<td>• Dr. Michael Roberts, CASIS (Co-Chair)</td>
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<tr>
<td>• Dr. Arun Sharma, Harvard U.</td>
<td>• Ms. Jana Stoudemire, Space Tango (Co-Chair)</td>
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<td>• Dr. Abba Zubair, Mayo Clinic</td>
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<td>• Dr. Jason Wertheim, Northwestern U.</td>
<td>• Dr. Mary Kearns-Jonker, Loma Linda U.</td>
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<td>• Dr. Clifford Steer, U. of Minnesota</td>
<td><strong>Cryopreservation Committee</strong></td>
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<tr>
<td>• Dr. Raj Aravalli, U. of Minnesota</td>
<td>• Dr. Jedd Lewis, Organ Pres. Alliance (Chair)</td>
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<tr>
<td>• Dr. Byron Peterson, U. of Florida</td>
<td>• Dr. Kate Franz, Organ Preservation Alliance</td>
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<tr>
<td>• Dr. Ibrahim Ozbolat, Penn State U.</td>
<td>• Dr. Kelvin Brockbank, T3 Technologies</td>
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<tr>
<td>• Dr. Geoffrey Gurtner, Stanford U.</td>
<td>• Dr. Gloria Elliot, UNC - Charlotte</td>
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<tr>
<td><strong>Kidney Engineering Committee</strong></td>
<td><strong>Vascular Computational Mapping Committee</strong></td>
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<tr>
<td>• Dr. Timothy Hammond, Duke U. (Chair)</td>
<td>• Dr. Patricia Parsons-Wingerter, NASA (Chair)</td>
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<tr>
<td>• Dr. Jason Wertheim, Northwestern U.</td>
<td>• Dr. Krishnan Radhakrishnan, VA West Haven CT</td>
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<tr>
<td>• Dr. Jeff Ross, Miromatrix</td>
<td>• Dr. Jennifer Fogarty PhD, NASA JSC</td>
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<tr>
<td>• Dr. R. Brookes Robey, Dartmouth U.</td>
<td>• Dr. Lisa Scott Carnell PhD, NASA JSC</td>
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</table>
| • Dr. Maria Grant, University of Alabama | **www.neworgan.org**
Road-mapping Participants

300+ Academic, industry, and government leaders in fields across regenerative medicine, bioengineering, stem cell biology, and other diverse, enabling technology fields have participated in the Alliance’s road-mapping initiative.

And many other academic, government, and industry participants...

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About the Liver Engineering Prize
Liver Engineering Prize Overview

The New Organ Liver Engineering Prize will award $1,000,000 to the first team that creates a regenerative or bioengineered solution that keeps a large animal alive for 90 days without native liver function.

Rules Summary

Keep a mammal alive for 90+ days using only engineered or regenerated liver tissue. For a complete set of rules and regulations, visit the New Organ Alliance’s website: https://neworgan.org/liver-prize.php

Teams Pursuing the Liver Engineering Prize

- **Team Hepatx**
  Dr. Basak Uygun, Harvard Medical School

- **Team Badylak**
  Dr. Stephen Badylak, University of Pittsburgh

- **Team Organ Creative**
  Dr. Takanori Takebe, Yokohama City University

- **Team Nakauchi**
  Dr. Hiro Nakauchi, Stanford University

- **Team Ectogenesis**
  Dr. Eric Lagasse, University of Pittsburgh

- **Team Hepavive**
  Dr. Tahera Ansari, NPIMR

- **Team Petersen**
  Dr. Bryon Petersen, University of Florida

- **Team RLP**
  John Geibel, Yale University

- **Team Genesis**
  Dr. Clifford Steer, University of Minnesota

- **Team Prometheus**
  Dr. Geoffrey Gurtner, Stanford University

- **Team Organogenesis**
  Dr. Mordechai Saeid Nosrati, USC School of Medicine

- **Team Perfusion**
  Dr. Jeffrey Ross, Miromatrix Inc.

- **Team Prana**
  Dr. Rajmohan Gopimohan, Polyskin Lifesciences India

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About the Vascular Tissue Challenge
Vascular Tissue Challenge Overview

The Vascular Tissue Challenge is a $500,000 prize purse where to win the award, teams must create thick (>1cm), vascularized organ tissue from human cells in an in-vitro environment while maintaining metabolic functionality similar to their in vivo native cells throughout a 30-day survival period. The prize is designed to help catalyze new opportunities in tissue engineering that will impact both long-duration spaceflight and the healthcare system here at home.

Vascular Tissue Challenge Rules Summary

1 CM THICK HUMAN TISSUES
ACTIVE BLOOD PERFUSION
FUNCTIONING PARENCHYMAL CELLS
30-DAY TRIAL LENGTH
3 SUCCESSFUL TISSUE SAMPLES

For a complete set of rules and regulations, visit the New Organ Alliance’s Vascular Tissue Challenge website: www.neworgan.org/vtc-prize.php

Vascular Tissue Challenge Teams

Team Asimov
Dr. Melanie Matheu, Prellis Biologics Inc.

Team BioPrinter
Dr. Kunal Mitra, Florida Institute of Technology

Team Cellink
Dr. Hector Martinez, Cellink, Inc.

Team iTeams
Dr. Yunzhi “Peter” Zhang, Stanford University

Team Flow Maize and Blue
Dr. Ming-Sing Si, University of Michigan

Team Penn State
Dr. Ibrahim T. Ozbolat, Pennsylvania State University

Team Techshot
Dr. Eugene Boland, Techshot Inc.

Team Vital Organs
Dr. Jordan Miller, Rice University

Team WFIRM Bioprinting
Dr. Antony Atala, Wake Forest Institute for Regenerative Medicine

Team IVIVA Medical
Dr. Charles Klassen, IVIVA Medical Inc.

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NASA Centennial Challenges Background

NASA Centennial Challenges were initiated in 2005 to directly engage the public in the process of advanced technology development. The program offers incentive prizes to generate revolutionary solutions to problems of interest to NASA and the nation. The program seeks innovations from diverse and non-traditional sources. Competitors are not supported by government funding and awards are only made to successful teams when the challenges are met.

In 2016, NASA’s Centennial Challenges Program partnered with the Methuselah Foundation’s New Organ Alliance to launch the Vascular Tissue Challenge. The challenge was officially announced to the public on June 13th, 2016 at the White House event called “Saving Lives and Giving Hope by Reducing the Organ Waiting List.” A $500,000 prize purse is available to teams creating advancements in thick-tissue vascularization technologies.

Successful development of in vitro thick vascularized heart, lung, kidney, liver and muscle tissues would offer important tools for medical research supporting human exploration of space and would also have the potential to advance medical technologies that can ultimately help reduce the organ shortage on Earth. In addition to supporting the healthcare industry on Earth, innovations advanced through the VTC may enable the growth of de novo tissues and organs on orbit which may address the risks related to traumatic bodily injury, improve general crew health, and enhance crew performance on future, long-duration missions.

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The CASIS Innovations in Space Award provides one winning team selected from the Vascular Tissue Challenge with the opportunity to launch an experiment to the International Space Station U.S. National Laboratory (ISS National Lab) to advance their research on thick-tissue vascularization in the unique environment of microgravity. CASIS will award the selected team with up to $200,000 in flight hardware costs and provide without charge access to in-orbit facilities, data processing capabilities, and crew time on the ISS National Lab for one spaceflight experiment to validate their Vascular Tissue Challenge model in low Earth orbit on board the ISS. NASA will supply transport of the experiment to the ISS, sample return from the ISS, and in-orbit resources within the available capacity and without additional cost.
Innovations in Space Rules Summary

AWARDED TO A TEAM IN THE VASCULAR TISSUE CHALLENGE

PROPOSE A MICROGRAVITY EXPERIMENT TO FURTHER THICK-TISSUE VASCULARIZATION RESEARCH ON THE ISS NATIONAL LAB.

$200,000 SUPPORT FROM CASIS FOR HARDWARE COSTS

EXPERIMENT DESIGN MENTORING FROM CASIS SCIENTISTS

TRANSPORTATION OF EXPERIMENT TO THE ISS NATIONAL LABORATORY ON STATION SUPPORT AND RETURN OF RESULTS FROM EXPERIMENT

A review panel of scientists and subject matter experts will select recipients of the CASIS Innovations in Space Award based upon their spaceflight experiments proposed as part of the Vascular Tissue Challenge. For a complete set of rules, visit the New Organ Alliance’s CASIS Innovations In Space Award page: www.neworgan.org/vtc-prize.php

About CASIS

The Center for the Advancement of Science in Space (CASIS) was selected by NASA in July 2011 to maximize use of the International Space Station (ISS) U.S. National Laboratory through 2020. CASIS is dedicated to supporting and accelerating innovations and new discoveries that will enhance the health and wellbeing of people and our planet. For more information, visit www.iss-casis.org.

About the ISS National Laboratory

In 2005, Congress designated the U.S. portion of the International Space Station as the nation’s newest national laboratory to maximize its use for improving life on Earth, promoting collaboration among diverse users, and advancing STEM education. This unique laboratory environment is available for use by other U.S. government agencies and by academic and private institutions, providing access to the permanent microgravity setting, vantage point in low Earth orbit, and varied environments of space.

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About the Summit
Overview

Bioengineering Road-mapping Summit is the third in the New Organ Alliance’s series of events defining a Roadmap to Ending the Organ Shortage. The Summit is a participatory program. Presentations from Committee Chairs will provide background on the state-of-the-art in each area of the road-map, while roundtable discussions will engage all participants in detailed conversations to identify and characterize the challenges ahead and potential enabling technologies to accelerate solutions to organ impairment and disease.

Core discussion roundtables will be held in three sessions on March 6th, and will provide valuable information gathered after each session to add to the development of the public version of the Road-Map to Ending the Organ Shortage.

Outcomes

1. Refine specific technologic and scientific Challenge Topics and Sub-Challenges related to each round-table discussion area that are required to be overcome in order to bioengineer tissues or organs for patients in need.

2. Identify and characterize ways in which potential enabling technologies could accelerate solutions to the specific technologic and scientific challenge topics.

3. Prepare the first public version of the Road-mapping Report & online database including these challenge topics, sub-challenges, and enabling technologies.

4. Identify potential challenge topics for future prize opportunities to be pursued through the New Organ Research Alliance.
Presenter Information

March 5th

**Dr. Steven Zornetzer, Associate Director, NASA Ames Research Center**
Steven F. Zornetzer was formerly a neurobiologist and professor of neuroscience interested in the problem of how the brain processes information. Zornetzer has evolved from academic to a creative and dynamic leader and senior executive at NASA's Ames Research Center in Silicon Valley. Currently serving as Ames' Associate Director, he formerly served as Director of Research and prior to that as Director of Information Sciences and Technology at Ames. For More Information see: [https://www.nasa.gov/centers/ames/about/people/zornetzer.html](https://www.nasa.gov/centers/ames/about/people/zornetzer.html)

**Dr. Monsi Roman, Program Manager, NASA Centennial Challenges Program**
Dr. Monsi C. Roman was appointed Program Manager of the NASA Centennial Challenges Program in June 2015. In this role Roman manages the day-to-day operations of the Agency Flagship Prizes and Competition program that currently includes 4 active challenge competitions and several challenges in formulation for a total Prize Purse of over $12 M. The program supports technology developments under the Space Technology Mission Directorate (STMD) at NASA Headquarters in Washington D.C. Monsi Roman will provide an introduction to how Centennial Challenges incentivizes new innovations at NASA, and why NASA has become involved in sponsoring the Vascular Tissue Challenge. For more information see: [https://www.nasa.gov/directorates/spacetech/centennial_challenges/index.html](https://www.nasa.gov/directorates/spacetech/centennial_challenges/index.html)

**Dr. Michael Roberts, Deputy Chief Scientist, CASIS**
Dr. Michael Roberts is Deputy Chief Scientist of the Center for the Advancement of Science in Space (CASIS) where he works to solicit, select, develop and enable flight projects for the International Space Station National Lab. Prior to joining CASIS, Michael worked as a microbial ecologist, molecular biologist and group lead in the NASA Advanced Life Support program at the Kennedy Space Center. Michael has been PI and Co-I on NASA flight experiments on Shuttle and ISS focused on bacterial recombination, plant-microbe interactions, and forward osmosis membrane technology for water recovery in microgravity. Dr. Michael Roberts will present information on how the ISS is being used as a platform for microgravity research. For more information see: [https://www.iss-casis.org/](https://www.iss-casis.org/)

**Mr. David Gobel, CEO, Methuselah Foundation, Founder New Organ Alliance.**
David Gobel is the CEO and Co-Founder of the Methuselah Foundation. He is a forward-thinking entrepreneur and father, Dave co-founded Methuselah in 2003 with Dr. Aubrey de Grey. He continues to work tirelessly to advance breakthroughs that will extend healthy life. David will introduce us to the founding vision and reason behind the New Organ Alliance and discuss why the Methuselah Foundation invests in Bioengineering. For more information see: [https://www.mfoundation.org](https://www.mfoundation.org/)

**Mr. Joshua Neubert, Managing Partner, New Organ Alliance**
Joshua Neubert is a planetary scientist turned entrepreneur. He has founded and led multiple non-profit and for-profit ventures. In 2012 he founded the Institute of Competition Sciences (ICS) to help advance science, technology, and education through incentivized innovation. ICS has led National Science Foundation awarded projects, worked with the White House Office of Science and Technology Policy, and developed and operated high-profile prizes with over $8,000,000 in awards through partnerships with federal agencies, corporations, and non-profit foundations. ICS currently serves as the managing organization for the New Organ Alliance. For more information: [https://www.competitionsciences.org](https://www.competitionsciences.org)
March 6th

Dr. Jordan Miller, VTC Team Leader, Rice University
Jordan Miller’s expertise in biomaterials and regenerative medicine combines synthetic chemistry, three-dimensional (3D) printing, microfabrication, and molecular imaging to direct cultured human cells to form more complex organizations of living vessels and tissues. Advances in his lab are being made through 3D-printed scaffolds and structures for diverse biomaterial applications that cross molecular, micro- and meso-length scales. Miller’s engineered microenvironments are used to decouple complex relationships between tissue architecture and cell function, to engineer intricate branching vascular structures and fabricate tissue constructs, and to model disease progression in cancer, thrombosis, and atherosclerosis. Dr. Miller is the Team Leader for his lab’s Vascular Tissue Challenge Team. For more information see: http://bioengineering.rice.edu/faculty/Jordan_Miller.aspx

Dr. Kunal Mitra, VTC Team Leader, Florida Institute of Technology
Dr. Mitra’s primary research interest is the field of biomedical engineering. He was the founding Chair of Biomedical Engineering Department at Florida Tech. His research is focused in clinical application areas related to biomedical instrumentation and medical device development. His focus in biomaterials area deals with development of bioprinters and printing 3D tissue constructs for analyzing vascular dysfunction encountered during exposure to microgravity and ionizing radiation. Dr. Mitra is also an expert in biophotonics area where his research deals with use of short pulse lasers for cancer detection and treatment and development of near-infrared spectroscopy system for cerebrovascular monitoring of astronaut’s health during spaceflight. Dr. Mitra is the team leader for his Lab’s Vascular Tissue Challenge Team. For more information see: https://web2.fit.edu/faculty/profiles/profile.php?value=122

Dr. Ibrahim Ozbolat, VTC Team Leader, Penn State University
Dr. Ozbolat’s major research thrust is in the area of Bioprinting and Tissue Engineering. His research on bioprinting for tissue and organ fabrication has been published in several high quality of venues, received various awards and featured in national and international media, broadcast TVs and press numerous times. He frequently give talks at national and international forums, conferences and seminars and organizes demonstrations and events to public and youth to encourage participation of future's engineers in medicine, engineering and science. Dr. Ozbolat is the Team Leader for his lab’s Vascular Tissue Challenge team. For more information see: http://www.personal.psu.edu/ito1/

Dr. Harald C. Ott, VTC Team Member, Harvard University, IVIVA Medical
Harald is a thoracic surgeon at Massachusetts General Hospital and Associate Professor in Surgery at Harvard Medical School. He is best known for his work in whole organ regeneration. He discovered and perfected the method of stripping an organ of its own cells and then infusing the remaining scaffold with new progenitor cells. To date, his technology has been successfully applied to heart, liver, lung, kidney, and pancreas regeneration. The method of reseeding and engraftment with native cells potentially eliminates donor organ shortage and the need for life-long immunosuppression in transplant patients, and thus lays the path for effective solutions for the millions of people in need of organ repair or replacement. In late 2013, Harald founded IVIVA Medical with the goal to develop implantable bioartificial kidney grafts. For more information see: http://ottlab.mgh.harvard.edu, and http://ivivamedical.com
March 6th Cont.

Dr. Eugene Boland, VTC Team Leader, Techshot Inc.
Eugene Boland, Ph.D., has over 20 years in laboratory research, with a specific focus on developing engineering solutions for cardiovascular diseases as well as chronic wounds. His materials expertise extends from bioinert metals and ceramics to bioactive and bioresorbable electrospun polymers and proteins. Combining his past expertise in materials with his current research utilizing adipose-derived microvascular and adult stem cells (ADSCs), Dr. Boland has developed an epicardial heart patch for “micro-CAVG”, as well as initiated clinical trials to advance the therapeutic use of ADSCs for peripheral and coronary vascular diseases. He has also co-developed ADSC specific digestion solutions for clinical and research applications, as well as developed applications and delivery systems for ADSCs in regenerative medicine and wound healing. Dr. Boland is the Team Leader for Techshot Inc’s VTC Team. For more information see: http://www.techshot.com/

Dr. Melanie Matheu, VTC Team Leader, Prellis Biologics
Dr. Matheu co-founded Prellis Biologics in October 2016, with the mission to create fully vascularized human tissues and organs for transplantation. Her realization that the tiny blood vessels necessary for creating human organs could be replicated using the laser technology at the center of her PhD thesis work, led to development of the blended engineering and biology approach Prellis is using to solve the human organ shortage. Dr. Matheu is an expert in laser-based imaging of the immune system and developed Prellis’ platform technology. She brings her multi-disciplinary experience in specialized laser microscopy, cell biology, physiology, and biophysics to address the unsolved biomedical challenge of rapid 3D printing of large, vascularized tissues. Dr. Matheu is the team leader for the Prellis Biologics VTC Team. For more information see: https://www.prellisbio.com

Dr. Scott Collins, New Organ Alliance 3D Bioprinting Committee Interim Chair, Oversight Committee
Dr. Collins is an accomplished leader with 23 years expertise spanning engineering, the life sciences, biodevices, and corporate strategy including 14 years of proven leadership experience covering all aspects of forming, growing and selling a technology company. Scott received his PhD in Biomedical Engineering at UT Austin and serves as the New Organ Alliance’s Interim Chair for the 3D Bioprinting Committee as well as being a member of it’s Oversight Committee. For more information see: https://www.linkedin.com/in/drsfc/

Dr. Armand Keating, University of Toronto, New Organ Alliance In-Vivo Regeneration Committee Chair, Oversight Committee.
Dr. Armand Keating established the University of Toronto Autologous Blood and Marrow Transplant Program and led it to become the largest stem cell transplant program in Canada. For a decade until 2006, he was Chief of Medical Services and Head of the Department of Medical Oncology and Hematology at Princess Margaret Hospital/Ontario Cancer Institute as well as Director of Hematology-Oncology at Mt. Sinai Hospital. Dr. Keating’s clinical and research interests focus on anti-cancer cell therapy, blood and marrow transplantation, leukemia, lymphoma and regenerative medicine. He has conducted laboratory and translational research in cell therapy, normal and malignant hematopoiesis, and on the biology and clinical application of marrow mesenchymal stromal cells. He is the author of over 300 publications on these subjects. For more information see: http://www.celltherapy.ca/people/
March 6th Cont.

Dr. Maria Rapoza, Duke University Cardiovascular Research Center, New Organ Alliance, Cardiovascular Engineering Committee Chair
Dr. Rapoza is the Executive Director of the Duke University Cardiovascular Research Center (CVRC). She previously was the Vice-President of Science and Technology at the North Carolina Biotechnology Center. She holds a PhD in Biochemistry from Duke University. At the NC Biotechnology Center she led programs designed to strengthen research in the North Carolina. These included launching new research grant programs, increasing the number of life science discussion groups, and growing the funding for the research grant programs across the state. For more information see:

Dr. Mauris DeSilva, 3DPars, New Organ Alliance Muscle Engineering Committee Chair
Dr. DeSilva has a research background spanning the disciplines of Materials Science and Engineering, Biomedical Engineering, Ophthalmology, Neuroscience, and Nanotechnology. His current research interests include translational research using 3D Printing and Advanced Robotic Solutions. Dr. DeSilva has conducted research in infection and bio-film prevention, nanoparticles and nanomaterials, coatings for controlled drug delivery, drug and toxic substance testing on the nervous system, pain control, traumatic brain injury, tissue engineering, stem cells, and opto-acoustics. Dr. DeSilva is a sole or co-inventor on four patent applications. Dr. DeSilva has extensive experience in government funding procedures, project management and acquisition procedures for supporting translational biomedical engineering in military medicine. For more information see: https://www.linkedin.com/in/maurisdesilva/

Dr. Stephen Badylak, McGowan Institute for Regenerative Medicine, New Organ Alliance Liver Engineering Committee Chair
Stephen Badylak, DVM, PhD, MD is a Professor in the Department of Surgery and a Deputy Director of the McGowan Institute for Regenerative Medicine (MIRM). He is a Fellow of the American Institute for Medical and Biological Engineering, a charter member of the Tissue Engineering Society International, and past president of the Tissue Engineering Regenerative Medicine International Society (TERMIS). Dr. Badylak’s major research interests include: Tissue Engineering and Regenerative Medicine, Biomaterials and Biomaterial/Tissue interactions, Developmental Biology and its Relationship to Regenerative Medicine, Relationship of the Innate Immune Response to Tissue Regeneration, Biomedical Engineering as it Relates to Device Development and Biomaterials, and Clinical Translation of Regenerative Medicine. For more information see: http://www.mirm.pitt.edu/badylak/

Dr. Timothy Hammond, Duke University VA Medical Center, New Organ Alliance Kidney Engineering Committee Chair
Dr. Hammond is a professor at the Duke University VA Medical Center. Prior to being a Duke, he was a Fellow in Nephrology, Medicine, University of Wisconsin at Madison, A Resident in Medicine, University of Wisconsin at Madison, and received his M.B.B.S. at the University of Melbourne. Dr. Hammond publishes extensively on fundamental topics in renal science. Dr. Hammond serves as the Chair of the Renal Engineering Committee for the New Organ Alliance. For more information see: https://medicine.duke.edu/faculty/timothy-grant-hammond-mbbs

www.neworgan.org
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Dr. Patricia Parsons-Wingerter, NASA VESGEN Lab, New Organ Alliance Vascular Computational Mapping Chair.

Dr. Parsons-Wingerter is a Biomedical Research Engineer leading the VESGEN Vascular Analysis Laboratory in the Space Biosciences Research Branch at the NASA Ames Research Center. Dr. Parsons-Wingerter’s lab is using their VESGEN technology to help understand and ameliorate vision impairments in astronauts and terrestrial adults diagnosed with diabetic retinopathy. Vascular remodeling in other tissues and organisms investigated by VESGEN include coronary vessel development, gastrointestinal inflammation, leaf vein patterning that is critical to optimal photosynthesis, and insect wing venation that is of relevance to long-duration space exploration missions. For more information see: https://www.nasa.gov/ames/research/space-biosciences/patricia-parsons-wingerter

Ms. Jana Stoudemire, Space Tango, New Organ Alliance Microgravity Environment Committee Co-Chair.

Jana has worked in the biotechnology, pharmaceutical and medical device industries for the last 18+ years and has a strong understanding of the needs and challenges faced by companies working within a regulated industry. Jana is currently focused on commercial innovation and improving life on earth through science in space. She identifies biomedical research projects that will fly on future missions to the International Space Station (ISS) focused on advancing understanding disease processes and treatments for significant global health burdens including cancer, neurodegenerative, cardiovascular, and metabolic disease, along with regenerative medicine initiatives to help end the organ shortage. For more information see: https://www.linkedin.com/in/janastoudemire/

Dr. John Cumbers, Synbiobeta, Synthetic Biology Enabling Technology Overview

John Cumbers is the founder of SynBioBeta. John is passionate about education and on the use and adoption of biological technologies. He has received multiple awards and grants from NASA and the National Academy of Sciences for his work in the field. John has been involved in multiple startups such as those producing food for space, microbes to extract lunar and martian resources, and hoverboards! John is an active investor through the DCVC SynBioBeta Fund and his synthetic biology syndicate on AngelList. For more information see: https://synbiobeta.com/about/team/john-cumbers/

Mr. Jedd Lewis, Organ Preservation Alliance, Cryopreservation Enabling Technology Committee Chair

Mr. Jedd Lewis is the President and CEO at Organ Preservation Alliance (OPA), a non-profit organization that is working to end donor organ scarcity by conducting and promoting research in cryopreservation and other technologies for the long-term storage of human organs. OPA, which is based at Singularity University (SU) Labs at NASA’s Research Park in Moffett Field, Calif., is building on recent advances in cryopreservation research that could make long-term organ storage a reality and lead to such benefits as better organ matches, fewer rejections, lower transplant costs and an increase in organ availability. For more information see: https://www.organgepreservationalliance.org/
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Dr. Kirsten Sanford, Co-Founder and Host, This Week In Science
Dr. Sanford, known as "Dr. Kiki," produces and appears in a number of science education programs. Sanford is the host of the This Week in Science radio show, which she founded in 1999. Sanford has produced and hosted various segments for The Science Channel's science program Brink. In February 2015, Sanford launched a new company, Broader Impacts, to help researchers and other scientists have better communication. For more information see: http://www.twis.org/

Mr. Sergio Ruiz, Managing Partner, Methuselah Fund
Mr. Ruiz is the Managing Partner of the Methuselah Fund. He works to advance the mission to make 90 the new 50 by 2030 by creating and funding disruptive biotech platforms - while leveraging the 16 years of success and progress achieved by the Methuselah Foundation and its dedicated donor community. Mr. Ruiz is focused on a strategic approach to business development and investment with a strong background in risk and investment management. For more information see: https://www.methuselahfund.com/

Dr. Michele Grimm, National Science Foundation
Dr. Grimm manages the Engineering of Biomedical Systems (EBMS) program at the National Science Foundation. The goal of EBMS is to provide research opportunities to develop novel ideas into discovery-level and transformative projects that integrate engineering and life sciences in solving biomedical problems that serve humanity in the long-term. EBMS projects are at the interface of engineering and biomedical sciences and include objectives that advance both engineering and biomedical sciences. For more information: https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=501023

Dr. Murray Sheldon, Food and Drug Administration, Kidney Innovation Accelerator
Dr. Murray Sheldon is the Associate Director for Technology and Innovation at the US Food and Drug Administration. He oversees the Center's initiative to proactively facilitate medical device innovation to address unmet public health needs and to align what is traditionally done at FDA with what is required to support the US medical device ecosystem. For more information: https://www.linkedin.com/in/murraysheldon/

Dr. Gene Kopen, National Disease Research Interchange
Dr. Kopen joined NDRI in 2013. In his position, he oversees NDRI’s strategic initiatives unit. He has more than 25 years of experience in biomedical research and development, heading various departments and programs in non-profit, biotech and pharmaceutical environments. He has also consulted for various pharmaceutical and biotech companies in the areas of GMP scale-up manufacturing of biologics and global regulatory compliance. Kopen received his doctoral degree in molecular pathobiology from Drexel College of Medicine and is an inventor on more than 30 patents and patent applications worldwide. He is a member of the American Association of Tissue Banks (AATB), Association of Organ Procurement Organizations (AOPO), International Society for Biological and Environmental Repositories (ISBER), Project Portfolio Management Professionals (PPMP), American Society for Quality (ASQ) and Alliance for Regenerative Medicine (ARM). For more information see: http://ndriresource.org