Over the next two years, National Disease Research Interchange (NDRI) will match federal researchers with brains of service men and women to advance the treatment and care of veterans with Traumatic Brain Injury and Post Traumatic Stress Disorder. This unprecedented research alliance was highlighted at NDRI’s 35th anniversary celebration, with Daniel Perl, MD, (left), professor of pathology, Uniformed Services University of the Health Sciences, and director of the Center for Neuroscience and Regenerative Medicine’s Brain Tissue Repository; and Walter J. Koroshetz, MD, (right), director of the National Institute of Neurological Disorders and Stroke, serving as panelist and keynote speaker, respectively, for the milestone symposium.

Read more about how NDRI staff, board and valued partners celebrated NDRI’s rich history of empowering research and discovery in our special commemorative section inside.

From Donation to Discovery — celebrating 35 years!
THE CELEBRATION OF OUR 35TH ANNIVERSARY MADE FOR AN EXCITING 2015 FOR NDRI. Please take a moment to review highlights of our 35th anniversary symposium and recognition dinner in the featured insert of this newsletter. Congratulations to our award winners and a very heartfelt thank you to our speakers, panelists, sponsors and donors for their valued contributions to these successful events!

Our anniversary-year came to a close with yet more to celebrate in regard to our nation’s investment in biomedical research. A 2016 omnibus spending package, approved with bi-partisan support by the U.S. Congress and signed by the president, provides $32.1 billion for the National Institutes of Health (NIH). All stakeholders in research should urge our elected representatives to commit to this increase of $2.2 billion (6.6 percent) in funding for the NIH as a down-payment toward sustained robust growth in research investment commensurate with unprecedented scientific opportunity. Defeating cancer, cardiovascular disease, and countless disabling diseases, such as ALS and Autism, will require nothing less.

We are thrilled and privileged to begin 2016 with a continued expansion of our work to provide urgently needed human tissue to advance neurologically related research. As noted on page 5 of this newsletter, NDRI has been awarded a grant from the National Institute of Mental Health (NIMH) to procure neurological tissue from individuals diagnosed with Autism and normal control specimens. Additionally, a grant from the Henry Jackson Foundation will support our efforts to procure neurological tissue from individuals who have served in the U.S. armed forces. This tissue will support research efforts being led by the Uniformed Services University of the Health Sciences (USUHS) and the NIH to conduct research on acute- and long-term effects of Traumatic Brain Injury and Post Traumatic Stress Disorder among military personnel.

We look forward to continuing to contribute to the advancement of research in 2016 and beyond!

BILL LEINWEBER
President & CEO

NDRI’s 35th anniversary commemorated in Biopreservation and Biobanking

The prestigious journal Biopreservation and Biobanking paid tribute to NDRI’s 35th anniversary by publishing a commentary, “Times are changing: 35 years of human biospecimen procurements for the National Disease Research Interchange,” in its October, 2015 issue. Penned by NDRI president Bill Leinweber, along with Thomas J. Bell, Ph.D., former director of scientific services, the piece examines NDRI’s 35-year history, from its pioneering endeavor of isolating human pancreatic islet cells for scientific analysis in the 1980s, to its pivotal role in today’s massive scientific undertaking of the Human Genome Project Genotype-Tissue Expression (GTEx) Initiative.

“Over the past 35 years, the fields of basic biological and biomedical research have grown increasingly sophisticated,” the authors wrote, adding that, “As scientific questions intensify in complexity, the human biospecimen field will continue to extend its proven track-record of advancing with the science.” However, they duly acknowledged, “It is critical to highlight that this work would not be possible without the generosity of organ and tissue donors and their families.”

To read the the commentary go to:
http://ndriresource.org/biopreservationandbiobanking/
Advancing the BRAIN Initiative
NDRI’s extensive OPO network critical to neuroscience research

Newly established collaborations between NDRI’s Brain Tissue Programs and the Uniformed Services University of the Health Sciences (USUHS) / Center for Neuroscience and Regenerative Medicine (CNRM) and National Institute of Mental Health (NIMH) promise significant acceleration of neuroscience research, particularly in the areas of Autism Spectrum Disorders and Traumatic Brain Injury (TBI).

Federal funding for the heightened emphasis on neuroscience research stems from President Obama’s BRAIN initiative, a bold research effort to revolutionize understanding of the human mind and uncover ways to treat, prevent and cure brain disorders. NDRI, a leader in procuring biospecimens for neuroscience research, devoted one of three panel discussions at its 35th anniversary symposium, “From Donation to Discovery” in October to the topic of “Advancing the Nation’s BRAIN Initiative,” on which Daniel Perl, MD, professor of pathology, Uniformed Services University of the Health Sciences (USUHS), and director of the Center for Neuroscience and Regenerative Medicine’s (CNRM) Brain Tissue Repository — the intramural federal program involving the Department of Defense (DoD) and Henry Jackson Foundation to collect brains for the USUHS pilot — served as a panelist. (See 35th anniversary section in this issue of Research Nexus.)

“The availability of well-annotated brains from patients with these diseases has always been a major barrier to fundamental research and the development of novel therapies,” said NDRI’s president and CEO Bill Leinweber. “NDRI’s unique model to facilitate the recovery of brains from deceased donors with these devastating diseases will engage a paradigm shift in the development of potential treatments and cures.”

TBI — Beyond the battle lines

Over each of the next two years, with the help of multiple dedicated source sites, NDRI will work to recover a minimum of 20 disease-specific and control brains of donors with a history of active military service to advance treatment and care for veterans with Traumatic Brain Injury and Post Traumatic Stress Disorder. Brain function research conducted by the USUHS, the health science university run by the U.S. federal government, will focus on alleviating the burden of illness and injury, as well as providing novel, neurotechnology-based capabilities for military personnel and civilians alike.

This heightened emphasis on neurological disorders could have profound impact on the more than 25,000 U.S. service members and 1.7 million civilians who sustain Traumatic Brain Injury each year, as well as the 3.8 million Americans living with an Autism Spectrum Disorder, and even broader implications for those afflicted by other neurological conditions, such as Alzheimer’s, Epilepsy and Schizophrenia.
While this is a federally funded, military TBI protocol, NDRI’s Jeff Thomas, vice president of strategic initiatives, said findings from the resulting research could parlay into treatments for the estimated 1.7 million civilian families also dealing with TBI, a traumatically induced structural injury or physiological disruption of brain function resulting from external force to the head. TBI can cause loss of, or decreased consciousness; loss of memory immediately pre- or post-injury; change in mental status (confusion, disorientation or slow thinking); neurological deficits; and intracranial lesions.

In the 35th anniversary panel discussion, the CNRM’s Dr. Perl described exposure to improvised explosive devices — bombs buried in roadways and vehicles that detonate when service members approach them — as one of the leading risks to U.S. service members over the last 15 years through our nation’s engagement in Iraq and Afghanistan. With advances in military medicine, he said many soldiers survive the blast, only to return home burdened with a lifetime of significant and long-lasting neurological and behavioral problems. Many families describe the loved one who returns as a “different person” than the one who deployed.

“They have problems with sleep, problems with concentration — nightmares,” explained Dr. Perl. “Many are diagnosed with post-traumatic stress disorder.” He described problems with behavioral control and anger management, and said that suicide is a very common complication.

“Yet, with all we do know about their symptoms,” Dr. Perl acknowledged, “we know very little about the pathology and biology of this process. This is a huge societal problem. The costs of dealing with Traumatic Brain Injury over the many years of survival will cost more than the wars themselves. And it’s not just economic costs — the human costs are dramatic to the individuals and their families. Our new partnership with NDRI and the organ procurement organization network allows us to identify families willing to donate their loved ones’ brains to help us start to get a handle on the nature of the problem.”

Because federal regulations prohibit any government entity from directly soliciting families for research-related organ and tissue donation, NDRI’s network of organ procurement organizations and medical examiners will be critical to the USUHS pilot’s success, particularly in identifying donors from rural areas of the country. Dr. Perl believes that more U.S. military families would agree to donate loved ones’ brains for research if approached with the opportunity to serve in this manner.

“NDRI’s network provides the infrastructure to logistically connect us with organ procurement organizations and medical examiners in an ethically proper fashion that meets all regulatory requirements in reaching out to give families an opportunity to be part of this important research,” acknowledged Dr. Perl, who also spoke on the topic last fall at an NDRI-hosted luncheon at the Society for Neuroscience meeting in Chicago.
Understanding Autism’s associated behaviors

In an equally consequential neuroscience research, NDRI is now also actively recruiting brain donors to help researchers at the University of Maryland’s Brain and Tissue Bank explore the behavioral causes associated with Autism Spectrum Disorder through a $500,000 grant from the National Institute of Mental Health.

This latest funding comes on top of more than 25 consecutive years of NIH funding to NDRI’s Human Tissue and Organ Research Resource (HTORR) program. With this supplemental funding, NDRI and select partners within its national network of organ procurement organizations will identify 15 post-mortem donors diagnosed with Autism and 15 normal control donors between 2 - 18 years of age to advance the work of Ronald H. Zielke, PhD, director of the pediatric research division at the University of Maryland’s Brain and Tissue Bank.

Dr. Zielke and his team are exploring the causes of associated behaviors, including excessive repetitive behaviors, developmental delays and deficits in communication experienced by those diagnosed with Autism, Asperger’s or a pervasive development disorder.

By collaborating with the nation’s major organ procurement organizations (OPO), tissue banks, eye banks and medical centers, NDRI’s HTORR program provides nearly every anatomical structure, organ and tissue — both diseased and normal, including brain and other central nervous system specimens — for investigative research. In the past five years, scientists published more than 600 scientific papers based on NDRI-provided tissues.

“We have a chance to improve the lives of not just millions, but billions of people on this planet through the research that’s done in this BRAIN Initiative alone. But it’s going to require a serious effort, a sustained effort. And it’s going to require us as a country to embody and embrace that spirit of discovery that is what made America, America.”

PRESIDENT BARACK OBAMA
April 2, 2013
In the last quarter of 2015, NDRI advanced to the third phase of the National Institutes of Health (NIH) Common Fund Genotype-Tissue Expression (GTEx) project (10XS170), designed to increase understanding of how variation in gene expression contributes to common human diseases. The last phase, which involves $3.7 million in funding to NDRI, called for increasing accession of 21-to-40-year-old subjects to strengthen the study’s representation of all age groups.

Since 2011, NDRI has facilitated the collection of more than 80,000 biospecimens for the GTEx project.
NDRI’s collection of tissues from 60 additional donors at the younger end of the age criteria will balance the current over-representation of individuals aged 50-70 in the GTEx study. In previous phases, the average donor age was 53 years of age, while the average age for the third phase was 46. Tissues free from age-related ‘wear and tear,’ from such aging-associated conditions as cardiovascular disease, diabetes, arthritis and dementia — will help the NIH more representatively study the relationship between genetic variation and regulation of gene expression.

NDRI was selected back in 2011 to receive a $3.59 million subcontract through the NIH Common Fund Initiative to coordinate a 30-month pilot program with the cutting-edge GTEx program to study the relationship between genetic variation and regulation of gene expression. The initial subcontract called on NDRI to establish systems to enable the collection of multiple human tissues from a large number of consented normal donors, allowing for characterization for genetic variability and genotyping. Through subsequent scale-up, NDRI and tissue source site partners helped to procure tissue from donors that contributed to a total of 961 donors for the project.

To date, NDRI has facilitated collection of more than 80,000 biospecimens from 658 post-mortem donors, including 226 whole brain specimens and 8,440 frozen aliquots.

“NDRI’s involvement with GTEx, from concept to execution, and the subsequent successes, demonstrates the significance and complexity of collaboration among multiple institutions to develop protocols and practices that yield the positive results seen in GTEx,” said Alisa McDonald, NDRI’s GTEx project manager.

“NDRI’s selection as the sole biospecimen source site for the third phase of the GTEx project is testament to the commitment and quality services provided by NDRI and its partnering tissue source sites.”

JEFF THOMAS
Vice President, NDRI Strategic Initiatives

Thank you to NDRI’s GTEx Project tissue source site partners:

- Gift of Life Donor Program
  Philadelphia, PA
- Center for Organ Recovery & Education (CORE)
  Pittsburgh, PA
- LifeGift
  Houston, TX
- LifeNet Health
  Virginia Beach, VA
- Washington Regional Transplant Community (WRTC)
  Annandale, VA
What more meaningful legacy can one leave his or her family than to be part of something with the potential to change — or save — countless lives?

Organ and tissue donation for biomedical research is crucial to help researchers solve complex medical challenges such as HIV/AIDS, pediatric cancer, ALS and diabetes. Now NDRI is making it easier for donors registered through NDRI’s Private Donor Program to make their wishes known to loved ones and health care providers with a new donor registration card. Of course, the cards do not negate the importance of donors discussing their intentions with family and friends, but in time of crisis, it is both a tangible reminder and ready resource for loved ones, emergency responders and the medical team.

By registering with NDRI’s Private Donor Program, interested donors grant authorization for donation of their organs or tissue after death, or may choose, while still living, to donate tissue, such as tumors, from surgery or diseased organs removed during transplant surgery. Many potential donors are gratified to learn that organs not viable for transplant are of tremendous value to biomedical researchers seeking new treatments or cures for both common and rare diseases. NDRI partners with organ procurement organizations, tissue and eye banks, hospitals, medical examiners, pathology labs and funeral homes to coordinate recovery and match organs and tissues with biomedical research teams.

NDRI’s webinar, “Partnering with organ and tissue procurement professionals to support tissue recovery from NDRI’s registered donors,” is helping to educate tissue recovery professionals on how to partner with NDRI through the Private Donor Program.

For more information on our Private Donor Program, please contact NDRI’s private donor manager, Honesto Nunez, by email, hnunez@ndriresource.org or by phone, 215-557-7361 ext 243.

Things to consider when planning to donate:

- Your family and loved ones must be aware of your wishes to donate.
- Donation is anonymous — researchers will not be able to contact you or your family without prior authorization.
- Only those tissues needed for research will be recovered.
- Donation will not prevent you from having a normal funeral.
- Donation cost is covered by NDRI. The family is responsible for the arrangement and cost of the funeral and/or cremation.
- By donating organs and tissues for research, you will make a lasting impact on future generations by helping scientists better understand diseases. Your donated tissue will be analyzed — along with tissues provided by other donors — to study the causes of disease and disorders. Some of your health information may be provided to researchers to help understand links between genes and medical conditions. Donated tissues may be placed into a biobank and tissues may be studied for many years to come for a variety of research projects.

To view our recent webinar presentation go to: http://ndriresource.org/privatedonorprogram/
35TH ANNIVERSARY SYMPOSIUM & DINNER
Advancing research and science together

NDRI’s pioneering work of accelerating diabetes research in the 1980s remains highly relevant today; its success swiftly leading to an expansion of NDRI’s revolutionary efforts to be the nation’s premier provider of human biospecimens for research across the full spectrum of diseases. Renowned principals representing every facet of tissue collection for biomedical research gathered at the Union League of Philadelphia on October 30, 2015 to mark NDRI’s 35th anniversary. Festivities included both an insightful three-panel symposium focusing on the critical role of human tissue in research, and a recognition dinner honoring “Service to Science.”

“NDRI is proud of the contributions we make in supporting the global research community in the quest for treatments and cures that will eliminate disease and improve quality of life. We work vigilantly to be trusted stewards of the precious gifts donated for research from selfless individuals, family members and loved ones.”

Bill Leinweber

Neuroscience is entering its golden age, yet despite both an increasing number of researchers entering the field, and the emergence of promising technologies, science is actually being limited by the availability of tissue. In his keynote address, Walter J. Koroshetz, MD, noted a critical, uncracked area — developing a tissue repository to study the effects of blast injury to the brains of service men and women.
Panelists delved into President Obama’s BRAIN initiative, a bold new research effort to revolutionize understanding of the human mind and uncover ways to treat, prevent and cure brain disorders, and explored NDRI’s unique model to facilitate the recovery of brains from deceased donors with devastating neurological diseases — a model hoped to enable a paradigm shift in the development of potential treatments and cures.

"The only way to solve Traumatic Brain Injury is to look at tissue — large numbers of tissue, not just five or 10. We need hundreds of thousands of brains to screen for this."

Walter J. Koroshetz, MD | National Institute of Neurological Disorders and Stroke

"Families continually amaze us. As long as you can explain the need for the tissue, they are very much willing to help. We look forward to participation on this initiative with NDRI to help provide another legacy for their loved ones."

Richard Hasz | Gift of Life

---

ANNIVERSARY SYMPOSIUM | PANEL ONE
Advancing the Nation’s BRAIN Initiative

---

MODERATOR
Susan Dentzer
Senior Policy Advisor, Robert Wood Johnson Foundation

---

MARK FRIESEN, PhD
The Michael J. Fox Foundation
for Parkinson’s Research
New York, NY

THOR D. STEIN, MD, PhD
Boston University School of Medicine
Boston, MA

DANIEL P. PERL, MD
Uniformed Services University
of Health Sciences
Bethesda, MD

JOHN MADIGAN
American Foundation for Suicide Prevention SPAN / USA
Washington, DC

DEBORAH C. MASH, PhD
University of Miami
Brain Endowment Bank
Miami, FL

RICHARD D. HASZ, BS, MFS, CPTC
Gift of Life Donor Program
Philadelphia, PA

---

"The only way to solve Traumatic Brain Injury is to look at tissue — large numbers of tissue, not just five or 10. We need hundreds of thousands of brains to screen for this."

Walter J. Koroshetz, MD | National Institute of Neurological Disorders and Stroke

"Families continually amaze us. As long as you can explain the need for the tissue, they are very much willing to help. We look forward to participation on this initiative with NDRI to help provide another legacy for their loved ones."

Richard Hasz | Gift of Life
Panelists explored how the small number of patients with rare disease, together with financial hurdles the pharmaceutical industry must overcome in order to discover and advance novel therapies, necessitates the development of effective partnerships among government, academia, industry and philanthropy.

“NDRI has been very vital as we move forward with our efforts to find a new drug discovery.”

Christopher Penland | Cystic Fibrosis Foundation

“One centralized way to do it makes a lot of sense. NDRI has created a platform to merge the researchers who are in need of human tissue and the organizations who can supply it. That is an invaluable resource.”

Howard Nathan | Gift of Life
The future of medical research will depend on the development and implementation of new donor screening models and methods to organize researchers’ requests so appropriate authorization can be obtained when eligible donors are present. This panel looked at opportunities and challenges associated with fulfilling donor and researcher expectations, both now and in the future.

“We must appropriately engage research participants across diverse populations, and their medical providers, to raise awareness of the importance of biospecimen donation and help the public understand how much individual donations matter to research.”

Helen Moore  |  National Cancer Institute
An evening honoring service to science

The 35th anniversary recognition dinner presented an ideal opportunity to celebrate the intersection of NDRI’s mission and the exemplary commitment to the advancement of science demonstrated by individuals, families and research donation partners.

“There can be no doubt that our honorees’ respective contributions are profound elements without which the hope and promise of research would not be recognized.”

Bill Leinweber
Three months into pregnancy with identical twin boys, Callum and Thomas, Sarah and Ross Gray learned the devastating news that Thomas suffered from anencephaly and would not survive. The couple used the remainder of the pregnancy to research organ donation with the hope of bringing something good of an otherwise unimaginable heartbreak. Thomas' organs, eyes and tissues were too small for transplant, but another equally promising option existed — tissue donation for research. The Grays' selfless gift to tissue research epitomizes the mission of NDRI — linking researchers with desperately needed tissue in the pursuit of scientific advancement.

"The legacy of their gift continues to be amplified by the tireless advocacy of Sarah, Ross and now 5-year-old Callum promoting the value of tissue and organ donation for research."

Mary J.C. Hendrix, PhD

2015 Outstanding Research Donation Partner Award presented to Center for Organ Recovery & Education (CORE), Gift of Life Donor Program, LifeGift, LifeNet Health and Washington Regional Transplant Community (WRTC)

In 2010, NDRI was awarded an initial grant from the National Institutes of Health to contribute to the extraordinary Genotype-Tissue Expression (GTEx) Initiative, the next large-scale follow-up to the Human Genome Project.

"With the partnership and support of these five outstanding research donation partners, the initial planned phases of the GTEx initiative were expeditiously completed within five years, during which time NDRI provided more than 65,000 human biospecimens from non-diseased donors for genetic analysis."

Bill Leinweber
We thank our Sponsors, Friends and Board of Directors for their support of NDRI’s 35th Anniversary Celebration

Sponsors

Honickman’s Canada Dry Bottling Company

Universal Health Services, Inc.

INNISFREE FOUNDATION

Harold G. and Adele K. Schaeffer

Friends of NDRI

American Association of Tissue Banks
Dash & Love, Inc.
EisnerAmper
eXude, Inc.

HAB Research Organization
Max & Bella Black Foundation
Quick International Courier
Ronald H. Surkin, Esq.

Temple University School of Public Health
University City Science Center
Unyts
Washington Regional Transplant Community

NDRI Board of Directors

Mary J.C. Hendrix, PhD, Chair of the Board
Bill Leinweber, President & CEO
Hal E. Broxmeyer, PhD, Chairman Emeritus
D. Walter Cohen, DDS, Chairman Emeritus

Meenhard Herlyn, DVM, DSc, Chairman Emeritus
Robert Marcantuono, CPA, MBA
Jonathan D. Moreno, PhD
Jessica Mulholland
Howard M. Nathan

Louis Philipson, MD, PhD, FACP
Arthur H. Rubenstein, MBCh
Jim Vaught, PhD
Michael L. White

Watch for news of our next symposium and Service to Science recognition in Fall 2016!

NDRI Board of Directors: Louis Philipson, MD, PhD, FACP; Arthur H. Rubenstein, MBCh; Jim Vaught, PhD; Michael L. White.
NDRI internship program continues to grow

Thirteen students — 12 from Drexel University and one from Arcadia University — have participated in NDRI’s internship program since its inception in 2013.

NDRI continues to expand its internship program, providing a diverse experience for the students. The format offers a broad range of professional experience rotating students through multiple functional areas within the NDRI organization: fulfillment/operations, scientific services, strategic initiatives, partnership development and quality control. Interns are encouraged to take on independent projects within each department, making them an integral part of the NDRI staff. Students participate in various internal meetings and attend an educational lecture series covering various topics from organ procurement organizations to human anatomy and physiology.

The NDRI internship experience gives students hands-on professional work experience. Three former interns have even been hired by NDRI upon completion of their bachelor’s degrees as full-time fulfillment coordinators.

For more information, or to apply for an internship with NDRI, contact Melissa VonDran, PhD, director, scientific services, by email mvondran@ndriresource.org or by phone 215-557-7361 ext. 247.

“NDRI is full of employees who are passionate about the positive difference they make in the scientific community. The staff was friendly and welcoming, and taught us the importance of teamwork and communication — skills that can guide us to success.”

MANALI NAIK
NDRI Intern

NDRI Interns Sheenali Patel, Health Sciences and Manali Naik, Biological Sciences majors at Drexel University.
Dr. Mary J.C. Hendrix elected new NDRI Board Chair

Mary J.C. Hendrix, PhD, president and chief scientific officer of the Stanley Manne Children’s Research Institute in Chicago, has been elected the chair of NDRI’s board of directors. She succeeds Meenhard Herlyn, DVM, DSc — now chairman emeritus — in leading the 13-member board of the nation’s premier provider of human biospecimens to advance biomedical disease research.

In late February, NDRI’s newest board chair will begin her tenure as president of Shepherd University in Shepherdstown, West Virginia, of which she is an alumna. Dr. Hendrix holds the Children’s Research Fund and the William G. Swartchild, Jr. Distinguished endowed professorships and is a member of the Robert H. Lurie Comprehensive Cancer Center. The Manne Research Institute is part of Ann & Robert H. Lurie Children’s Hospital of Chicago and affiliated with Northwestern University’s Feinberg School of Medicine.

“I have known Dr. Hendrix for many years and am certain that she will provide exceptional leadership in her role as chair of the NDRI Board of Directors,” said Dr. Herlyn, director of The Wistar Institute Melanoma Research Center in Philadelphia, who led the NDRI board from 2009 – 2015.

Prior to joining Northwestern University, Dr. Hendrix was on the faculty of the University of Iowa as the leading woman scientist endowment recipient and head of the Department of Anatomy and Cell Biology. She also served as the Kate Daum Research Professor and associate director of Basic Research and deputy director of The Holden Comprehensive Cancer Care Center. Dr. Hendrix received her PhD from George Washington University and was awarded a post-doctoral fellowship at Harvard Medical School.

She is a past president of Federation of American Societies for Experimental Biology (FASEB) and the Association of Anatomy, Cell Biology and Neurobiology Chairpersons (AACBNC). She has more than 250 publications in biomedical research, currently serves on the Board of Directors of Research!America, the Annenberg Center for Health Sciences at Eisenhower Medical Center, and the Chicago Council on Science and Technology, and is a member of the editorial boards of Cancer Research, The American Journal of Pathology, Cancer Biology and Therapy, Lymphatic Research and Biology and Journal of Cellular Biochemistry.

Bill Leinweber, president and CEO of NDRI, expressed tremendous gratitude to Dr. Herlyn for his longtime commitment to NDRI, and welcomed Dr. Hendrix’s leadership, saying, “Our board of directors is very fortunate to have a leader with Dr. Hendrix’s scientific accomplishments and understanding of the critical role of human tissue in research.”

“Access to high quality human tissue is vital to basic scientific research, translational research and drug development and testing. I look forward to continuing to work with the board and staff of NDRI in our work to support the global research community.”

MARY J.C. HENDRIX, PhD
Thank you, Dr. Herlyn!

The board and staff, donation and research partners of NDRI express deep appreciation to chairman emeritus Meenhard Herlyn, DVM, DSc. This internationally renowned pre-eminent scientist in melanoma research based at The Wistar Institute in Philadelphia led NDRI’s Board of Directors from 2009 through 2015 — his distinguished chairmanship culminating in the 35th anniversary symposium and dinner held October 30, 2015. Of the auspicious occasion marking NDRI’s 35 years of donation to discovery, Dr. Herlyn commented, “We look forward to imagining the advances the next 35 years will bring and contributing through ever-stronger partnerships with organ procurement organizations, tissue banks, eye banks and hospitals to link donated human tissue to researcher requests.”

New board chair, Dr. Mary J.C. Hendrix, and Bill Leinweber, president and CEO, express appreciation to outgoing board chair, Dr. Meenhard Herlyn.

“Dr. Herlyn’s strong commitment to the mission of NDRI, coupled with his strategic thinking and scientific expertise, have added tremendous value to accelerating our work.”

BILL LEINWEBER
NDRI President and CEO

2016 NDRI Board of Directors

Mary J.C. Hendrix, PhD
Chair of the Board, NDRI
President & Scientific Director
Stanley Manne Children’s Research Institute
Formerly, Ann & Robert H. Lurie Children’s Hospital of Chicago Research Center
Children’s Research Fund Professor
William G. Swartchild, Jr Distinguished Research Professor
Professor, Robert H. Lurie Comprehensive Cancer Center
Northwestern University Feinberg School of Medicine
Chicago, IL

Bill Leinweber
President & CEO
National Disease Research Interchange
Philadelphia, PA

Meenhard Herlyn, DVM, DSc
Chairman Emeritus, NDRI
Caspar, Wistar Professor in Melanoma Research
Director, The Wistar Institute Melanoma Research Center
Professor, Molecular and Cellular Oogenesis Program
The Wistar Institute
Philadelphia, PA

D. Walter Cohen, DDS
Chairman Emeritus, NDRI
Chancellor Emeritus
Drexel University College of Medicine
Dean Emeritus, School of Dental Medicine
University of Pennsylvania
Philadelphia, PA

Hal E. Broxmeyer, PhD
Chairman Emeritus, NDRI
Distinguished Professor, Mary Margaret Walther Professor Emeritus
Professor of Microbiology/Immunology,
Co-Program Leader, NCI-Designated
Indiana University Simon Cancer Center
Program on Hematopoiesis, Heme Malignancies, and Immunology
Indiana University School of Medicine
Indianapolis, IN

Robert Marcantuono, CPA, MBA
Chair, Finance & Audit Committee, NDRI
Vice President, Finance & Administration
University City Science Center
Philadelphia, PA

Jessica Mulholland
Member, Finance & Audit Committee, NDRI
Chief Financial Officer
eXude, Inc.
Philadelphia, PA

Michael L. White
Member, Finance & Audit Committee, NDRI
President, R.B. White, Inc.
JDRF Board of Directors
Chair, JDRF Research Committee
Member, JDRF Board of Chancellors
Scottsdale, AZ

Jonathan D. Moreno, PhD
David and Lyn Silfen University Professor
Department of Medical Ethics and Health Policy
Perelman School of Medicine
University of Pennsylvania
Philadelphia, PA

Howard M. Nathan
President & CEO
Gift of Life Donor Program
Philadelphia, PA

Louis Philipson, MD, PhD, FACP
Professor, Departments of Medicine and Pediatrics - Section of Endocrinology, Diabetes and Metabolism
Director, Kovler Diabetes Center
President, Chicago/ Northern Illinois ADA Board
University of Chicago
Chicago, IL

Arthur H. Rubenstein, MBBC
Professor of Medicine
Division of Endocrinology, Diabetes and Metabolism
Department of Medicine
Perelman School of Medicine
University of Pennsylvania
Philadelphia, PA

Jim Vaught, PhD
President, International Society for Biological and Environmental Repositories (ISBER)
Editor-in-Chief, Biopreservation and Biobanking
Senior Research Fellow, International Prevention Research Institute, Lyon, France
Kensington, MD
Einstein Medical Center provides first diseased livers for Alpha-1 Project

Philadelphia’s Einstein Medical Center has provided the first two livers to help researchers advance knowledge of the extremely rare condition, Alpha-1 Anti-Trypsin Deficiency, or A1TD.

An inherited disorder that can cause both lung and liver disease, A1TD affects about 1 in 1,500-3,000 individuals with European ancestry. An estimated 15 percent of adults with A1TD develop cirrhosis from formation of scar tissue in the liver, and about 10 percent of infants display symptoms, such as yellowing of the skin and whites of the eyes. Efforts to put a drug on the market to treat this disease are thwarted by the lack of predictive experimental models, leading researchers to develop in vitro efficacy models using cells from afflicted tissues.

The only way to access diseased livers with this mutation is to obtain them at the time of liver transplantation. Einstein’s Nancy Young, MD, chair of pathology, and Victor Navarro, MD, a surgeon specializing in liver transplantation, lead the Alpha-I Project team, working with NDRI to develop protocols for identifying patients of interest, obtaining livers post-surgery, preserving and packaging livers for shipment to researchers isolating hepatocytes for drug screening purposes.

The procurement of two A1TD livers is an important milestone in the now six-year NDRI/Einstein partnership. The busy teaching hospital and Level-I Regional Resource Trauma Center has provided hundreds of discarded surgical tissues for biomedical research.

Key players on Einstein’s Alpha-1 Project team are Corrado Minimo, MD, chief of anatomic pathology, Suresh Majmundar, chief pathology assistant, Sheila Nicholson-Jones, pathology assistant and Dr. Ronald Miick, director of surgical pathology.

Hospitals interested in joining Einstein in providing biospecimens to NDRI for the the Alpha-1 Project are encouraged to contact Greta Shytani, NDRI’s hospital manager by email gshytani@ndriresource.org or by phone 215-557-7361 ext 252.
Reading Hospital now leading surgical tissue provider

Reading Hospital in Pennsylvania has emerged as NDRI’s leading provider of discarded surgical human tissues for biomedical research. An NDRI partner since 2008, the 647-bed acute-care hospital initially joined NDRI’s network to support NDRI’s National Cancer Institute-funded Cooperative Human Tissue Network. The collaboration has since broadened beyond cancer tissues, and a $375 million surgical tower expected to open in 2016 bringing new surgeons and expanded surgical capabilities to the campus promises even greater opportunity to procure other hard-to-source specimens for research.

Gene Kopen, PhD, NDRI’s vice president of operations, credits Dr. William K. Natale, chief of pathology, pathology assistant Steven Sowers and tissue bank technician Andrea Blatt with Reading’s success. “They are highly collaborative, proactive and they hold themselves accountable,” Kopen says.

Steven Sowers, pathology assistant, and Andrea Blatt, tissue bank technician.

Lung Molecular Atlas Program (LungMAP) Webinar

ATTN: Organ procurement organizations, tissue banks, hospitals, birthing centers and transplant centers!

Join NDRI for an insightful webinar on the NIH-funded LungMAP initiative, focusing on diseases of the lung that develop during fetal growth and early childhood.

Tuesday, March 29, 2016
2 p.m. EST

To register: http://ndriresource.org/lungmap/

The NIH-funded Molecular Atlas of Lung Development Initiative (LungMAP) is a web-based resource supporting investigations into processes regulating lung development through gene and protein expression. Join NDRI’s Jeff Thomas, vice president, strategic initiatives, Denee Tidwell, project manager, partnership development and LungMAP principal investigator, Gloria S. Pryhuber, MD, professor of pediatrics and environmental medicine with the University of Rochester Medical Center, for this informative presentation to learn how your organ procurement organization, tissue bank, hospital, birthing center or transplant center can play a crucial role in partnering with NDRI to identify and recover neonatal lungs for this urgent research opportunity.
Empower research and discovery
Help NDRI help researchers find a cure!

Human tissue — whether healthy or diseased — is precious to researchers studying and developing treatments and cures for nearly every disease and disability imaginable, from diabetes, HIV and cancer, to Cystic Fibrosis and life-impacting neurological diagnoses. When you become an organ and tissue donor for research, you’re empowering discovery by helping scientists find new treatments and cures to improve quality of life — and save lives. Perhaps the discovery will come in your own lifetime, or it may be that your gift changes the lives of future generations. What a legacy!

Most people are aware of anatomical research for transplant. But did you realize that when transplant is not an option, donation to biomedical research is an equally meaningful and vital way to change the course of medical history? Of course, donations of tissues and organs following your death are critically important to researchers, but you can make a contribution in life, too! Tumors removed during surgery or diseased organs from transplant provide important clues to scientists striving to better understand disease.

Contact NDRI today to learn more about these important research initiatives:

Private Donor Program
Put the decision to donate in your own hands by proactively indicating your desire to help researchers find treatments and cures. When you register for NDRI’s Private Donor Program, you’ll receive a donor card that notifies family members, emergency responders and your medical team of your commitment to donating tissues and organs for biomedical research and provides contact information to begin the donation process in the event of a time-sensitive emergency. Read more about our Private Donor Program on page 8 of this issue of Research Nexus.

Neurological Tissue Program
Donating neurological tissues — including brain, nerve and spinal cord — for research will have a lasting impact on future generations by helping scientists test breakthrough theories, develop new medications and perhaps even find a cure for nearly every neurological disease imaginable, including Parkinson’s disease, Lou Gehrig’s disease (ALS), Traumatic Brain Injury, Chronic Traumatic Encephalopathy, Autism Spectrum Disorder, depression and schizophrenia. It’s simple to donate; there is no cost involved, and the tissue is urgently needed.

LungMAP
NDRI is pleased to be a select tissue procurement partner for The Molecular Atlas of Lung Development Program, or LungMAP, a major initiative funded by the National Heart, Lung and Blood Institute (NHLBI) at the National Institutes of Health. LungMAP research efforts are addressing lung diseases that develop during fetal growth and early childhood — diseases such as asthma and bronchopulmonary dysplasia. Normal lungs are needed from donors 22 weeks of gestation to 10 years of age.

To learn more about these programs or other important NDRI initiatives to empower research and discovery, call NDRI today at 800-222-NDRI (6374).
NDRI WILL ATTEND AND EXHIBIT AT 22 CONFERENCES IN 2016.

The schedule was designed to bolster NDRI’s presence and leadership in two essential areas: 1) scientific outreach and 2) site partnership and regulatory development. Our research programs and service options will be highlighted at scientific conferences to help augment our researcher base and drive service growth in 2016. The partnership and professional development conferences will provide opportunities to build and expand current relationships with key industry leaderships; NDRI will also participate in key industry symposiums to promote best practices and develop new policies. We hope to see you on the road in 2016!

Sarah Gray, communications director, American Association of Tissue Banks, and Honesto Nunez, NDRI’s private donor manager, at the 2015 National Medical Examiners conference.

<table>
<thead>
<tr>
<th>Conference Name</th>
<th>Date</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States and Canadian Academy of Pathology, (US CAP)</td>
<td>March 12 – 18th</td>
<td>Seattle, WA</td>
</tr>
<tr>
<td>Society of Toxicology (SoT)</td>
<td>March 13 – 17</td>
<td>New Orleans, LA</td>
</tr>
<tr>
<td>Keystone Symposia, HIV Persistence</td>
<td>March 20 – 24</td>
<td>Olympic Valley, CA</td>
</tr>
<tr>
<td>Federation of American Societies for Experimental Biology (FASEB)</td>
<td>April 2 – 6</td>
<td>San Diego, CA</td>
</tr>
<tr>
<td>American Association of Tissue Banks (AATB), Quality and Donor Suitability Workshop</td>
<td>April 11 – 13</td>
<td>Newport Beach, CA</td>
</tr>
<tr>
<td>American Association for Cancer Research (AACR)</td>
<td>April 16 – 20</td>
<td>New Orleans, LA</td>
</tr>
<tr>
<td>National Hospice and Palliative Care Organization (NHPCO)</td>
<td>April 21 – 23</td>
<td>National Harbor, MD</td>
</tr>
<tr>
<td>Association for Research in Vision and Ophthalmology (ARVO)</td>
<td>May 1 – 5</td>
<td>Seattle, WA</td>
</tr>
<tr>
<td>Traumatic Brain Injury (TBI)</td>
<td>May 11 – 12</td>
<td>Washington, DC</td>
</tr>
<tr>
<td>American Thoracic Society (ATS)</td>
<td>May 13 – 18</td>
<td>San Francisco, CA</td>
</tr>
<tr>
<td>BIO International Convention (BIO IC)</td>
<td>June 6 – 9</td>
<td>San Francisco, CA</td>
</tr>
<tr>
<td>Eye Bank Association of American (EBAA)</td>
<td>June 8 – 11</td>
<td>St. Louis, MO</td>
</tr>
<tr>
<td>Association of Organ Procurement Organizations (AOPO)</td>
<td>June 20 – 23</td>
<td>Austin, TX</td>
</tr>
<tr>
<td>NATCO – The Organization for Transplant Professionals</td>
<td>July 27 – 30</td>
<td>Orlando, FL</td>
</tr>
<tr>
<td>National Association of Medical Examiners (NAME)</td>
<td>Sept 9 – 13</td>
<td>Minneapolis, MN</td>
</tr>
<tr>
<td>Fanconi Anemia Scientific Symposium</td>
<td>Sept 15 – 18</td>
<td>Bellevue, WA</td>
</tr>
<tr>
<td>NIH Research Festival</td>
<td>Sept 15 – 16</td>
<td>Bethesda, MD</td>
</tr>
<tr>
<td>American Association of Tissue Banks (AATB) Annual Meeting</td>
<td>Sept 20 – 23</td>
<td>New Orleans, LA</td>
</tr>
<tr>
<td>LAM Foundation LAMPosium</td>
<td>Sept 22 – 25</td>
<td>Covington, KY</td>
</tr>
<tr>
<td>National Funeral Directors Association (NFDA)</td>
<td>Oct 23 – 26</td>
<td>Philadelphia, PA</td>
</tr>
<tr>
<td>Society for Neuroscience (SfN) and NDRI Satellite Event</td>
<td>Nov 12 – 16</td>
<td>San Diego, CA</td>
</tr>
<tr>
<td>NIH SBIR/STTR</td>
<td>TBA</td>
<td></td>
</tr>
</tbody>
</table>
NDRI is the global source for human biospecimens
Customized: Project-driven service to scientists
Timely: 24/7 in-house call center
Diverse: 35 years of experience distributing nearly every human tissue and organ
Ethical: Informed consent and regulation-compliant biomaterial handling
State-of-the-Art: Custom preservation methods and rapid delivery available

Beginning our next 35 years of service to science
NDRI gratefully acknowledges all who have helped us advance disease research through the procurement, preservation and distribution of human cells, tissues and organs since 1980.

The D. Walter Cohen, DDS, Service to Science Award — first presented in 2015 on the occasion of NDRI’s 35th anniversary — will be bestowed each year to an individual who best exemplifies the mission and work of NDRI.

We want to hear from you.
Learn how you can partner with NDRI today, call us at 800-222-6374
visit our website at www.ndriresource.org, or email us:

General info: info@ndriresource.org
Sources: source@ndriresource.org
Researchers: research@ndriresource.org

Watch for news of our next symposium and Service to Science recognition in Fall 2016!