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From our Chief Scientific Officer
Marie Csete, MD, PhD

Friends,

Who knows where the quote, “May you live in interesting times” was coined but the quote most surely brings a smile to HMRI employees when they think back on 2014. This has been a year of analysis, scientific soul-searching and substantive positive changes at all levels of HMRI.

I hope this report will give you a glimpse into the dedication and commitment, the teamwork and skill that it takes to move patient-oriented research forward.

Execution of our new scientific strategic plan, developed with our Board’s Research Planning Committee, will be the focus of next year’s HMRI Annual Report, when you will see a full explanation of all the changes just starting to take place. Importantly, the strategic plan builds on the traditional scientific strengths of HMRI researchers who have sustained their productivity, adds the important perspective of cardiovascular researchers to our mix, places clinicians at the head of the major programs, and points to the scientific experts that we must recruit to fulfill our mission of multidisciplinary patient-focused research.

It is clear that moving our science forward also means updating our infrastructure and facilities. HMRI has become too complex to operate without a management infrastructure, and our scientists deserve to work in uplifting surroundings. With the help of Frank Davis, our incredibly dedicated Business Manager and Dan Maljianian, our skilled leader of development and philanthropy, HMRI now has solid and flexible internal organization, an in-house education program, tools for employee evaluation and career development, and a well thought-out plan for moving HMRI research forward. (Plus the buildings look a whole lot nicer in December than they did in January!)

“Forward” is the theme of 2015, and also the theme of an event that will announce our research plans for 2015 and beyond. “HMRI Forward” on January 28th will introduce HMRI stakeholders to the exciting steps we will take to tackle diseases such as Alzheimer’s, traumatic brain injury, deafness, migraine, epilepsy, acute and chronic heart disease, wound healing, cancers, and liver disease. These and other events highlighting our broad research efforts will be posted on the website, also undergoing a facelift as I write this letter.
HMRI Forward will make it clear that our world-class research deserves a new home, and importantly, the campaign to fund a new laboratory was completely reinvigorated at the end of 2014. The beautiful and sleek new architectural design for the HMRI Research Laboratory was approved by the Pasadena Design Commission in November, and we anticipate final approval of the architectural plans in February. Chris Looney and his colleague Blake Reiser from CCS (ccsfundraising.com) are now officially on board to guide us through the intensive fundraising necessary to reach our goal of a state-of-the-art lab building ready for business in about two years.

HMRI employees may be the engine of science but the heart and soul of HMRI is its volunteer Board of Directors, and it is their dedication, generosity, and expertise that make it possible for us to turn the dream of a modern HMRI into a reality. Thank you!

Hang on to your hats—if 2014 is any indication, 2015 will be fast-paced and full of discoveries.

With thanks to our hard-working and brilliant researchers, and our generous Board and donors—Let’s recommit to taking HMRI forward.

Sincerely,

Marie Csete
Chief Scientific Officer/Acting President
LEADERSHIP
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Dr. Richard J. Bing (1901-2010) left an indelible mark at HMRI. His discoveries in cardiology, cardiac metabolism, cardiac catheterization, congenital heart disease, blood flow measurement in the heart, his later important work (completed in his eighties and nineties) on nitric oxide and its relation to restoring blood flow after a heart attack, and on the dangers of COX-2 inhibitors, gave him the reputation of a renaissance researcher among his colleagues. He joined the Institutes in 1969 and left his research laboratory at the age of 98, having published the last ones of his more than 500 journal articles and medical books in his nineties.

Bing set the standard for generations of researchers to come. He is unquestionably one of the HMRI giants on whose shoulders we stand.
An outline of the structure of our new science strategic plan features cardiovascular research as a core research area—essential for any medical research organization, as heart disease and stroke are major causes of death and disability. HMRI had a long history of productive and cutting-edge cardiovascular research under Dr. Richard Bing. This legacy will continue as HMRI welcomes Robert Kloner MD, PhD and his team in 2015 to fill that important cornerstone in our strategy moving forward. Interestingly, Dr. Bing and Dr. Kloner crossed paths at Wayne State long ago. Dr. Kloner’s cardiovascular research in Los Angeles captured Dr. Bing’s imagination so much that Bing took the time to attend the Kloner lab meetings when he was in his nineties.
The retirement of Dr. Brian Ross has not slowed down Thao Tran and Cherise Charleswell in the MRI Center—In fact, they have taken leadership of the MRI Unit in hand until a new Director for the program can be identified. Thao and Cherise have ably shouldered the processing and imaging of subjects in our ongoing clinical studies of mild traumatic brain injury and Alzheimer’s disease.

Thao Tran BS, ARMRT and Cherise Charleswell MPH also—on their own—initiated a remarkable clinical study of high school athletes in collaboration with the Pasadena Unified School District. They wrote the IRB application and received approval for the study from Quorum Institutional Review Board, and worked tirelessly to get the attention and approval of PUSD officials, parents, teachers, and coaches. The study involves MRI of brain and heart. The brain studies are meant to collect data on the consequences of concussion or mild traumatic brain injury in these young athletes. The cardiac studies are designed to identify anatomic abnormalities that could predispose to sudden cardiac death. This important study is a great service to the athletes who could normally not afford these tests, and will serve as preliminary data for a multicenter NIH grant currently in the planning stages.
Thao and Cherise contributed their expertise to gathering up a potent LA County-wide team that will seek NIH funding to cement the importance of magnetic resonance spectroscopy in studying brain injury in children and for treating pediatric traumatic brain injury. The two have been instrumental in pulling together a multidisciplinary team of neuropsychologists, pediatric neurologists, anesthesiologists, spectroscopists, sports medicine experts, and developmental neurobiologists from Pasadena, USC and Children’s Hospital LA to form a consortium to apply for NIH funding. The combination of technical and public health expertise that Thao and Cherise bring to this complex and important effort is fundamental to its success. This effort is emblematic of the reasons for imaging research to be at the center of HMRI’s new scientific strategic plan.

Meanwhile in the back lab of the MRI Center, Keiko Kanamori PhD continues her (ti-reless!) work in epilepsy. Her two publications this year are the result of collaborations with USC investigators including a graduate student who lauded Dr. Kanamori’s teaching as a highlight of his PhD work. Dr. Kanamori continues to build on her research with Brian Ross that suggests a major role for neuronal uptake of extracellular glutamine in sustaining epileptic seizures. As further details of this work emerge, it will certainly influence our understanding of seizures and perhaps lead to new pharmacologic approaches to therapy.

The MRI Center is also host to the Boswell Fellow, Niema Pahlevan PhD, a post-doctoral scholar in the lab of Prof. Mory Gharib at Caltech. As a graduate student at Caltech, Niema developed a smart phone app for noninvasive analysis of cardiac function. His project, with Marie Csete as the HMRI mentor and Prof. Gharib as the Caltech mentor, is to compare the findings from his invention with cardiac functional measurements obtained by cardiac MRI imaging. Under Thao Tran’s direction, Niema is now collecting the cardiac MRI information—a hands on learning experience—in addition to his own diagnostics. For much of the year, the study focused on relatively young and healthy subjects, but Niema is now studying subjects with a variety of cardiac diseases referred by cardiologists at USC and other centers.
The HMRI cancer genetics program led by Dr. Eggerding provides patient-centered cancer genetic analysis as well as conducting basic research to identify molecular genetic changes in cancer. The CLIA-certified lab provides genetic testing of tumor samples to help in accurate diagnosis, identification of inherited cancer predisposition and cancer risk assessment. One of the greatest advantages of working with patients in cancer genetic diagnostics is that a patient’s genetic findings can provide insight into new research pathways to gain deeper insight into the basic mechanisms of tumor formation.

In collaboration with the cancer genetics group at UCSF we are studying a series of 50 patients with clinical classic familial adenomatous polyposis (FAP) in whom a mutation was not detected in the coding portion of the APC gene responsible for FAP. We are using a technique called multiplex ligation probe amplification to detect mutations in non-coding, intronic and regulatory regions of the APC gene in these patients. To date we have identified a deletion in a regulatory promoter region in one patient.
Dr. Kaufman continues to serve as the Medical Director of Huntington Hospital’s Cancer Center. Under his leadership the full accreditation of the Cancer Center by the American College of Surgeons was again awarded in 2014, including seven commendations by the external review committee. The Center now carries a “gold” rating, the highest one possible.

Not surprisingly, given the clinical leadership and patient care delivered by Dr. Kaufman and his team, he was again named one of Pasadena’s Top Doctors in Pasadena Magazine. Dr. Kaufman was also recognized by his peers as a Super Doctor, which you may see featured in special advertising sections of newspapers, magazines and online.

Dr. Kaufman is an active mentor of surgical residents and a summer student, teaching research approaches to all-too-common bowel motility and pelvic floor disorders. Clinical research is difficult to fit in to the schedule of a busy clinician, but fortunately through donor support, Dr. Kaufman continues to make progress in developing ways to treat the disorders that interest him most.
A major highlight for Dr. Jones this year was retirement from clinical practice, a landmark that allows him to focus on his other interests. Fortunately for us, HMRI is in Dr. Jones’ direct line of sight, and he continues to devote considerable time to HMRI as a member of the Board of Directors, and a member of the Board’s Building and Property Committee and the Research Planning Committee, as well as contributing to research programs related to urologic cancers. He has also helped keep our communication going on potential collaborations with HMRI alumni at MD Anderson, on metabolism of solid tumors, an area at the center of HMRI’s new scientific strategic plan.

Every Pasadenaan knows Jones Coffee, and Dr. Jones’ passion for all things coffee is apparently well-known outside Pasadena. He was recently asked to write a book chapter on health benefits of coffee for a “Book on Coffee” edited by Britta Folmer PhD of Lausanne, Switzerland. Look for that book for your coffee tables sometime soon!
The Liver Center is always busy—the waiting room is packed and examining rooms filled—on the average week day. Led by Myron Tong MD, PhD, the center offers the best in care for patients with a wide variety of liver diseases. In addition, Dr. Tong and his skilled clinical research nurse, Mary Rappaport, have attracted several important clinical trials to HMRI this year. It is particularly exciting to see clinical trials work in new drugs for the treatment of hepatitis C coming to HMRI. The hepatitis C virus was, until recently, very difficult to eradicate but promising new classes of drugs have opened the door to a cure for this devastating liver disease. The clinical trials at HMRI are helping to fine-tune the use of these drugs. Dr. Ed Mena, our other busy liver specialist, took time this year to serve outside Pasadena on a medical mission to central America—Thanks to you, Dr. Mena.

Dr. Tong’s long and illustrious career in hepatology was recognized at the American Association for the Study of Liver Disease meeting in Boston, attended in November by over 9500 hepatologists and liver researchers from around the world. AASLD put together a film about Dr. Tong and the HMRI Liver Center which was broadcast at the meeting, and will be posted to the HMRI website soon. Please tune in and see how impactful Dr. Tong’s work has been and join us in congratulating him.
This has been a year of great challenges and opportunities and of quite a bit of growth in the Molecular Neurology program, otherwise known as The Clan. The challenges are a mark of the success of this group—now charged with a very diverse research portfolio spanning basic to clinical research, and spanning research on pain (migraine), neurodegeneration (Alzheimer’s disease), and brain trauma. Covering a leadership gap in HMRI’s mild traumatic brain injury clinical study, funded by the Army, Dr. Harrington reorganized the program and re-energized it with significant help from Thao Tran and Cherise Charleswell in the MRI Center, and many members of the Harrington group. The result is a first-rate study of mild traumatic brain injured patients referred to HMRI by Huntington Memorial Hospital ER physicians. This study is critically important to the medical literature. Despite the increased recognition of the serious consequences of concussions in our soldiers and in our athletes, no deep descriptive study of the acute effects of concussion has been done. At HMRI, supported by an impressive team of graduate students from Fuller Theological Seminary’s Neuropsychology Department, subjects are followed over the course of a month with an extensive battery of neuropsych/neurocognitive tests, balance and sleep testing, many kinds of MRI studies and MR-spectroscopy, EEG and magnetoencephalography.

Xianghong Arakaki MD, PhD has taken on the task of learning advanced techniques in EEG, and her initial results show how important these studies
will be not only to enriching the traumatic brain injury research but to HMRI clinical studies generally. Dr. Arakaki certainly deserves a lot of credit for her willingness to ‘retool’ with new skills to offer the HMRI research teams.

Alfred Fonteh PhD used his considerable skills in 2014 to build up the knowledge about lipid changes in cerebrospinal fluid (CSF) that accompany advancing stages of Alzheimer’s disease. Several important publications came from this work, and there are more to come, as the difficult analysis is ongoing. The continuous information coming from subjects returning for exams after several years will be particularly important—so-called ‘longitudinal’ studies are significantly more revealing than studies from a single time during disease. The combined work of Drs. Harrington, Arakaki and Fonteh is changing the way we think about the molecular underpinnings of neurologic disease, and the momentum of the group is certainly captured in the recognition it is getting from prominent colleagues including the USC Neurology and Alzheimer’s Disease Research Center.

Migraine studies continue as well—This is a very busy group! Noah Gross PhD, a new addition to the lab, is focused on migraine studies. Jessica Dawlaty PhD is developing the methods to analyze blood biomarkers in the traumatic brain injury work. Jessica rejoined the science work force after her son started school this year, and we are certainly glad she chose to come to HMRI. A very new addition is Katie Castor PhD, who finished her graduate work at McGill this year. David Buennagel is trained in psychology, adding his skills to patient interviews in clinical research. Sarah Applegate, a recent UCLA grad, is working on technology that will reliably measure the number and size of nanoparticles in spinal fluid, and Betty Chung is charged with coordinating all this activity.
This year marks 10 years of the neural engineering team’s work on development of silicon-based, implantable microelectrodes. Over the course of this time, the group was recognized with three NIH RO1 grants, and a competitive renewal in 2013. Dr. Martin Han’s NIH proposals submitted this year resulted in very high scores, so that we hope to report new NIH grants for this work in the 2015 Annual Report. The marathon of work has resulted in a more mature technology that facilitates large-scale recording and simulation capabilities in chronically implanted brains, and is closer to clinical realization. The electrode arrays developed at HMRI will continue to impact large research initiatives such as the NIH BRAIN initiative. Challenges with the technology change as the project matures. Martin reports that he and the team have developed a 3D reconstruction technique from serially sectioned and stained brain tissues to study the electrode-brain interface. The reconstruction helps with a key challenge of aligning and fitting each recording electrode optimally to capture electrical responses in 3D space.
Dr. Doug McCreery notes that recording of neuronal activity from nerve cells in the brain is beginning to be used as control signals for restoring mobility to persons with severe motor disabilities. He recently completed a regression and correlation analysis of the relations between the neuronal responses recorded in the brain by microelectrodes implanted for 18 months, and the histologic changes around the microelectrodes, using distance from the microelectrodes and the time after implantation as parameters. The findings demonstrate that a correlation analysis of this dimensionality is practical and provides insights into how these micro-devices should be modified in order to improve their long-term performance in the brain. A manuscript describing this work is in preparation.

Doug developed a collaboration with Dr. Carol Miller, a well-known neuropathologist at USC, to add her expertise to addressing the consequences of chronic electrode stimulation in the brain. The NIH grant in which Dr. Miller is a collaborator also was very favorably received by the study section, and we hope to report new funding for this work in next year’s annual report.

Advancement of neural engineering technologies toward wider clinical application has led to coinage of the name for a new field, “bioelectronic medicine.” Dr. Victor Pikov was an invited workshop participant in a program sponsored in part by GlaxoSmithKline, resulting in a new project at HMRI funded by GSK, using electronic stimulation of peripheral nerves to blunt development of ovarian cysts.
The big news in 2014 was the arrival of Alina Ostrowska PhD in September to run the stem cell lab effort at HMRI. Dr. Ostrowska’s previous experience includes heading up the translational work at a stem cell company, as well as involvement in version one of hepatocyte (liver cell) transplant trials. She is an expert in hepatocyte drug processing and a great hands-on cell scientist. The labs are quite transformed since her arrival, and her persistence has paid off. With the help of Brenda Ward, the lab is generating its first induced pluripotent stem cells from subjects in HMRI’s ongoing Alzheimer’s disease study.

Induced pluripotent stem cells (iPSC) are similar to embryonic stem cells—they can, if given the right cues, be induced to make (differentiate into) any other kind of cell. In our case, we are making the iPSC from the white cells in blood. The cells are treated to make them divide and a large population of them can be grown up in a few days. These are the target cells for ‘reprogramming’—making the cells transiently express a series of genes that are normally only expressed extremely early in development (the very early embryo). So the cells go backward in developmental time.
The real excitement for us will be making nerve cells from these iPSC to see how they are different from iPSC-nerves from older patients with healthy brain aging. We will base our investigation on the intriguing findings of the Molecular Neurology group showing many changes in lipids in spinal fluid in Alzheimer’s disease patients, and the changes suggested by our MRI group’s view into chemical imaging of the brain. Importantly, reserves of these cells will be frozen down so that we can go back and pull them out for experiments, as new research pathways are identified by conversations with our colleagues in Molecular Neurology and Advanced Imaging. We are privileged to have a truly multidisciplinary look into a difficult disease through the use of the latest stem cell technologies.
Geza Techy PhD has helped start a new project in the lab, generation of hydrogels from human placenta and umbilical cord for use in stem cell research. The idea behind this project is to develop non-cellular products that can support stem cell growth or instruct stem cells to act in particular ways. The cord or placenta first has its cells stripped away and then the remaining extracellular matrix proteins undergo a series of treatments. Dr. Techy’s work will lay the foundation for more work in this area, a laudable hand-off as he goes into a new life in retirement.

Dr. Csete continues her work around patient safety for cell therapies by participating on the Foundation for the Accreditation of Cellular Therapies Regenerative Medicine Task Force, and speaking about rational cell therapy approaches at meetings. She was featured on a panel about dangers (“valleys of death”) in the development of cell-based therapy at the World Stem Cell Summit in San Antonio in December (picture of the panel below from a Tweet).
The HMRI Development Office provides the infrastructure for identifying, cultivating and stewarding donations and grants in support of the mission of HMRI. Our full time staff of three includes Development Director Dan Maljaniian, Development Officer Terry Garay, and Development Associate Susan Pankow.

Many improvements have taken place in 2014. We began working with Database Manager Beth Duffy to review all policies and procedures for data entry, ensuring that our records are more accurate and responding to donor requests for proper recognition of donors and allocation of gifts to general operations or specific programs. HMRI is also working to capture email addresses and develop methods for communicating via the internet. These improvements will lead to more rapid and modern communications, along with savings on printing and postage.

We also worked with Grant Writer Elizabeth Augustin to identify potential foundation funders and prepare and submit grant applications. These grant writing efforts led to a $1 million grant toward HMRI’s new Biomedical Research Laboratory, along with various smaller grants for specific research programs. We also invested in foundation research and prospect research software which will help us focus our fundraising efforts and maximize positive results.

Toward year end, HMRI hired a public relations consulting firm, Miller Geer, to facilitate better communication of HMRI’s scientific and developmental achievements among healthcare colleagues both locally and nationwide. We should all begin to see HMRI in the news more frequently as they tirelessly promote the achievements of our talented HMRI scientists.

This year, you should have received two newsletters and our year-end annual appeal. We hope to increase our communications to four newsletters annually to better inform our loyal donors and friends of our rapid progress. We will also roll out a new and improved website with better design and navigation, through the talents of Dave Silvey, Dr. Csete’s versatile assistant. This comprehensive annual report was coordinated and compiled by development officer Terry Garay, who also assumed the role of Editor of the newsletter in 2014.
Our “Night on the Riviera” fundraising event was held in Spring 2014, attended by almost 200 supporters at the beautiful home of Roger and Michele Engemann. In the Fall, the HMRI Lynn Smith Founders’ Classic was played at the Annandale Golf Club, with Founding Chair Ann Hall and Honorary Co-Chairs Lynn Wiley (Citizens Business Bank) and Dr. Alfred Solish (Southern California Glaucoma Consultants). Terry Garay also planned and executed these entertaining events, with help from our volunteer Events Committee.

HMRI has begun to ramp up its fundraising efforts for the new Biomedical Research Building by hiring CCS consultants Chris Looney and Blake Reiser to assess the capital campaign accomplishments thus far, and provide a road map for raising the remaining funds needed. With the help of our generous Board of Directors and many other donors, we will be able to break ground on the new building in Fall 2015.

Toward year end, our offices were relocated toward the entrance to the building on 734 Fairmount Avenue to better facilitate visitors and deliveries, and to better utilize our office and lab space. You will see our fresh paint and bright colors the next time you visit us!
It takes lots of engines to power HMRI, and the Business Office is one of those very important engines. Long overdue for a facelift, the HMRI Business Office underwent renovations and enhancements at 99 N. El Molino this year. For the first time in years the front offices and hallways were given a fresh coat of paint and new carpeting, individual offices received new desks, cabinets, and bookshelves, and a new lighting system was installed in the front hallway. The colorful, distinct HMRI logo and institutional symbol was painted in a prominent position to pop out at you as you step into the entranceway to the labs at 99 N. El Molino.

Business Manager Frank Davis and Chief Scientific Officer Dr. Marie Csete prepared HMRI’s first comprehensive Employee Handbook, and also for the first time Employee Evaluations are being conducted for all staff. The Business Office also contributed to the first ever systematic job descriptions and org chart for the Institutes, all structural improvements to the organization necessary to move us forward. As always, accounts receivable specialist Mary Franklin and bookkeeper Mandy Lai provided strong, effectual support for all employees.
Spearheaded by the organizational and moving skills of Jim Kingman and the tireless efforts provided by facilities specialists Dave Strickland and Todd Franklin, rooms that had long evolved into unwieldy storage areas became what they were originally intended to be, functioning lab space. Renovations and improvements were carried out in other locations, particularly the 10 Pico building, which underwent extensive alterations throughout the building and also prepared for the arrival of Dr. Robert Kloner and his staff. The facilities department with Todd and Dave provided excellent support to HMRI buildings and staff, and shepherded Dr. Kloner’s equipment moving across town.

At the end of the year, Margaret Diamond moved from the President’s Office to the Business Office staff. Jim was awarded his own office to work on new projects within the Administrative and Development departments, highlighted by helping coordinate this Annual Report for 2014, the first since 1970. It was a year of productivity and renewal, positioning the Business Office for more exciting changes to come in 2015, and the support that will be needed for collaborative funding agreements and the new scientific strategic plan.
SEPTEMBER 29, 2014: A stellar group of HMRI employees was recognized at the annual Long-Term Service Anniversary Luncheon. Celebrating milestone anniversaries were (left to right): Dr. Howard Kaufman, 5 years; Raquel Fontaine, 5 years; Jill Nuccio, 15 years; Dr. Lawrence Jones, 40 years; Vicki Cheng, 40 years; Dr. Douglas McCreery, 35 years; Dr. Keiko Kanamori, 25 years.

Not pictured: Yelena Smirnova, 10 years; Dr. Myron Tong, 10 years; Lori Tong, 10 years.
DECEMBER 6, 2014: Monthly, multidisciplinary Clinical Conference to review and diagnose Alzheimer’s disease research participants.

Names clockwise from left corner: Cherise Charleswell (Clinical Study Coordinator), Thao Tran (Senior MR Technologist), Dr. Marie Csete (C.S.O.), Dr. Katherine Castor (Analytical Biochemist), Sarah Applegate (Biochemist), Ramona Rostami (Fuller Graduate Student, Neuropsychology), Brian Gradwohl (Fuller Graduate Student, Neuropsychology), David Buennagel (Clinical Research Coordinator), Dr. Jessica Dawlaty (Analytical Biochemist), Dr. Helena Chui (Dept. Neurology Chair, USC), Dr. Michael Harrington (Director Molecular Neurology).

HMRI COMMITTEES

HMRI IACUC


HMRI RADIATION SAFETY COMMITTEE

S. Ashraf Imam, Radiation Safety Officer; Faye Eggerding, M.D., Ph.D.; Alfred N. Fonteh, Ph.D.; Michael G. Harrington, M.B., ChB., F.R.C.P; Geza B. Techy, Ph.D.
2014 ACTIVITY

EXTRAMURAL COMMITTEE WORK

Marie Csete
Chair, Grant Review Committee, Beckman Institute for Macular Degeneration Research

Regenerative Medicine Task Force for Standards for Cellular Therapies, Foundation for the Accreditation of Cell Therapies (FACT)

Martin Han
Review Committee for International Functional Electrical Stimulation Society Conference

Reviewer, NEWFELPRO Fellowship Program, Croatian Ministry of Science, Education and Sport

Reviewer, Dept. of Veterans Affairs Career Development Study Section

Michael Harrington
PhD thesis committee (Megan Gomez), Fuller School of Psychology

NIH Special Emphasis Panel Study Section (Human Sodium MRI), ZRG1 BDCN (Brain Disorders and Clinical Neuroscience)-W (03), July 2014

Grant reviewer for DoD Discovery-Chronic Migraine and Post-Traumatic Headaches (DIS-CMPTH), September 2014

NEW ACADEMIC APPOINTMENTS

Marie Csete
Professor of Clinical Anesthesiology, USC
Visiting Associate in Medical Engineering, Caltech

Michael Harrington
Research Professor of Psychology, Fuller Theological Seminary Adjunct Research Professor of Neurology, USC

Ashraf Imam
Adjunct Associate Professor of Pathology, USC
2014 ACTIVITY

EXTRAMURAL PRESENTATIONS:
LECTURES, PANELS, POSTERS

Advanced Imaging


Molecular Neurology


Harrington, MG: Proteomics in Neurology, Los Angeles, March 2014


Harrington MG: Multimodal approach to testing the acute effects of mTBI. Concussion Research Meeting of USAMRAA, Fort Detrick, MD, July 2014.

Neural Engineering

Han M, McCreery DB, Pikov V, Duong H: A hybrid array with up to two years of intracortical neural recordings. DARPA Sensorimotor Prosthetics Workshop, Scottsdale AZ, February 2014.

McCreery, D.: Optimizing the spatial and temporal bandwidth of intraparenchymal microstimulation. 2014 Neural Interfaces Conference, Dallas TX.
Victor Pikov was a panelist at the same conference

Pikov, V.: “Neuroengineering” in Bioengineering course BE M260 at UCLA

Pikov, V.: DARPA RE-NET meeting, Scottsdale AZ, February 2014

Pikov, V.: Panelist, Everything Implantable at Wearable Tech Conference, Pasadena CA

Pikov, V.: Exploratory Projects, GSK Bioelectronic Medicines Summit, Dallas (June 2014) and Chapel Hill (December 2014)

Pikov, V.: Neurotech Leaders Forum, San Francisco CA, October 2014


Victor continues to work as a co-host of the Healthcare Innovation group in Pasadena, which meets each month.

Cell Biology/Tissue Engineering


Csete M: The Liver. Lecture in Physiology Course for Medical Engineering graduate students at Caltech, October 2014.

Csete M: Research at HMRI. Pomona College, October 2014.
Research at HMRI. Cal State LA, November 2014.

Panel participant: Where are stem cells now? WCSC
Panel moderator: Role of blood centers in regenerative medicine, WSCS
2014 ACTIVITY

2014 NEW GRANTS / CONTRACTS TO HMRI*

Foundation support (anonymous)
To: Michael Harrington, Brian Ross, Marie Csete for: Biomarkers of Early Alzheimer’s Disease: Pathways to Prevention
$3,000,000

Foundation support (anonymous)
Application submitted by Dan Maljanian and Marie Csete
$1,000,000 for HMRI new laboratory building

J.W. and Ida Jameson Foundation
To Martin Han for: Instruments for a novel less invasive neural stimulation for spinal cord injury.
$15,000

Ann Peppers Foundation
To: Michael Harrington for: Stereotactic head stabilization equipment.
$15,000

GlaxoSmithKline
To: Victor Pikov for: Effect of suppressing the superior ovary nerve activity on the polycystic ovary phenotype in rats.

SlimStim contract
To: Victor Pikov for: Effect of tongue stimulation on neuronal activation in the ventromedial and lateral nuclei of the hypothalamus
12/2014

Directed donation from Tori Thomas
For: Howard Kaufman’s colorectal research program
$97,000

Directed donation from Betty Anderson
For: Howard Kaufman’s colorectal research program
$25,000

*Please Note: This is a representative list only. The donor pages in the Philanthropy section recognize all of HMRI’s generous donors and foundation supporters for 2014.
2014 ACTIVITY
ONGOING FUNDING

NIH RO1
To: Doug McCreery for: Advanced technology for neural interfaces based on microstimulation
2nd year award, $489,738

Department of Defense
To: Michael Harrington with co-investigators in Molecular Neurology and Advanced Imaging Research for: Monitoring neurocognitive performance and electrophysiological activity after mild traumatic brain injury (mTBI).
Total award $2,665,722

NIH RO1
To: Michael Harrington for: Dysfunction of sodium homeostasis in a rat migraine model
Total award $1,693,125

2014 PATENTS ISSUED TO HMRI

Issue date: Mar. 11, 2014

Issue date Sept. 9, 2014.
The Director of the United States Patent and Trademark Office

Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

Therefore, this

United States Patent

Grants to the person(s) having title to this patent the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States of America or importing the invention into the United States of America, and if the invention is a process, of the right to exclude others from using, offering for sale or selling throughout the United States of America or importing into the United States of America, products made by that process, for the term set forth in 35 U.S.C. 154(a)(2) or (c)(1), subject to the payment of maintenance fees as provided by 35 U.S.C. 41(b).

See the Maintenance Fee Notice on the inside of the cover.

[Signature]

Director of the United States Patent and Trademark Office
(54) APPARATUS AND METHOD FOR TREATING OBSTRUCTIVE SLEEP APNEA

(75) Inventor: Douglas B. McCreery, Pasadena, CA (US)

(73) Assignee: Huntington Medical Research Institutes, Pasadena, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: 13/427,806
(22) Filed: Mar. 22, 2012

Prior Publication Data

Related U.S. Application Data
(63) Continuation of application No. 12/441,793, filed as application No. PCT/US2007/079717 on Sep. 27, 2007.
(60) Provisional application No. 60/827,193, filed on Sep. 27, 2006.

(51) Int. Cl. A61N 1/18 (2006.01)

(52) U.S. Cl. .................................................. 607/134
(58) Field of Classification Search .............. 607/134; 600/034

See application file for complete search history.

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Date of Patent: Jan. 22, 2013

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OTHER PUBLICATIONS


Primary Examiner — Scott Getzow
Assistant Examiner — Amanda Paton
(74) Attorney, Agent, or Firm — Davis Wright Tremaine LLP. Heather M. Calburn; Kye D. Fleming

ABSTRACT

The present invention describes an apparatus, a system and a method for the treatment of obstructive sleep apnea. The treatment involves monitoring the position of the tongue and/or the force exerted by the tongue and electrical stimulation of the hypoglossal nerve to move the tongue into an anterior position or to maintain the tongue in an anterior position.

25 Claims, 24 Drawing Sheets
2014 ACTIVITY
2014 PUBLICATIONS BY HMRI RESEARCHERS

ADVANCED IMAGING

Charleswell CA: Commentary: clinician and researcher contributions to disparities in racial and ethnic minority participation in human subjects research. Ethn Dis 2014; 24:298-301.


    Access full article: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3901771/


CANCER BIOLOGY

Access full article: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4173047/

Access full article: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4173046/

Access full article: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3984764/

CELL BIOLOGY/TISSUE ENGINEERING


LIVER CENTER


MOLECULAR NEUROLOGY


Access full article: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4067345/


NEURAL ENGINEERING


Access full article: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4233276/


Pikov V: Chapter 42: Global market for implanted neuroprostheses. In: Kilgore K, ed.: Implantable neuroprostheses for restoring function, Woodhead Publishing (Elsevier)
For Immediate Release
Contact: Terry Garay, HMRI
(626) 397-5806
tgaray@hmri.org

July, 2014

Breakthrough HMRI Alzheimer’s Study Published
Reveals Possible Early Diagnosis, Potential Treatment

PASADENA, CA - A groundbreaking study on Alzheimer’s Disease, authored by HMRI Senior Biochemist Dr. Alfred Fonteh, and his colleagues from HMRI’s Molecular Neurology Program, has just been published in PLOS ONE, a leading scientific peer-reviewed journal. Entitled Human Cerebrospinal Fluid Fatty Acid Levels Differ between Supernatant Fluid and Brain-Derived Nanoparticle Fractions, and Are Altered in Alzheimer’s Disease, the study shows that the cerebrospinal fluid of patients with Alzheimer’s Disease may contain diagnostic information before they have memory loss. The spinal fluid analysis also points to possible new avenues of therapy.

The 3-year study found significant differences in fatty acids in cerebrospinal fluid – the fluid that bathes the brain and spinal cord – between Alzheimer’s and cognitively healthy patients. In particular, Omega-3 fatty acid levels were found to be considerably reduced in Alzheimer’s patients.

“We measured a vast number of lipid compounds in the cerebrospinal fluid and found a lot of changes, especially in Omega-3 fatty acids and also in the mono-unsaturated fatty acids,” said Dr. Alfred Fonteh, HMRI Senior Biochemist, and the lead researcher on the study. “These (Omega-3’s) are the kind of fatty acids that you often find in a Mediterranean diet.”
Dr. Fonteh noted that in earlier studies people in countries with high-fish diets – foods particularly rich in Omega-3 fatty acids – were found to have better memory function and tend not to have as high an incidence of Alzheimer’s disease. These data formed part of the hypothesis that led to his study. In addition, it was known from earlier studies of Alzheimer’s disease that the brain – which contains abundant fatty acids – shrinks considerably in Alzheimer’s patients.

This was the first study of its kind to be conducted on live human subjects. “For a long time people have done animal studies that found that if you provide a certain amount of Omega-3 fatty acids to rats, it prevents memory loss,” Dr. Fonteh continued. “But no one has ever studied humans to discover levels of Omega-3 fatty acids in the brain, or whether they’re actually depleted or have any significance in disease.” By looking in cerebrospinal fluid, the researchers have a more direct read-out of changes in the brain, rather than looking in blood where molecular changes originating from the brain are mixed together with changes from all the other organs.

The findings of the study raise new questions, to explore new treatment options. The changes in fatty acids within cerebrospinal fluid could be used as markers to characterize the stage of Alzheimer’s disease and perhaps to monitor response to therapies. Intriguingly, looking at restoration of fatty acids may be an approach to therapy, and the HMRI group will be addressing the results of this study with further research in the same patients, new study participants, in parallel with laboratory studies.

To read the study in its entirety, visit http://dx.plos.org/10.1371/journal.pone.0100519

ABOUT HMRI: Huntington Medical Research Institutes (HMRI) is an independent research organization dedicated to improving health and prolonging life. HMRI enhances knowledge of life processes and diseases through medical research and develops technologies to help Southern California physicians diagnose and treat diseases. HMRI’s world-class biomedical research programs are internationally recognized in cancer, liver and neurological diseases, cell biology, neurosurgery, neural engineering and magnetic resonance. Bench research progresses to the patient bedside through collaboration with physicians at Huntington Hospital in Pasadena, California, and regional medical centers, as well as partnerships with Caltech, USC and UCLA. Adding quality years to life is the ultimate gauge of HMRI’s success. For additional information on HMRI, visit www.hmri.org.
ABOUT DR. ALFRED FONTEH: Dr. Alfred Fonteh holds a Ph.D. in biochemistry from the University of London, and completed postdoctoral studies at Johns Hopkins University Asthma and Allergy Center. Prior to coming to HMRI, he held positions of Research Associate, Instructor of Medicine and Assistant Professor at Wake Forest University School of Medicine. Dr. Fonteh has been with HMRI for 13 years, and now holds the position of Senior Biochemist. His research path focuses on lipid signaling pathways to discover therapeutic targets of neurological disorders, including migraine.

ABOUT PLOS ONE: PLOS ONE (eISSN-1932-6203) is an international, peer-reviewed, open-access, online publication. PLOS ONE welcomes reports on primary research from any scientific discipline. It provides:

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Pasadena Unified Partners With Huntington Medical Research Institutes To Save Lives Of Student Athletes

Potentially life-saving head and heart scans will be offered to PUSD high school student athletes free of charge

SEPTEMBER, 2014: This fall, every high school student athlete in the Pasadena Unified School District (PUSD) will be eligible to receive a free head and heart Magnetic Resonance Imaging (MRI) scan. PUSD has partnered with the Huntington Medical Research Institute (HMRI) to conduct a cutting-edge research program focused on diagnosis and prevention of sudden cardiac death and traumatic brain injury in student athletes. This program is motivated by increased public recognition of traumatic brain injuries by the National Football League and others and the deaths of students across the country due to sudden cardiac death. This study is a first for Pasadena high school athletes.

“I am extremely excited to partner with the Huntington Research Institute to provide this service to PUSD students and I believe this program is beneficial for our athletes,” said PUSD Interim Superintendent Dr. Brian McDonald. “As someone who witnessed the sudden heart related death of a childhood friend immediately after a soccer game, I understand the importance of preventative care to protect our student athletes. We are grateful to HMRI for their willingness to include us in this important endeavor.”

Student athletes will be eligible to receive a free cardiac MRI designed to identify an inherited heart condition that predisposes a student to sudden cardiac death (SCD), a non-traumatic, non-violent, unexpected event resulting from the cessation of the heart beating within six hours of a previously witnessed state of normal health. People at risk for SCD are usually without symptoms and unaware that they have a predisposing condition. An Altadena resident and former PUSD student who was attending Harvard-Westlake succumbed to SCD last year. Devastating events such as this could potentially be prevented by the simple scan offered to PUSD athletes.
“I am excited to be able to offer this new benefit to our PUSD athletes,” said Ann Rector, PUSD Coordinator of Health Programs. “This study has the potential of not only saving a life, but also helping researchers understand sports-related trauma.”

PUSD athletes can also receive brain scans designed to diagnosis and prevent brain injuries resulting from a concussion. Concussions are traumatic brain injuries that can lead to chronic cognitive and neurobehavioral difficulties especially if the concussions are recurrent. Although the majority of athletes who experience a concussion are likely to recover, an unknown number of these individuals may experience difficulties related to recurrent injury, commonly referred to as Post-Concussion Syndrome.

Two MRI screening exams, an initial screening early in the school year and a follow-up at the end of the school year, are available to student athletes free of charge. Any athlete who experiences a concussion while participating in a PUSD sporting event will also receive a follow-up scan to see how the injury has affected the brain. Participation in both the brain and heart scans is optional and will supplement the annual physical exam that athletes receive. Parents should be aware that MRI does not involve radiation exposure and the scans are very safe.

“HMRI’s expertise in non-invasive imaging is an important resource for PUSD and we are pleased to offer these normally expensive studies to young athletes at no cost to the student or the district,” said HMRI’s Chief Scientific Officer, Marie Csete MD, PhD. “HMRI scientists will also benefit from studying students because there is insufficient data about the incidence of cardiac abnormalities that could lead to SCD. Importantly, HMRI is at the forefront of understanding how imaging can be used to diagnose and follow patients after they sustain a head injury, but we have focused on older patients to date, so important information about trauma to young brains can help fill in the scientific picture and, we hope, help future athletes.”
Variability in heart beat keeps the body in balance

**Date:** September 22, 2014

**Source:** California Institute of Technology

Although the heart beats out a very familiar "lub-dub" pattern that speeds up or slows down as our activity increases or decreases, the pattern itself isn't as regular as you might think. In fact, the amount of time between heartbeats can vary even at a "constant" heart rate -- and that variability, doctors have found, is a good thing.

Reduced heart rate variability (HRV) has been found to be predictive of a number of illnesses, such as congestive heart failure and inflammation. For athletes, a drop in HRV has also been linked to fatigue and overtraining. However, the underlying physiological mechanisms that control HRV -- and exactly why this variation is important for good health -- are still a bit of a mystery. By combining heart rate data from real athletes with a branch of mathematics called control theory, a collaborative team of physicians and Caltech researchers from the Division of Engineering and Applied Sciences have now devised a way to better understand the relationship between HRV and health -- a step that could soon inform better monitoring technologies for athletes and medical professionals. The work was published in the August 19 print issue of the Proceedings of the National Academy of Sciences.

To run smoothly, complex systems, such as computer networks, cars, and even the human body, rely upon give-and-take connections and relationships among a large number of variables; if one variable must remain stable to maintain a healthy system, another variable must be able to flex to maintain that stability. Because it would be too difficult to map each individual variable, the mathematics and software tools used in control theory allow engineers to summarize the ups and downs in a system and pinpoint the source of a possible problem.

Researchers who study control theory are increasingly discovering that these concepts can also be extremely useful in studies of the human body. In order for a body to work optimally, it must operate in an environment of stability called homeostasis. When the body experiences stress -- for example, from exercise or extreme temperatures -- it can maintain a stable blood pressure and constant body temperature in part by dialing the heart rate up or down. And HRV plays an important role in maintaining this balance, says study author John Doyle, the Jean-Lou Chameau Professor of Control and Dynamical Systems, Electrical Engineering, and Bioengineering.

"A familiar related problem is in driving," Doyle says. "To get to a destination despite varying weather and traffic conditions, any driver -- even a robotic one -- will change factors such as acceleration, braking, steering, and wipers. If these factors suddenly became frozen and unchangeable while the car was still moving, it would be a nearly certain predictor that a crash was imminent. Similarly, loss of heart rate variability predicts some kind of malfunction or 'crash,' often before there are any other indications," he says.

To study how HRV helps maintain this version of "cruise control" in the human body, Doyle and his colleagues measured the heart rate, respiration rate, oxygen consumption, and carbon dioxide generation of five healthy young athletes as they completed experimental exercise routines on stationary bicycles.
By combining the data from these experiments with standard models of the physiological control mechanisms in the human body, the researchers were able to determine the essential tradeoffs that are necessary for athletes to produce enough power to maintain an exercise workload while also maintaining the internal homeostasis of their vital signs.

"For example, the heart, lungs, and circulation must deliver sufficient oxygenated blood to the muscles and other organs while not raising blood pressure so much as to damage the brain," Doyle says. "This is done in concert with control of blood vessel dilation in the muscles and brain, and control of breathing. As the physical demands of the exercise change, the muscles must produce fluctuating power outputs, and the heart, blood vessels, and lungs must then respond to keep blood pressure and oxygenation within narrow ranges."

Once these trade-offs were defined, the researchers then used control theory to analyze the exercise data and found that a healthy heart must maintain certain patterns of variability during exercise to keep this complicated system in balance. Loss of this variability is a precursor of fatigue, the stress induced by exercise. Today, some HRV monitors in the clinic can let a doctor know when variability is high or low, but they provide little in the way of an actionable diagnosis.

Because monitors in hospitals can already provide HRV levels and dozens of other signals and readings, the integration of such mathematical analyses of control theory into HRV monitors could, in the future, provide a way to link a drop in HRV to a more specific and treatable diagnosis. In fact, one of Doyle's students has used an HRV application of control theory to better interpret traditional EKG signals. Control theory could also be incorporated into the HRV monitors used by athletes to prevent fatigue and injury from overtraining, he says.

"Physicians who work in very data-intensive settings like the operating room or ICU are in urgent need of ways to rapidly and acutely interpret the data deluge," says Marie Csete, MD (PhD, '00), chief scientific officer at the Huntington Medical Research Institutes and a coauthor on the paper. "We hope this work is a first step in a larger research program that helps physicians make better use of data to care for patients."

This study is not the first to apply control theory in medicine. Control theory has already informed the design of a wearable artificial pancreas for type 1 diabetic patients and an automated prototype device that controls the administration of anesthetics during surgery. Nor will it be the last, says Doyle, whose sights are next set on using control theory to understand the progression of cancer.

"We have a new approach, similarly based on control of networks, that organizes and integrates a bunch of new ideas floating around about the role of healthy stroma -- non-tumor cells present in tumors -- in promoting cancer progression," he says.

"Based on discussions with Dr. Peter Lee at City of Hope [a cancer research and treatment center], we now understand that the non-tumor cells interact with the immune system and with chemotherapeutic drugs to modulate disease progression," Doyle says. "And I'm hoping there's a similar story there, where thinking rigorously about the tradeoffs in development, regeneration, inflammation, wound healing, and cancer will lead to new insights and ultimately new therapies."

Story Source:
The above story is based on materials provided by California Institute of Technology. The original article was written by Jessica Stoller-Conrad. Note: Materials may be edited for content and length.

HMRI Begins Clinical Study to Establish a New Non-invasive Method to Measure Heart Performance

Cardiac function is usually investigated using echocardiography but there are limits to the technology, and interpretation of echocardiography requires a lot of training. Using technology developed by Niema Pahlevan, PhD, in the Caltech laboratory of Professor Mory Gharib, HMRI is the setting for evaluating a novel, quick, and completely non-invasive way to assess cardiovascular function.

The core of the experimental device under study is software developed based on extensive fluid dynamics experiments. The software is loaded onto a smartphone, which is used to capture a pulse (waveform) by simply placing the phone lightly against the neck over the carotid pulsation. In this study, the information collected from the smartphone app will be compared to cardiac function data obtained from the current gold standard for measuring cardiac function, cardiac Magnetic Resonance Imaging (MRI). Subjects referred from cardiologists will also generally have echocardiography information available for comparison with the smartphone app. For the study, subjects will have completely non-invasive studies done in one visit, over about 1-1.5 hours: The smartphone app to capture the waveforms (over carotid), tonometry (over carotid and radial (wrist) arteries) using a modified stethoscope, and standard pulse oximetry, followed by a 30-45 minute MRI examination of the heart. A second complete study will be done about 6 months after the first (in some volunteers).

The study will be conducted by Niema Pahlevan, PhD, Caltech-HMRI Boswell Fellow, with supervision from Marie Csete, MD, PhD, Chief Scientific Officer at Huntington Medical Research Institutes. (For information on the “intrinsic frequency” measurements captured using the new device, see Dr. Pahlevan’s recently published article: http://rsif.royalsocietypublishing.org/content/11/98/20140617.short)
Under Chief Scientific Officer Dr. Marie Csete, education enjoyed a renaissance at HMRI in 2014.

The Summer Student Research Program marked its 60th year.

A Speakers Bureau and Weekly Speaker Series were launched.

“We feel we owe the community the results of investments in research,” explains Csete. Elaborating on HMRI’s renewed commitment to education, she adds: “We also understand that there are many groups who critically need information from scientists working on diseases of interest to that group.”

HMRI offers its thanks to the distinguished list of individuals who contributed their time and energy to grow the education program in 2014.
The Summer Student Research Program wrapped up its 60th year under the leadership of Dr. Victor Pikov. Thirteen college and university students were accepted for the highly competitive 10-week program, along with two high school students. In what has now become typical for the program, they represented a broad range of backgrounds. The Class of 2014 concluded their time with HMRI with an afternoon of presentations to an invited audience of dignitaries on Thursday, August 14th.

The 2014 program was made possible thanks to philanthropic support from individuals, foundations, corporations and nonprofit organizations. The Rose Hills Foundation was a major supporter. They provided a grant of $50,000 for the program. The Altadena Guild was another major donor.

Also lending its support was the Summer Program Diversity Committee, which included Dr. Robert H. Suzuki, Mr. Leonard E. Torres, Dr. Howard Xu, and Ms. Diane Scott. This blue ribbon panel assisted with both recruitment and selection. In addition to reviewing applications, they also offered strategies to ensure a broad and diverse pool of students.

As in past years, the summer program was an opportunity for students to further their knowledge of science beyond what is offered at schools during the traditional academic year. HMRI’s scientists served as both mentors and role models, giving the interns an opportunity to work alongside them in the labs. With their mentors, the interns designed a research project that falls within the areas of neural engineering, biomedical imaging, liver research, molecular
neurology, molecular oncology and cancer genetics. With the arrival of HMRI’s Chief Scientific Officer Dr. Marie Csete in 2014, the program was expanded to include stem cell research, as well as public relations.

In addition to conducting research aimed at developing effective diagnostics and treatments for medical conditions, the interns also attended weekly lectures regarding HMRI’s current research projects.

Alexander Rosinski  
Mentor: Dr. Myron Tong  
Program: Liver Research  
School: University of Washington/UCSF  
Hometown: Tiburon, CA

Carina Lee  
Mentor: Dr. Brian Ross  
Program: Advanced Imaging  
School: Cornell University  
Hometown: San Gabriel, CA

Ariel Vaisbort  
Mentors: Dr. Marie Csete & Dan Maljanian  
Program: Public Relations  
School: University of Western Ontario  
Hometown: La Canada, CA

Jose Comi  
Mentor: Dr. Marie Csete  
Program: Stem Cell Research  
School: Cal Poly San Luis Obispo  
Hometown: La Puente, CA

Michelle Hoang  
Mentor: Dr. S. Ashraf Imam  
Program: Molecular Pathology  
School: Brown University  
Hometown: Winnetka, CA

Taylor Litchfield  
Mentor: Dr. S. Ashraf Imam  
Program: Molecular Pathology  
School: Stanford University  
Hometown: Pasadena, CA
Cristin Malekyan  
Mentor: Dr. Lawrence W. Jones & Dr. S. Ashraf Imam  
Program: Prostate Cancer  
School: UC Riverside  
Hometown: Glendale, CA

Aichun Irene Chen  
Mentor: Dr. Faye Eggerding  
Program: Cancer Genetics  
School: UC Irvine  
Hometown: Temple City, CA

Ester Bhebhe  
Mentor: Dr. Xianghong Arakaki  
Program: Molecular Neurology  
School: Pomona College  
Hometown: Zimbabwe

Alex Kim  
Mentor: Dr. Alfred Fonteh  
Program: Molecular Neurology  
School: UC Berkeley  
Hometown: Oak Park, CA

Susana Martinez  
Mentor: Dr. Alfred Fonteh  
Program: Molecular Neurology  
School: Princeton University  
Hometown: West Covina, CA

Mathivadhanan Rajendran  
Mentor: Dr. Douglas McCreery  
Program: Neural Engineering  
School: USC  
Hometown: Salem, India

Alexander Huang  
Mentor: Dr. Howard Kaufman  
Program: Colorectal Cancer  
School: UC Irvine  
Hometown: San Marino, CA
Universal laws and architectures:
Theory and lessons from nets, grids, brains, bugs, planes, docs, fire, fashion, art, turbulence, music, buildings, cities, earthquakes, bodies, running, throwing, spacecraft, statistical mechanics

Presented by:

John C. Doyle
Jean-Lou Chameau Professor
Control and Dynamical Systems,
EE, & BioE, Caltech

Thursday, JUNE 19th at 4:00 p.m.
Huntington Memorial Hospital
EAST Conference Room
(Please enter through the dispensary)

Brought to you by:

HVRI
Huntington Medical Research Institute

About the Speaker:
John Doyle is the Jean-Lou Chameau Professor of Control and Dynamical Systems, Electrical Engineer, and BioEngineering at Caltech. BS, MS EE, MIT (1977), PhD, Math, UC Berkeley (1984). Current interests: theoretical foundations for complex networks in engineering and biology, unifying controls, computing, communications, and physics. Paper prizes include IEEE Baker (top paper in all IEEE publications), IEEE Automatic Control Transactions (twice), and best conference papers in ACM Sigcomm and AACC American Control Conference. Individual awards include AACC Eckman and IEEE Control Systems Field and Centennial Outstanding Young Engineer Awards. Held national and world records and championships in various sports.

Overview:
In this talk, Dr. Doyle will discuss his research on mathematical foundations for complex networks with applications in medicine, biology, technology, ecology, and neuroscience. Recent case studies include cell biology, internet architecture and protocol design, medical physiology, smart grid and other cyberphysical control and optimization, brain architecture, turbulence, theoretical foundations of statistical mechanics, wildfire, ecology, and earthquakes. A particular focus is on hard limits on achievable robustness, efficiency, and performance, the architectures and protocols that allow systems and networks to achieve these limits, scalable algorithms to implement protocols and do statistical and robustness analysis of data and systems, and the nature of adaptation and evolution. New interests include social insects and cancer.

Colorful flyers designed by Dave Silvey advertise our weekly seminar series.
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<th>NAME/TITLE/INSTITUTION</th>
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| Robert A. Kloner, M.D., Ph.D. 
Professor of Clinical Medicine, 
USC Keck School of Medicine 
Director of Research, 
Heart Institute 
Good Samaritan Hospital             | 04/07/2014 | Update on Cardio Protection                                                         |
| Andrew F. Leuchter, M.D. 
Professor of Psychiatry, 
UCLA                                  | 04/15/2014 | Rhythms and Blues: Oscillatory Synchrony as an Intermediate Phenotype for Remission During Treatment of Major Depression |
| Kimberly Shriner, M.D., F.A.C.P. 
Founder and Director, 
Phil Simon Clinic Tanzania Project 
(a nonprofit organization of Huntington Hospital) 
Assistant Professor of Clinical Medicine 
USC Keck School of Medicine         | 05/20/2014 | Graduate Medical Education at Huntington Hospital: From the Beside to the Bush       |
| Prabha Siddarth, Ph.D. 
Research Statistician, 
Department of Psychiatry 
and Biobehavioral Sciences, 
UCLA                                  | 05/27/2014 | Using Statistics to Decipher Brain Disorders: Insights from Cognition, Language, Psychopathology, and Imaging |
| John Wood, M.D., Ph.D. 
Director of Cardiovascular MRI, 
Children’s Hospital Los Angeles      | 06/10/2014 | Tissue Iron Quantification by MRI, Basic and Clinical Perspectives                  |
| John C. Doyle, Ph.D. 
Jean-Lou Chameau Professor, 
Control and Dynamical Systems, 
Electrical Engineering and Bioengineering, 
| Warren S. Brown, Ph.D. 
Professor of Psychology, 
Director of Travis Research Institute, 
Fuller Graduate School of Psychology | 06/24/2014 | The Natural Split Brain: The Cognitive Outcome of Disconnected Hemispheres          |
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<td>Mark S. Humayun, M.D., Ph.D.</td>
<td>07/17/2014</td>
<td>Bioelectronics for Ophthalmology</td>
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<td>Cornelius J. Pings Chair in Biomedical Sciences, Professor of Ophthalmology, Biomedical Engineering and Cell and Neurobiology, Director of the Institute for Biomedical Therapeutics Co-Director of the USC Eye Institute, USC</td>
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<td>Ahmad Falahatpisheh, Ph.D. Visiting Scientist, HMRI Postdoc Scholar, UC Irvine</td>
<td>07/24/2014</td>
<td>Image-Based Studies for Modeling Cardiovascular Flows</td>
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<td>Eric P. Wilkinson, M.D., F.A.C.S. Surgeon, House Clinic Research Investigator, Neural Engineering Program, HMRI</td>
<td>07/31/2014</td>
<td>New Clinical Trials with Auditory Implants</td>
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<td>Viviana Gradinaru, Ph.D. Assistant Professor of Biology and Biological Engineering Caltech</td>
<td>08/07/2014</td>
<td>Visualizing the Activity and Anatomy of Brain Circuits: Optogenetic Sensors and Tissue Clearing Approaches</td>
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<td>Andrea Loewendorf, Ph.D. Staff Research Associate II Ob/Gyn Department David Geffen School of Medicine, UCLA</td>
<td>08/12/2014</td>
<td>Tolerating Dad: The Role of Regulatory T-Cells in Healthy Pregnancy and Pre-Eclampsia</td>
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<td>Karen S. Aboody, M.D. Professor, Department of Neurosciences and Division of Neurosurgery City of Hope National Medical Center and Beckman Research Institute</td>
<td>08/20/2014</td>
<td>Neural Stem Cell-Mediated Cancer Therapies: From Bench to Bedside</td>
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<td>Stefan Bluml, Ph.D. Principal Investigator, The Saban Research Institute, Director, New Imaging Technology Lab, Children’s Hospital Los Angeles</td>
<td>08/28/2014</td>
<td>In Vivo MR Spectroscopy in Pediatrics</td>
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There is no typical HMRI stakeholder.

In 2014, three young girls from New Jersey became stakeholders when they donated the proceeds of a school project to HMRI.

Many different types of people come together every day in support of Huntington Medical Research Institutes.

What links them is a belief in the power of possibility and the spirit of discovery.

That collective energy was never more evident than in 2014.

In the pages that follow, you will meet some of HMRI’s not so typical stakeholders.

From a treasured senior scientist to the esteemed members of the Altadena Guild, we salute them all and thank them for their efforts.
One of the giants of Huntington Medical Research Institutes retired in 2014: Dr. Brian David Ross, M.D., M.B., F.R.C.S., F.R.C.Path., D.Phil. (Oxon). Ross served as Director of the Magnetic Resonance Laboratory for an impressive twenty-six years. He joined HMRI in 1988. As might be expected from the gentleman, Ross immediately made it known that he wanted no tributes or special dinners marking his retirement. However, as might also be expected, an opportunity to showcase his beloved science eventually won out. On October 25th, colleagues and former students from around the world gathered at HMRI for an MR Scientific Symposium in honor of Dr. Ross. The gathering made one thing immediately apparent: Brian D. Ross may have retired on June 30th, 2014, but his legacy in MR spectroscopy will continue to be carried out through the work of the countless individuals whose lives he touched during his remarkable career.

Reflecting on it, HMRI Chief Scientific Officer Dr. Marie Csete says: “The academic progeny of Dr. Ross are extending this work all over the world, and are no doubt in the process of changing medicine with their research.” Continuing, she adds: “HMRI is known in imaging circles as ‘Brian Ross’ place’ because he was persistently prolific, with over 300 peer-reviewed publications, most during his tenure at HMRI.”

The MR Symposium brought an international Who’s Who from the scientific world and it stands as one of the highlights of 2014 for HMRI. Following are some of the presenters:
Keiko Kanamori, PhD, PI of Epilepsy Program, HMRI

Peter Barker, DPhil, Professor of Radiology, Johns Hopkins University School of Medicine, Maryland

Roland Kreis, PhD, Associate Professor, University Bern, Switzerland

JongHee Hwang, PhD, Professor, Gachon University School of Medicine, South Korea

Else Danielsen, PhD, MR Spectrocopist, Rigshospitalet, Denmark
Stefan Blum, PhD, Associate Professor of Research Radiology, Children’s Hospital of Los Angeles

Alexander Lin, PhD, Assistant Professor of Radiology, Harvard Medical School

Pratip Bhattacharya, PhD, Associate Professor, University of Texas, MD Anderson Cancer Center and Rice University

At the conclusion of the symposium, the presenters gathered with Dr. Ross. From Left: Thao Tran, JongHee Hwang, Timo Schirmer, Napapon Sailasuta, Joseph Norfray, Pratip Bhattacharya, Peter Barker, Alex Lin, Judith Ross, Brian Ross, Stefan Bluml, Else Danielsen, JungHee Lee, Jennifer Swain, Roland Kreis, Keiko Kanamori, Marie Csete.
Dr. Brian Ross began his education in 1955 at University College in London, where he received an Open Scholarship for his Bachelor of Science in Physiological Sciences, in addition to a degree in Biochemistry. He went on to complete his first medical degree at University College Hospital in 1961 when he also received a Distinction in Medicine and the Belasco Medal for Medicine. From 1963-1967, Ross joined the Metabolic Research Unit Medical Research Council at Oxford University as a Junior Research Fellow and completed his D. Phil. in Biochemistry under the supervision of Sir Hans A. Krebs, F.R.S. Subsequently, he conducted his post-doctoral fellowship at the Clinical Chemistry Lab in Munich in 1968 and was a post-doctoral fellow of the British Heart Foundation in the Department of Biochemistry at Imperial College in London in 1969.
He continued his path in medicine, receiving his surgical qualification from the Fellowship of the Royal College of Surgeons (F.R.C.S.) in 1973, his pathology qualification from the Membership of the Royal College of Physicians, Pathology (M.R.C.Path.) in 1976 and the Fellowship of the Royal College of Pathologists (F.R.C.Path) in 1989. While pursuing his surgical and pathology qualifications, Dr. Ross also worked as a Senior Research Fellow at the National Kidney Research Fund in the U.K. in 1981 and a Wellcome Foundation Senior Clinical Research Fellow at the Nuffield Department of Medicine at the John Radcliffe Hospital at Oxford from 1982 to 1989.

Introduced to nuclear magnetic resonance by Dr. Ray Freeman and Sir Rex Richards, Dr. Ross conducted his first MR spectroscopy studies with Sir George Radda at Oxford, where he led the medical team which carried out the first human diagnosis in 1981. He has continued to be a pioneer in developing clinical MR spectroscopy. Since coming to Huntington Medical Research Institutes in 1988, Dr. Ross has established HMRI as the premier center for neurological diagnosis by MRS, and has trained hundreds of physicians, scientists, radiologists and technologists in the acquisition and interpretation of data in this essential diagnostic technique.

In 1995, Dr. Ross was awarded the Gold Medal from the International Society of Magnetic Resonance in Medicine for his contribution to the field of magnetic resonance research. He also holds the US patent for “MRS Analysis of the Brain for Diagnosis of Clinical Conditions,” and his diagnostic technique continues to be an essential part of the clinical diagnosis for patients and is employed in numerous spectroscopy studies at HMRI.
A simple flyer promoted the symposium held in Dr. Ross’ honor.

Introducing NMR by Ray Freeman and Sir Rex Richards, Dr. Ross has been a pioneer in developing clinical magnetic resonance spectroscopy, conducting his first MRS studies with Sir George Radda in Oxford in 1981.

He has authored 4 textbooks, many chapters and over 300 peer-reviewed publications which are widely cited. He instituted the first comprehensive clinical MRS service in the United States at Huntington Medical Research Institutes. He also holds the US patent for MRS Analysis of the Brain for Diagnosis of Clinical Conditions.

He was awarded a Gold Medal by the International Society of Magnetic Resonance in Medicine in 1995 for recognition of his work in this field.

He has also trained hundreds of physicians, scientists, and technologists in the acquisition and interpretation of data in this essential diagnostic technique.

Please join us at the MR Scientific Symposium to honor Dr. Brian Ross and his dedication to science and research where his former students and colleagues will present research completed during their tenure with Dr. Ross.

**WHEN:** Saturday, October 25, 2014
**8:30AM – 1PM**

**WHERE:** Huntington Medical Research Institutes
Research Conference Hall
734 Fairmount Ave., Pasadena, CA 91105

Please call 626-397-5840 for questions/directions.
THE HMRI BATON PASSES TO A NEW GENERATION OF RESEARCHERS
In 2014, Hollywood’s loss became HMRI’s gain. Neuroscientist Dr. Noah Gross, who joined the Molecular Neurology group in July, arrived with more than impressive academic and scientific credentials. He brought a Hollywood past. Among his credits as a child actor: He was in the movie *Dick Tracy* with Warren Beatty. He also appeared in a number of commercials. “It was a great time,” he says with a smile, “going to Universal Studios, the movie lots, the back lots, and seeing famous people and actors and actresses.” Reflecting on the experience, he adds, “It was a really nice part of my life, but I do like the way that my life direction has unfolded.”

A self-described team player, Gross could not have picked a better time to come to HMRI. Under new Chief Scientific Officer Dr. Marie Csete, HMRI ushered in a new spirit of collaboration in the labs in 2014. Gross readily admits, “I’m not really big on independent research – working by yourself and just kind of creeping along, and nobody really knowing what you’re doing.” His ideal: “I like for more people to be involved with my research. The more minds on one project, the more ideas that can flow, and the better the science can be…the better the experiments can be,” he concludes.

Shortly after his arrival at HMRI, Dr. Gross was able to put that collaborative attitude immediately to work with some of the students from the Summer Student Research Program. “I gave them a different look, a different viewpoint, of how to look at their experiments and what to measure,” he recalls. “Without my comments they probably wouldn’t have had some of the ways to look at their experiments.”

Not surprisingly, Gross sums up his time thus far with HMRI as “very positive.” He also gives high praise to program director Dr. Michael Harrington for his mentorship. “It’s something I haven’t really had elsewhere,” he notes. “Here I have the mentorship and I feel like it’s a big part of growing and moving forward.”

An L.A. native, Noah Gross was born at Cedars-Sinai Hospital and was raised in the Thousand Oaks/Agoura Hills area. He describes his parents as “smart, and loving people” who encouraged pursuing your passions and following your heart. He, his brother, and his sister were not steered in any one direction. The acting was something he and his brother did when they were 7 and 8-years-old. At some point, though, he was given the choice to pursue the acting lifestyle or some other lifestyle. Academics easily won out and the acting went on the back burner.
The future neuroscientist remembers, “I was always a very curious individual, a curious child, asking lots of questions, trying to figure things out on my own.” In junior high he started to learn about the scientific community and the potential to do experiments. That interest continued into high school, where Gross got more involved with the chemistry labs and the biology labs. By the end of high school he knew he wanted “to become something in the health professions.”

Gross went on to UCLA, and as he tells it, “I just kind of started to fall in love with more of the research aspects, the clinical aspects.” At UCLA he majored in psychobiology. “I really didn’t know exactly where I wanted to go with my career at that point,” he recalls. “I just knew I wanted to be in science doing experiments – biology-based – and then,” he pauses, “I fell in love with neuroscience!” In that moment, the road to HMRI was set.

When he finished UCLA, he applied for a graduate program at a few different schools. He found the best fit for him at UC Irvine. Talking about his UCI days, he says, “I got involved with a lot of neurodegenerative disease pathologies.” That experience included work with Parkinson’s disease. “I was very interested in protection and how we can help when an individual is suffering from some sort of neurodegenerative disease that they had no control over.”

Gross says that his interest in helping people is just part of his nature. “I really just enjoy seeing other people happy,” he offers, “I’ve always been that person to try and help out, and since I have this passion for science, I thought I could kind of fuse the two.”

Dr. Gross would continue at UCI as a post-doctoral researcher in a molecular neuroscience lab until he joined HMRI. When asked about his long term plans, he says simply, “I hope to be more involved with the neuroscience department and helping to build it as much as we can.” Another part of his nature is that he tries not to think too far into the future.

As for his favorite role these days? He and his pharmacist wife are proud to be “the science nerds” of their family. “There are no doctors in our family,” he says. “We’re the only ones. So a lot of people ask us questions and come to us.” Being able to share their experiences and expertise works just fine for them and has been very rewarding.

The Gross family, by the way, grew by two in October. Dr. Gross and his wife welcomed twins – a boy, Aidan, and a girl, Aria. What advice will he offer his children? “Take life as it comes and make the best decisions, and don’t have regrets,” he responds.

An altruistic team player who values collaboration, Dr. Noah Gross was definitely Hollywood’s loss and HMRI’s gain.
Life has come full circle for Helen Baatz and HMRI is reaping the benefits. In 2014, after years as a generous major donor, Helen began serving on HMRI’s Development Committee, a leadership level volunteer group that supports the board of directors. Her involvement has quickly proved invaluable.

Helen’s professional background includes 29 years at Monte Vista Grove Homes, a long-term care facility and residential retirement community in Pasadena. Beginning in the nursing department, she became Director of Nursing in 1985, and was appointed Executive Director in 1994. In 2004, Leading Age California honored her with their meritorious Service Award. She held the CEO role for 16 years until she transitioned into Monte Vista’s development office. In her development role, which she held for three years, Helen was involved with fundraising – an especially valuable asset for a HMRI development committee member.
When asked why she was up for the challenge of helping HMRI with its fundraising, Helen is quick to respond: “I think it’s one way to get involved, to make a contribution. Once I get interested in an organization and their mission, I like to be involved. I know I bring administrative and organizational skills. Those happen to be strengths of mine.”

Interestingly, it is Helen’s nursing background that holds a special place in her heart. “I still have a current RN license,” she adds, smiling. “I’m rather proud of that. I’ve been an RN for 53 years!”

Spend a few moments with her and you’ll also learn that she is very interested in medical research and always has been. Helen is straightforward in her response to why HMRI stands out for her: “It’s the importance of the work for future generations. It really is a privilege and an honor to be involved, and to feel that you might make some little contribution to advancing research.”

Helen’s path to HMRI begins in Canada, with parents who clearly left their imprint on her. “I was born and raised in cosmopolitan Montreal, Quebec,” she shares. “My father was of French heritage (France) and mother had Scottish roots. Dad loved the arts, opera in particular. I studied classical ballet for many years. My mother (who always wanted to be a nurse, but didn’t have the chance) enjoyed entertaining (she was a great cook). She was ‘very proper’ and often reminded me of the late Queen Mother in her manner of wearing hats, fine jewelry and gloves.” Helen adds simply, “I am most grateful for their positive influences in my life.”

Another person of influence in her life was Canada’s pioneering neurosurgeon and researcher, the late, great Dr. Wilder Penfield. Helen credits her interest in research to him. As a young nurse in Montreal, she became aware of his groundbreaking work and it stuck with her.

Fast forward to Pasadena. Helen and her husband John moved here in 1984. Through the Pasadena Opera Guild, Helen got to know Rita Pudenz, the widow of one of HMRI’s founders, Dr. Robert Pudenz. In an interesting twist, Dr. Pudenz served his neurological residency at the Montreal Neurological Institute under the guidance of Dr. Wilder Penfield. Helen’s path to HMRI seems to have been inevitable. Reflecting on it, she says, “So that connection with my earlier days in Montreal, it just seemed a natural connection. It went full circle. It really went full circle.” Dr. Penfield would be especially pleased to know that brain surgery remains an area of special interest to Helen.
Today, one of Helen’s personal heroes at HMRI is Dr. Myron Tong, the director of HMRI’s Liver Center. Helen got to know him about three years ago because of a health crisis in her family. Thanks to Dr. Tong, those health issues are behind them. Talking about the experience, she says, “I don’t think I really fully appreciated when people said ‘you’re going to the best…you’re going to THE liver specialist.’ I certainly do now.”

To her, Dr. Tong epitomizes the spirit of HMRI. She marvels at the breadth of his knowledge and how well known he is, not just in Pasadena, but internationally. She continues: “I just don’t think the average lay person knows the importance of the work that’s going on here and the advances that have been made.” With Helen helping to spread the word, that may soon change.

Being a champion of research might be enough for some people. That’s not the case with Helen. “I have many other interests,” she is quick to point out. She is passionate about the arts – the performing arts, such as classical ballet, as well as visual arts. She is in fact currently an Education Facilitator for the nearby Scott Gallery at The Huntington. She describes herself as a voracious reader and belongs to three separate book clubs. Her leadership roles include serving as President of the Pasadena Opera Guild and on the Alumni Board of the University of Redlands.

And then there is her family. Discussing them, she will tell you, “My husband John and I are very proud of our two adult child – Mark and Laura.” Mark, the eldest, is successfully running the family business and he has two daughters. Daughter Laura has a professional consulting career in downtown L.A. and lives in La Canada with her husband and ten-year-old daughter. Helen, the lover of dance, adds with a laugh, “All three granddaughters love soccer! No budding ballerinas in the group!”

A full life that has come full circle. HMRI could not have asked for a more dynamic friend and supporter than Helen Baatz.
What kind of person allows his body to be used for scientific research? To a lot of us, research subjects fall into two categories: starving students or skid row transients. Larry Wilson, the Public Editor of the Pasadena Star News, isn’t someone who immediately comes to mind. Yet, this was his headline for a lead article that was published in September of 2001: SPINAL TAP - I WAS A GUINEA PIG FOR THE HMRI.

Every year, about 100 individuals volunteer their time as research participants at Huntington Medical Research Institutes. Their contributions are invaluable to the science and to our researchers. Wilson, who suffered from migraine headaches, was a volunteer in an extensive neurological study in 2001. He chronicled the experience in an often hilarious article in the newspaper. Suffice to say, he began with this entry: “May 23: ‘Mike, you are an evil, evil man.”’

The “Mike” he is referring to is Dr. Michael Harrington, the director of HMRI’s Molecular Neurology group. It seems Mr. Wilson has never been a fan of spinal taps or blood tests, and guess what the study involved?

When asked what initially drew him to HMRI, Wilson becomes serious and immediately credits Harrington: “He’s a great ambassador for the Institutes,” he offers. “He can speak colloquially about complicated neurological phenomena and I think that’s important to getting people involved in science.” In his article, Wilson put it this way:

(Harrington) “makes you feel like you’re part of the grand plan. With your help, the medical mysteries of the world will be solved. Suffering eased. And all it takes is a few little vials of this crazy clear liquid that flows down the middle of your backbone…”
For his part, Harrington says: “His participation in giving his story of migraine and his beloved body fluids remains a major source for our migraine research progress to this day, as we still have some samples left. We just need him to come back for more!”

No surprise, Wilson and Harrington have remained friends through the years and Wilson continues to show his support by writing the occasional editorial encouraging readers of the Pasadena Star News to participate in HMRI research studies. In 2012, he furthered his commitment by co-hosting a HMRI migraine symposium with another migraine sufferer, local TV personality Serene Branson, of CBS2/KCAL9.

“I am unafraid to be personal,” is how Wilson explains his decision to be public about being a research subject. “Research can sound kind of obscure or uninteresting,” he continues, “but when you’ve got a story to tell, it makes people more interested in getting involved. So that’s what I was trying to do when I wrote my story in the paper.”

By continuing to share his story, Wilson also hopes to remove some of the stigma associated with migraines, particularly for males. “It’s seen as a woman’s disease,” he observes, “that’s why men don’t want to cop to it.”

Not surprisingly, finding male migrainers for research studies can be difficult. “Cowboy up is the attitude,” is his view of it.

Migraine is a debilitating disease that affects about 36-million Americans – both men and women. “The more that people talk about it,” Wilson says, “the more that normalizes it.” Even with the research that’s been done, though, he admits that migraine remains a mystery and not enough is known about it. And “because it doesn’t literally kill you,” he acknowledges, finding research money remains a challenge.

As a child, Wilson remembers suffering from headaches, but they weren’t migraines. Those began when he was in his mid twenties, and then “they became fairly serious.” By his thirties, he was having “a couple of really serious migraines a week.” Today, thanks to his neurologist, Dr. Robert P. Cowan of Stanford University, Wilson has found a regimen that is working for him and his migraines have become something of the past.
A fourth-generation Pasadenan, Mr. Wilson describes himself as a newspaper editor, a columnist, a surfer, a husband, and a dad. His wife Phoebe, he tells you, is an architect in Pasadena who "is mostly retired now." Daughter Julia is a college student. He also mentions that she inherited his migraines.

Talking about his background, Wilson says, "I’ve been involved in Pasadena stuff for many years and I’ve been at the Star News for 27 years. I like being able to work where I live, and where I grew up."

Journalism has always been part of his nature. Wilson was involved in high school and junior high school journalism while growing up in Pasadena, but it was while attending Berkeley that he got involved with daily journalism. He went on to earn a masters degree in management – international management – but he realized halfway through getting his business degree that his interest was newspapers. His dream was realized when some friends asked him to be the business manager of a Pasadena weekly they were starting. That was thirty-one years ago. The Pasadena Star News would hire him away a few years later.

Wilson currently serves on the editorial board of the Los Angeles News Group. He has responsibilities over nine newspapers, including the Pasadena Star News. He writes his column twice a week, as well as editorials.

His other passion these days is LitFest, a literary festival in Pasadena, which he and his wife run with a group of board members. "That’s what we do together," he says with a smile.

When Larry Wilson first wrote about being a research participant for HMRI in 2001, he highly recommended the experience to others. Through the years, he’s remained public and he’s never wavered in his position. HMRI thanks and commends him for his efforts in advancing medical knowledge.

If you are interested in participating in a HMRI research study, contact The Molecular Neurology Group at (626) 817-2528
1952 was certainly a memorable year: The first “Don’t Walk” sign was installed in New York City. It was the year that Tony the Tiger started telling people that Kellogg’s Frosted Flakes are “Gr-rreat!” Television’s first magazine program – the Today Show – made its debut on NBC.

Closer to home, 1952 was the year that the Altadena Guild began an association with the Research Clinics that would become Huntington Medical Research Institutes. It was in February of 1952 that the Guild held its first benefit – a tour of three homes in Altadena that yielded a profit of $428. When you consider that a gallon of gas cost 20 cents in those days, that $428 profit for a first time event is all the more impressive. The money went to furnish the offices of the Director and Secretary of the new research building.
Dr. Clinton H. Thienes, the research institute’s first director, in his office. The first Altadena Guild Home Tour in 1952 paid for office furnishings in the new research building.

Cut to 2014: A new Biomedical Research Building is on the horizon for HMRI and the 63rd Annual Altadena Guild Home Tour yielded a donation of $60,000 to the Institutes. The relationship between the Guild and HMRI has stood the test of time and clearly established the Guild as one of HMRI’s major funding partners.

June, 2014: At the June general meeting, the Altadena Guild presented a check for $60,000 to HMRI, representing the proceeds from the 63rd Annual Home Tour. (left to right) HMRI Development Director Dan Maljianian, Home Tour Co-Chair Pat Bruce, Guild President Sharon Morrisey, Home Tour Co-Chair Paula Orlandini, HMRI President & CEO Dr. William Opel, HMRI Chief Scientific Officer Dr. Marie Csete, HMRI Researcher Dr. Victor Pikov.
It’s estimated that over the years the Altadena Guild has donated more than $2 million to HMRI. The group has funded the purchase of scientific equipment, library books, subscriptions to medical journals, as well as fellowships and special grants. It has also been a major source of support for HMRI’s Summer Student Research Program. Particularly noteworthy, in 2013, the Guild provided half of the funding for the purchase of a Confocal Microscope.

Speaking about the purchase at the time, Dr. Douglas McCreery, director of HMRI’s Neural Engineering program, said: “We received a great deal of assistance from the Altadena Guild to purchase this instrument, for which we are very grateful. With the confocal microscope, we now have the ability to visually reach down into tissue and obtain a three-dimensional reconstruction of all of the different cell types. Doing this same work with a conventional microscope is extremely laborious and time-consuming, which is what we had to do prior to the confocal microscope.”

The Altadena Guild of the Huntington Memorial Hospital was officially founded on February 14, 1951, by Mrs. Barry A. Baxter, Mrs. Thomas J. Smith, Mrs. Abe Hay, and Mrs. Fred Nash. The first general meeting – done as a tea – took place a month later at Mrs. Nash’s home. Back then, the Guild’s active membership was limited to 50 women. Each active member was required to earn and contribute $10 and to give a minimum of 10 volunteer hours per year.
January, 2014: The Guild kicked off 2014 with its annual Tour of the HMRI labs for provisional members. Left to right Dr. S. Ashraf Imam, Martha Castro, Debbie Jones, Terry Garay, Dr. Michael Harrington, Dr. Warren Merrifield, Provisional Priscilla Myers, Dr. William Opel, Provisional Dr. Carol Lew, Provisional Jeanne Fleishman, Penny Gill, and Dan Maljanian.

Sharon Morrisey served as President of the Guild in 2014 and will continue into 2015.

Today, the Altadena Guild stands as a shining example of volunteerism and philanthropy. The annual Home Tour has become a major community event, attracting guests from near and far, as well as a legion of volunteers. Guild members donate countless hours throughout the year, doing everything from decorating the HMRI offices for the holidays to helping at HMRI events. And as evidenced at their November, 2014, meeting, a new generation is stepping forward to continue the traditions set by the founders back in 1952.

HMRI offers a sincere note of thanks to the Altadena Guild for its generous continued support in 2014.
(L-R) Pat Bruce, Judy Armstrong, and Paula Orlandini co-chaired the Altadena Guild’s 2014 Home Tour.

Another tradition: Guild members wrapped up 2014 by decorating the HMRI offices for the holiday season.

Huntington Medical Research Institutes salute and thank the individuals who opened their homes and gardens for the 63rd Annual Home Tour on May 4th, 2014

Stephen & Catherine Bornfeld
Kenneth Bowman
Roc & Elaine Cutri
Charles Hains
Helen Kenney
Steven & Mirta Kochones
Eric & Stephanie Krystad
Paul & Carolyn Patterson
Alec & Aimee Scribner
Huntington Medical Research Institutes is grateful to the many extraordinary individuals and institutions who have been inspired by our research to make financial contributions in 2014.

Many of them have generously supported HMR1 for years, and even decades.

We are so thankful for your dedication to improving health through multidisciplinary, patient-focused research.
The Ahmanson Foundation
Altadena Guild of Huntington Hospital
Betty B. Anderson
Ms. Marlene Konnar and Dr. John D. Baldeschwieler
Bayer Research Center
Arnold & Mabel Beckman Macular Research Center
Mrs. Richard H. Berg
James G. Boswell Foundation
Henry A. Braun Foundation
Mr. and Mrs. Daniel M. Brigham, Jr.
Wallace H. Coulter Foundation
Council for Tobacco Res.-USA, Inc.
William E. Covey
Mr. and Mrs. John C. Cushman
Mr. and Mrs. Michael C. Doyle
Econolite Control Products, Inc.
Eldon Ford McCollum Trust
Emelco Foundation
Engemann Family Foundation
Mr. and Mrs. Roger Engemann
Cindy Evans
Dr. and Mrs. James J. Femino
Jim J. and Sue Femino Foundation
Thornton S. Glide, Jr. and Katrina D. Glide Foundation
Gardner Grout Foundation
H. Robert Gustavus & Louise Pfeiffer Research Foundation
Hacker Trust
Ann Slavik Hall
Estate of Margaret L. Hamrick
Jerry M. Harrington
Hezlep Family Foundation
Mr. and Mrs. Herbert Hezlep III
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Huntington Memorial Hospital
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Mr. and Mrs. R. William Johnston
Lilli J. Laub Trust
Richard M. Lucas Cancer Foundation
Zella Mack Revocable Trust
Maguire Family Trust
Harry T. Martindale
The Jane Messler Trust
Mr. and Mrs. Harold J. Meyerman
Caryl C. Mitchell
Mr. and Mrs. John Mothershead
Mr. and Mrs. Lee Mothershead
K.T. & E.L. Norris Foundation
Dr. and Mrs. William Opel
Pasadena Community Foundation
Gordon J. Pashgian
Patron Saints Foundation
Joseph and Evelyn Pertusati Trust
Shirley S. Peschka Trust
George T. Pfleger Foundation
Mr. and Mrs. Thomas G. Pfleger
Helen Posthuma
Rita Coveney Pudenz
Richards Family Foundation
Mrs. J. Randolph Richards
Mrs. Bernard J. Ridder
The Rose Hills Foundation
Gordon Ross Medical Foundation
Mr. and Mrs. John W. Russell
Dr. and Mrs. Warren Schlinger
Howard G. Smits
Harry G. & Grace Steele Foundation
Homer J. Stewart Trust
Mr. and Mrs. Philip V. Swan
Tanabe Seiyaku Co. Ltd
Alice C. Taylor Trust
Mrs. Paul A. Taylor
Roy E. Thomas Medical Foundation
Tori Thomas
Torres Golf Tournament
Herbert & Dorothy Towne Trust
Dr. and Mrs. Robert E. Tranquada
Mr. and Mrs. Russell White
L. K. Whittier Foundation
Phoebe Wilcox Trust
Wilson Trust
Estate of Constance G. Zahorik
PARTNERS IN DISCOVERY
FOR FISCAL YEAR 2014 (Covers October, 2013 - September, 2014)

Mr. and Mrs. Melvin Z. Agajanian
Dr. and Mrs. William F. Agnew
The Ahmanson Foundation
Dr. and Mrs. Ebenezer O. Ajilore
Dr. and Mrs. Arden L. Albee
Mr. and Mrs. Robert Albee
Mr. and Mrs. W. Reid Allen
Altadena Guild of Huntington Hospital
Mrs. Betty B. Anderson
Ann Peppers Foundation
Mrs. Judy Armstrong
Mr. and Mrs. John B. Ashmore
Mr. and Mrs. John Baatz
Mrs. Gwen Babcock
Mrs. Beverly M. Baetge
Ms. Gaynell R. Baker
Ms. Marlene Konnar and Dr. John D. Baldeschwieler
Mr. Neil D. Baldwin
Mrs. Kittie Ballard
Mrs. Peggy Stanley Barber
Ms. Marjorie L. Barbour
Mr. William J. Barger
Ms. Nina L. Bartolai
Mr. and Mrs. Jose Batista
Dr. Jack L. Beauchamp and Dr. Patricia M. Beauchamp
Mrs. Elizabeth B. Behny
Ms. Cynthia Bennett
Mr. and Mrs. Gale Bensussen
Mr. and Mrs. John D. Berchild, Jr.
Mr. and Mrs. Richard Berres
Mr. and Mrs. John B. Bertero, Jr.
Mr. Don Bills
Mr. and Mrs. Pete Bjorklund
Mrs. Dorance D. Bolton
Ms. Darlene M. Bonds
Mr. and Mrs. John L. Bonholtzer, Jr.
James G. Boswell Foundation
Mr. and Mrs. Ioakim Boutakidis
Mrs. Joan Bowdoin
Mr. Patrick J. Bowler, Sr.
Mrs. Josephine R. Bracci
Mrs. Hannah G. Bradley
Ms. Joan Branim
Ms. Maureen A. Broderson
Ms. Patricia G. Bruce
Ms. Marilee Buchany
Mr. Richard Buhl
Ms. Marie Bussell
Cabot & Sons
Mrs. Elanne C. Callahan
Mr. and Mrs. David Carlburg
Mr. Ken Carmichael
Mr. George L. Cassat
Dr. and Mrs. William L. Caton
Mrs. Thomas K. Caughey
Mr. and Mrs. C. Joseph Chang
Ms. Catherine C. Cheney
and Mr. Barry Jones
Ms. Victoria L. Y. Cheng
Ming Sing and Young-I Chou
Ms. Debra Christiansen
Citizens Business Bank
Clifford Swan Investment Counsel LLC
Mr. and Mrs. Harvey H. Clouser
Mr. and Mrs. Bruce Coffey
Mr. and Mrs. Melvin Cohen
Thomas and Bebette Coleman Foundation
Dr. and Mrs. Patrick M. Colletti
Mr. John Douglas Cooper
Mr. and Mrs. Wray C. Cornwell
Ms. Linda C. Cosentino
Mr. and Mrs. Joseph H. Coulombe
Mr. and Mrs. George P. Coulter
John and Lucille Crumb
Medical Research Fund
Mr. and Mrs. Joseph D. Crunkleton
Dr. Marie Csete
Dr. and Mrs. Christopher D. Cumings
Mr. and Mrs. John C. Cushman
Mr. and Mrs. James Dake
Davis Wright Tremaine LLP
Mr. Frank G. Davis
Dr. Janice L. DaVolio and Mr. Ralf E. Persson
Mrs. Margaret R. de Beixedon
Mrs. Maria Del Rio Low
Mr. and Mrs. Thomas I. Delahoucke
Mrs. Charles J. DeToy
Mr. and Mrs. Burnell H. DeVos, Jr.
Mr. and Mrs. Wilbur Dong
Mr. and Mrs. Richard E. Dotts
Mr. and Mrs. Michael C. Doyle
Mr. and Mrs. Ken Drelishak
Mr. and Mrs. Donald C. Drum
Ms. Rica Duff
Mrs. Lucile M. Dunn
Mr. Thomas E. Eberhardt
Mr. and Mrs. David A. Ebershoff
Faye A. Eggerding, M.D., Ph.D.
Mrs. Ellen D. A. Eidson
PARTNERS IN DISCOVERY
FOR FISCAL YEAR 2014 (Covers October, 2013 - September, 2014)

Ms. Linda Eisenhart
Eleven Twenty Seven Foundation
Elrose Anesthesia Services, Inc.
Emelco Foundation
Engemann Family Foundation
Ms. Madeline Escarcega
Mr. and Mrs. Gerald P. Esmer
Ms. Joan R. Evans
Mr. and Mrs. Robert L. Farmer
Mr. Chad T. Feilke
Dr. and Mrs. James J. Femino
Jim J. and Sue Femino Foundation
Mr. Mike Femino
Fidelity Charitable Gift Fund
Mr. and Mrs. Carlos L. Flores
Dr. Alfred N. Fonteh
Connie Frank Foundation
Mr. and Mrs. James D. Fraser
Mr. and Mrs. Edward P. Freeman
Mrs. Jean S. Freshwater
Mrs. Janis Fuhrman
Mr. and Mrs. William J. Galloway
Mr. Rick Geiger
Mr. and Mrs. Frank Geraci
Dr. and Mrs. James H. Getzen
Dr. and Mrs. Steven Giannotta
Dr. and Mrs. Paul K. Gilbert
Dorothy Gillespie Trust
Mr. and Mrs. Andrew D. Gilmour
Mr. and Mrs. William Glauz
Mr. and Mrs. Peter Godfrey
Goldman Sachs & Co.
Goldman, Sachs & Co. Matching Gift Program
Mrs. Betty L. Gondek
Mrs. Sara E. Goodno
Gordon Ross Medical Foundation
Mr. and Mrs. John P. Gordon
Mrs. Frank A. Grant III
Greater Houston Community Foundation
Mr. Matthew Gutierrez
Hahn & Hahn
Mrs. Ann Slavik Hall
Roy E. Hanson Jr. Mfg.
Mr. Harold Harrigian
Mr. Jerry M. Harrington
Dr. Michael Harrington
Ms. Jaimie Harris
Mrs. Marshall Harris
Mrs. Stella L. Hassinger
Mrs. Joyce Hegeman
Dr. and Mrs. Robert Henderson
Ms. Dawn Herbuaveaux-Cobb
Dr. R. Jeffrey Herten and Ms. Debby Lyon
Mrs. Vincent W. Heublein
Hezlep Family Foundation
Mr. and Mrs. Herbert Hezlep III
Freddi and Ken Hill
Mr. and Mrs. Collins H. Holladay, Jr.
Mr. and Mrs. Lloyd N. Hoover
Mr. and Mrs. Richard Hotaling
Ms. Anita Hovanissian
Mr. Jerry B. Howard
Lucile Horton Howe & Mitchell B. Howe Foundation
Mrs. Dorothy K. Hull
Ms. Fumiko Humberd
Mrs. Jean Humphrey
Mr. Stephen E. Hunt
Huntington Colorectal & Pelvic Floor Center
Huntington Memorial Hospital
Mr. Michael L. Hutcheson
Dr. and Mrs. Ulf Israelsson
J.W. & Ida M. Jameson Foundation
Jameson Research Foundation
Mr. and Mrs. Steven F. Janda
Mr. and Mrs. Donald Jenkins
Mr. and Mrs. Robert L. Jenkins
Jewish Community Foundation of Los Angeles
Mr. and Mrs. Claire Johnson
Dr. and Mrs. Paul W. Johnston
Mr. and Mrs. R. William Johnston
Jones Coffee Roasters
Mr. Barry Jones
Deborah Jones
Dr. and Mrs. Lawrence W. Jones
Mr. and Mrs. Nelson D. Jones
Mrs. Francine Katz
Dr. Howard Kaufman
Mrs. Nancy Kerckhoff
Ms. Christianne F. Kerns Esq.
Mr. and Mrs. Robert M. Key II
Mr. Peter Kingston
Mr. George Kinney
Dr. and Mrs. Robert Kloner
Kravitz, Inc.
Ms. Carole A. Lambert
Inna Lamport M.D.
Mr. and Mrs. Thomas Lang
Mr. and Mrs. Jack G. Larsen
Ms. Jacquelyn Layng
Mr. and Mrs. George Leal
George and Mary Ann Leal Foundation
Elizabeth P. Lent Trust
Mr. and Mrs. Bruce M. Levine
Mr. and Mrs. Clint Lew
Mrs. Elizabeth E. Lewis
Mrs. Pamela H. Lewis
Mr. and Mrs. Frank Liu
Mr. and Mrs. Joseph A. Lonergan
Dr. and Mrs. Albert S. Lossinsky
Dr. and Mrs. John W. Lucas
Mr. and Mrs. Hugh MacInnes
Dr. Robert J. Mackin and Ms. Merrilee Fellows
Dr. and Mrs. Lawrence V. Majovski
Mr. and Mrs. Daniel E. Maljianian
Mr. and Mrs. Tim Manaka
Mr. and Mrs. Richard Mandeville
Mr. and Mrs. Pierre Mareschal
Mr. and Mrs. Phillip Marrone
Mr. and Mrs. John C. Martin
Mr. and Mrs. Warren L. Martin
Dr. and Mrs. Peter V. Mason
Mrs. Linda Nelson Massey
Dr. and Mrs. Allen W. Mathies, Jr.
Mr. and Mrs. Phillip D. Matthews
Mr. Robert D. May
Mr. Kurt Mayer
Ms. Mary McGuire
Douglas B. McCreery, Ph.D.
Ltc (Ret) and Mrs. Donald E. McFelea
Mr. and Mrs. Bruce T. McIntosh
Mr. and Mrs. Joel F. McIntyre
Mr. and Mrs. Steven R. McNall
Mr. Peter M. Menard
Mr. and Mrs. Harold J. Meyerman
Mr. and Mrs. Lary J. Mielke
Dr. Ralph Miles, Jr.
Mr. Joshua Miller
Mr. and Mrs. Nelson E. Mills
Mr. and Mrs. Daniel Mintz
Ms. Anita M. Miranda
Mr. and Mrs. Frank Molinari
Mr. and Mrs. James D. Moore
Mr. and Mrs. Jess Moore
Dr. and Mrs. David Moritz
Mr. and Mrs. John T. Morrissey
Ms. Andrea Morseburg
Mr. and Mrs. John Mothershead
Mr. and Mrs. Lee Mothershead
Ms. Nicole B. Muldoon
Ms. Ann B. Munger
Mr. Richard Munoz
Mr. and Mrs. Donald G. Murphy
Mr. and Mrs. Joseph Mustacchio
Mr. and Mrs. Jerry Myers
Mr. Richard C. Myers
Mrs. Gouri Nandi
Dr. and Mrs. Felix L. Negron
New Wave Home Care, Inc.
Mrs. Jill Nuccio
Ms. Connie C. O’Donnell
Dr. and Mrs. Yasushi Ohnuki
Col. and Mrs. Kevin P. O’Keefe USMC Ret.
Ms. Persephone Oliver
Mr. Earle W. Olson
Dr. and Mrs. William Opel
Ms. Constance Oprisch
ORACLE
Mr. and Mrs. Jim Orlandini
Ms. Stanislava Overholt
Mrs. Charlotte B. Packard
Mr. and Mrs. Peter R. Palermo
Mr. and Mrs. Oscar Pallares
Mr. Kevin H. Palm
Drs. Robert and Rita Palmer
Panda Inn/Panda Express
Mr. and Mrs. Stan Parkhurst
The Ralph M. Parsons Foundation
Pasadena City College Foundation
Pasadena Humane Society
Mrs. Nancy J. Patterson
Patron Saints Foundation
PBWS Architects
Mr. and Mrs. Joseph L. Pedrotti
Mrs. Paul Penberthy
Mr. and Mrs. Steve L. Peralez
Joseph and Evelyn Pertusati Trust
Mr. James G. Phillipp
Pickett Painting Inc.
Edward J. Pittroff
Mrs. Maxine Pittroff
Mr. and Mrs. William Plunkett
Ms. Bettie Jo Podany
Mr. and Mrs. Peter B. Poulson
Mr. and Mrs. Robert L. Proctor
Mr. and Mrs. Dean A. Pruitt
Mrs. Rita Covenev Pudenz
Mrs. Peggy Rahn
Mr. and Mrs. Stephen A. Ralph
Ms. Sharon Ramage and Mr. Steve Wagner
Mr. and Mrs. John Reith
Mr. and Mrs. James Rhodes
Ms. Janet Rich
Dr. and Mrs. John H. Richards
Mr. and Mrs. Robert L. Risley
Mr. and Mrs. John G. Robinson
Mr. Jack Rogers
Mr. William A. Rogers
Mrs. Karen Rolph
The Rose Hills Foundation
Dr. & Mrs. J. Holt Rose
Dr. and Mrs. Brian Ross
Dr. and Mrs. R. Fernando Roth
Mr. and Mrs. Frank R. Ruiz
Mr. and Mrs. John W. Russell
Mrs. Georgia S. Rutherford
Dr. and Mrs. Robert Sacks
Mr. George Saddler
Mr. Frank Salas
Same Day Mold Testing
Ms. Joann Sarachman
Mrs. Maureen Savage
Mr. and Mrs. Lawrence R. Schield, Jr.
Dr. and Mrs. Warren Schlinger
Warren & Katharine Schlinger Foundation
Mr. and Mrs. Kent Schmidt
Schneiders Capital Management, LLC
Mr. and Mrs. William Schneiders
The Schow Foundation
Mr. and Mrs. Brian Schultz
Mr. Michael Schwartz and Mr. Kenneth Talley
Ms. Diane B. Scott
Mrs. W. A. Scribner, Jr.
Mr. and Mrs. John Seiter
Dr. Ross S. Selvidge and Ms. Andriana Armstrong
Mr. Harold Shabo
Edmund and Mary Shea Family Foundation
Mr. Jay Hunter Shelden
Ms. Fay Shutsky
Mrs. Franklin H. Simmons
John R. Sinner INS. Agency, Inc.
Mrs. Mary Jo Sipp
The Donald Slavik Family Foundation
Ms. Yelena Smirnova
The H. Russell Smith Foundation
Ms. Sherry Smith
Mrs. Anne R. Snyder
Mr. and Mrs. Fred D. Soldwedel
S. California Glaucoma Consultants
Mr. and Mrs. Robert Spare
Mr. and Mrs. Benjamin T. Stafford
J H Stafford Charitable Trust
Mrs. Melinda Stahl and Mr. Matt Nix
Ms. Sheryl D. Stearns
Mrs. Susana Stevenson and Mr. David Stevenson
Sullivan, Curtis, Monroe Insurance Brokers
Mr. Carl E. Swain
Mr. and Mrs. Philip V. Swan
Mrs. Paul A. Taylor
Ms. Tori Thomas
Dr. Edwin Todd
Mr. and Mrs. Thomas Tombrello
Mrs. Nancy D. Tooke
Leonard E. Torres, Esq. and Anita S. Brenner, Esq.
Dr. and Mrs. Robert E. Tranquada
Mr. and Mrs. Terrence K. Trapp
Truist
Mr. and Mrs. Steve Trytten
Mr. and Mrs. Joe Uchida
Mr. and Mrs. Bill Ukropina
Thomas Vander Laan M.D.
Mr. and Mrs. Thomas N. Vanderford, Jr.
Verizon’s Foundation Matching Incentive Program
Vida Enterprise Corp.
Volunteer Professionals for Medical Advancement
Ms. Wen Choo Voon
Mr. and Mrs. John Warnke
Mr. and Mrs. Clarence F. Waterman
Mr. and Mrs. Wilton W. Webster, Jr.
Mr. and Mrs. Aaron J. Weiss
Mrs. Richard Weller
Wells Fargo
Mr. Gaylord West
Mr. and Mrs. Gary D. Wheatcroft
Ms. Patricia C. Wheeler
Mr. and Mrs. John R. White, Jr.
L. K. Whittier Foundation
Mr. Mark C. Wieland
Mrs. Barbara Wieman
Mrs. Claire W. Wilcott
Mrs. Patches Willcox
Mrs. Dorothy C. Wilson
Mrs. Marie Andre Wilson
Ms. Jill Wondries
Mr. and Mrs. William B. Worden
Mr. and Mrs. Adam Wright
Ms. Rulie Yamamoto
Margaret A. York and Lance A. Ito
Estate of Constance G. Zahorik
Dr. and Mrs. Dale W. Zeh
Ms. Stephanie Zillgitt
### HUNTINGTON MEDICAL RESEARCH INSTITUTES

**STATEMENT OF REVENUE & EXPENSES**

For the Month Ended September 30, 2014

<table>
<thead>
<tr>
<th>OPERATING REVENUE:</th>
<th>SEPTEMBER</th>
<th>YTD</th>
<th>FY 2013</th>
<th>VARIANCE</th>
</tr>
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<tbody>
<tr>
<td>Donations</td>
<td>$80,885</td>
<td>$486,529</td>
<td>$360,522</td>
<td>$126,007</td>
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<tr>
<td>Bequests</td>
<td>-</td>
<td>118,797</td>
<td>198,989</td>
<td>(80,192)</td>
</tr>
<tr>
<td>Government Contracts/Grants</td>
<td>536,430</td>
<td>2,563,849</td>
<td>1,807,332</td>
<td>756,517</td>
</tr>
<tr>
<td>Restricted Grants</td>
<td>304,855</td>
<td>1,235,937</td>
<td>1,115,177</td>
<td>120,760</td>
</tr>
<tr>
<td>Clinical</td>
<td>41,765</td>
<td>320,693</td>
<td>228,921</td>
<td>91,772</td>
</tr>
<tr>
<td>Liver Center Salaries</td>
<td>22,547</td>
<td>263,714</td>
<td>326,682</td>
<td>(62,968)</td>
</tr>
<tr>
<td>Royalties</td>
<td>1,630</td>
<td>17,727</td>
<td>6,121</td>
<td>11,156</td>
</tr>
<tr>
<td>HMH Trust</td>
<td>19,171</td>
<td>231,724</td>
<td>223,348</td>
<td>8,376</td>
</tr>
<tr>
<td>Interest &amp; Dividends</td>
<td>124,116</td>
<td>454,607</td>
<td>395,801</td>
<td>58,806</td>
</tr>
<tr>
<td>Rental Income</td>
<td>21,739</td>
<td>260,947</td>
<td>310,372</td>
<td>(49,425)</td>
</tr>
<tr>
<td>HOPIC Profit Share</td>
<td>-</td>
<td>250,040</td>
<td>329,560</td>
<td>(79,520)</td>
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</table>

**Total Operating Revenue**

$1,153,138

$6,204,114

$5,302,825

$901,289

<table>
<thead>
<tr>
<th>OPERATING EXPENSES:</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Government Contracts/Grants</td>
<td>536,430</td>
<td>2,563,849</td>
<td>1,648,184</td>
<td>$915,665</td>
</tr>
<tr>
<td>Restricted Grants</td>
<td>488,410</td>
<td>1,225,937</td>
<td>976,338</td>
<td>249,599</td>
</tr>
<tr>
<td>Clinical</td>
<td>41,765</td>
<td>320,693</td>
<td>228,921</td>
<td>91,772</td>
</tr>
<tr>
<td>Liver Center Salaries</td>
<td>22,547</td>
<td>263,714</td>
<td>325,473</td>
<td>(61,759)</td>
</tr>
<tr>
<td>From General Funds</td>
<td>69,358</td>
<td>1,511,879</td>
<td>1,974,652</td>
<td>(462,773)</td>
</tr>
<tr>
<td>Gross Research Support Expenses</td>
<td>558,102</td>
<td>3,056,668</td>
<td>2,344,345</td>
<td>712,323</td>
</tr>
<tr>
<td>Fund Raising</td>
<td>101,580</td>
<td>582,426</td>
<td>417,370</td>
<td>165,056</td>
</tr>
<tr>
<td>Less Reimbursed Expenses</td>
<td>(83,000)</td>
<td>(926,983)</td>
<td>(717,059)</td>
<td>(209,924)</td>
</tr>
</tbody>
</table>

**Total Operating Expenses**

$1,735,192

$8,598,183

$7,198,224

$1,399,959

| OPERATING INCOME BEFORE INVESTMENT TRANSFER | $ (582,054) | $(2,394,070) | $(1,895,399) | $(498,671) |
| INVESTMENT TRANSFER | 22,275 | 1,183,871 | 1,208,843 | (24,972) |

**INCOME FROM OPERATIONS**

$ (559,779)

$(1,210,199)

$(686,556)

$(523,643)

<table>
<thead>
<tr>
<th>Income From Investments</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Realized Gain/(Loss) on Investment</td>
<td>2,697,498</td>
<td>3,486,405</td>
<td>1,101,639</td>
<td>2,384,766</td>
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<tr>
<td>Unrealized Gain/(Loss) on Investment</td>
<td>(3,660,508)</td>
<td>(380,151)</td>
<td>2,939,400</td>
<td>(3,319,551)</td>
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</tbody>
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**TOTAL FROM INVESTMENTS**

$ (1,522,789)

$1,896,056

$3,354,483

$(1,458,428)

**NET INCOME**

$ (1,522,789)

$1,896,056

$3,354,483

$(1,458,428)