President's Welcome

The year 2019 marks my first full calendar year as the President and CEO at HMRI. Time flies when you’re having fun!! I am thrilled to be leading HMRI and so proud of all that we have accomplished this past year, including:

- New State of the Art Laboratories and Office Spaces
- New Strategy
- 20 Externally Funded Research Grants; and
- Solid Future Growth Plans for HMRI

These accomplishments will solidify HMRI's position as a leading independent biomedical research institute.

I hope this report will give you a glimpse into the dedication, teamwork and commitment among our scientists, staff, and board of this great organization.

HMRI's goal is to better understand Alzheimer's disease and other dementias, migraine, heart disease, colorectal disorders, liver disease, and the impact of these diseases on a person's health and well-being, in order to further develop promising therapies and diagnostic tools that can screen for disease before symptoms appear.

Ultimately, HMRI is on the cutting edge of innovative therapies that will improve lives.

Our independent status affords us the ability to be nimble and more effective in our research process by allowing our researchers to dedicate themselves to their work. As a result, HMRI moves quickly and efficiently in developing groundbreaking diagnostic tools and treatments. Such efficiency allows HMRI to move forward in a meaningful way to inform, engage, and educate the community about critical issues affecting research, health and well-being.

HMRI has a six-decade track record in finding novel ways to diagnose, monitor and treat diseases. This has solidified our reputation and stability as a world-class research organization. Again, it is an honor to lead HMRI!

I encourage and invite you to come see what we do. Together, we will make a difference and improve lives!!

Julia E. Bradsher PhD, MBA
President and Chief Executive Officer

A Message from the Board

We do so much of our work looking to the future that it is a real pleasure to look back at the past year. And what a year it has been — a year of transformation and innovation led by Dr. Bradsher and the senior staff. The board adopted a new three-year strategic plan, with a three-part strategy to allow our scientists and physicians to continue their "out of the box" thinking and collaborations.

HMRI's greatest strength is its people. We are moving forward with a clear vision and focus and an effective strategic plan. The executive, financial and compliance leadership has been put in place not only to support our existing researchers, and programs, but to provide the basis to recruit two new principal investigators and to train the next generation of scientists as well.

As you look through this report, you will see examples of our intention to be more engaged in the community through educational events, programs and talks throughout the year. I encourage you to come by and learn more about who we are and the impact we are creating.

James D. Gamb
Board Chair

HMRI Historical Impact

The original organization that would eventually become HMRI was established in 1952. The El Molino Avenue laboratory began as the Pasadena Foundation for Medical Research (PFMR), founded by physician George Sharp, which placed emphasis on cancer research. In 1953, the Fairmount Avenue laboratory began as the Institute of Medical Research of Huntington Memorial Hospital, founded by physician Hunter Shelden. It also housed the Pasadena Neurovascular Foundation.

1950s

Robert H. Pudenz MD developed the cerebrospinal fluid (CSF) shunt system for hydrocephalus. Hydrocephalus is a relatively common neurological disorder in which an excessive amount of CSF accumulates within the ventricular cavities of the brain, resulting in rapid enlargement of the head.

Dr. C. Hunter Shelden’s research and treatment of head injuries resulting from automobile accidents lead to important safety features that we often take for granted today — retractable seat belts, recessed steering wheel, reinforced roof, roll bars, door locks, seatbacks, and airbags. In 1959, Congress required all automobiles to meet the safety standards recommended by Dr. Shelden.

1960s

The first scientific evidence that human lung cells exposed to smoggy air undergo changes characteristic of the early stages of cancer was reported by Dr. Donald E. Rouns and Dr. C.M. Pomerat, co-workers at the Pasadena Foundation for Medical Research. Their work supported what previously had been intuition that smog can cause lung cancer.

In 1967, the Institute of Medical Research became the Huntington Institute of Applied Medical Research (HIAMR). In 1969, Dr. Richard Bing joined HIAMR and helped develop high-speed cinematography of coronary vessels and carried out studies on the chemistry of the heart after a heart attack. He would later introduce a technique for measuring cardiac blood flow using nitric oxide.

1970s

Projects included pioneering work with the biomedical research application of laser energy, and in the cell culture laboratory scientists developed a now widely used line of prostate cancer cells, including the immortal cell line, PC-3.

1980s

The El Molino (PFMR) and Fairmount (HIAMR) operations merged in 1982 as the Huntington Medical Research Institutes (HMRI). At that time research at the Pico Street location added clinical studies of magnetic resonance imaging (MRI). Earlier advances at Pico Street included development of methods for providing CT-scanner guidance of 3-dimensional brain stereotactic surgery systems. Comparative studies of CT versus MRI by HMRI contributed to the regulatory approval of magnetic resonance for medical imaging.

1990s

In 1990, Prentice Hall published "Neural Prostheses: Fundamental Studies," edited by HMRI's William Agnew PhD and Douglas McCrery PhD. The book reviewed the subject of neural stimulation from the perspectives of safety and efficacy. HMRI developed electrical stimulation devices to effectively connect to nerves and the brain to signal patterns for use in deafness, bladder control, and epilepsy.

2000s

The HMRI Liver Center opened its doors in 2005. HMRI perfected medical resonance spectroscopy that serves as a particularly sensitive diagnostic tool of brain tumors, dementia, stroke, encephalopathy, head trauma, infections, cancers, pediatric hypoxia, M.S., epilepsy and cardiovascular conditions.

HMRI’s new biomedical research building on South Fair Oaks Avenue was dedicated on April 12, 2018 and provides state of the art laboratory facilities for researchers in the areas of neurosciences, cardiovascular disease, and the brain/heart connection.
HMRI’s World-Class Expertise

Robert A. Kloner MD, PhD
Chief Science Officer and Director of Cardiovascular Research

Dr. Kloner also serves as Professor of Medicine (Clinical Scholar) at Keck School of Medicine at University of Southern California and is an attending cardiologist at LAC+USC. Prior to accepting an appointment at HMRI, Dr. Kloner served as Director of Research of the Heart Institute of Good Samaritan Hospital in Los Angeles from 1987 to December 2014. He has over 40 years of experience leading and managing national and international cardiovascular research programs, training dozens of medical scientists, and collaborating with scores of physician scientists, numerous research institutions, and medical industries world-wide. During his administrative tenure at both Wayne State University and The Heart Institute of Good Samaritan Hospital, Dr. Kloner successfully built research facilities from the ground up and created centers that were recognized for scientific excellence and innovation.

Summary of Major Projects in the Cardiovascular Research Institute at HMRI

Effects of electronic cigarettes on the heart. These are collaborative studies with UC Irvine to look at the effects of electronic cigarettes on heart function and heart structure in otherwise normal young versus old rodents. There are also components to determine the effects of electronic cigarettes on the size of an acute heart attack and blood flow following reperfusion of a heart attack. Finally, one component will determine whether electronic cigarette smoke can impede the healing of a heart attack once it has occurred and contribute to heart failure.

Pilot studies are looking at the effect of pure nicotine on the heart function and structure in the setting of an acute heart attack. We are seeking funding to help support this study. We predict that pure nicotine will impede blood flow after reperfusion of the occluded coronary artery.

Study of experimental drugs to decrease the size of a heart attack. Even reducing the size of a heart attack by as little as 5% can improve the clinical outcome. We have standardized experimental models of heart attack size. We can also monitor heart function, blood pressure, and heart rate in these models. There is a company that is interested in studying the effect of iron nanoparticles that are controlled by a magnet that can be made to spin and break up blood clots in blood vessels and may improve the ability to perfuse areas of the heart that may not be receiving blood flow even after opening up the large coronary artery that was occluded during a heart attack. Studies have shown that the inability to perfuse the small blood vessels after opening up the major blood vessel that is occluded after a heart attack (the no reflow phenomenon) is a very bad prognostic sign. Patients who have no reflow after a heart attack are more likely to develop heart failure and die. So treatments of no reflow are important.

Studies of experimental drugs to reduce heart failure once a heart attack has occurred.

Studies to develop new therapies to treat hemorrhagic shock. Hemorrhagic shock is the condition that occurs when there is blood loss that is severe and prolonged. Even when blood is returned, the blood pressure does not recover and the victim dies. Hemorrhagic shock remains the number one killer of soldiers and civilians who experience trauma (car accidents, falls, shootings). We have developed a standardized model of hemorrhagic shock in which certain novel therapies improve survival (remote ischemic preconditioning – repetitive inflations and deflations of a blood pressure cuff on the arm; as well as hypothermia). We are interested in pursuing new studies that look at cardioprotective anesthetic agents in these models.

Collaborative study with Dr. Niema Pahlevan at USC to develop non-invasive cell phone applications to monitor patients’ heart function. We have finished one study looking at this application in heart failure patients and we are working with Dr. Pahlevan to see if the same mathematical approaches can assess diastolic dysfunction of the heart (when the heart has trouble relaxing) or predict when a heart attack may be imminent.

HMRI’s World-Class Expertise

Department of Neurosciences Research

The Neuroscience Department focuses on Alzheimer’s disease, other dementias, and migraine. The team’s goal is to develop a deeper understanding of these brain disorders and discover new methods for screening which allow for more effective and earlier intervention and treatment. Below is a brief summary of the team’s research in the last 6 months:

Michael G. Harrington Mb, ChB, FRCP
Scientific Director of Neurosciences

Highlights of Research: Dr. Harrington has published 9 full scientific manuscripts on early Alzheimer’s disease and migraine, and received one new, 3-year grant from the W.M. Keck Foundation. The new Keck grant funds a major effort at HMRI, with Caltech (Prof. Brian Stolz) and UC Santa Barbara (Prof. Linda Petzold). This award extends Mike’s finding of altered brain sodium in migraine to exploring if brain sodium fluctuations are responsible for fluctuations of diverse brain functions: ranging from how someone with Alzheimer’s disease can recognize you one day but have no clue the next day, have mood swings in depression or anxiety, or simple day-to-day performance changes we all feel.

Alfred Fonteh PhD
Senior Principal Research Scientist

Highlights of Research: Dr. Fonteh has published two full scientific manuscripts and has led the unique research with new instrumentation to measure lipids in our Brain Aging and migraine research studies. Dr. Fonteh is pioneering new lipid studies in our Brain Aging study at HMRI and with Dr. Yassine at USC. Alfred co-leads the summer student program at HMRI and has led the chemical safety issues for all of HMRI.

Eric Hubbard BS, MS
Senior Research Technician/Technology Transfer Specialist

Highlights of Research: Eric returned to HMRI in the Fall of 2019 after completing a Master’s degree in Biotechnology and Business in Dublin, Ireland. He is leading two projects. One is testing new compounds made at Caltech to improve brain sodium regulation, in the Keck project. The second is in pioneering the measure of blood cell functions in T cells, from study participants in the HMRI Brain Aging project. He spends 25% of his time assisting the HMRI leadership on business opportunities across all of HMRI programs, which include the 2019 provisional patents from the Neurosciences group on a urine test for Alzheimer’s disease and the new migraine treatment based on controlling brain sodium.
hepatology.

Chronic liver disease, hepatocellular carcinoma, liver transplantation, as well as abstracts and book chapters in Dr. Tong has authored more than 230 peer-reviewed articles related to the natural history and clinical treatment of

Dumont-UCLA Liver Cancer Center, in Los Angeles, California.

In 2007, Dr. Tong established the Asian-Liver Center at the University of California, Los Angeles (UCLA). Dr. Tong is suffered by military personnel and was the first to link Chronic Hepatitis B [HBV] infection with liver cancer.

Tong completed his Hepatology Fellowship at Los Angeles County-University of Southern California Health Center and is Board Certified in Internal Medicine and Hepatology.

Kevin S. King MD
Clinical and Scientific Director, Imaging Research Program

HMRI's Imaging Center provides the measures that empower people and their doctors to promote healthy brain aging. The focus of our group is understanding how common diseases such as hypertension and diabetes damage the brain.

Accomplishments: We recently completed brain imaging analysis for over 1300 people in the Healthy Aging Brain in Latino Elders. In findings accepted for a presentation at the American Society of Neuroradiology, we presented how Hispanics are particularly susceptible to brain insults related to diabetes. In addition to having a higher prevalence of diabetes, our research found that the effect of diabetes when present was greater among Hispanics. In assessing brain health, our research used an automated algorithm to measure the volume of bright spots in the white matter which indicated damage to the small blood vessels in the brain. Our group has also been working on developing better markers to indicate risk for damage to the brain blood vessels, which increases risk for dementia. With collaboration from Boswell Fellow Alumnus Niema Pahlevan, we published an article showing how it is possible to identify stiffness of the aorta from images obtained during a routine cardiac MRI.

Significance: The MRI measure of aortic stiffness is a superior predictor of future brain health. Stiffening of the aorta is responsible for increased blood pressure with aging.

Myron J. Tong MD, PhD
Director, HMRI Liver Center

Dr. Tong is a world-leading hepatologist with more than 40 years of service to his community and people suffering from liver disease, as well as a mentor for physician-in-training programs and the continued pursuit of excellence in university medical education. Dr. Tong earned his Doctor of Philosophy from the University of California, Berkeley, Department of Bacteriology, Berkeley, California, and his medical degree from the University of California, San Francisco. Dr. Tong completed his Hepatology Fellowship at Los Angeles County-University of Southern California Health Center and is Board Certified in Internal Medicine and Hepatology.

Dr. Tong served as a naval medical officer in the United States Navy attached to the U.S. Naval Medical Research Unit in DaNang, Vietnam, where he was involved in studying the effects of war-related wounds and tropical diseases suffered by military personnel and was the first to link Chronic Hepatitis B [HBV] infection with liver cancer.

In 2007, Dr. Tong established the Asian-Liver Center at the University of California, Los Angeles (UCLA). Dr. Tong is one of the leading clinical investigators of HBV and liver diseases in Asians and Asian-Americans. Dr. Tong's research efforts include the natural history and treatment of patients suffering from chronic HBV and Chronic Hepatitis C (HCV). Dr. Tong is heavily involved in the care and treatment of patients with hepatocellular carcinoma (HCC) at the Dumont-UCLA Liver Cancer Center, in Los Angeles, California.

Dr. Tong has authored more than 230 peer-reviewed articles related to the natural history and clinical treatment of chronic liver disease, hepatocellular carcinoma, liver transplantation, as well as abstracts and book chapters in hepatology.

Howard Kaufman MD, MBA, FACS
Director, HMRI Colorectal Research Program, Medical Director, Huntington Hospital Cancer Center, State Chair, American College of Surgeons Commission on Cancer

Dr. Kaufman graduated Phi Beta Kappa from Haverford College, where he received his BS with honors in Biology and Physics. He attended the Johns Hopkins School of Medicine and completed his surgical training, research fellowship, and fellowship in gastrointestinal surgery at the Johns Hopkins Hospital. Dr. Kaufman joined the faculty of The Johns Hopkins School of Medicine and held triple appointments as Associate Professor in the Departments of Surgery, Gynecology and Obstetrics, and Oncology through 2002.

He received his MBA from the Johns Hopkins Carey Business School. Dr. Kaufman was recruited to the Department of Surgery at USC as Chief of the Division of Colorectal and Pelvic Floor Surgery and was Chief of the General Surgery Service at USC University Hospital from 2004-2008. Dr. Kaufman became Medical Director of the Huntington Hospital Cancer Center in 2007 and left the USC faculty in 2009 to focus his attention exclusively on private practice, the Colorectal Research Program at HMRI, Cancer Center activities, and the training of Huntington surgical residents. He is also the State Chair of the American College of Surgeons Commission on Cancer.

HMRI's Colorectal Research Department: Primary Goals

• To further study and modify components of Enhanced Recovery After Surgery (ERAS) protocols in colon and rectal surgery, specifically reduction in opioid drug use;
• To determine the abnormal physiologic patterns of patients with fecal incontinence, obstructed defecation, and mixed disorders using 3-Dimensional High Resolution Anal Manometry (3-DHRAAM).

Accomplishments: Improvements in Enhanced Recovery After Surgery

Enhanced recovery after surgery pathways (ERAS) are evidence-based protocols designed to reduce variation in process by standardizing perioperative medical care and have been associated with improved clinical and economic outcomes. Our research efforts during the past 5 years of ERAS protocol implementation and adoption at the Huntington Hospital have shown significantly reduced lengths of stay and reduced direct costs in patients who were treated on ERAS pathways versus traditional postoperative care, without increases in complication or readmission rates. New drugs have evolved that should limit the need for opioids in postoperative pain management. Our objective is to incorporate long acting local anesthetics into our ERAS plan and study the effects on clinical outcomes. Preliminary data suggests that we have been able to reduce opiate needs in our patient population by 80%.

Continued investigations of Patients with Pelvic Floor Disorders through 3-Dimensional High Resolution Anorectal Manometry (3-DHRAAM)

Fecal incontinence (FI) affects approximately 8% of the US adult population, and 15% of adults over 70. The prevalence of FI is similar in men and women. Incontinence of stool and gas has a significant, detrimental impact on the quality of life of affected individuals. In prior years, our investigations focused on physiologic differences between individuals with FI, obstructed defecation, and mixed disorders (involving incontinence and obstruction). These prior studies relied upon data from a more limited number of patients. Our database now contains >2000 patients/research subjects, and we plan to prepare and submit multiple studies/manuscripts with updated data utilizing the increased statistical power from these additional patients. A better understanding of anorectal function in disease will help clinicians stratify patients for appropriate (and less invasive) treatments and lead to innovation to develop more durable therapies.
HMRI’s Boswell Postdoctoral Program

The Boswell Postdoctoral Fellowship represents HMRI’s longest experience in training postdoctoral students. For more than 45 years, HMRI in collaboration with the California Institute of Technology has trained the next generation of scientists working to solve some of the most critical health issues affecting the brain, the heart, and vascular system. The Boswell Postdoctoral Fellowship is an endowed fellowship for collaborative research between Caltech and HMRI. The fellowship is renewable for a second year. The successful fellow has an appointment at Caltech and becomes a member of the professional faculty at Caltech. The fellow also has an appointment at HMRI and an office. The areas of research include, but are not limited to, magnetic resonance imaging and spectroscopy, molecular neuroscience, and medicinal chemistry.

HMRI’s Student Internship Program for Graduate & Undergraduate Students

During the summer, HMRI provides graduate and undergraduate students with hands-on experience in biomedical research over ten weeks. Undergraduate and graduate students with some previous lab experience in biology/chemistry/biomedical engineering, learn laboratory procedures and work alongside their accomplished mentors. They experience medical research aimed at developing effective diagnosis and treatment of medical problems. Students attend lectures by HMRI scientists about recent research developments and present results of their own research projects at the end of the summer session. At the end of the program, students may obtain a letter of recommendation from their mentors. Students who successfully complete the program also receive a certificate of completion.

The Next Generation of Scientists

HMRI's Student Internship Program for Graduate & Undergraduate Students

OUR HISTORY

HMRI has a long and illustrious history of conducting groundbreaking medical research that has expanded the boundaries of medical knowledge and helped patients. From its beginnings, HMRI has been patient-centric and focused on moving discoveries from the lab to the bedside.

This was true when HMRI invented and commercialized a cerebrospinal fluid (CSF) shunt system for hydrocephalus, after it conducted groundbreaking work on brain injuries caused by auto accidents. That spurred a host of auto safety standards in the 1950s, including seat belts.

HMRI researchers developed magnetic resonance imaging (MRI) technology and deep brain stimulation technology in the 1980s and 1990s.

HMRI carried out important liver cancer research and continued to perfect magnetic resonance spectroscopy as a diagnostic tool of brain tumors, dementia, stroke, encephalopathy, head trauma, infections, cancers, pediatric hypoxia, M.S., epilepsy and cardiovascular conditions in the 2000s and 2010s.

OUR VISION

Protecting and Promoting Inventions with Patents and Trademarks: HMRI has monetized its research and inventions by obtaining and licensing patents on its inventions. Some early wins helped propel HMRI to where it is today. With competition for federal grants growing fiercer every year and with the great upside potential of owning foundational patents in medical technology, these practices are becoming more critical than ever before.

HMRI has recently turned its impact of these diseases on a person’s health and well-being approach to the heart and the brain and the connections between the two, and HMRI is rapidly expanding its patent portfolio in accordance with this promising new emphasis. For example:

- Researchers at HMRI have invented non-invasive methods for the pre-symptomatic detection of Alzheimer’s disease (AD). Pre-symptomatic detection of AD may someday allow early intervention by yet to be invented drugs and treatments that will hopefully be able to slow or even halt the scourge of Alzheimer’s disease.

- Researchers at HMRI have gained new insights into the underlying causes of migraine disease and believe that they are on the road to promising new drugs and treatment methods which could revolutionize migraine treatment and help the tens of millions of Americans and the hundreds of millions more around the world who suffer from migraines.

HMRI is rapidly expanding its patent portfolio in accordance with this promising new emphasis.

...HMRI is rapidly expanding its patent portfolio in accordance with this promising new emphasis.
Core Laboratory Facilities and Environmental Health and Safety (EHS) are essential components of HMRI’s strategic plan. Through the promotion of Core Laboratory Facilities, HMRI commits to providing a safe environment for its employees while offering an atmosphere for delivering high quality work efficiently. A dedicated focus on safety, quality, and efficiency will be critical in the successful operation of all core laboratory facilities in the future.

OUR COMMITMENT: Creating a culture of excellence and safety is the primary objective for HMRI’s Core Facilities program. A continuous commitment to employee safety and excellence in high quality research is the cornerstone to building our future.

OUR PROCESS: HMRI continues to develop Core Facilities programs through policy, process, and training improvements. Utilizing the expertise of members from all departments, HMRI developed committees responsible for oversight of safety and quality initiatives. The policies, procedures and training improvements will center around organizational improvements in our safety and high-quality systems.

PRIMARY GOAL: HMRI’s goal for Core Facilities is to create a collaborative environment where ideas and theories are combined to achieve the scientific agenda of the organization through effective use of lab space and shared resources.

CORE COMPONENTS: Improving the way we train employees to view safety, implement process improvements, develop strong policies, and responsibly allocate resources.

ACCOMPLISHMENTS:
- Restructured HMRI safety committee in 2019 to engage employees from all departments of the organization. The committee brings unique perspectives and experiences from individuals representing each department at HMRI. A culture of shared responsibility will help to provide a clean, safe environment for employees and visitors at HMRI.
- The formation of the HMRI Policies and Procedures Committee. The goal of the committee is to develop best practices for the entire organization and each department of HMRI. The Committee will also review, revise, and implement policies and procedures.
- HMRI’s lab operations will continue to create efficiency through lab design, resource consolidation, and the collaboration of research departments through Core Facilities. Efficiency in lab operations is vital to creating cost savings, time management, and waste reduction.

MOVING FORWARD: As HMRI’s research team continues to grow, effective use of lab space will be important to the development of Core Laboratory Facilities. Encouraging collaboration increases the potential for scientific discoveries by bringing different departments and disciplines together with a common utilization of resources. As Core Laboratory Facilities develops it will support the incredible work that is being conducted by the dedicated research teams of this organization. Core Laboratory Facilities and EHS will continue to support our research teams and the mission of HMRI.

Mark Dixon BS MS
Director of Core Laboratory Facilities and Environmental Health and Safety

Mark Dixon joined HMRI in August of 2019 to develop and maintain the institute’s Core Facilities, and Environmental Health and Safety (EHS) programs. With oversight of lab operations and EHS, Mr. Dixon works with HMRI staff to ensure that HMRI quality and safety programs are being implemented into the organization’s ongoing research initiatives. Before coming to HMRI, Mr. Dixon worked in several roles with multiple Contract Research Organizations and assisted with lab operations in Michigan State University’s Food Science and Human Nutrition Department. Prior to joining HMRI, Mr. Dixon was the Lab Manager of Eurofins in Battle Creek, MI. Mr. Dixon received both his B.S. and M.S. from Michigan State University.
The Altadena Guild of Huntington Memorial Hospital

The Altadena Guild of Huntington Hospital Memorial Hospital (the Guild) is a jewel of committed and passionate volunteers benefiting Huntington Hospital and Huntington Medical Research Institutes (HMRI) since the early 1950s. The Guild is one of HMRI’s strategic partners providing significant financial support to our biomedical research involving the brain, the heart, and the vascular system for more than six decades.

Over the last 60 years, the Guild has remained loyal to providing HMRI with volunteer manpower supporting our monthly scientific lectures, our lunch and learn presentations, community health forums, and other events. We are also touched by the dedication of many Guild members who have volunteered to participate in HMRI’s clinical studies to help discover the latest therapies for Alzheimer’s disease. Without a doubt, HMRI’s Best and Most Committed Volunteers are the Guild members!


THANK YOU for a Wonderful Year!

HMRI Impact & Achievements

External Funding

Federal Funding

State Funding

Private Donations

Combined External Funding: $3,283,512*

*Source: 2019 HMRI Audit-Statement of Activities

24 Peer-reviewed Journal Articles

31 Scientific Posters and Abstracts

14 Scientific Meeting Presentations

24 Peer-reviewed Journal Articles

31 Scientific Posters and Abstracts

14 Scientific Meeting Presentations

Combined External Funding: $3,283,512*

*Source: 2019 HMRI Audit-Statement of Activities

HMRI’s Best Committed Volunteers

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THANK YOU for a Wonderful Year!
HMRI Philanthropy: Circles of Support
HMRI is grateful for the support of many individuals and community partners who support our research and our mission

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Altadena Guild of Huntington Hospital
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Anonymous
Mr. and Mrs. John Babcock
The Otis Booth Foundation
The James G. Boswell Foundation
Foundation For The Carolinas
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Foundation For The Carolinas
The James G. Boswell Foundation
The Otis Booth Foundation
Mr. and Mrs. John Babcock
Anonymous
Betty B. Anderson
Bing Trust Foundation
Foundation

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HMRI is grateful for the support of many individuals and community partners who support our research and our mission

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Tranquada
Scott Twomey and Karen Skinner-Twomey
William Yeung

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Gayle Wilson

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Continued from Page 14
## Huntington Medical Research Institutes
### Statement of Financial Position

**Huntington Medical Research Institutes**
**Statement of Financial Position**
**September 30, 2019**

(with comparative totals for September 30, 2018)

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<th>Assets</th>
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<td>Land, buildings, and equipment, net</td>
<td>$34,947,756</td>
<td>$35,955,068</td>
</tr>
<tr>
<td>Beneficial interest in a charitable remainder unitrust</td>
<td>105,862</td>
<td>108,399</td>
</tr>
<tr>
<td>Patents, net</td>
<td>72,615</td>
<td>78,635</td>
</tr>
<tr>
<td>Patent deposits</td>
<td>303,334</td>
<td>279,463</td>
</tr>
<tr>
<td><strong>Total assets</strong></td>
<td>$73,805,473</td>
<td>$73,558,859</td>
</tr>
</tbody>
</table>

| Liabilities and Net Assets                                           |                 |                 |
| Liabilities                                                          |                 |                 |
| Accounts payable                                                     | $339,988        | $194,395        |
| Accrued expenses and deposits                                        | 547,310         | 520,739         |
| Deferred revenue                                                     | 822,468         | -               |
| Accrued pension cost                                                 | 4,224,918       | 3,179,897       |
| **Total liabilities**                                                | 5,934,684       | 3,895,031       |

| Net Assets                                                           |                 |                 |
| Net assets without donor restrictions                                 |                 |                 |
| Undesignated                                                        | 33,791,407      | 33,977,095      |
| Designated by the Board                                             | 17,701,733      | 21,231,347      |
| **Total net assets without donor restrictions**                      | 51,493,140      | 55,208,442      |

| Net assets without donor restrictions                                 |                 |                 |
| **Total net assets**                                                | $67,870,789     | $69,663,828     |
| With donor restrictions                                              |                 |                 |
| **Total assets**                                                     | $73,805,473     | $73,558,859     |


### Huntington Medical Research Institutes
### Statement of Activities

**Huntington Medical Research Institutes**
**Statement of Activities**
**Year Ended September 30, 2019**

(with comparative totals for September 30, 2018)

<table>
<thead>
<tr>
<th>Without Donor Restrictions</th>
<th>With Donor Restrictions</th>
<th>Total 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Support, Revenue, Gains, and Investment Return</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific research</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Privately funded grants, contracts and projects</td>
<td>$70,642</td>
<td>$3,270,000</td>
</tr>
<tr>
<td>Government funded grants and contracts</td>
<td>2,206,191</td>
<td>-</td>
</tr>
<tr>
<td>Donations</td>
<td>877,005</td>
<td>662,135</td>
</tr>
<tr>
<td>Clinical and royalty income</td>
<td>786,523</td>
<td>-</td>
</tr>
<tr>
<td>Rental income</td>
<td>345,102</td>
<td>-</td>
</tr>
<tr>
<td>Bequests</td>
<td>129,624</td>
<td>-</td>
</tr>
<tr>
<td>Gain (loss) in value - charitable remainder unitrust</td>
<td>-</td>
<td>1,297</td>
</tr>
<tr>
<td>Loss on disposal of fixed assets</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total support and revenue</strong></td>
<td>4,415,289</td>
<td>3,933,432</td>
</tr>
<tr>
<td><strong>Net Assets Released Due to Satisfaction of Restrictions</strong></td>
<td>2,471,767</td>
<td>(2,471,767)</td>
</tr>
<tr>
<td><strong>Investment Return Designated for Current Operations</strong></td>
<td>2,947,124</td>
<td>111,788</td>
</tr>
<tr>
<td><strong>Total support, revenue, gains, and investment return</strong></td>
<td>9,834,180</td>
<td>1,573,453</td>
</tr>
<tr>
<td><strong>Expenses</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research</td>
<td>6,978,613</td>
<td>-</td>
</tr>
<tr>
<td>Research Support Services</td>
<td></td>
<td></td>
</tr>
<tr>
<td>General</td>
<td>2,927,725</td>
<td>-</td>
</tr>
<tr>
<td>Fundraising</td>
<td>458,060</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total research support services</strong></td>
<td>3,385,785</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total expenses</strong></td>
<td>10,364,398</td>
<td>-</td>
</tr>
<tr>
<td><strong>Change in Net Assets from Operations</strong></td>
<td>(530,218)</td>
<td>1,573,453</td>
</tr>
</tbody>
</table>

This Statement of Activities represents page 4-5 of HMRI’s 2019 Audit. A full copy of the 2019 Audit is available for review on HMRI’s website www.hmri.org.
### Huntington Medical Research Institutes

#### Statement of Activities

Huntington Medical Research Institutes
Statement of Activities (continued)
Year Ended September 30, 2019
(with comparative totals for September 30, 2018)

<table>
<thead>
<tr>
<th>Without Donor Restrictions</th>
<th>With Donor Restrictions</th>
<th>Total</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Investment Return</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest and dividends</td>
<td>$ 596,168</td>
<td>$ 410,825</td>
<td>1,006,993</td>
</tr>
<tr>
<td>Realized gains on investments</td>
<td>208,060</td>
<td>110,963</td>
<td>319,023</td>
</tr>
<tr>
<td>Unrealized gains (losses) on investments</td>
<td>48,767</td>
<td>(61,190)</td>
<td>(12,423)</td>
</tr>
<tr>
<td>Investment fees</td>
<td>(45,934)</td>
<td>(45,934)</td>
<td>(45,934)</td>
</tr>
<tr>
<td>Total net investment return</td>
<td>807,061</td>
<td>460,598</td>
<td>1,267,659</td>
</tr>
</tbody>
</table>

Less Investment Return Designated for Current Operations

| (2,947,124)                | (111,788)               | (3,058,912) | (6,849,103) |

Investment return reduced by the portion of net investment return designated for current operations

| (2,140,063)                | 348,810                 | (1,791,253) | (4,145,294) |

Change in net assets before pension-related changes other than net periodic pension cost

| (2,670,281)                | 1,922,263               | (748,018) | 1,689,529 |

Pension-related Changes Other Than Net Periodic Pension Cost

| (1,045,021)                | 1,922,263               | (1,045,021) | 1,256,528 |

Change in Net Periodic Cost

| (3,715,102)                | 1,922,263               | (3,715,102) | 2,946,057 |

Net Assets, Beginning of Year, as restated

| 55,208,442                 | 14,455,386              | 69,663,828 | 66,717,771 |

Net Assets, End of Year

| $ 51,493,140               | $ 16,377,649            | $ 67,870,789 | $ 69,663,828 |

This Statement of Activities represents page 4-5 of HMRI’s 2019 Audit.
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Huntington Medical Research Institutes (HMRI) is a nonprofit 501(c)(3) biomedical research organization. Our mission is to improve lives through patient-focused scientific research. We are dedicated to finding diagnostic tools and treatments for serious diseases that affect millions of people each year. Our vision is to understand, prevent, and cure human disease through biomedical research. We invite you to visit HMRI, tour our labs, and learn about opportunities to support biomedical research. Tax ID # 95-1757119.

686 South Fair Oaks Avenue | Pasadena CA 91105
(626) 795-4343 | www.hmri.org

On behalf of the Board of Directors,
Thank You for Supporting HMRI

HMRI Board of Directors, 2019
Front row (left to right): Joseph Chang, Kathleen Kane, Allen Mathies, Julia Bradsher (president & CEO of HMRI), Jim Gamb (board chair), Susan Kane (vice chair), Larry Jones.