Our Mission
To improve human health through innovative genetic research and education

Since 1954, scientists at McLaughlin Research Institute (MRI) have been working to defeat human diseases. Their research has made important contributions to the fights against Alzheimer’s, Parkinson’s, diabetes, multiple sclerosis, hearing loss, and mad cow disease. Early research at the Institute was influential in the development of transplantation medicine. Today, the researchers are focused on brain diseases.

For more than 50 years, the Institute has nurtured young scientists-in-the-making through our internship program for high school and college students. Our education program also includes working with public schools to enhance science education.

One of the many ways you can support our mission is by spreading the word. Please pass this report on to a friend or loved one.

The report is also available on our website: mclaughlinresearch.org

“Our research at MRI is going to help patients.”
–Dr. George Carlson

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Square Butte photo on back cover courtesy McMillan Studio
In an exciting step into a new future of translational research, McLaughlin Research Institute is building a partnership with Benefis Health System in Great Falls, Montana, that promises to carry the Institute’s research results into the realm of patient care. This development offers new hope for Montana’s aging population, which faces a grim forecast in the nation’s Alzheimer’s epidemic.

To facilitate its entry into clinical medicine, MRI is searching for a Physician-Scientist who will see patients with degenerative brain diseases at Benefis and conduct research in a lab at the Institute, tying the two practices together to enhance both the research and the medicine. Physicians with the rare combination of clinical expertise and a productive laboratory research program are not plentiful, and recruiting one will take some time, but MRI is eager to take this logical next step in the battle against Alzheimer’s, Parkinson’s, and related diseases.

Translating basic research discoveries to clinical practice is one of the pillars of the National Plan to Address Alzheimer’s Disease and related disorders. The plan prioritizes the identification of biomarkers for these diseases, which is a key component of ongoing research at MRI; please take a few minutes to read more about this on page 4. The National Plan’s priorities dovetail seamlessly with McLaughlin’s research, and the alliance with Benefis positions the Institute to maximize its contribution to the fight against degenerative brain disease.

Eminent Stanford University researcher Dr. Irving Weissman is the longtime chair of MRI’s Scientific Advisory Committee. His vision has been instrumental in moving the Institute towards clinical medicine. “We have a rich history,” he said. “We have a chance to make a bold leap so that we can not only treat people but we can also be at the leading edge of understanding their [families’] diseases and part of the new way of translating medicine.”

Parkinson’s patients will ultimately benefit from translational research in ways that are similar to those with other degenerative brain diseases. This report includes the story of Dr. Paul Melvin of Helena and his experience of living with this life-changing disease.

I hope you will enjoy reading about MRI’s science education program, which is one of the best in the country. The summer program for students began nearly 60 years ago and has evolved to include a high quality research experience for science teachers, followed by a second summer spent developing new curriculum inspired by the research. Each year hundreds of students benefit from the enthusiasm and enriched learning opportunities their teachers bring back to class from the Institute.
Among the many ways the Institute has nurtured the next generation of scientists is a new one for MRI: **Miranda Yeska-Orr** was the first graduate student to conduct her doctoral research at McLaughlin, and last year she received her PhD and published her intriguing research findings in a peer-reviewed journal. Her story in the following pages makes plain the vital role McLaughlin Research Institute continues to play in the lives of young Montanans.

Unfortunately, at the same time that degenerative brain disorders threaten to touch every American family, at a perilous human and financial cost to both individuals and the government, federal funding for medical research is increasingly difficult to come by. This funding shortage puts independent research facilities like MRI in a precarious position.

In addition to those federal funds from the National Institutes of Health and various well aligned biomedical collaborations and contracts, the Institute has relied heavily on the generosity of private donations throughout its history. We are grateful for the gifts from our supporters that help make it possible to carry on this important work. Please read in the following pages about recent gifts to MRI from individuals who used planned giving to help sustain McLaughlin’s mission. We hope you will consider how you can help support research and education at the Institute.

Leading the Institute’s development efforts is our new Development Officer, **Lisa Flowers, PhD**. MRI’s staff and board members are united in our enthusiasm about Dr. Flowers, who came on board in mid June of 2012. Lisa is a wonderful addition to the MRI team.

MRI was honored this year to develop a friendship with **Joe and Patty Mazurek** of Helena and was saddened by Joe’s death from early-onset Alzheimer’s. The Mazurek family generously teamed up with the Institute to help advance a cure for this devastating disease by telling Joe’s tragic story – of a former Montana attorney general whose career and life were cruelly cut short.

To help us communicate more effectively with you, our supporters, and the larger public, MRI launched its new website and Facebook page in May. Visit us on the web at **mclaughlinresearch.org** or on Facebook at McLaughlin Research Institute and keep in touch with our progress during this pivotal time. Our ambitious next chapter – bridging basic research with clinical trials to benefit patients – will be possible with your transformational support. The MRI Board and staff sincerely thank you for choosing to be part of the evolving community-based story of McLaughlin Research Institute’s work to improve human health as we move into a bold and exciting future.

**George Carlson, PhD**
Director & Professor
A new study has revealed that indicators of diseases like Alzheimer’s can be present in a person’s body more than 20 years before they show signs of the disease. “It’s terrifying,” MRI director George Carlson said. “To think that a degenerative brain disease might be lurking in our cells at a relatively early age can make many people worry that normal lapses in memory, which we all have, are early signs of a devastating dementing illness.”

But Dr. Carlson, one of the country’s leading Alzheimer’s researchers, also is encouraged by a new coordinated national effort to attack these diseases before they ravage the brain. The urgent problem of an impending epidemic of Alzheimer’s disease has prompted the U.S. government to enact a plan to prevent and effectively treat it by 2025.

Finding genetic indicators or markers for Alzheimer’s is one of the plan’s priorities, so that the disease can be detected and either slowed or stopped in patients before it harms them. Researchers have identified several markers for Alzheimer’s, but getting access to them in patients involves invasive or very expensive procedures. Given these difficulties, people are tested for these markers only after they have developed symptoms.

A simple blood test as a method for detecting disease markers could make very early diagnosis possible, before full-blown symptoms appear. The team of scientists at MRI and their collaborators have been looking for markers for various brain diseases for some time and have helped advance the movement toward a blood test as a method for early diagnosis. (Early diagnosis is a key objective of the national plan to combat the disease.) In an exciting development this past year, the Carlson lab at MRI, David Westway’s group at the University of Alberta and their collaborators were successful in identifying a marker specific to prion disease, a related class of degenerative brain disease.

Now the MRI group and Dr. Lee Hood’s team at the Institute for Systems Biology are applying a similar approach to the search for a genetic marker specific to Alzheimer’s. Since mice are useful only to a certain degree in this particular search, human cells need to be a key component. This study could be greatly enhanced by a developing partnership between MRI and Benefis Health System, in which cells from patients could be used to help identify the pre-clinical markers for the disease.

The possibilities for advancing Alzheimer’s research with the use of cells from human patients include making new nervous system stem cells from a patient’s own cells and reintroducing them into the patient to replace diseased cells with healthy ones or to deliver beneficial molecules. Such a dramatic therapy would take years to develop. In the meantime, transplanting...
The staggering yearly cost of caring for the entire nation’s Alzheimer’s patients is projected to be $1.1 trillion by 2050.

stem cells from patients with Alzheimer’s or other brain diseases into mice could help develop a new way to study the disease in human cells integrating into a living brain.

This enhanced connection between basic Alzheimer’s research and patient care, known as translational research, is another one of the National Plan’s priorities. Speeding up the process of applying research results to medicine will make a difference for the millions of Americans facing the impact of Alzheimer’s disease on themselves and their families.

The statistics are growing to encompass most Americans as eventually either patients or caregivers of a spouse or parent with dementia. According to the National Plan to Address Alzheimer’s Disease, “Given the great demographic shifts that will occur over the next 30 years, including the doubling of the population of older adults, the success of this effort is of great importance to people with AD and their family members, public policy makers, and health and social service providers.”

MRI is poised to take this important next step in the fight against Alzheimer’s and other degenerative brain diseases as part of an urgent push on the part of the United States to address a costly health crisis.

Funding Challenges for Alzheimer’s Research

To launch its National Plan to Address Alzheimer’s Disease, the Obama administration has provided some interim funding for Alzheimer’s research. Full funding for the plan, and for biomedical research in general, will depend upon the outcome of legislative budget debates.

Congress determines the budget for the National Institutes of Health (NIH), which provides the bulk of federal funding for medical research. When adjusted for inflation, purchasing power of this research funding has declined over the past decade, making it impossible for scientists to carry out the same scope of work.

With this as a starting point, further cuts could be devastating for Alzheimer’s research.

Teamwork McLaughlin scientists use varied approaches to unlock the mysteries of Alzheimer’s. Pictured from top: Drs. Teresa Gunn, Brenda Canine (with student Kelsey Smith), and Dan Zou; research assistant Derek Silvius.
Learning to Cope with Parkinson’s Disease

Supporters Dr. Paul Melvin and his wife Terry at home in Helena, Montana.
When Dr. Paul Melvin retired from a successful career as a surgeon with the Great Falls Orthopedic Associates and later moved to Helena, he looked forward to indulging his love of hiking. He and his wife, the artist Terry Melvin, built their dream house on the lower slope of Mount Helena so they could spend their days hiking from their back door. But after several years, Dr. Melvin wasn’t keeping up during their hikes and began having trouble getting out of his car. He had extreme fatigue and had lost his sense of smell.

Eventually a neurologist diagnosed Parkinson’s disease, and the Melvins’ life became something different from what they’d hoped for. Paul had to give up his work at the VA orthopedic clinic. A skiing accident last year marked the end of his skiing days, and biking no longer works, either. He has difficulty dressing himself – buttons are a particular challenge, and his voice has weakened considerably.

**Parkinson’s is a degenerative brain disease that affects more than a million Americans.** The brain cells that produce dopamine die, making it difficult for nerves to send messages. Muscle movement no longer functions properly, resulting in stiffness or rigidity, slowness of movement, tremors and impaired balance and coordination. Other symptoms can include problems with memory and other cognitive trouble, altered speech, insomnia and depression.

“I wasn’t sure I could handle this,” Paul said of his early reaction to the diagnosis. Terry, too, has had a tough time adjusting to the illness. “It has been very difficult to learn to cope with what’s happened and to realize this is how life is going to be,” she said. She went through a dry spell with her art, where she felt “locked up,” and they both had to guard against a tendency to withdraw socially as they have adjusted to their new circumstances. According to Paul, “People with these diseases need to realize it has a profound effect on your loved ones.”

Dr. Melvin manages his symptoms fairly well so far with medication and exercise. “But I recognize it’s a progressive disease,” he said. Treatments alleviate symptoms but do not slow the disease’s progression. After Paul began taking medication, he had awful anxiety attacks. “I’d always thought of anxiety as something you could control, but I had no control over my racing mind and I couldn’t sleep.” An anti-anxiety medication has made a big difference in his ability to cope with the disease rather than succumb to depression. Having a good doctor and support from Terry have also helped. “She has been absolutely marvelous,” he said. The Melvins celebrated their 50th wedding anniversary in August.

As a physician, and as a member of a family with a history of neurological diseases – his mother had Alzheimer’s and his father had ALS (also known as Lou Gehrig’s disease) – Dr. Melvin knows the vital role research plays in treating neurological diseases.

“Basic research is the only way you have of finding cures and the pathogenesis of the disease. You can do all these clinical studies, but they don’t usually find the cause of problems.”

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**Scientists at MRI are working to better understand different aspects of Parkinson’s disease.**

Assistant Professor Deborah Cabin’s mouse models for Parkinson’s allow her to see what happens in the early stages of the disease, in the brain stem, before it moves to the midbrain and affects movement and balance. “Our hope is to learn what could stop the progression of Parkinson’s in its early stages,” she said.

Now that scientists know that Parkinson’s, Alzheimer’s, prion and other neurodegenerative diseases share a basic mechanism of misshapen proteins spreading through the brain cell by cell in a cascade of dying neurons, MRI’s work to learn more about the specific mechanism for each of these disorders is strengthened by the Institute’s team approach to this class of diseases. According to Dr. Cabin, “It’s an exciting time to be studying Parkinson’s.”
MRI’s Model Science Education Program Has Far-Reaching Impact

Tom Cubbage is thrilled that a number of his former science students at C.M. Russell High School in Great Falls are now working as researchers in labs across the country. Three are currently working as research assistants or postdoctoral fellows at McLaughlin Research Institute, where Mr. Cubbage has spent nine summers working in the education program. He attributes the pursuit of science careers by his students to the MRI program, in which teachers and students work side by side with researchers in the lab. The students get a chance to find out whether science is their calling, and the teachers learn “real science” techniques they can use back in class.

“Because MRI is in Great Falls,” Mr. Cubbage says, “rural Montana students believe research as a career is a possibility. [The program has expanded to include teachers from rural communities.] If your science teacher can do it, you realize it’s an option.” He knows the enthusiasm he brings back to the classroom after spending a summer immersed in the intellectually stimulating atmosphere of science is contagious. “I get such rejuvenation for teaching; it gets me excited about the science every year. I love sharing that with the kids and talking about the high-level new things going on in science, which really wows them,” he said.

In the lab Teacher cohort members Tom Cubbage, Dan Rediske and Rob Truax discuss curriculum improvements for the upcoming school year.
“The impact of this kind of program is so far-reaching that we have no idea of the extent of this. Each one of us teachers is impacting 90-120 students every year for the rest of our careers. Every one of our students gets exposed to this excitement about science.”

The involvement of teachers at MRI increased dramatically five years ago when the Howard Hughes Medical Institute (HHMI) began funding a new program that has allowed teachers to spend two summers at McLaughlin. They spend one summer in the lab and the second summer working with a small team of teachers to integrate their research experience into the curriculum.

In addition to the various opportunities MRI has offered teachers for nearly 20 years, the Institute has been training student interns for more than 50 years, since renowned Stanford University stem cell expert Irving Weissman’s initiative as a high school student prompted Dr. Ernst Eichwald to let him work in the lab. Over the years, the program has grown into one of the best in the country and has become quite competitive.

Tom Cubbage studied other programs and was not surprised to learn that “MRI has most places beat,” in terms of providing opportunities for serious immersion in actual science. He said it’s rare that students get to do a project from start to finish, and even more rare to have teams including a teacher, a high school student and a college student in one lab. “No other program does that,” according to Mr. Cubbage.

Great Falls Public Schools appreciates the program their teachers and students participate in. According to Tom Moore, Assistant Superintendent for Secondary Schools, “This is a model program, providing meaningful, relevant preparation for careers. Teachers and students get to work to help solve a big, important problem in genetic research and realize they could make a difference some day. We’re so fortunate in this community to have this opportunity with MRI for students and teachers to work side by side with scientists.”
Each summer, the labs at MRI are filled with high school and college students, learning the ropes of real science. As Great Falls Public Schools’ Tom Moore said after watching the 2012 students present their research results, “Students get to work to help solve a big, important problem in genetic research and realize they could make a difference some day.”

Summer students Left to right, from top: Garret Morrill, Jourdon Gudatis, Kaitlyn Carlson, Lauren Smith, Alekses Clifton, Emilie Jacobsen and Raphael Broh. Not pictured: Kelsey Jo Smith and Jojo Coburn.
As a graduate student who spent several years conducting doctoral research at McLaughlin Research Institute, Miranda Yeska-Orr developed a novel stem cell model for frontotemporal dementia, which is closely related to Alzheimer's disease. Her work was published in the June 2012 issue of the peer-reviewed journal PLOS ONE.

“We were able to see pre-pathological phenomena that could be further studied to determine whether they will serve as useful markers for the disease,” she explained. Finding markers for degenerative brain disease is one of the goals for both MRI and the nation (see article on page 4), since they could be useful in very early diagnosis.

Dr. Yeska-Orr is continuing her research in her new postdoctoral position at the Barshop Institute for Longevity and Aging Studies in San Antonio, Texas. She is working to improve current mouse models for Alzheimer’s and is using a line of genetically engineered mice unique to McLaughlin, which has supplied her with mice to start her own colony. “I’m amazed, when I look back, at how much I learned at MRI,” she said. “The people in the lab here now rely on me for my knowledge of mouse genetics.”

Miranda grew up in Saco, Montana, where her work on the family ranch influenced her interest in science. Her grandmother’s death from Alzheimer’s inspired her to study dementing diseases, which she began studying in George Carlson’s lab at MRI in 2007. She received her PhD from Montana State University in 2011.

“I’m convinced that Miranda will have a brilliant career in research and make significant contributions towards treating degenerative brain diseases,” Dr. Carlson said.

According to Dr. Yeska-Orr, “Being a native Montanan, I always heard that there are bigger, better things out there, and that we’re disadvantaged somehow in Montana. I’m sure that’s not true. The science going on at MRI is top notch, and I was lucky to do my research there.”

“Dr. Carlson really fosters independent thought, and I think that’s the most important thing grad students learn: how to think critically and how to design experiments. You can’t go to a textbook or online and learn those things.” Miranda went on to say that without those skills, it also would be difficult to write grants, and that she learned at MRI how to write a successful grant and how vital grants are to the work of a scientist. “I was able to get my current job because I had recently received my own funding by applying for a grant. I can’t say how much my experience at McLaughlin has meant to me.”

**Novel approach** Dr. Orr has published work on stem cell models for dementing disease and now works in San Antonio, Texas, where she is respected for her knowledge of mouse genetics.
Scientists Learn, Share and Contribute

George Carlson, PhD

July 2011 Presentation, Early Detection & Prevention of Alzheimer’s Disease & Other Dementing Disorders, at the Champions of Quality Conference, Montana Hospital Association, Helena, MT.

August 2011 Presentation, Transgenic Models for Frontotemporal Dementia: Role of Endogenous Mouse Tau, at McLaughlin Research Institute’s Annual Biomedical Sciences Workshop, Great Falls, MT.

October 2011 Board of Director’s Meeting, N. Bud Grossman Center for Memory Research and Care, at the University of Minnesota, Minneapolis, MN.

November 2011 Department of Biological Sciences Advisory Board Meeting, at Montana Tech, Butte, MT.

December 2011 Consulted for StemCells Inc. on their Disease Team grant application entitled Restoration of memory in Alzheimer’s disease: a new paradigm using neural stem cell therapy, which was submitted to the California Institute of Regenerative Medicine, the meeting was held at University of California, Irvine, CA.

March 2012 Testified on the importance of NIH funding, before the Labor, Health and Human Services, Education, and Related Agencies Subcommittee of the House of Representatives, Washington, DC.

April 2012 Attended the Opportunities for business and education cooperation with the Montana Learning Center, Reception hosted by Governor Schweitzer and the First Lady, Helena, MT.

May 2012 Presentation, Expression of wild type tau may delay or decrease pathology in the rTg (tauP301L) model for frontotemporal dementia, at the Prion Review Meeting, San Francisco, CA.

John Bermingham Jr, PhD

March 2011 Poster Presentation, Translational control of expression of the epilepsy-related protein Lgi1, at the American Society for Neurochemistry conference, St. Louis, MO.

October 2011 Presentation, The secreted protein Lgi4 is required for peripheral nerve development at Biogen, Cambridge, MA.

Deborah Cabin, PhD

August 2011 Presentation, Genetic approaches to alpha-synuclein function and toxicity, at the McLaughlin Research Institute Biomedical Sciences Workshop, Great Falls, MT.

September 2011 Presentation, Research overview of the McLaughlin Research Institute, at the Optimists Club meeting, Great Falls, MT.

October 2011 Presentation, Can mouse alpha-synuclein help us understand human alpha-synuclein toxicity? at the Weissman Lab Retreat, Rocky Mountain Laboratory, Hamilton, MT.

January 2012 Presentation, Research overview of the McLaughlin Research Institute and Neurodegenerative Diseases, at the Leadership Great Falls meeting, Great Falls, MT.
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<tr>
<th><strong>Teresa Gunn, PhD</strong></th>
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<tbody>
<tr>
<td>October 2011</td>
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<tr>
<td>Presentation, <em>Mitochondria, ubiquitination and neurodegeneration</em>, at the Weissman Lab Retreat, Rocky Mountain Laboratory, Hamilton, MT.</td>
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<tr>
<td>2012</td>
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<tr>
<td>Reviewed a grant application for the National Institute of Health Molecular, Cellular and Developmental Neuroscience study section.</td>
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<td>Reviewed a grant application for the Alzheimer’s Association, grant review committee.</td>
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<th><strong>John Mercer, PhD</strong></th>
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<tr>
<td>July 2010 – August 2011</td>
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<tr>
<td>Visiting scholar in the Department of Biochemistry, Stanford University, School of Medicine, Palo Alto, CA.</td>
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<tr>
<td>August 2011</td>
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<tr>
<td>Presentation, <em>A high-throughput approach to inherited cardiomyopathies</em>, at the McLaughlin Research Institute Annual Workshop, Great Falls, MT.</td>
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<tr>
<td>November 2011</td>
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<tr>
<td>Presentation, <em>Genetics of cardiomyopathies</em>, at the Indo-Spanish workshop on health and medical research, New Delhi, India.</td>
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<tr>
<td>December 2011</td>
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<td>Poster presentation, <em>Building an international network for student training and research collaboration in the biological sciences</em>, at the International Institute for Collaborative Cell Biology and Biochemistry.</td>
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<tr>
<td>Poster presentation, <em>A subset of axonally transported RNAs associates with Myosin-Va in ribonucleoprotein complexes and Schwann cells as local supply of axonal RNA in regenerating mammalian nerves</em>, at the American Society for Cell Biology annual meeting, Denver, CO.</td>
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<tr>
<td>February 2012</td>
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<tr>
<td>Presentation, <em>A high-throughput approach to inherited cardiomyopathies</em>, at the Second Indian Ocean Rim Muscle Colloquium, Bangalore, India.</td>
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<td>April 2012</td>
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<tr>
<td>Attended the <em>Scientific innovations in pediatric and congenital heart disease</em> meeting at Stanford University, Palo Alto, CA.</td>
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<th><strong>Brenda Canine, PhD</strong></th>
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<td>July 2011</td>
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<td>Attended the Systems Biology Course, at the Institute for Systems Biology, Seattle, WA.</td>
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<td>October 2011</td>
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<tr>
<td>Presentation, <em>Utilization of systems biology approaches to identify candidate genes affecting scrapie prion incubation time</em>, at the Weissman Retreat, Hamilton, MT.</td>
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<th><strong>Miranda Orr, PhD</strong></th>
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<tr>
<td>December 2011</td>
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<tr>
<td>Dissertation seminar and defense, <em>Mouse and Stem Cell Models of Frontotemporal Dementia</em>, at the Department of Cell Biology and Neuroscience, Montana State University, Bozeman, MT.</td>
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<th><strong>Will Walker, PhD</strong></th>
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<tr>
<td>October 2011</td>
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<td>Presentation, <em>Tsg101 depletion causes neurodegeneration and spongiform encephalopathy</em>, at the Weissman Retreat, Hamilton, MT.</td>
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<th><strong>Dan Zou, PhD</strong></th>
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<tr>
<td>August 2011</td>
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<tr>
<td>Presentation, <em>How does mouse alpha-synuclein protect against human A53T mutant human alpha-synuclein toxicity?</em> at the McLaughlin Research Institute Biomedical Sciences Workshop, Great Falls, MT.</td>
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Scientific Publications
The scientists at McLaughlin collaborate with colleagues worldwide to advance knowledge by publishing articles in scholarly peer-reviewed journals.


Seminars

Seminars by guest scientists enrich the academic environment at McLaughlin Research Institute and are open to Montana’s medical and university communities.

August 17, 2011
Genetics of the normal immune system revealed by the collaborative cross
Jeff Frelinger, PhD
University of Arizona
Tucson, AZ

Genetics of color patterns: model systems and model organisms in a post-genome world
Greg Barsh, MD, PhD
Stanford University,
Palo Alto, CA

Harnessing transposons for cancer gene discovery
Nancy Jenkins, PhD
Institute of Molecular & Cellular Biology,
Singapore

Transposon-based insertional mutagenesis identifies genes that transform neural stem cells into glioblastoma tumor-initiating cells
Neal Copeland, PhD
Institute of Molecular & Cellular Biology
Singapore

Stem cells gone wild
Irv Weissman, MD
Stanford University,
Palo Alto, CA

Traumatic brain injury: environmental initiation of prion-like, tauopath, neurodegeneration
Dan Perl, MD
Uniformed Services University of the Health Sciences
Bethesda, MD

Systems medicine and P4 medicine—a proactive medicine of the future
Lee Hood, MD, PhD
Institute for Systems Biology
Seattle, WA

August 26, 2011
Brain aggregates: a novel and accurate in vivo model of prion disease
Stephen J. DeArmond, MD, PhD
Institute for Neurodegenerative Diseases
San Francisco, CA

November 16, 2011 HHMI Lectures
Endless flies most beautiful: gene co-option and the evolution of animal form
Remarkable creatures: epic adventures in the search for the origin of species
Sean Carroll, PhD
Howard Hughes Medical Institute
Chevy Chase, MD
University of Wisconsin
Madison, WI

March 21, 2012
Utilization of mouse fetal brain derived neurosphere culture as a novel in vitro model of Alzheimer’s Disease
Ranjit K. Giri, PhD
National Brain Research Centre
Manesar, Haryana, India

May 9, 2012
A global consortium to study inherited cardiomyopathies
John Mercer, PhD
Institute for Stem Cell Biology and Regenerative Medicine (inStem)
National Centre for Biological Sciences
Bangalore, India

The list above includes talks given July 1, 2011 - June 30, 2012.
### Staff

**Director & Professor**  
George A Carlson, PhD

**Professor**  
John A Mercer, PhD

**Associate Professor**  
John R Bermingham Jr, PhD

**Associate Professor & Transgenic Facility Advisor**  
Teresa M Gunn, PhD

**Assistant Professor**  
Deborah E Cabin, PhD

**Postdoctoral Fellows**  
Brenda Canine, PhD  
Andrea Grindeland, DVM  
Miranda Orr, PhD  
Will Walker, PhD  
Dan Zou, PhD

**Senior Research Assistants**  
Rebecca Brown  
Jill O’Moore  
Rose Pitstick

**Research Assistants**  
Sarah Anderson  
MegAnne Casey  
Delisha Meishery  
Sydni Racki  
Derek Silvius  
Katy K Walker

**New Lab Complex**  
Scientific Coordinator & Mouse Management Liaison  
Institute for Stem Cell Biology and Regenerative Medicine, National Centre for Biological Sciences, Bangalore, India  
Colleen Silan

**Transgenic Assistant**  
Sherry Turner

**Research Technician**  
Janet Peters, LATG

**Animal Resource Supervisor**  
Julie Amato, LAT

**Animal Care Technicians**  
Mallory Brumley  
Kelli Johnson  
Jennifer Lawrence  
Rachel Marden  
Anita Pecukonis, RLAT

**Animal Caretaker**  
Jonathan Woods

**Cage Wash Technicians**  
Joseph Gilmore  
Brandon Moe

**Glassware Technician**  
Melany Gilmore

**Chief Advancement Officer**  
Barbara Ball-McClure

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Sylvia Love, MA

**Assistant to the Director**  
Jill O’Moore

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**Purchasing Agent**  
Wanda Forster, CPP

**Maintenance**  
Joe Amato, LAT, Supervisor  
Melany Gilmore

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List includes staff with us between July 1, 2011 and June 30, 2012.

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Scientific Advisory Committee members convene in Great Falls

Irv Weissman, Neal Copeland, David Cameron, Nancy Jenkins, Jeffrey Frelinger, and Leroy Hood.

Not pictured: David Baltimore.
Partners in Research

Scientific Advisory Committee
Chair, Irving L Weissman, MD
Director, Institute for Stem Cell Biology and Regenerative Medicine
Stanford University School of Medicine
Palo Alto, CA

David Baltimore, PhD
California Institute of Technology
Pasadena, CA

David Cameron, PhD
Professor Emeritus
Montana State University
Bozeman, MT

Neal G Copeland, PhD
The Methodist Hospital Research Center
Houston, TX

Jeffrey A Frelinger, PhD
University of Arizona
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You can help by supporting our research now … so we can help patients in the future.

Generous gifts made to McLaughlin Research Institute help fuel innovative, collaborative, and community-based research and education. Your meaningful contributions go directly to the research you want to support. Together with our collaborators (Lee Hood, Brad Hyman, and Irv Weissman among them), we are building an unparalleled understanding of the processes causing degenerative brain diseases.

This year the Institute has been blessed with the Mazurek family’s willingness to help play a role in the search for a cure to Alzheimer’s disease. The gifts in honor and memorial of Joe are true testimonials by the many individuals who were touched by his friendship, leadership and commitment to his family. The Institute is honored to work with Randy Gray, current board member, and the “Friends of Joe” to grow financial support for Alzheimer’s research now, and to help patients in the future.

There are many meaningful ways to give to McLaughlin Research Institute. We hope you will choose one that is best suited to your needs and interests.

It would be a pleasure to help guide your philanthropy. Please contact our development officer, Dr. Lisa Flowers, at 406.454.6009.

The McLaughlin Research Institute has been awarded the highest “four stars out of a possible four” rating for sound fiscal management and commitment to accountability and transparency by Charity Navigator, the country’s largest and most-utilized independent evaluator of charities. Only 17 percent of charities rated have received at least two consecutive four-star evaluations, indicating that MRI in Great Falls, Montana outperforms most other charities in America.

Troy Florence Wainscoat, a gracious patron of McLaughlin Research Institute, recently died of natural causes in South Lake Tahoe, California. Troy lived in Santa Cruz for many years prior to living in Great Falls for the past three years. She was born in San Francisco and lived in many areas of California over her 93 years.

Troy was married to Conrad Wainscoat and had 16 children, 47 grandchildren and many great-grandchildren.

“Troy loved biomedical research and was very interested in it,” said longtime friend Betty Van Lieshout. She supported other healthcare organizations including the AIDS Foundation and St. Jude Children’s Research Hospital.

For a while, she lived down the street from the Institute in the Renaissance Senior Care facility. Troy and Conrad donated to MRI over time. “It always made her feel good, when she looked across the street, to know that she had contributed in a small way to Alzheimer’s research,” Betty recalled.

Troy’s family remembers her as a friend to all and an example of true unconditional motherly love. She was a musician and avid reader, loved to learn about the world and traveled to Europe with Conrad.

At age 85, she traveled to South Africa with her trusted friend, Betty. She had many great adventures and her family loved to hear her stories. She loved Montana and before moving here she visited every year so she could enjoy the “Big Sky,” mountains and lakes.

Troy was thankful for all the care and friendship the Great Falls community gave to her, and her gift of a $25,000 annuity to McLaughlin Research Institute was a generous way for her to give back to Great Falls.
Lifelong Great Falls resident Evelyn Poncelet was impressed by what she learned about MRI’s work to help find cures for deadly diseases. She included a bequest for the Institute in her will, and after her death in December 2011 at age 92, MRI received a $40,000 gift from her estate.

Gifts like these help make it possible for the Institute to carry out its important mission of improving human health through research and education.

Our Donors

Gifts received July 1, 2011 through June 30, 2012. Please check these lists for accuracy. You deserve proper recognition for your gifts and, while we make every effort to get the names correct, occasional errors occur. If you find we omitted or misspelled your name or placed you in the wrong giving category, please call the Development Office at 406.454.6009 to allow us to apologize and correct the records. We want to correct even “minor” errors.

Thank you again for your gift and, if necessary, your forbearance.

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For more information, call the Development Office at 406.454.6009. McLaughlin Research Institute’s Tax ID number is 81-045925.
### Statement of Financial Position  
**June 30, 2012**

#### ASSETS

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash and cash equivalents</td>
<td>$ 13,779</td>
</tr>
<tr>
<td>Grants &amp; accounts receivable</td>
<td>308,670</td>
</tr>
<tr>
<td>Prepaid expenses and supply inventories</td>
<td>64,224</td>
</tr>
<tr>
<td>Investments</td>
<td>3,540,267</td>
</tr>
<tr>
<td>Contributions receivable</td>
<td>192,384</td>
</tr>
<tr>
<td>Other assets</td>
<td>5,187</td>
</tr>
<tr>
<td>Property and equipment, net</td>
<td>10,133,021</td>
</tr>
<tr>
<td><strong>TOTAL ASSETS</strong></td>
<td><strong>$ 14,257,532</strong></td>
</tr>
</tbody>
</table>

#### LIABILITIES & NET ASSETS

**ASSETS**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounts payable</td>
<td>$ 49,386</td>
</tr>
<tr>
<td>Accrued liabilities</td>
<td>61,197</td>
</tr>
<tr>
<td>Line of credit payable</td>
<td>200,000</td>
</tr>
<tr>
<td>Grants received in advance</td>
<td>887,102</td>
</tr>
<tr>
<td>Notes payable</td>
<td>251,671</td>
</tr>
<tr>
<td>Gift annuity obligations</td>
<td>179,849</td>
</tr>
<tr>
<td><strong>Total Liabilities</strong></td>
<td><strong>1,629,205</strong></td>
</tr>
</tbody>
</table>

**NET ASSETS**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unrestricted / undesignated</td>
<td>9,145,526</td>
</tr>
<tr>
<td>Unrestricted / board designated</td>
<td>1,307,653</td>
</tr>
<tr>
<td>Temporarily restricted</td>
<td>57,304</td>
</tr>
<tr>
<td>Permanently restricted</td>
<td>2,117,844</td>
</tr>
<tr>
<td><strong>Total Net Assets</strong></td>
<td><strong>12,628,327</strong></td>
</tr>
</tbody>
</table>

**TOTAL LIABILITIES & NET ASSETS**

<table>
<thead>
<tr>
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Reproduced from the June 30, 2012 Financial Statements, audited by Douglas Wilson & Company, PC. The complete audit report and financial statements are available on MRI’s website.  
[mclaughtinresearch.org](http://mclaughtinresearch.org)

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**Senior Research Assistant** Rose Pitstick is co-author with Dr. Carlson on many of the scientific publications that advance knowledge on Alzheimer’s and prion diseases.
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“Our goal is to improve patient care ... the reason we do research is to improve the health of people across the world and in this community.”

–Dr. George Carlson