MCW
MEDICAL SCHOOL

ADVANCING A HEALTHIER WISCONSIN ENDOWMENT

Research and Education Program
Completed Award Summaries

The following includes summaries of progress for AHW Research and Education Program awards that completed during the period ending June 30, 2017

Novel Target for the Treatment of Type 2 Diabetes

Award Amount: $200,000 (2015-2017)

MCW MEDICAL SCHOOL

Goal

Understand why obesity only leads to type 2 diabetes in part of the patient population, which will help develop new methods for preventing the disease.

Background

Wisconsin has the 22nd highest adult obesity rate in the United States at almost 30 percent, a dramatic increase from 12 percent in 1990. Obesity increases the risk of a number of serious health issues, including heart disease, dementia, and type 2 diabetes. Type 2 diabetes, the seventh leading cause of death in the nation, affects more than 475,000 adults in Wisconsin. The disease costs the state 6.1 billion annually in health care costs and lost productivity.

Award Summary

The scientists discovered that a key enzyme plays a significant role in protecting insulin-producing cells in the pancreas by preventing an accumulation of free fatty acids. If free fatty acids build up to significant levels, the resulting chemical environment can become toxic and even deadly to the cell.

Approximately one-third of patients develop type 2 diabetes due to obesity. The remaining two-thirds of individuals retain the ability to produce and respond to insulin in order to normally process food. By better understanding this phenomenon, methods may be able to be developed to protect more patients from becoming resistant to insulin and requiring insulin injections. In addition to further studying the key enzyme that preliminary data shows to be a protector of insulin-producing cells in the pancreas, the investigators are developing potential therapies for future studies.

The research team conducted biochemical and cellular studies using the human enzyme involved in degrading proteins modified with FFA, palmitoyl-protein thioesterase 1 (PPT1).

Studies were conducted to understand whether aberrant protein modification with palmitic acid correlates with Type 2 Diabetes development in Wisconsin residents that are metabolically healthy lean, metabolically healthy obese, or metabolically unhealthy obese.

Fat samples were obtained from all of these subject groups.

This study has shown the feasibility, reproducibility, and sensitivity of a targeted mass spectrometry approach for the detection of a low abundant protein (i.e., PPT1) in human biopsied tissues.

Using the targeted mass spectrometry approach and enzyme activity assays, preliminary studies demonstrated that PPT1 levels are higher in adipose tissues from metabolically healthy non-obese and obese individuals compared to diabetic obese individuals.
A similar trend was observed for another lysosomal protein, LAMP1.

Together these results support a novel role of the lysosome and its degradative enzyme, PPT1, in protecting individuals from developing Type 2 Diabetes.

By generating new knowledge about how certain fatty acids harm insulin-producing cells, as well as about the enzyme that maintains a healthy level of fatty acids, the investigators will be better able to design new approaches to delay or prevent the onset of type 2 diabetes due to obesity.

Relevance

Wisconsin has the 22nd highest adult obesity rate in the United States at almost 30 percent, a dramatic increase from 12 percent in 1990. Obesity increases the risk of a number f serious health issues, including heart disease, dementia, and type 2 diabetes. Type 2 diabetes, the seventh leading cause of death in the nation, affects more than 475,000 adults in Wisconsin.

Significance to Science and Health

This award aims to understand why obesity only leads to type 2 diabetes in a portion of the patient population, which will help develop new methods for preventing the disease.

Nancy M. Dahms, PhD
(Principal Investigator)
Biochemistry

Co-investigators: Srividya Kidambi, MD and Rebekah Gundry, PhD

This award was funded by the Advancing a Healthier Wisconsin Endowment in the MCW School of Medicine.

Effects of Inflammation on Cognition, Behavior and Psychiatric Illness

Award Amount: $200,000 (2015-2017)

MCW MEDICAL SCHOOL

Goal

Study the effects of inflammatory Diseases, such as Graft Versus Host Disease, on the brain in rodents and in a clinical trial, which may lead to the development of new approaches for reducing anxiety and depression.

Background

Reports indicate that between 35 and 40 percent of cancer patients experience elevated levels of anxiety, depression and adjustment disorders.

Cancer patients are not alone, however, as cognitive difficulties and depression can occur in a number of human diseases that do not seem to have anything to do with the brain, including heart disease and infections.

Emerging evidence indicates that inflammation is a major contributor to problems in brain function. Inflammation is a characteristic of cancer, infections, heart disease and other disorders that can affect the brain.

Award Summary

Inflammation is an underlying characteristic of virtually all significant human disease states.

The cognitive and emotional challenges that can accompany these diseases have profound adverse effects on patient quality of life and can persist even after the underlying disease has been resolved.

Findings from this research show promise in benefitting large patient populations suffering from many different disorders.

The research team investigated the effectiveness of an available drug in reducing cognitive dysfunction, anxiety and depression in stem cell transplant patients being treated to prevent Graft Versus Host Disease.

This research expands on preliminary data showing that the protein called interleukin-6 has a key role in brain inflammation.

The research team demonstrated that systemic inflammation leads to behavioral and cognitive dysfunction in a well characterized animal model. Furthermore, the researchers discovered that systemic inflammation directly promotes inflammation within the brain.

The team completed a clinical trial that assessed how an inflammatory molecule, termed interleukin 6, affects behavioral function. The clinical trial treated patients with an agent named Tocilizumab that blocks the affects of interleukin 6.

These preliminary clinical results will form the basis for a subsequent clinical trial in which patients are treated with either Tocilizumab or a placebo to determine whether mood and cognitive function can be improved in patients with underlying inflammatory disorders.

Patients with cancers of the blood that have been otherwise cured of their disease after undergoing a bone marrow transplant (BMT) can have cognitive and behavioral dysfunction which compromises their quality of life.

This research has shown for the first time that interleukin 6 plays a pivotal role in mediating inflammation in the brain during graft versus host disease which is the primary complication of bone marrow transplants. Since agents to block the effects of interleukin 6 are commercially available, there is now the potential to determine whether inhibition of the effects of interleukin 6 may improve behavioral function and reduce brain inflammation in these patients.

By advancing knowledge regarding the relationship of inflammation and brain function, this research may lead to new, targeted treatments that are applicable to a broad range of disorders.

Relevance

Emerging evidence indicates that inflammation is a major contributor to problems in brain function. Inflammation is a characteristic of cancer, infections, heart disease and other disorders that can affect the brain.

Significance to Science and Health

Define the inflammatory pathways that cause brain dysfunction in order to develop better therapies for patients with these diseases by increasing knowledge about a protein, interleukin-6, that can reduce brain Inflammation. This research could results in a better understanding of the relationship of inflammation and brain function, which may lead to new, targeted treatments.

William Drobyski, MD
(Principal Investigator)
Medicine (Neoplastic Disease and Related Disorders)

Co-Investigators: Cecilia Hillard, PhD, Neuroscience Center, Jennifer Knight, MD, Psychiatry and Behavioral Medicine

This award was funded by the Advancing a Healthier Wisconsin Endowment in the MCW School of Medicine.

Systematic Analysis of Molecular pathways implicated in amyotrophic lateral sclerosis (ALS)

MCW MEDICAL SCHOOL

Goal

Identify genes that play a major role in the development and progression of Amyotrophic Lateral Sclerosis (ALS) to understand their contributions and develop potential treatments.

Background

ALS is the most common form of motor nerve cell disease. It causes muscle weakness, paralysis, and death within two to five years of diagnosis.

ALS places enormous financial and emotional strain on patients and families. No treatments that currently exist go beyond relieving symptoms to resist the underlying causes of the disease.

Through a better understanding of the genes involved in ALS, the researchers aim to find new ideas for interrupting its progression that can be turned into potential therapies.

Award Summary

Only about five to ten percent of ALS cases are caused by inherited mutation. Advances have been made in determining the genes involves in this hereditary form, although little is yet understood about how these mutated genes work in concert to cause ALS.

These scientists are studying both the functions of the inherited mutant genes and the genetic underpinnings of non-hereditary ALS cases. The generation of new knowledge about the similarities and differences of hereditary and non-hereditary ALS may lead the design of new approaches to treating ALS.

AHW's investment in this award led to the identification of important molecular targets that through further research, could lead to new therapies for ALS.

The research team found that motor neurons derived from ALS patient samples have altered expression of aggregation prone proteins and aberrant expression of the small heat shock proteins and chaperones designed to keep these proteins from aggregating.

Protein aggregation is a common feature of a number of neurodegenerative diseases. However, studies have not been able to definitively determine how protein aggregates impact neuronal function because no effective therapies have been designed to eliminate the aggregates.

Using the dictyostelium model (sometimes referred to as slime mold), the research team identified a novel gene that prevents protein aggregation .

With the discovery of a novel gene, the research team has the opportunity to explore its use in ALS models as well as in other neurogenerative disease systems, which could have a significant impact on the basic biological understanding of what protein aggregates do in the neurons and if this gene will be an effective therapeutic agent. Additionally, previous studies examining protein aggregation and heat shock proteins in ALS have relied on over-expression systems; data from this research exhibits protein burden and heat shock protein misexpression in endogenous conditions, which should provide more clinical relevance.

More than $3.2M in additional funding was leveraged for related research through the AHW award. In addition, one paper has been published and ten presentations were made.

Relevance

This award aims to identify genes that play a major role in the development and progression of Amyotrophic Lateral Sclerosis (ALS) to understand their contributions and develop potential treatments.

Significance to Science and Health

AHW's investment in this award advanced knowledge about genes involved in ALS and build a basic-to-clinical research pipeline to accelerate ALS science.

Allison Ebert, PhD
(Principal Investigator)
Assistant Professor, Cell Biology, Neurobiology and Anatomy

Co-Investigators: Brian Link, PhD, Professor, Cell Biology, Neurobiology and Anatomy and Matthew Scaglione, PhD Assistant Professor, Biochemistry

This award was funded by the Advancing a Healthier Wisconsin Endowment in the MCW School of Medicine.

A Structure-Based Drug Discovery Resource for Clinical and Basic Scientists

Award Amount: $200,000 (2015-2017)

MCW MEDICAL SCHOOL

Goal

Build a resource to promote drug discovery research at the Medical College of Wisconsin in order to expedite translational research in the areas of infectious disease, inflammation, cancer and nervous system decline in dementia and other diseases.

Background

As scientists have uncovered more information about the cause and progression of disease at the molecular level, it is now up to researchers to find new potential medicines using that knowledge. This process of drug discovery starts by finding a small molecule that interacts with a targeted protein with the potential to influence the development and/or progression of a disease. While MCW has expertise in this area, this award proposes to formalize a pipeline for investigators throughout MCW in order to expedite their clinical and translational research projects.

Award Summary

The research team has made significant progress toward implementation of a fragment-based drug discovery screening platform. The platform uses recently-acquired specialized instrumentation at MCW and is widely applicable to any protein target.

This platform searches through a sample from a database with the structures of about 10 million protein fragments. The output is a set of fragments with an affinity to interact with the targeted protein. These fragments can be linked to increase the potential drug's probability of interaction and improve its potency.

The research team created a drug discovery program to screen chemical libraries against 9 proteins with the initial goals of identifying small molecule "hits" to develop into therapeutic compounds to treat infectious diseases, inflammation, cancer, and neurodegeneration.

The research team identified small molecules that specifically bind to these proteins, which are implicated in cancer, psoriasis, and diabetes.

The team has successfully developed new computational methods for automatic identification of chemical hits from the chemical library screening. This method is faster than previous methods, with no loss in accuracy.

This work has already contributed to eight research studies that have been submitted to NIH resulting in a total of $5.7M in extramural funding.

The research team's program is the first Nuclear Magnetic Resonance (NMR) based screening of chemical fragments at MCW and one of the few in academic medical schools world-wide.

In addition, the team has conducted 38 presentations and has two publishing efforts underway to disseminate findings from this research.

The research team is positioned to significantly enhance research capacity and speed drug discovery research for MCW investigators with promising targets for new drugs.

By providing this resource to advance drug discovery efforts, the investigators will take advantage of the collaborative nature and expertise of MCW's structural biologists and medicinal chemists to remove existing barriers preventing other MCW scientists from fully exploring this important field of study.

Relevance

As scientists have uncovered more information about the cause and progression of disease at the molecular level, more research is needed to translate these findings into new medicines. This process of drug discovery starts by finding a small molecule that interacts with a targeted protein with the potential to influence the development and/or progression of a disease.

Significance to Science and Health

This award advanced knowledge about how to best screen existing compounds to find new drugs and contribute to long-term discovery of new therapies to treat infectious disease, inflammation, cancer and nervous system decline in dementia and other diseases.

Blake Hill, PhD
(Principal Investigator)
Professor, Biochemistry

Co-investigators: Brian Volkman, PhD, Francis Peterson, PhD, and Brian Smith, PhD

This award was funded by the Advancing a Healthier Wisconsin Endowment in the MCW School of Medicine.

Ensemble Prediction Models for Personalized Therapy and Survival Analysis

Award Amount: $200,000 (2015-2017)

MCW MEDICAL SCHOOL

Goal

Develop new statistical techniques for predicting the success of stem cell transplants used to treat many disorders of the blood.

Background

Hematopoietic stem cell transplant is a curative treatment for patients with many blood disorders. The outcomes, however, are highly dependent on genetic factors in both the patient and the donor as well as the interaction between these factors. The use of a donor who is not a perfect genetic match results in Graft Versus Host Disease, a devastating immune system complication that reduces quality of life and can be deadly. The disease leads to frequent hospital readmissions, and its treatment is both expensive and not particularly effective.

Award Summary

The availability of Big Data in biomedical applications has never been greater and continues to grow. Population health databases can link information on large numbers of patient characteristics, including genetic information, with clinical outcomes. These databases can be examined to develop better prediction models for patient outcomes and more effectively tailor treatment to individual patients by predicting how they will respond to different treatments.

The research team developed new statistical methods that better predict patient outcomes. Use of this new method has a likelihood of improving the selection of donors, reduce the probability of Graft Versus Host Disease, and increase patients' post-transplant quality of life.

The team demonstrated that a method of generating individualized treatment rules to improve patient care and outcomes is superior to leading methods available at this time.

Much research in this area has focused on optimizing classification of patients into treatment groups. However, the research team is developed an approach that takes a conceptually different strategy by focusing on improved predictions and using those to recommend treatments.

Simulation studies conducted by the research team have shown that this shift in approach has resulted in better performance in terms of expected patient outcomes.

The team developed software to implement this methodology so that it is available for a wider use.

The team also applied the statistical methodology to the clinical problem of donor selection for bone marrow transplantation, and found that such an individualized donor selection strategy could reduce the absolute risk of severe graft versus host disease or death within 180 days by about 5 percent compared to current donor selection strategies for matched unrelated donors.

The researchers are continuing to advance this area of their work and anticipate that use of this method will improve patient treatment and outcomes for a variety of diseases suffered by Wisconsin residents.

The team has several manuscripts in development and has presented at national conferences.

Relevance

Population health databases can link information on large numbers of patient characteristics, including genetic information, with clinical outcomes. These databases can be examined to develop better predictions of how patients will respond to different treatments in complex diseases such as Graft Versus Host Disease. and result in more effective, tailored treatment to individual patients.

Significance to Science and Health

The research team developed new statistical methods that better predict patient outcomes. The investigators expect that these methods will improve the selection of donors, reduce the probability of Graft Versus Host Disease, and increase patients' post-transplant quality of life.

Brent Logan, PhD,

Institute for Health and Equity (Biostatistics)

Co-Investigators: Rodney Sparapani, PhD, Institute for Health and Equity (Biostatistics) and Purushottam Laud, PhD, Institute for Health and Equity (Biostatistics) and Bronwen Shaw, MD, PhD, Medicine

This award was funded by the Advancing a Healthier Wisconsin Endowment in the MCW School of Medicine.

Neuroimaging Research Program- Neuroscience Translational Research Initiative

Award Amount: $749,995 (2011-2017)

MCW MEDICAL SCHOOL

Goal

Build a Neuroimaging Research Program committed to using emerging radiologic techniques to develop new means of diagnosing neurologic disorders and measuring neurological changes following treatment.

Background

The more than 600 known neurological disorders, which include stroke, epilepsy and Parkinson's disease, impact the lives of 50 million Americans each year according to estimates from the National Institutes of Health's Institute of Neurological Disorders and Stroke. The future of both experimental and clinical neuroscience research will increasingly emphasize advanced imaging capabilities. In recent years, rapid evolution of imaging science has made it possible to identify disease in unique ways.

Ultimately, these advances in medical imaging will improve long-term outcomes for patients suffering from neurological disease and injury. There is a high likelihood that such techniques will allow clinicians to begin therapies much earlier, and hopefully improve the health of patients in Wisconsin and elsewhere. Furthermore, it will also allow us to evaluate changes associated with disease and treatment, and thus, make decisions that will affect the quality of peoples' lives.

Award Summary

AHW's investment in the Neuroimaging Research Program led to the recruitment of two researchers whose work is positioned to improve the health of the people of Wisconsin.

Matthew Budde, PhD, uses brain imaging to detect and monitor injury in the nervous system such as traumatic brain injury (TBI), spinal cord injury, and stroke. As a result of Dr. Budde's research, an approach was developed that assesses spinal cord injury in less than 5 minutes and provides a single metric of injury severity immediately after completion of the scan. This is a significant improvement on existing methods that require extensive post-processing and computational time. This work could have a meaningful impact on spinal cord injury patients once adopted in the clinical setting. For example, the technique could be predictive in determining if patients will likely respond to surgical treatment as opposed to those who will not.

L. Tugan Muftuler, PhD, studies spinal cord anomalies and his work indicates that the deterioration of the disc endplate, which separates the vertebrae, has a direct effect on back pain by affecting blood flow and nutritional delivery to the disc.

Dr. Muftuler also continued his work to improve MRI imaging technology for neurodegeneration issues such as Alzheimer's disease. Advances from his research improve image resolution and allow rapid scanning. The research team applied this technique in studying long-term brain injury after concussion.

AHW's investment in the Neuroimaging Research Program resulted in leveraging more than $2.9M in extramural funding and 22 publications in scholarly journals. In addition, the investigators have made more than 30 presentations at local and national conferences.

Relevance

The researchers are building a Neuroimaging Research Program committed to developing new means of diagnosing neurologic disorders and measuring neurological changes following treatment.

Significance to Science and Health

Each year, 50 million Americans are affected by more than 600 known neurological disorders. Through the Neuroimaging Research Program, these patients will have access to new treatment options and advanced care.

Dennis Maiman, MD, PhD
Professor, Neurosurgery

This award was funded by the Advancing a Healthier Wisconsin Endowment in the MCW School of Medicine.

Clinical Effectiveness Research - Improving the Value of Healthcare

Award Amount: $300,000 (2013-2017)

Goal

Improve health outcomes for children across the continuum of care by generating, evaluating, synthesizing, and disseminating research findings that ultimately provide the evidence to enhance medical decisions made by patients and their health providers.

Background

Clinical Effectiveness Research (CER) is an area that is designed to address improvements in health care by providing better evidence for what works best for patients.

New evidence will guide health care decisions to improve health care delivery and improve patient outcomes. Because CER research is not limited to a specific disease, there is the possibility for any disease to be studied and treatment approaches improved.

This work will benefit the larger goals of the Center for Clinical Effectiveness Research (CCER), whose goals are to develop and implement key resources to stimulate, facilitate, and support high-quality, high-impact clinical effectiveness research.

Award Summary

AHW's investment in the Clinical Effectiveness Research Program has resulted in the expansion of new research collaborations advancing this important area of study improved quality healthcare.

To-date, the Clinical Effectiveness Research team has led to nearly 50 new collaborations to advance clinical effectiveness research.

The collaborations were with internal and external groups, and consisted of a national research network workgroup on sickle cell disease; a newly formed sickle cell foundation; internal groups like CTSI and CRI; individual researchers at MCW; and external groups like the Patient-Centered Outcomes Research Institute (PCORI), NIH and the Cincinnati Children's Hospital Medical Center.

A collaboration with the Clinical and Translational Science Institute bioinformatics team resulted in the creation of computable phenotypes and the use of a i2b2 data warehouse for sickle cell patients. The i2b2 data warehouse enables researchers to identify patient cohorts with specific demographics and clinical encounter characteristics, among other data. No patient identifies or clinical data is revealed through the database, however, the information retrieved is very helpful to advancing clinical effectiveness research for sickle cell patients.

In addition to research efforts, the team is committed to enhancing mentoring and training opportunities to foster future generations of clinical effectiveness researchers.

Enhancing communication, information sharing and awareness for clinical effectiveness research continues to be a priority of the award. The Program distributes monthly newsletters to the campus community to communicate CER activities and highlight publications, conferences, training events, and funding opportunities.

More than $4M in additional funding was leveraged through the AHW investment. The award disseminated findings through 18 presentations.

MCW MEDICAL SCHOOL

Relevance

By examining existing data or conducting new studies, clinical effectiveness researchers generate new knowledge that patients and their health providers can use to make informed health decisions.

Significance to Science and Health

Advances in comparative effectiveness research are key to advancing innovation, developing new therapies, and ensuring that optimal health care decisions are made for the people of Wisconsin.

Julie Panepinto, MD, MSPH
Director of the Center for Clinical Effectiveness Research of the Children's Research Institute, Professor of Pediatrics/Hematology

This award was funded by the Advancing a Healthier Wisconsin Endowment in the MCW School of Medicine.

Genetic Mapping and Gene Identification in Acute Kidney Injury Using Outbred Rats

Award Amount: $200,000 (2015-2017)

MCW MEDICAL SCHOOL

Goal

Uncover specific genes that increase the risk of acute kidney injury, a deadly complication that can occur along with other illnesses or during a surgical procedure.

Background

When acute kidney injury arises as a complication of another illness or during a surgical procedure, the patient's risk of death also increases.

Acute kidney injury happens in approximately seven percent of hospitalized patients and about 20 percent of critically ill patients.

Acute kidney injury, which can happen during treatments ranging from cardiac surgery to kidney transplantation, does not have any effective treatments. Clinical data have only been able to predict a small portion of patient risk.

Genetics may hold the key for better identifying patients that are at greater risk so that preventive methods can be developed to reduce the likelihood of acute kidney injuries and save lives.

Award Summary

Prior research in rodents revealed the importance of genetic factors in the risk of acute kidney injury. Human studies have strengthened those findings, but also have struggled to discover which specific genes are the important ones to investigate.

By advancing knowledge regarding the specific genes that increase risk for acute kidney injury, the researchers may pave the way for long-term improvement in clinical practice so that patients' risk for acute kidney injury is accurately assessed and methods for prevention developed and implemented.

Few direct, causal genetic links have been found due to the complexity of the genetic relationships and the lack of appropriate rodent models to use as research subjects.

Through this AHW award, the research team characterized (phenotyped) the severity of acute kidney injury in 500 rats and have found a wide degree of variability in the severity of acute kidney injury in this population that mimics the variability seen in the human condition. The team then sequenced the genes of the rats to fully characterize each rats unique genetic code (genotyping).

This study demonstrated that the heterogeneous stock rat model mimics the variability in severity of acute kidney injury that is observed in humans. Therefore, this model should allow researchers to more rapidly identify genes that promote kidney injury thereby enhancing the development of preventative or therapeutic treatments for kidney injury.

The research study is the first large-scale study to use a genome-wide association approach to identify genes that modulate susceptibility to acute kidney injury in rodents. This approach bridges the gap between genome-wide association studies in humans with acute kidney injury and traditional experimental studies in rodents.

By identifying new genes that increase risk for acute kidney injury, this research may improve clinical practice by providing a genetic map to use in larger clinical studies.

As those studies use this map to validate methods for screening human patients for acute kidney injury risk, clinics will be better able to develop and implement methods for preventing and mitigating acute kidney injuries.

Relevance

Acute kidney injury, which can happen during treatments ranging from cardiac surgery to kidney transplantation, does not have any effective treatments. Clinical data have only been able to predict a small portion of patient risk.

Genetics may hold the key for better identifying patients that are at greater risk so that preventive methods can be developed to reduce the likelihood of acute kidney injuries and save lives.

Significance to Science and Health

This award will uncover specific genes that increase the risk of acute kidney injury, a deadly complication that can occur along with other illnesses or during a surgical procedure.

Kevin R. Regner, MD, MS, FASN
(Principal Investigator)
Chief and Associate Professor, Medicine (Nephrology)

This award was funded by the Advancing a Healthier Wisconsin Endowment in the MCW School of Medicine.

CTSI Mentored Clinical Translational Research Scholars Program

Award Amount: $1,980,000 (2011-2017)

Goal

Improve human health by transforming the research and training environment to expand and enhance the career development of junior faculty as independent investigators through a mentored clinical and translation research experience.

Background

Junior medical faculty members often wish to pursue careers in biomedical research but do not have protected time, research experience, or dedicated research funding. Enhancing the career development of junior medical faculty members through mentored research will establish new investigators focused on clinical and translational science.

Award Summary

AHW's investment in the CTSI Mentored Clinical Research Scholars Program provided resources for MCW junior faculty to develop as independent clinical/translational investigators in the Clinical Research Scholars Program.

The program provided selected scholars with three years of salary support and research training support.

Training includes coursework through a structured clinical-translational research curriculum; interactions with multidisciplinary research centers; mentoring; the establishment of research colleague network; the development of a research-career professional portfolio; and, the opportunity to participate in an interdisciplinary research project under the guidance of a mentor.

John Densmore, MD, was the program's first scholar. His areas of expertise include rodent models of injury, NO analysis, protein analysis, microvessel preparations, eNOS signaling, and cell culture. Dr. Densmore and his team studied microparticle-induced lung injury in an effort to develop a meaningful intervention to benefit critically ill patients.

Venkatesh Sampath, MD, during his time as a scholar, published several manuscripts related to his original research project dealing with gene-environment interactions in bronchopulmonary dysplasia, and transitioned to a project studying genetic factors contributing to necrotizing enterocolitis in premature infants. This last project received additional funding by a CTSI pilot award and has recently been funded by an NIH grant.

Arash Babaei, MD, has completed the program and will complete his scholarly activities in summer 2018. Dr. Babaei is studying the basis for swallowing difficulties (dysphagia) in patients with various clinical disorders. In addition, he was author or co-author of several manuscripts related to studies of dysphagia, and co-investigator of two NIH-funded grants related to mechanisms of dysphagia.

Carmen Bergom, MD, PhD, completed her final year of support through the program. She submitted numerous grant applications, and received funding from a Susan Komen Career Catalyst Grant and the Mary K Foundation. During her time as a scholar, she had eight peer-reviewed publications.

Relevance

Junior medical faculty members often wish to pursue careers in biomedical research but do not have protected time or dedicated research funding.

Significance to Science and Health

Enhancing the career development of junior medical faculty members through mentored research will establish new investigators focused on clinical and translational science.

Reza Shaker, MD
Senior Associate Dean and Director, Clinical and Translational Science Institute, Professor and Chief of Gastroenterology and Hepatology

This award was funded by the Advancing a Healthier Wisconsin Endowment in the MCW School of Medicine.