

MILWAUKEE REGIONAL RESEARCH FORUM

**Public Policy Forum
Viewpoint Luncheon
&
Poster Session of CTSI
Supported Research**



CLINICAL & TRANSLATIONAL SCIENCE INSTITUTE
OF SOUTHEAST WISCONSIN

Monday, October 29, 2012

MILWAUKEE REGIONAL RESEARCH FORUM

Public Policy Forum Viewpoint Luncheon
&
Poster Session of CTSI Supported Research

Milwaukee's Information Technology Infrastructure: Do We Have What it Takes to Compete?

Monday, October 29, 2012

**Crowne Plaza Milwaukee West
Milwaukee Regional Medical Center**

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The MRR Forum acknowledges and appreciates the valuable guidance and assistance of Scott Belanger of CTSI and Aldo Tase of MRR Forum in planning, preparing, editing and formatting this booklet.

Special thanks to Charles C. Mulcahy for his vision, planning, diligence and thoroughness in guiding the MRR Forum.

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Welcome Message from Dr. Reza Shaker



Reza Shaker, MD

Senior Associate Dean and Director,
Clinical & Translational Science Institute
Joseph E. Geenen Professor and Chief,
Division of Gastroenterology & Hepatology
Medical College of Wisconsin

On behalf of the Clinical and Translational Science Institute of Southeast Wisconsin (CTSI), I welcome you to the 3rd Annual Milwaukee Regional Research Forum and Public Policy Forum Viewpoint Luncheon. This event is a mechanism for CTSI to reach out to future partners as we implement a borderless, complementary and synergistic biomedical research environment in southeast Wisconsin.

We are pleased to present this year's T. Michael Bolger award to two outstanding recipients who have contributed significantly to the process of translating scientific discoveries to better patient care. They have achieved this by following different paths: one through research and breakthrough discovery and the other through the effective dissemination of scientific and health care information to the community. Because of their efforts our community has progressed further on the path of translation.

This year we also continue with a poster session prior to the luncheon. The poster session is intended to showcase some of the research projects supported by CTSI as well as how these projects demonstrate collaborative efforts across disciplines and institutions. I invite you to view the posters arranged throughout the lobby and also ask questions of our researchers. My hope is that this becomes the first step along the path to collaboration.

I would like to thank our panel members for joining us today and for discussing the important topic of *Milwaukee's Information Technology Infrastructure: Do we have what it takes to compete?* I would also like to thank media sponsors, the Milwaukee Journal Sentinel as well as Whyte Hirschboeck Dudek, the Crowne Plaza Milwaukee West, ASI Signage Innovations, the Boldt Company and the Wauwatosa Chamber of Commerce. Finally, I would like to thank the Public Policy Forum for organizing the Viewpoint Luncheon of today's program.

Milwaukee Regional Research Forum, Inc.

The Milwaukee Regional Research Forum (MRR Forum) was created to inform our community about the Clinical and Translational Science Institute and to promote the collaborative research activity taking place at the Medical College of Wisconsin, University of Wisconsin-Milwaukee, Marquette University, Milwaukee School of Engineering (MSOE), Children's Hospital of Wisconsin, Froedtert Hospital, Zablocki Veterans Affairs Medical Center and the BloodCenter of Wisconsin. The MRR Forum and the CTSI are grateful for the continued commitment and support of The Public Policy Forum, Whyte Hirschboeck Dudek, Crowne Plaza Milwaukee West, Milwaukee Journal Sentinel, ASI Signage Innovations, The Boldt Company and the Wauwatosa Chamber of Commerce.

The MRR Forum, as a significant community outreach initiative of the CTSI, is committed to identifying the collaborative research activities of CTSI members and promoting these efforts to the citizens in southeast Wisconsin.

Future Objectives of the MRR Forum

Through this important annual event, the MRR Forum will:

- continue to encourage research collaboration and technology transfer through the CTSI and its partnering institutions;
- provide outreach for the CTSI with community and business leaders;
- jointly continue to interact with the business community on a mutually beneficial basis to develop timely and valuable research outcomes to improve patient care;
- present the T. Michael Bolger Award to recognize exceptional international, national or regional accomplishments resulting in improved patient care and/or treatment and curing of disease; and
- encourage and promote collaboration between CTSI partnering institutions to provide added resources for development of intellectual property protection and the commercialization of research.

Website material on the MRR Forum programs and activities is available to the general public on the CTSI website: <https://ctsi.mcw.edu/community/mrrf/>

In addition, MRR Forum, Marquette University and the Crowne Plaza Milwaukee West are jointly developing a history wall in the hotel depicting the origin and evolution of the Milwaukee Regional Medical Center (MRMC) and the CTSI. Marquette professor John D. Krugler and student intern Peter Wood have commenced the research for the project which will be located directly across from the first floor elevators in the Crowne Plaza. The project will take several years and will be developed in phases.

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T. Michael Bolger Award



T. Michael Bolger served with distinction and significant accomplishment as the president of the Medical College of Wisconsin from 1990 to 2010. During that period of time, the MCW experienced an extraordinary period of growth in faculty, operating revenues and budget, new facilities, new doctoral and masters programs and joint programs with CTSI entities.

T. Michael Bolger encouraged and supported MCW faculty to expand funded research and the successful creation and funding of the Clinical and Translational Science Institute funded through the National Institutes of Health.

The Bolger Award, in addition to recognizing and preserving the historic accomplishments of Mr. Bolger, also recognizes international, national or regional individuals or organizations whose accomplishments have resulted in improved patient care and/or the treatment and curing of disease.

2012 Bolger Award Recipients

James S. Hyde, PhD and Milwaukee Journal Sentinel are the 2012 recipients of the T. Michael Bolger Award. These awards recognize the unique, valuable and enduring contributions to the improvement of our community's health and the reporting on health care issues affecting our community, our state and our nation.

James S. Hyde, PhD



James S. Hyde, PhD

The James S. Hyde Professor of Biophysics
Director, National Biomedical EPR Center
Department of Biophysics
Medical College of Wisconsin

Since 1975, Dr. James S. Hyde has served with distinction on the faculty of the Medical College of Wisconsin. He is the James S. Hyde Professor of Biophysics and Director of the National Biomedical Electron Paramagnetic Resonance (EPR) Center.

After receiving his PhD in Physics from the Massachusetts Institute of Technology, Dr. Hyde spent 16 years in the private sector pursuing EPR research and development efforts. What is EPR? EPR is a process used in various branches of science for the detection and identification of free radicals. Dr. Hyde's personal interest in EPR is contributing to the development of EPR instrumentation and to extend the ways in which existing EPR instrumentation can be used for new categories of biomedical problems.

Since establishing the National Biomedical Electron Paramagnetic Resonance Center at the Medical College of Wisconsin, Dr. Hyde's research excellence has resulted in continuous grant funding by the National Institutes of Health and the National Institute of Biomedical Imaging and Bioengineering.

Dr. Hyde has also pursued research interests in the area of functional magnetic resonance imaging (fMRI). His research has resulted in studies that seek to develop new ways to deal with the problem of motion in fMRI scans which can be severe in individuals who are ill or elderly. Dr. Hyde led the Medical College's interdisciplinary team that was among the first in the world to develop fMRI of the working brain and his accomplishments in fMRI and EPR research have continued to influence the fields of radiology, neurology, ophthalmology and gastroenterology. The MRR Forum is pleased to present the 2012 T. Michael Bolger Award to Dr. James S. Hyde.

Milwaukee Journal Sentinel

The Milwaukee Journal Sentinel, with its predecessor entities, has provided comprehensive newspaper coverage to Milwaukee and Wisconsin markets since 1882.

The Milwaukee Journal and Milwaukee Sentinel were engaged and covered the creation and development of the Milwaukee Regional Medical Center starting in the 1970s. Over the intervening 40 years, the Milwaukee Journal Sentinel provided news coverage concerning the formation of the MRMC, the planning and development of the Medical College of Wisconsin, Froedtert Hospital, Blood Center of Wisconsin, Curative and Children's Hospital.

MJS coverage has made the public aware of patient care and treatment as well as medical research and the commercialization of that research for improved patient care as well as licensing and new business formation. The coverage of public officials and private institutions throughout this development process was positive when warranted and critical when deserved.

MJS has also been courageous and diligent in raising public awareness of the shortcomings in treatment of the mentally ill and the care provided in nursing homes as well as with care providers. This coverage resulted in improvement in the care provided in private facilities and caused local and state government to more carefully fulfill their protective responsibilities.

MJS journalists during the past several years have received consistent and notable public recognition including the Pulitzer Prize, Bartlett & Stelle Award, Gerald Loeb Award, American Society of Newspapers Award, Eugene Pulliam Award, American Bar Association's Silver Gavel Award, Polk Award, Grantham Award, and awards from the National Academy of Sciences, Institute of Medicine and National Academy of Engineering.

MJS has also provided unique, valuable and respected insight on the importance of medical research, patient care and economic development. Based upon this significant, independent coverage including its positive impact on improving health care decision making and care of patients, the MRR Forum is pleased to present the 2012 T. Michael Bolger Award to the Milwaukee Journal Sentinel.



Public Policy Forum Viewpoint Luncheon



Rob Henken, President
Public Policy Forum

The nonpartisan Public Policy Forum, established in 1913 as a good government watchdog, currently focuses its policy research on a broad range of issues affecting southeastern Wisconsin, the state and the nation. This research includes government finance and economic development policy, education, transportation, public safety, health, public infrastructure and other quality of life concerns.

The Forum serves the public, businesses, government and other interested constituencies by spotlighting trends, defining emerging issues and facilitating productive interaction among local governments and the private sector to promote sound and innovative policy solutions.

Fiercely independent and widely respected for its unbiased research, the Forum is a source of accurate information for local, state and national leaders seeking effective answers to public policy issues.

In addition to publishing annual research reports, *Research Briefs*, and *Regional Reports*, the Forum hosts discussions and programs on issues of local and regional interest.

Today's Milwaukee Regional Research Forum and Public Policy Forum Viewpoint Luncheon: Milwaukee's Information Technology Infrastructure: Do We Have What it Takes to Compete? is a continuation of PPF programs on public policy issues.

For more information contact:

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Today's Viewpoint Luncheon Program

Milwaukee's Information Technology Infrastructure: Do We Have What It Takes to Compete?

Greater Milwaukee's economic development leaders are working on several initiatives to enhance the region's competitiveness, including high-profile efforts to promote water and energy clusters, enhance academic research and nurture entrepreneurs.

Some are asking, however, whether we possess the high-performance computing infrastructure needed to achieve those and other economic development goals. How does our region measure up when it comes to IT infrastructure and why does it matter?

Who are the key players and who would supply the resources to expand our capacity? Overall, what will it take to build the IT infrastructure needed to compete for research dollars and knowledge workers in a 21st century global economy?

This Public Policy Forum Viewpoint Luncheon will explore Milwaukee's information technology prowess and its importance to our regional economy.

Panel Discussion:

Dr. Jay Bayne	Executive Director, Milwaukee Institute
David Crass	Director of Research Cyberinfrastructure, UW-Milwaukee
Tina M. Chang	Chief Executive Officer, SysLogic, Inc.
Nancy Olson	Chief Information Officer, City of Milwaukee

Moderated by:

Kathleen Gallagher	Milwaukee Journal Sentinel
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Milwaukee Institute

Milwaukee Institute is pleased to participate in the 2012 MRR Forum – Public Policy Forum Viewpoint Luncheon: “Milwaukee’s Information Technology Infrastructure: Do We Have What it Takes to Compete?”

For the last five years the Milwaukee Institute, a non-profit IT research institute, has been developing the Milwaukee region’s premier shared IT infrastructure (*cyberinfrastructure*) dedicated to collaborative engineering and research and development among cooperating public and private organizations. This infrastructure, referred to as the *metropolitan computing grid* (MGrid) provides high-speed communications and computing and storage resources that enable both public and private institutions to interconnect and collaborate on solving the region’s *grand challenge* problems.

The premise behind the Institute’s efforts is that the region’s IT infrastructure is inadequate to support the needs of healthcare, government, education, and industry – making it imperative that significant investment be made now to correct the deficiencies and prevent further deterioration in the Wisconsin economy. Further, the fastest growing segment requiring enhanced computational research systems and services is bioinformatics. Such capabilities are needed for basic life sciences research and studies in clinical and translational medicine.

Consequently, the Milwaukee Institute has focused its efforts and designed its computational assets for use in bioinformatics applications, especially in the domain of systems biology and genomics. For the last four years, MCW researchers have been the Institute’s major users. Additionally, the Institute has provided numerous Letters of Support for NIH proposals, including the Clinical and Translational Science Award (CTSA) proposal that led to MCW’s Clinical and Translational Science Institute (CTSI).

The Institute supports CTSI investigators addressing analytic problems in clinical translational research with software tools for analytics, modeling, simulation and visualization studies of biological processes with large data sets. Institute computational resources include high performance computing, large storage servers, high speed communications and licensed and open-source software libraries.

Additionally, researchers that receive financial support from the John and Jeanne Byrnes CTSI Pilot Research Grants also receive in-kind computational resources from the Institute. During the FY11 grant period two such grants were awarded. Under MCW’s Membership in the MGrid Consortium researchers funded by other sources also receive access to Institute resources – at no cost for computation leading to a proposal and at low cost for bioinformatics research once a grant is awarded. Information on MCW’s MGrid Membership is available through the College’s Office of Research.

For more information, please visit the Institute’s website at www.mkei.org.

Clinical and Translational Science Institute (CTSI)



Who We Are

The CTSI of Southeast Wisconsin represents a unique and transformative collaboration between:

- Medical College of Wisconsin
- Marquette University
- University of Wisconsin–Milwaukee
- Milwaukee School of Engineering
- Froedtert Hospital (Froedtert & Community Health)
- Children's Hospital Health System of Wisconsin
- Zablocki Veterans Affairs Medical Center
- BloodCenter of Wisconsin

The 8 member organizations are creating a borderless synergistic biomedical research enterprise in a collaborative environment that will accelerate the translation of research discoveries into new and improved medical treatments.

What We Do

The CTSI is dedicated to transforming the biomedical research enterprise in southeast Wisconsin by advancing patient care and education through the facilitation of research from the laboratory bench to the bedside, the clinical practices and into the community. We offer expertise in medicine, nursing, dentistry, engineering, social sciences, and allied health disciplines for both research and education/career development. We provide opportunities for talented trainees and faculty at all levels to evolve into active investigators able to participate in inter-institutional and interdisciplinary team research.

The CTSI:

- Serves as a nexus for services that support research
- Supports and promotes efforts to enhance multidisciplinary collaborations within our institution and with others
- Funds innovative, multidisciplinary programs that advance clinical and translational research
- Provides training opportunities that will prepare individuals to function effectively on multidisciplinary research teams

Our Principles

Collaboration: Leveraging institutional strengths and resources to enhance interdisciplinary Clinical and Translational Research.

Transformation: Creating a culture that fosters interdisciplinary innovation within and among institutions and contributes to the new discipline of Clinical and Translational Science.

Facilitation: Providing core resources to assist investigators in the development, implementation, analysis, and dissemination of Clinical and Translational Research.

Education: Training clinicians and basic scientists in the emerging discipline of Clinical and Translational Science.

CTSI Pilot and Collaborative Research Grants Program

The CTSI Pilot and Collaborative Clinical and Translational Research Grants Program, which is supported by the Advancing a Healthier Wisconsin program and the NIH, is intended to stimulate inter-institutional and interdisciplinary clinical and translational research amongst the CTSI partnering institutions. These grants provide: 1) support to new and promising clinical and translational projects; 2) a mechanism for young investigators to focus their efforts in clinical and translational research; and 3) a stimulus for collaborative research between basic and clinical investigators within similar thematic areas.

The funding opportunities include pilot projects that explore multidisciplinary and/or clinical potential of promising mechanistic findings; translational opportunity grants to attract industrial partners that would support exploration of novel discoveries for clinical use; and traineeships to support and facilitate the education and training of individuals in programs leading to advanced degrees in Clinical and Translational Research.

CTSI Mentored Clinical and Translational Research Career Development Award (K12)

The goal of the *CTSI Mentored Clinical and Translational Research Career Development Award* (K12) is to provide training opportunities for investigators working in clinical and translational research to become competitive, independent investigators. The mentored activities for the K12 scholar are designed around core themes and each clinical-translational research scholar works closely with a mentoring team to apply these themes to his/her own research and career, making each scholar's research the major vehicle for learning. Curriculum design for each trainee is a joint undertaking involving the trainee, his/her mentors, and the K12 program director. The individually tailored curriculum is based on an assessment of the unique needs and the articulated learning goals and objectives of the scholar, and a performance and evaluation plan for the scholar. Each K12 scholar selects existing MCW and partnering institutional resources in order to create a training program, tailored to individual training needs. The expectation is that the K12 curriculum will provide each scholar with sufficient background and experience to eventually lead a multidisciplinary research team.

CTSI Clinical Research Scholars Program (CRS)

The Clinical Research Scholars Program is tailored for individuals already possessing an MD, PhD, DO or PharmD degree. Our scholars are junior faculty members at the Medical College of Wisconsin and our partnering institutions. The goal of the program is to enable each Clinical Research Scholar to successfully compete for clinical research funding. Our program is made up of two-year cohorts with the aim to:

- Provide Scholars with an enriched academic environment that will enhance the development of their clinical research.
- Provide instruction to Clinical Research Scholars in practical research skills.
- Assist Scholars in identifying and accessing research-related resources.
- Ensure the development of a research proposal which is submitted to an appropriate funding agency.

Many of our alumni have gone on to successful academic careers in a variety of disciplines, obtaining funding, publishing research, and teaching the methods of clinical research.

CTSI Master's Degree in Clinical and Translational Sciences

The new Masters of Science degree in Clinical and Translational Sciences program offers a broad curriculum that will meet the diverse needs of the trainees. The program is built on seven core courses which emphasize approaches to research design and analysis, provide opportunities for networking and collaboration, and introduce translational research concepts. The three official concentrations within the program are (1) Clinical Epidemiology & Outcomes Research, (2) Commercial Development, and (3) Translational Research.

CTSI Master's and PhD Degree in Clinical and Translational Rehabilitation Health Science

Rehabilitation science is a multidisciplinary field that encompasses many facets of health care aimed at understanding movement disorders and improving function. The “translational” mission of our program is to equip students with the ability to more efficiently “translate” research from the laboratory to the real world. In conjunction with Marquette University, the new graduate program in Clinical and Translational Rehabilitation Health Science develops clinical and translational leaders in this emerging field, giving them the knowledge and experience to better the lives of those who suffer from human function disabilities.

The doctoral program builds upon a student's clinical degree and expertise with rigorous training in translational research, while the master's program gives students a wide knowledge base in rehabilitation sciences. Both programs place a unique emphasis on various rehabilitation disciplines, including pathokinesiology, neuroscience, motor control, exercise physiology, sports medicine and community wellness.

CTSI PhD in Basic and Translational Science

The PhD in Basic and Translational Science offers in depth training in basic science plus courses in translational science. It builds on our previous basic research successes in the areas of biochemistry, biophysics, cell biology, genetics, microbiology, neurosciences, pharmacology and physiology and toxicity to develop translational research training. This program prepares students to carry out research that narrows the gap between current basic science knowledge and clinical practice and to carry out basic science research that answers questions generated at the bedside.

The program's goals are to:

- To produce a new class of investigators rigorously trained in basic science and credentialed in translational research who think broadly and logically about clinical problems
- To promote research that bridges the gap between basic science knowledge and clinical practice
- To build a team of collaborators that will translate basic science research findings into patient care.

Poster Session on CTSI Supported Research

This year's forum continues with a poster session from 11:00am to noon. The poster session showcases research projects supported by CTSI as well as how these projects demonstrate collaborative efforts across disciplines and institutions. The following posters are on display:

Poster Title: Preclinical Study to Optimize Anti-tumor Immune Activation Against Multiple Myeloma using Tumor Vaccination in Combination with Lymphodepletion and Immune Modulating Agents

Objective: To find a combination of immune therapies that facilitate the identification of tumor cells as well as a robust activation of killer immune cells that result in unbounded tumor regression.

Investigators: Tyce Kearl, Jill Gershan, William Drobyski and Bryon Johnson.

Poster Title: Nurses' Perceptions of Communication Skills for Parenting an Infant with a Congenital Heart Defect

Objective: To design interventions to improve communication skills and specifically addressing challenges parents face in working with substitute care providers that could improve care.

Investigators: Mussatto K, Henriques J, Krolikowski M, Brosig Soto C, Melby J, Harrison T, Pridham K.

Poster Title: Collagen Binding Provides a Sensitive Screen for Variant Von Willebrand Disease

Objective: A comparison of VWF collagen binding (VWF:CB) and VWF multimer distribution was performed to evaluate the utility of VWF:CB as a diagnostic test.

Investigators: Veronica H. Flood, Joan Cox Gill, Kenneth D. Friedman, Pamela A. Christopherson, Paula M. Jacobi, Raymond G. Hoffmann, Robert R. Montgomery, and Sandra L. Haberichter

Poster Title: Alterations of Intestinal and Tissue-nonspecific Alkaline Phosphatase Activity in a Neonatal Rat Model of Necrotizing Enterocolitis

Objective: To determine which AP isoforms are prevalent in healthy and NEC neonates.

Investigators: Ben E. Biesterveld, Rebecca M. Rentea, Scott R. Welak, Diana G. Lerner, Katherine M. Fredrich, David M. Gourlay

Poster Title: Stochastic Resonance Improves Sensation in Chronic Stroke Survivors

Objective: To determine if vibro-tactile stimulation using stochastic resonance can enhance stroke survivors' tactile sensation at the fingertips

Investigators: Leah R. Enders, Na Jin Seo

Poster Title: Intracortical inhibition for grip relaxation in chronic stroke survivors

Objective: To determine the role of the modulation of the intracortical inhibition (quantified as short-interval intracortical inhibition, SICI, using transcranial magnetic stimulation) in abnormally delayed grip relaxation after stroke.

Investigators: Binal Motawar, Na Jin Seo

Poster Title: Computational Methods for Patient-Specific modeling of Transcranial Magnetic Stimulation

Objective: To quantify the degree, type, and location of neural modulation during TMS to provide foundational information necessary to target, or avoid targeting, specific anatomical regions in the brain.

Investigators: Brian D. Goodwin, Manoj Raghavan, Klaus Driesslein, Christopher R. Butson

Poster Title: Optimizing an Assistive Glove for Stroke Survivors using Biomechanical Model

Objective: To optimize the current glove design using a biomechanical model that results in natural hand opening for stroke survivors

Investigators: Pilwon Hur, Daniel Lomo-Tettey, Na Jin Seo

Poster Title: Toll-like receptor genetic variants alter susceptibility to Gram-negative sepsis in premature infants

Objective: To determine whether a) single nucleotide polymorphisms (SNPs) in the TLR genes modulate susceptibility to sepsis in VLBW infants, and b) *TLR* SNPs modulate WBC counts obtained during culture-positive (C+ve) sepsis.

Investigators: Venkatesh Sampath, Neil P. Mulrooney, Jeffery S. Garland, Jie Ye, Aloka L. Patel, Jonathan D. Cohen, Pippa M. Simpson, Ronald N. Hines

Poster Title: Development of a Mobile Computing Framework for Effective Self-Management of Type II Diabetes

Objective: To present a Common Sense Model (CSM) that sets the patient's "model" of diabetes in a mobile computing framework where behaviors are easily and logically linked to disease outcomes through continuous monitoring of SMBG, heart rate, medications, diet, and exercise.

Investigators: Jay Urbain, Edith Burns, Paul Knudson, Megan Fedders, Bambi Wessel, William Klitzkie, Ann Swartz, Scott Strath

Poster Title: IL-27 initiates strong, early NK cell-mediated effector functions in a murine model

Objective: To understand the role of IL-27 in natural killer (NK) cell-based effector functions.

Investigators: Monica S. Thakar, Pawan Kumar, Kamalakannan Rajasekaran, Kristina Schuldt, Subramaniam Malarkannan

Poster Title: Proteomics of Glioblastoma Multiforme – Moving Towards Personalized Medicine

Objective: To identify protein signatures that are unique to each GBM patient; determine if they predict a differential response to Bevacizumab therapy and provide unique information for the development of new drug targets either in combination or as an alternative to Bevacizumab therapy.

Investigators: Maxime Heroux, Marla Chesnik, Mona Al Gizawiy, Elizabeth Cochran, Scott Rand, Jennifer Connelly, Wade Mueller, Mark Malkin, Kathleen Schmainda and Shama Mirza

Poster Title: CXCR4-Expressing Mesenchymal Stem Cells for TBI

Objective: To determine the role of stromal cell-derived factor 1 (SDF-1) and its cognate receptor chemokine receptor 4 (CXCR4) in the migration and rejuvenating effect of BMSC transplanted in an *in vitro model* of TBI.

Investigators: Aleksandra Glavaski-Joksimovic and Milan Joksimovic

Poster Title: Radiation-Induced Changes in Intestinal and Tissue Nonspecific Alkaline Phosphatase: Implications for Recovery of Radiation Chemotherapy

Objective: To determine if radiation-induced intestinal radiation injury would be mitigated by oral IAP supplementation in an adult rat model.

Investigators: Rebecca M. Rentea, Vy Lam, Katherine Fredrich, Jennifer Callison, John E. Moulder, John E. Baker, David M Gourlay, Mary F. Otterson

Poster Title: A Novel Brain Target for the Treatment of Schizophrenia

Objective: To identify therapeutic agents that would be effective in treatment of the negative and cognitive symptoms of schizophrenia.

Investigators: Dana A. Ley, Joseph McGraw, Daniel Sem, Kambiz Pahlavan, Gunnar Larson, M. Behnam Ghasemzadeh

Poster Title: Novel Orally Active Epoxyeicosatrienoic Acid (EET) Analogs Attenuate Cisplatin Nephrotoxicity

Objective: To determine if EET analogs would decrease cisplatin-nephrotoxicity.

Investigators: Md. Abdul H. Khan, Jessica L. Meyer, Katherine A. Walsh, John R. Falck, Jawahar L. Jat, Vijay L. Manthati, John D. Imig

Poster Title: Nogo Protein Responses to Hyperoxia in the Developing Brain

Objective: To investigate the potential role of Nogo protein in CNS pathophysiology in the presence of hyperoxia. We hypothesize that Nogo proteins have a protective effect on neuronal and axonal development.

Investigators: Susan S. Cohen, Ru-Jeng Teng, Qing (Robert) Miao, G. Ganesh Konduri

Poster Title: Optical Imaging of Oxidative Stress in Lung from Hyperoxia and LPS in Neonatal Rats

Objective: To investigate whether an optical imaging technique to evaluate mitochondrial metabolic coenzymes, NADH and FAD will delineate oxidative stress from hyperoxia and LPS in neonatal rat lungs.

Investigators: Reyhaneh Sepehr, Annie L. Eis, Girija G. Konduri, Mahsa Ranji

Poster Title: Human Induced Pluripotent Stem Cells as a Novel Model System to Study Dystrophic Cardiomyopathy

Objective: To determine whether induced pluripotent stem cells (iPSCs) derived from BMD and DMD patients could be differentiated into cardiomyocytes and retain a specific disease phenotype.

Investigators: Jennifer L. Strande, Scott Canfield, Jennifer Meyer, Zeljko J. Bosnjak

Poster Title: Searching for Biomarkers in Heart Failure with Preserved Ejection Fraction

Objective: To identify a proteomic-based peripheral blood biomarker panels in a serial and prospective monitoring strategy in HFpEF patients.

Investigators: Shama Mirza, Marla Chesnik, Courtney Van Dusen, and Jennifer L. Strande

Poster Title: Impairments in Sensorimotor Control and their Contribution to Tremor & Dysmetria in Persons with MS

Objective: To characterize the functional sources of upper limb tremor and dysmetria that occur in patients with Multiple Sclerosis (MS) using a systems identification approach together with a closed-loop model of sensorimotor control.

Investigators: Megan Heenan, Douglas Woo, Robert Scheidt, Julie Bobholz, Scott Beardsley

Project Title: Metabolic Oxidation Studies of Isolated Perfused Rat Lung Using Surface Fluorescence

Objective: To evaluate a device that measures the oxidation of tissue metabolism using optical fluorescence techniques.

Investigators: Kevin Staniszewski, Reyhaneh Sepehr , Mahsa Ranji, Said H. Audi, Elizabeth R. Jacobs

Project Title: Varying Patterns of Home Oxygen Use at NICU Discharge Across Gestational Ages

Objective: To evaluate home oxygen use for pre-term infants with chronic lung disease.

Investigators: Joanne Lagatta, Reese Clark, David Brousseau, Raymond Hoffmann, Alan Spitzer

Project Title: Ex Vivo Thermoacoustic Prostate Cancer Imaging

Objective: To determine if TCT can detect extracapsular extension of PCa.

Investigators: M Thomas, E Hanson, H Kelly, K Jacobsohn, W See, S Patch

Project Title: Molecular analysis of blue light irradiated Methicillin Resistant *Staphylococcus aureus* (MRSA)

Objective: To examine blue light irradiated MRSA colonies at the molecular level by observing the effect of blue light on *femA* and *mecA* genes implicated in antibiotic resistance; analyzing the protein profile of whole cell lysates and genomic fingerprinting using Pulsed field gel electrophoresis (PFGE) and Diversilab repPCR.

Investigators: Bumah VV, Masson-Meyers DS, Bhattacharyya S, Khubbar M, Gradus S, Whelan H & Enwemeka CS

Project Title: Dopaminergic-like neurons from epigenetically reprogrammed mesenchymal stem cells.

Objective: To elucidate whether NI-hMSCs can be differentiated into the dopaminergic (DA) neuronal subtype.

Investigators: Ryan Funk, Arshak R. Alexanian

CTSI Partnering Institutions



The Medical College of Wisconsin

The Medical College of Wisconsin is the state's only private medical school and health sciences graduate school. Founded in 1893, it is dedicated to leadership and excellence in education, patient care, research and service. More than 1,200 students are enrolled in the Medical College's medical school and graduate school programs. A major national research center, it is the largest research institution in the Milwaukee metro area and second largest in Wisconsin. In FY 2010 – 11, faculty received more than \$175 million in external support for research, teaching, training and related purposes, of which more than \$161 million is for research. This total includes highly competitive research and training awards from the National Institutes of Health (NIH). Annually, College faculty direct or collaborate on more than 2,200 research studies, including clinical trials. Additionally, more than 1,350 physicians provide care in virtually every specialty of medicine for more than 400,000 patients annually.

The Medical College of Wisconsin is represented by the CTSI Board of Directors Member:

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Website: www.mcw.edu



Marquette University

Marquette University, Wisconsin's largest private higher education institution is a nationally-ranked Catholic, Jesuit university located in the downtown Milwaukee area. Founded in 1881, the university has more than 110,000 alumni around the world, creating a powerful global professional network. The university's current enrollment of more than 12,000 students includes approximately 3,600 graduate and professional students from throughout the United States and 68 countries.

Marquette is a research university with nationally-ranked graduate programs in biomedical engineering, business, education, law, nursing, physical therapy, physician assistant studies, and speech pathology and audiology. It is ranked 83rd among *America's Best Colleges* and is in the top 50 among the *Best Value Schools*, released by *U.S. News & World Report*. Federal, state, foundation and corporation-sponsored research continues to increase, along with technology commercialization efforts that include two recent spin-off companies, Promentis Pharmaceuticals and AviMed Pharmaceuticals. In addition, Marquette University's GasDay Laboratory is a business and educational venture that has been developing and refining natural gas demand forecasting models since 1993. The project forecasts about 20% of the nation's natural gas usage and has helped utilities save millions of dollars by helping customers better manage their natural gas transactions.

Research and educational activities in biomedical sciences span the spectrum from basic science to clinical and translational work, including providing health services to the community, and are housed in the Colleges of Arts and Sciences, Engineering, Health Sciences, and Nursing, as well as the School of Dentistry. As a member of the CTSI, Marquette's research activities include exploration of novel methodologies such as implantable vascular stents for pediatric applications, the role of brain signaling mechanisms involved in the pathophysiology of schizophrenia, development of imaging methodologies for cancer detection, rehabilitation robotics and devices, magnetic resonance compatible technologies for evaluating sensory-motor function in stroke and spinal cord injuries and for imaging the blood vessels in the lungs, landmark studies of muscle wasting in astronauts, and the development of hardware/software for stimulus presentation and image analysis for functional imaging. Other researchers investigate the molecular mechanisms that form the basis of tooth movement, hopefully leading to faster and less painful orthodontic treatments. In addition, a collaboration led by Marquette investigates the consequences of racial and socioeconomic disparities on oral health outcomes at the state and national level.

In collaboration with other area institutions and industries, Marquette is a partner in a number of regional research initiatives, including the CTSI, the Wisconsin Energy Research Consortium, the National Science Foundation funded Industry/University Cooperative Research Center (I/UCRC) on water technology, the Southeast Wisconsin High Performance Computing Consortium, and the recently announced regional consortium on Health Care Economics and Innovation.

Marquette University is represented by the CTSI Board of Directors Member:

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Milwaukee School of Engineering

The Milwaukee School of Engineering is an independent university offering 18 bachelor's degrees and nine master's degrees in the engineering, engineering technology, health-related engineering, nursing, computer, building and infrastructure engineering and business fields. MSOE has a national academic reputation and is best known for its applications-oriented curriculum and longstanding ties to business and industry.

Through the university's Applied Technology Center™ (ATC), faculty and students focus on applied research, bringing engineering technology and principles to scientific, biomedicine, government and medical applications. There are several nationally-recognized centers of excellence in the ATC, including the Rapid Prototyping Center, Center for BioMolecular Modeling and Fluid Power Institute™.

MSOE and its ATC contribute critical capability to the CTSI by:

- Transferring knowledge from the research laboratory to the patient bedside
- Producing unique, individualized orthotics
- Producing MRI-compatible devices and mechanisms
- Supplying engineering and physics capabilities to the EPR Center at the Medical College, especially in microwave and digital signal processing
- Contributing engineering, rehabilitation and automation to provide a wide variety of automated systems and unique devices benefitting war victims, aging populations and hospitalized patients
- Providing several community outreach programs including: SMART Teams and biotechnology programs for high school students, and Science Cafés for the general public
- Offering a Master of Science degree in Medical Informatics (joint offering with the Medical College)
- Offering a Bachelor of Science degree in BioMolecular Engineering (the only such program in the state of Wisconsin)

The Milwaukee School of Engineering is represented by the CTSI Board of Directors Member:

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University of Wisconsin-Milwaukee

The University of Wisconsin-Milwaukee is today a very successful urban research university undergirding the development of the communities in southeast Wisconsin.

Serving a diverse population in metropolitan Milwaukee, UWM has experienced tremendous growth today with about 25,000 undergraduate students in 93 programs. The numbers of graduate students has increased to more than 5,000 students. From its first doctoral program in 1963 (mathematics), the number of graduate programs has continued to increase rapidly to 56 masters and 32 doctoral programs today. Last year, UWM awarded 121 doctorates, placing it among the top tier of universities.

Today, UWM is building on the strengths of the faculty in research in such disciplines relevant to the CTSI as the following:

- Behavioral Health
- Bioengineering/Imaging
- Children's Environmental Health
- Drug Discovery
- Freshwater Sciences
- Materials/Manufacturing Engineering
- Nursing
- Public Health

In fiscal year 2011, research expenditures were approximately \$62 million. UWM's commitment to developing research and educational partnerships is exemplified by its linkages to the CTSI and its component institutions; international alliances/collaborations in Europe, Asia, Africa and Latin America and new university industry centers/consortia in energy, water technology and computational imaging.

The University of Wisconsin-Milwaukee is represented by the CTSI Board of Directors Member:

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Children's Hospital & Health System

Children's Hospital of Wisconsin in Milwaukee is one of the nation's top pediatric facilities. It is a Level I Pediatric Trauma Center verified by the American College of Surgeons. Children's Hospital is designated a Magnet® hospital by the American Nurses Credentialing Center, a national honor that recognizes nursing excellence.

Founded in 1894, Children's Hospital serves children with all types of illnesses, injuries, birth defects and other disorders. Private, independent and not-for-profit, Children's Hospital is a major teaching affiliate of the Medical College of Wisconsin and has relationships with more than a dozen schools of nursing.

The 296-bed hospital is one of the busiest pediatric hospitals in the nation, with more than 24,000 inpatient admissions. Nearly 350,000 visits to Children's Hospital's specialty care and urgent care clinics are made annually. In 2011, the Emergency Department/Trauma Center treated more than 60,000 children and nearly 16,000 surgical procedures were performed. In addition, Children's Hospital primary care clinics had more than 240,000 patient visits last year.

More than 70 specialty care clinics provide outpatient diagnoses and treatment for a wide variety of pediatric disorders. Children's Hospital is a leader in providing care for critically ill newborns and children with congenital heart disease, blood and marrow transplants, particularly between unrelated donors and recipients and genetic treatment and research for children and adults with concerns about genetic disorders, birth defects and related issues.

Children's Hospital of Wisconsin Research Institute strives to prevent and cure disease while improving the health outcomes of children and their families. Through translational research, the Research Institute takes discoveries from the laboratory and converts them to new therapies at patients' bedsides. Our researchers collaborate with experts and organizations regionally and nationally to provide the most advanced care available and enhance the health care possibilities for children everywhere.

Children's Hospital of Wisconsin is represented by the CTSI Board of Directors Member:

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Froedtert Hospital

Froedtert Hospital, in collaboration with the Medical College of Wisconsin, is eastern Wisconsin's only adult academic medical center and houses one of only two Level 1 Trauma Centers in Wisconsin. Ranking among the top academic medical centers nationwide and staffed by Medical College faculty, Froedtert Hospital is the Medical College's primary adult hospital affiliate. The enduring collaborative relationship between the two organizations supports a deep commitment to patient care, clinical and translational research, and medical education.

Froedtert & The Medical College of Wisconsin serve as a regional referral center for advanced medical care in nearly 40 specialties and subspecialties, including cancer, heart and vascular diseases, brain and spinal cord injury and disorders, transplant, digestive diseases and urology. FH is a strong supporter of clinical and translational research with a 173,000 square foot cancer center dedicated to patient care and research, including clinical trials support, epidemiology and cancer prevention efforts. It also houses a Patient Care and Outcomes Research Center and the Center for International Blood and Marrow Transplant Research. The Eye Institute at FH also functions as a major research center in addition to providing patient care.

Froedtert Hospital is represented by the CTSI Board of Directors Member:

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Zablocki Veterans Affairs Medical Center

The Zablocki VA Medical Center is located five miles from the Milwaukee Regional Medical Center and is one of the busiest comprehensive centers operated by the Department of Veteran's Affairs serving a veteran population of 234,953 in SE Wisconsin. It provides 168 acute care hospital beds, 113 nursing home care beds, and 356 domiciliary beds that are the locus of programs in substance abuse and psychiatric rehabilitation, and care of Post-Traumatic Stress Disorder. A mobile clinic improves access to primary care for veterans. ZVAMC records more than 500,000 outpatient visits annually. Physicians on staff are all full-time MCW faculty. ZVAMC attracts approximately \$15 million annually in research funding; over 50% of these funds support patient oriented research.

The ZVAMC Translational Research Unit (TRU) opened its doors in April, 2009 and occupies 3 large multi-purpose rooms and 1200 square feet of space on the 5th floor of the main hospital building. These rooms are fully equipped for multiple purposes and contain exam tables, a hospital bed, infusion chairs, and several computer stations. While the ZVAMC TRU focuses on specialty geriatric and veteran populations, such as injuries/rehabilitation, metabolic syndrome, spinal cord injury, and prostate disease, to date, it has hosted a wide range of protocols. Several studies are actively using the ZVAMC TRU. Some of the ongoing studies at the ZVAMC TRU involve collaborative rehabilitation programs between MCW and MU and involve OEF/OIF veterans, while others involve collaboration with VA hospitals nationwide. With the continuing combat in the Middle East and the increasing prevalence of limb loss, post-traumatic stress disorder, and brain injuries, the ZVAMC TRU will serve a critical need to expand rehabilitation efforts and facilitate translation of basic research to advances in patient care.

Zablocki VA Medical Center is represented by the CTSI Board of Directors Member:

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The BloodCenter of Wisconsin's Blood Research Institute

The BloodCenter of Wisconsin's Blood Research Institute is one of only four blood research programs in the U.S. connected to a blood center. The BRI's reputation and achievements help attract the best medical minds and practitioners from around the world. BRI houses the laboratories of 22 Principal Investigators, most holding dual MCW/BRI faculty appointments, with interests in vascular biology, thrombosis and hemostasis mechanisms, transfusion medicine, immunology, and stem cell biology. The NIH recognized BloodCenter with \$13.5 million in funding in 2011 which included 2 program project grants and two federal contracts. Total research expenditure in 2011 was \$18.5 million.

Research at the BRI is supported by several core laboratories that are shared with investigators at MCW. The core laboratories focus on Vector production, Flow Cytometry, Microscopy that includes fluorescent and 2-photon confocal capabilities, Hybridoma production, Molecular Biology, Peptide Synthesis, Transgenic Mouse production and Histology.

BCW also has a Medical Sciences Institute (MSI) which team with the BRI and performs clinical research and collaborates with investigators to link its clinical database and inventory of clinical samples. BloodCenter's 4 million plus donor registry and its collaborative relationships with hospitals, healthcare systems, and sponsor organizations provides a large number of individuals who may be available for clinical trials, and for helping to enhance and save patient lives.

The BloodCenter of Wisconsin is represented by the CTSI Board of Directors Member:

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Regional Institutions



Milwaukee Regional Medical Center

The Milwaukee Regional Medical Center (MRMC) is a consortium of six health care institutions forming Wisconsin's largest academic health center with a Level I Adult Trauma Center and a Level I Pediatric Trauma Center. Its six member entities share a common mission of excellence in patient care, medical education, life science research, and community service.

The member organizations are:

- BloodCenter of Wisconsin & Blood Research Institute
- Children's Hospital and Health System
- Curative Care Network
- Froedtert Hospital
- Medical College of Wisconsin
- Milwaukee County Behavioral Health Division

These organizations manage the Flight For Life air medical service. Flight For Life provides high level care to patients with critical illnesses and injuries and serves all regional hospitals and EMS in Wisconsin and northern Illinois. Collectively, these organizations serve more than a million clients/patients, employ more than 15,000 people and have an annual economic impact in excess of \$2.5 billion per year.

Additional information:

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Milwaukee County

Through the vision and wisdom of Milwaukee County officials, going back to the 1920's and 1930's, the County acquired and preserved the land for what is now the Milwaukee Regional Medical Center (MRMC). In the 1970's, county officials, led by John L. Doyne, negotiated with various health care entities, including what is now the Medical College of Wisconsin and what is now Froedtert Hospital. Today, MRMC contains the Medical College of Wisconsin, Froedtert Hospital, Children's Hospital, BloodCenter of Wisconsin with affiliations through the Clinical and Translational Science Institute (CTSI), with Marquette University, University of Wisconsin-Milwaukee, Milwaukee School of Engineering, Zablocki Veterans Affairs Medical Center and Community Based Practice Networks. With approximately 14,000 employees, the MRMC is an exemplary force in patient care, research to provide care and cure disease; and economic development.

Several key and long term county employees provided distinguished service as the County Institutions grounds went through the transformation to become the MRMC. A significant number of those county employees, now deceased, have been recognized posthumously for their meaningful contributions to the development of the MRMC in the historic medical theme of commemorative plaques recognizing them in the Crowne Plaza Hotel & Conference Center:

- John L. Doyne: Milwaukee County Executive from 1960-1976
- William F. O'Donnell: Milwaukee County Executive from 1976 to 1988
- William L. Coffey, MD: Director of the Milwaukee County Institutions for 31 years
- Joseph King, MD: Director of Surgery, Milwaukee County General Hospital for 34 years
- John R. Petersen, MD: Milwaukee County Director of Medical Services, 1967 to 1993

These county officials symbolize the extraordinary contributions of hundreds of Milwaukee County employees who, working together, planned and staffed significant portions of the MRMC and provided one standard of care for all residents in the region. Milwaukee County provided the land and supportive leadership to bring MRMC to fruition.

Additional Information:

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Milwaukee County Research Park

The Milwaukee County Research Park Corporation (MCRPC) is a non-profit organization created to manage the development of a university-related research park on 175 acres of Milwaukee County owned land in Wauwatosa, Wisconsin. The Research Park nurtures technology based companies, strengthens Milwaukee County's business base, creates new employment opportunities and facilitates technology commercialization. MCRPC accomplishes this by bringing together the substantial academic, intellectual, business and entrepreneurial resources of the metropolitan Milwaukee area in a physical environment conducive to such activities.

The Research Park is located in the City of Wauwatosa, the geographic center of the metropolitan Milwaukee area and all of southeastern Wisconsin. The 175 acre Research Park lies within a larger, 1100 acre expanse called the Milwaukee Regional Medical Center which is also called the Milwaukee County Grounds.

The Research Park is affiliated with four universities: Marquette University, Medical College of Wisconsin, Milwaukee School of Engineering and University of Wisconsin-Milwaukee. Tenants of the Research Park have access to these universities and their faculties, students, laboratories, libraries and specialized equipment. Several Technology Innovation Center tenants have commercialized innovative technology developed in university laboratories. Additional resources are available from the Milwaukee Area Technical College (MATC).

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City of Wauwatosa

The City of Wauwatosa is a suburban city with a charming and historic village area at its heart. Wauwatosa is a diverse community of approximately 47,000 residents who enjoy friendly, tree-lined neighborhoods; a respected school system and local government; and many fine restaurants, hotels, and thriving businesses that serve people from throughout the metropolitan area. The city is home to a major regional medical center, an expanding technology and research park, and a premier regional mall. Its convenience to the Milwaukee metropolitan area offers easy access to major league sports, nationally recognized zoo, and abundant cultural and social activities.

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Additional Sponsors

Wauwatosa Chamber of Commerce

The City of Wauwatosa is a suburban city with a charming and historic village area at its heart. Wauwatosa is a diverse community of approximately 47,000 residents who enjoy friendly, tree-lined neighborhoods; a respected school system and local government; and many fine restaurants, hotels, and thriving businesses that serve people from throughout the metropolitan area.

Wauwatosa is home to the Milwaukee Regional Medical Center, Milwaukee County Research Park, convenient shopping areas and Mayfair Mall. Wauwatosa offers easy access to home games of the Milwaukee Brewers at Miller Park, the Milwaukee Bucks, Milwaukee Admirals and Marquette University men's basketball in the Bradley Center. Wauwatosa is also adjacent to the nationally recognized Milwaukee County Zoo. The City of Milwaukee Theater District is a 12-15 minute drive from Wauwatosa. Lake Michigan, located 15 minutes away, has beautiful beach areas, the Milwaukee County War Memorial, the Milwaukee Art Museum and the Discovery World Museum.

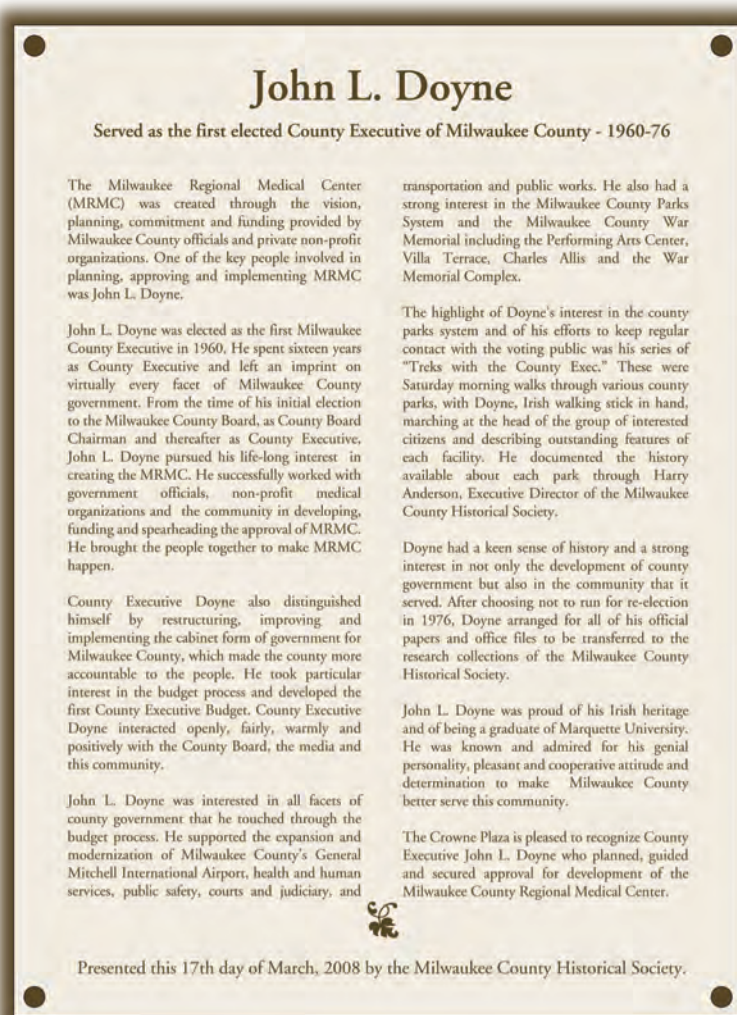
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ASI Signage Innovations

By providing plaques in the eight conference rooms as well as the History Wall of the Milwaukee Regional Medical Center (MRMC) and the Clinical & Translational Science Institute (CTSI), ASI Signage Innovations is pleased to continue its partnership with the MRR Forum in planning and developing the historic medical theme in the Crowne Plaza Milwaukee West Hotel. By incorporating a historic medical theme the conference rooms and history wall provide the perfect setting for the annual MRR Forum.

We recognize that the Crowne Plaza Milwaukee West Hotel stands out with its unique historic medical theme. ASI is committed to continuing its work with MRR Forum and the Crowne Plaza Milwaukee West in further developing the historic medical theme of the hotel. ASI is proud to be an integral part of this project and wishes the MRR Forum and the Crowne Plaza Milwaukee West great success as they move ahead with their initiatives.

Additional Information:

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Crowne Plaza Milwaukee West

The Crowne Plaza Milwaukee West, with its historic medical theme documented in eight conference rooms, is the ideal setting for this event in the Milwaukee Regional Medical Center (MRMC). The eight conference rooms honor the MRMC contributions of Curtis Froedtert (Froedtert Hospital), John L. Doyne (Milwaukee County), Governor Warren P. Knowles (State of Wisconsin), Emelie Nunnemacher (Children's Hospital), Virginia Brooks Jefferson (BloodCenter of Wisconsin), Joseph Heil (Greater Milwaukee Committee), Dr. William Coffey (Milwaukee County) and Dr. Joseph King (Milwaukee County) and Dr. Martin Luther King Jr. (who inspired African American county supervisors Calvin Moody, Isaac Cogs, Terrence Pitts, Clinton Rose and Bernice Rose).

Additional plaques honoring Dr. John R. Petersen (longtime Milwaukee County Medical Director), William O'Donnell (County Executive who followed John L. Doyne) and former Greater Milwaukee Committee Executive Director, Rudolph A. Schoenecker, were added to the collection on July 4, 2010.

The Crowne Plaza, as the gathering place for meetings involving the MRR Forum, is committed to making a continuing contribution to the MRR Forum now and in the future.

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Whyte Hirschboeck Dudek, S.C.

Whyte Hirschboeck Dudek (WHD) provided the initial funding for the creation of the Milwaukee Regional Research Forum fund which is the backbone of the MRR Forum. For over 40 years, WHD attorneys have played an active role from the planning to the development of the Milwaukee Regional Medical Center.

WHD's Emerging & Entrepreneurial Companies Team is a dedicated group of experienced professionals serving growth companies and investors. Often, these companies arise out of innovation and the creation of intellectual property. We represent companies at all stages of development and in a wide range of industries, including biotechnology, health care services, information technology, medical device, pharmaceutical, software, stem cell, and nanotechnology, as well as more "traditional" markets with rapid growth potential. WHD enables companies to navigate the legal challenges of regional, national and global growth.

Entrepreneurs understand the passion, energy, sacrifice, and dedication needed to foster a growing business. They want lawyers who will invest the same kind of commitment in them and their future, who are entrepreneurs themselves. They want an entrepreneurial law firm like WHD.

What is an "entrepreneurial" law firm? It means that WHD approaches the practice of law and client service in the same way as an entrepreneur, with energy, excitement, and a strong drive to succeed. The WHD entrepreneurial approach to the practice of law provides meaningful and practical advice for the unique challenges of growth companies. Whether the current needs of the company are corporate counseling, finance, intellectual property, mergers & acquisitions, human resources, or government affairs, the WHD entrepreneurial spirit is uniquely suited to growth companies.

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Milwaukee Journal Sentinel

The medical community is continually uncovering new data. Collaborating on new ideas. Discovering breakthroughs.

And the Milwaukee Journal Sentinel is there, to communicate stories of hope, like our Pulitzer Prize-winning series, *One in a Billion*, that propel us forward with the excitement of state-of-the-art diagnoses and treatments that hold great promise. But our role doesn't end there.

We also have the responsibility of investigating issues that affect the health of our community, particularly when they hurt the most vulnerable among us. *Empty Cradles*, our series on Milwaukee's infant mortality crisis, is just one of many vital topics that the Journal Sentinel has brought out of the shadows. By exploring the science and economics of such issues and pointing toward solutions, the Milwaukee Journal Sentinel contributes to making our community a safer, healthier place.



We have some of the finest medical minds here in Milwaukee, impacting the lives of people around the world. We are proud to share their groundbreaking work with our readers and to point attention toward potential new areas for research.

David Wise, Marketing Director
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The Boldt Company

The Boldt Company has a long history of successful medical research and health care facilities including projects for the Wisconsin Institutes for Medical Research, Children's Hospital of Wisconsin and St. Olaf College's Interdisciplinary Science Complex. Boldt's science and technology professionals are committed to delivering innovations that promote exploration and support environments of discovery and understanding. Aware of the movement towards interdisciplinary research, Boldt designs and builds facilities of great flexibility and adaptability—all with a focus on maximizing value for the owner.

Headquartered in Wisconsin, Boldt has 12 offices throughout the United States. It is one of the leading sustainable construction services firms in the country. Recognized as one of the safest companies in America, the firm provides professional construction services to a variety of power, industrial, healthcare and medical research, education, commercial and renewable energy markets.

The MRR Forum recognizes and appreciates the leadership, vision and support of Boldt in planning the development of this annual event. CEO Tom Boldt continues to be a valuable advisor to the MRR Forum including its initiatives to develop and implement successful technology for increasing collaboration among and between the CTSI entities.



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