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About Us

The ICTCR facilitates patient-centered research through the combined strengths of its founders: Mercy Medical Center, and Des Moines University, along with its partners Drake University College of Pharmacy and Health Sciences and Mercy College of Health Sciences and welcomes inquiries from interested clinicians and scientists.

For more information, please call
(515) 247-4435.

Editor's note: A collaborative program in brain mapping has combined the clinical and scientific talents of W. Young, MD (Mercy Radiology), M. Jacoby (Ruan Neurology) and K. Hisley, PhD, Des Moines University. Here, Dr. Hisley gives a brief summary of the program which will be covered in more detail in a future issue of "ICTCR Update".

Clinical fMRI brain mapping applied to stroke recovery

Behavioral effects of acute stroke are caused by grey and white matter damage in the cerebral cortex. Acute stroke treatment depends on assessing the precise location, volume and boundary of each lesion present. Current diagnostic radiology imaging relies on scans showing the precise locations of abnormal vs normal anatomy (spatial, non-time-varying). But accurate determination of the real boundaries of normal function requires additional boundary information using scans capable of measuring time-dependent, dynamic processes. Thus, cortical activation, representing areas of discrete *physiological changes* of regions driving sensory, motor and cognitive processes permit improved assessment of functional area condition while discriminating between normal and abnormal tissue - dramatically improving the focus of treatment

Collaboration between DMU's Anatomy Department and Mercy Radiology and Neurology Departments has three goals: 1) support advanced clinical imaging techniques (fMRI) for maximizing the rates of complete acute stroke recovery, 2) investigate the basic science and clinical application of cortical activation pattern changes towards treatment planning in Neurology, Neurosurgery and Radiation Therapy, and 3) integrate basic and advanced imaging techniques and image sets into the gross anatomy and neuroscience courses delivered to DMU students.

We are developing a clinical research program to promote advanced brain-mapping fMRI protocols as routine tools in the diagnosis of presence, extent and recovery prognosis involving acute stroke patients with potential cerebral infarcts. This will lead to a clinically-useful grading system for the classification of significant cortically-mapped functional activation differences during the period of recovery. These classifications may provide a framework for the improved assessment of patient recovery. (For additional information, contact Dr. Hisley at kenneth.hisley@dmu.edu)

Reminder: This newsletter is meant to remain in digital form; please print it only if necessary, but feel free to forward it to others who may be interested.

Table 1. Summary of topics in the NIH roadmap

- A. New pathways to discovery**
 - **Molecular Libraries**
 - **Bioinformatics**
 - **Nanomedicine**

- B. Research teams of the future**
 - **Interdisciplinary teams**
 - **Public-private partnerships**

- C. Re-engineering the clinical research enterprise**
 - **Clinical research informatics**
 - **Regional translational research centers**

(Since the original release of the NIH roadmap, the NIH has decided to add a fourth category, The Human Microbiome. This may be the topic of a future article in the *Useful Information Department*)

Literature Citations

1. Science, 302:63, 2003
2. JAMA, 299:211, 2008

Please contact the Office of Clinical Research at DMU (Theodore.rooney@dmu.edu) for more information on the role of interdisciplinary teams in translational research and to discuss ideas for creating new projects that mesh with the ICTCR goal of promoting translational research activity.

Translational research: What is it?

In 2003 Dr. Elias Zerhouni (1), then director of the National Institutes of Health (NIH), summarized the national initiative examining medical research and how it should be conducted in a process dubbed the “NIH Roadmap” and included three main themes (Table 1, sidebar).

Translational research was made a priority by the NIH, forming centers of translational research at its institutes and launching the Clinical and Translational Science Award (CTSA) program in 2006. By 2012 the NIH plans 60 such centers supported by \$500M, annually. In 2007, the University of Iowa received a CTSA from the NIH.

But what is translational research? Dr. Woolf (2) offers the following: “as effective translation of the new knowledge, mechanisms, and techniques generated by advances in basic science research into new approaches for prevention, diagnosis, and treatment of disease is essential for improving health”.

The Institute of Clinical Research Roundtable described two “translational blocks” in clinical research, T1 and T2. T1 is “the transfer of new understandings of disease mechanisms gained in the laboratory into the development of new methods for diagnosis, therapy, and prevention and their first testing in humans”. T2 is “the translation of results from clinical studies into everyday clinical practice and health decision making.” So, translational research encompasses both “bench to bedside” (T1) and “health services research” (T2) attributes.

The Mercy IRB recently approved a study titled *Collection and Processing of Cancer Tissues for High-throughput Proteomic Analysis by Means of Novel Monoclonal Antibody Chip Technologies* which typifies T1 research. This collaboration between Mercy Departments of Surgery and Pathology, Des Moines University (Cancer Research Center) and Dr. David Soll (Carver Professor of Biology at the University of Iowa), tests the hypothesis that patterns of cancer protein signatures will correlate with patterns of cancer origin, natural history, and prognosis which promises better diagnosis and even therapy for cancer patients.

T2 research has already been completed and published by the staffs of ICTCR partner institutions individually in the past, but future research will be more robust and comprehensive and more collaborative. T1 research requires cutting edge laboratory technologies and expertise in molecular biology, genetics, and other sciences. The T2 laboratory is community and ambulatory care centers working with experts in epidemiology, public policy, behavioral science, organizational theory, informatics, and financing.

Better health for our population depends on both T1 and T2 research projects. Most Federal research funding now supports T1 research; securing a balance with T2 funding will be a major challenge for the future.

This article contributed by Theodore Rooney, DO, FACP

Dr. Jeff Gray



Family Practice Residents Study Community MRSA: Can it be introduced to clinic personnel in an outpatient setting?

Methacillin resistant *Staphylococcus aureus* (MRSA) is a serious problem in hospital environments and tracking it and preventing its spread is regularly practiced in the hospital environment. But while we know MRSA exists in the community, it is not known if it is prevalent in family practice clinics, how it arrives in outpatient clinics, if it is spread from patients to staff, staff to staff and if anything should be done about its presence.

Dr. Carol Kuhle



These questions prompted family medicine residents (Drs. Brett Reimer and Wendy Hansen) mentored by Dr. Carolyn Kuhle to collaborate with microbiology professor Dr. Jeff Gray at Des Moines University. Also assisting with the project was Dr. Denise Nichols of the Family Medicine program.

Dr. Brett Reimer



The team looked at anterior nares colonization of all levels of staff and found 89% of employees willing to be cultured; and more significantly all but one of these individuals had a follow up culture 6 months later. The rate of MRSA colonization was similar to that expected in the community, though additional isolates were obtained at the 6 month follow up. The team also investigated the possible associations between hospital isolates of MRSA and those occurring in the clinic.

Dr. Wendy Hansen



Collaboration with DMU allowed these physicians to expand their scope of work beyond the isolation of MRSA to look at, in addition to antimicrobial susceptibility, specific resistance genes through advanced quantitative PCR techniques for *mecA* and *femA* genes. In addition molecular epidemiology techniques including pulse-field gel electrophoresis is being applied to further evaluation of MRSA isolates that were obtained from Mercy Medical Center during the same period of time the clinic staff were being studied.

A special commendation is due to the residents who worked on this study, as they along with Dr. Kuhle, applied for and received a grant from the American Academy of Family Practice to help defray the costs associated with this study. More details of their findings will be available when the team presents their findings at a national meeting in the spring.

Statement of Purpose

The ICTCR is a research enterprise that facilitates productive research collaboration between its partners through sharing of intellectual and infrastructure resources for the purpose of advancing patient-centered research that seeks better health for our communities and education and research opportunities for our faculty, staff, students and trainees. We believe the comprehensive training of medical students, residents and other health care professionals must be accompanied by a working knowledge of clinical research methods and best practices and that the best way to accomplish this is through active research endeavors. The ICTCR is dedicated to ethical and compassionate care for all individuals who participate in clinical research studies and actively supports the principles of autonomy, beneficence and justice in clinical research programs.