REGISTRATION IS NOW CLOSED for the Indiana Clinical and Translational Sciences Institute Sixth Annual Meeting -- Sept. 26

Sept. 9, 2014

The keynote speaker for the Sixth Annual Indiana Clinical and Translational Sciences Institute Meeting, "From Academic Centers to Population Health," will be David Hickam, M.D., MPH, director of the Clinical Effectiveness Research Program at the Patient-Centered Outcomes Research Institute (PCORI).

Dr. Hickam will present "Vision of PCORI for Patient Engagement, Pragmatic Clinical Trials and Medical Informatics."

Dr. Hickam is responsible for the development of PCORI's research program, which evaluates comparisons among alternative clinical strategies in a broad range of clinical domains. He is also the founding director of the John M. Eisenberg Clinical Decisions and Communications Science Center, supported by the U.S. Department of Health and Human Services' Agency for Healthcare Research and Quality, which develops innovative approaches for the use evidence-based information to help people participate in decision making about their health care.

Additional speakers included Jay L. Hess, M.D., Ph.D., MHSA, dean of the Indiana University School of Medicine and vice president for university clinical affairs at IU; and Paul K. Halverson, Dr.Ph., FACHE, dean of the IU Richard M. Fairbanks School of Public Health at IUPUI. IUPUI Chancellor Charles R. Bantz, Ph.D., will deliver the welcome.

The meeting will take place at the Hine Hall Auditorium on the Indiana University-Purdue University Indianapolis campus in Indianapolis on Friday, Sept. 26, from 7:30 a.m. to 3 p.m. For more information, download the complete agenda.

REGISTRATION IS NOW CLOSED. The meeting will be available to view live via video stream. CLICK HERE TO ACCESS THE LIVE VIDEO STREAM

A scientific poster session to highlight Indiana CTSI researchers, trainees, services and institutional partners, is also scheduled. To submit an abstract for the scientific poster session, please submit here by Monday, Sept. 15. All relevant posters will be accepted up to the maximum capacity and should be no larger than 4’ X 4’. There will be awards for best poster presentations.

Anyone from the Indiana CTSI members institutions of Indiana University, Purdue University and the University of Notre Dame are welcome to attend. This is a free event; lunch is included.

Questions to info@indianactsi.org.

Return to the Indiana CTSI Newsletter
Indiana CTSI awards about $250,000 in pilot, equipment and commercialization grants

Sept. 9, 2014

Twenty-three researchers from Indiana University, Purdue University and the University of Notre Dame recently received $244,350 from the Indiana CTSI in support of clinical and translational research projects.

Funded projects include research focused on breast cancer, traumatic brain injury, anti-viral drug development and neuroimaging of smokers' e-cigarette use decisions. The funds stem from three grant programs:

- The Core Pilot Grant program provides small pilot grants to access labs and technology whose resources can help kick-start promising basic research projects with high potential to go on to attract additional dollars from outside funding sources, such as the National Institutes of Health and public foundations.
- The Core Equipment Grant program supports the purchase of innovative new equipment and technologies for labs whose resources are available across IU, Purdue and Notre Dame through agreements with the Indiana CTSI.
- The Research Invention and Scientific Commercialization, or “RiSC,” grants support research with high future potential to spin off into new companies and technologies.

"We're proud to support such a wide-range of innovative research happening across our member institutions of IU, Purdue and Notre Dame," said Anantha Shekhar, M.D., Ph.D., director of the Indiana CTSI and associate vice president of clinical affairs at IU. "Each project was carefully selected for their high potential to one day translate into new patient treatments and therapies, and, based on our proven history of success in this process, we're confident they will go on to yield significant returns on investment in the coming months and years."

"I would also like to thank our great program leaders and grant management staff, and the dedicated group of scientists and peer-reviewers that make our grant programs successful."

From 2008 to 2012, Indiana CTSI estimates the institute generated a 19-to-1 return on investment from pilot funding, with $3.5 million in grants to scientists across the state attracting $65 million in federal research dollars and private investment over the same period. Indiana CTSI-funded researchers have also produced six technology licenses, 18 discovery disclosures, 22 patents and eight start-up companies.

2014 Spring Core Pilot Grant Awardees:

The Spring Core Pilot Grant program provides investigators access to more than 60 Indiana CTSI-approved core facilities across the IU, Purdue and Notre Dames campuses. This year's recipients, who earned a total of $133,950 are:

- Joshua Brown, Ph.D., associate professor of psychological and brain sciences, College of Arts and Sciences, IU-Bloomington, will receive $10,000 to access the Imaging Research Facility in support of the project "Functional neuroimaging of e-cigarette use decisions."
- Carmella Evans-Molina, M.D., Ph.D., assistant professor of medicine, IU School of Medicine, will receive $10,000 to access the Transgenic and Knockout Mouse Core in support of the project "SERCA2b overexpression as a novel means to mitigate against B-cell endoplasmic reticulum stress and death."
- Holly Goodson, Ph.D., professor of molecular and cell biology and
Indiana CTSI awards about $250,000 in pilot, equipment and commercialization grants

- Mark Hall, Ph.D., associate professor of biochemistry, College of Agriculture, Purdue, will receive $9,200 to access the Biomolecular Screening and Drug Discovery Core in support of the project "High throughput screening for specific inhibitors of the Cdc14 phosphatase family."
- Kasturi Haldar, Ph.D., Rev. Julius Nieuwland, C.S.C. professor of biological sciences, James C. Parsons and Carrie Ann Quinn director of the Center for Rare and Neglected Diseases, Department of Biological Sciences, Notre Dame University, will receive $9,176 to access the Purdue Translational Pharmacology Core at Purdue University in support of the project "Combination Therapy for NPC."
- Brittney-Shea Herbert, Ph.D., associate professor of medical and molecular genetics, IU School of Medicine, will receive $10,000 to access the Indiana Center for Biological Microscopy Core in support of the project "Imaging of the Breast Cell Architecture in 3D Cultures to Characterize High-Risk for Breast Cancer and to Develop Therapeutic Screening Tools."
- Andrea Grace Hohmann, Ph.D., professor of neuroscience, Department of Psychological and Brain Sciences, College of Arts and Sciences, IU-Bloomington, will receive $10,000 to access the Chemical Genomics Core Facility at the IU School of Medicine in support of the project "High-throughput screening for small molecule inhibitors of nNOS-NOS1AP."
- Wen Jiang, Ph.D., associate professor of biological sciences, College of Science, Purdue, will receive $10,000 to access the Biological Electron Microscopy Facility in support of the project "Structure-based Design of Antiviral Drugs for Human Noroviruses."
- Russell Main, Ph.D., assistant professor of biomedical engineering and basic medical sciences, College of Veterinary Medicine, Purdue, will receive $9,960 to access the Bone and Body Composition Research Core in support of the project "The Role of Estrogen Receptor-beta in Regulating Bone Formation and Turnover Dynamics in the Murine Skeleton During Growth and Aging."
- Kevin Otto, Ph.D., associate professor of biological sciences and biomedical engineering, College of Engineering at Purdue, will receive $9,900 to access the Purdue MRI Facility at Purdue in support of the project "fMRI of cortical microstimulation for sensory restoration."
- Jenifer Prosperi, Ph.D., assistant professor of biochemistry and molecular biology, IU School of Medicine, will receive $6,111 to access the Imaging and Flow Cytometry Facility in support of the project "Delineating the Wnt-Independent Functions of the Adenomatous Polyposis Coli Tumor Suppressor."
- Andrew Saykin, Psy.D., Raymond C. Beeler Professor of Radiology and director of the IU Center for Neuroimaging, IU School of Medicine, will receive $10,000 to access the Advanced Biomedical Information Technology Core at IU-Bloomington in support of the project "XNAT Implementation for the Indiana Imaging and Biomarker Neurorepository."
- Riyi Shi, M.D., Ph.D., professor of neuroscience and biomedical engineering, College of Veterinary Medicine, Purdue, will receive $10,000 to access the Purdue Bruker 7T MRI Scanner Facility in support of the project "Functional Neuroimaging Characterization of Blast TBI-induced Anxiety in Rats."
- Kenneth White, Ph.D., David D. Weaver professor of medical and molecular genetics, IU School of Medicine will receive $10,000 to access the Transgenic and Knockout Mouse Core in support of the project "Targeting Phosphate Metabolism in vivo."
- Siyuan Zhang, M.D., Ph.D., Nancy Dee Professor of Cancer Research, Department of Biological Sciences, School of Science, Notre Dame, will receive $9,600 to access the Imaging and Flow Cytometry Facility at the IU School of Medicine in support of the project "Spatial and Temporal Molecular Phenotyping of Early Metastatic Colonization In Situ."

Core Equipment Grant Awardees:

Indiana CTSI Core Equipment Program provides Indiana CTSI-designated...
cores at the IU School of Medicine support to purchase equipment, software or other resources that enhance the research environment and contribute to the research mission of the School and the Indiana CTSI. This year’s recipients, who were awarded a total of $78,600, are:

- Kenneth W. Dunn, Ph.D., associate professor of medicine and biochemistry, IU School of Medicine, received $12,900 to support research within the Indiana Center for Biological Microscopy Core.
- Charles R. Tessier, Ph.D., research assistant professor of medical and molecular genetics, IU School of Medicine-South Bend, received $36,000 to support research within the IUSM-South Bend Imaging and Flow Cytometry Core.
- Karen E. Pollok, Ph.D., assistant professor of pediatrics and a member of the Herman B. Wells Center for Pediatric Research, IU School of Medicine, received $18,200 to support research within the In Vivo Therapeutics Core.
- Jamie Case, Ph.D., assistant research professor of pediatrics, IU School of Medicine, received $11,500 to support research within the Angio BioCore.

Research Invention and Scientific Commercialization Awardees:
The Indiana CTSI Research Invention and Scientific Commercialization grant program for IU faculty aims to encourage scientific breakthroughs and technology development, which serve as the foundation for new business enterprises and/or promote the advancement of translational research or health related objectives. This year’s recipients, who earned a total of $50,000, are:

- Hiroki Yokota, Ph.D., professor of biomedical engineering, IUPUI, and adjunct professor of anatomy and cell biology, IU School of Medicine, will receive $25,000 to support his project titled "Novel Pharmacological Treatment of Osteogenesis Imperfecta."
- Jian-Ting Zhang, Ph.D., Andrew and Peggy Thomson Chair in Hematology/Oncology and professor of pharmacology and toxicology, IU School of Medicine, will receive $25,000 to support his project titled "Optimization and Commercialization of Novel STAT3 Inhibitors."

Return to the Indiana CTSI Newsletter

[jcomments on]
Indiana CTSI-supported IU-Notre Dame collaboration to support new imaging service

Sept. 9, 2014

As imaging technology grows more sophisticated, scientists are increasingly able to pull back the curtain on processes which once remained hidden from the eye.

But as technology increases the ability to gather visual data on the body's "microenvironment," the ability to process that information -- to understand what exactly you're seeing -- doesn't always keep pace. To address this gap, Indiana University School of Medicine scientists have teamed up with computer scientists from the University of Notre Dame -- with support from the Indiana Clinical and Translational Sciences Institute -- to grapple with the results of this "big data."

Nadia Carlesso, M.D., Ph.D., associate professor in the Departments of Pediatrics and of Medical and Molecular Genetics at the IU School of Medicine, is the lead scientist on new intravital fluorescent microscopy (IVFM) methods to observe the effects of cancer -- and cancer treatment -- on the function of blood vessels in the bone marrow. Her team started out applying IVFM to her lab's primary research interest -- conditions in the bone that give rise to leukemia -- or, more specifically, to the role bone marrow endothelial cells play in the regulation of blood cell regeneration after injury.

The group is already offering the ability to provide similar analysis to other investigators across the IU School of Medicine as a "mini-core," and continue to grow and develop the service. The collaboration with Notre Dame will take the project even further through creation of more general quantitative analytical and statistical tool to analyze large data-sets of 3D and 4D images.

"We've got a very reliable way to image the vasculature and record the flow of blood within the bone marrow capillaries of the calvarium," said Dr. Carlesso, referring to the skull bones, which are pulled back in mouse models after sedation in order to allow the microscope to record blood flow in vivo. "Now our challenge is how to develop analytic tools that can really make sense of resulting large data sets."

Her team's work is supported in part by IU Center for Biological Microscopy (ICBM), whose powerful multi-photon microscope allows investigators to witness processes that cannot be viewed with less powerful, conventional microscopy. The use of injectable dyes and transgenic mice whose hematopoietic cells grow green allow the team to clearly see the complicated effect of disease on the vascular network. Interpretation of the visual data is the hard part.

Dr. Carlesso's main collaborator on this "interpretation" is Danny Z. Chen, Ph.D., professor of computer science and engineering at Notre Dame. The director of the ICBM is Bruce Molitoris, M.D., professor of medicine at the IU School of Medicine. The scientific director of the center is Kenneth Dunn, Ph.D., professor of medicine and of biochemistry molecular biochemistry at the school.

"There is a lot of specialized software on the market, but it isn't useful to us because it's all been developed to look at the physiologically normal images," Dr. Carlesso said. "When you start to look at disease conditions -- transplantation, irradiation, chemotherapy, leukemia, inflammation -- then the image becomes more complex and more difficult to define. The blood vessels relax and get damaged and a lot of liquid gets into the tissue. You need to develop new analytical tools so you're not getting [image] artifacts. Once you're able to define what is real versus what is not, then you can quantitatively measure the size of the veins; the number of blood vessels, capillaries, or branch points; the average length of vessels per segment; the
The collaboration with Notre Dame received support from the Indiana CTSI after Dr. Carlesso sought assistance from the Indiana CTSI Project Development Team Program -- specialized teams of experts that provide advice and support on clinical and translational research projects. Earlier this year, the project received a two-year $20,000 grant to fund a doctoral student devoted to the project at Notre Dame as well as the cost of transgenic mice and travel funds.

"We are really proud of the Indiana CTSI grant," Dr. Carlesso said. "It's been wonderful to be able to collaborate with Dr. Chen and his team on this project. We meet a few times a year, plus we Skype and email all the time. It's really been very valuable."

Ultimately, Dr. Carlesso aims to seek greater external funding for the project. She also aims to turn the IVFM into a full-fledged service core -- a goal also supported by the Indiana CTSI through the Kelley School of Business-Indiana CTSI ATP Business Management Assistance Program. The program, which recently completed its sixth year, teams MBA students from the IU Kelley School of Business with facilities affiliated with the Indiana CTSI to provide business development expertise and recommendations.

On Aug. 19, Dr. Carlesso, Dr. Dunn and several other colleagues heard the results of this analysis from these business students, who spent a total of over 100 hours analyzing the IVFM processes to provide recommendations on improving efficiency, service marketing and potential pricing structures. Hopefully, she said, the group will soon be able to offer its services not only to investigators at IU, but also across Purdue and Notre Dame.

"The possibilities are really great," she said. "This is a complex technology that no other institutions are providing as a service to the community of researchers because of its challenges and costs. We are very lucky to have the support of our institution in this endeavor."

Carlesso added that until recently this technology was only accessible to a handful of research groups in the country.

"Seeing is believing," she added. "There are now things that we would never be able to visualize, discover or to prove without this technology. It's cutting-edge and it can increase the impact of our researcher’s publications and grant applications; but most of all it can lead to new insights on the cell-cell interactions in the tumor microenvironment and allowing for drug screening toward the discovery of more effective therapies."

Story by Kevin Fryling

Return to the Indiana CTSI Newsletter
Students explore careers in science with help from the Indiana CTSI

Sept. 9, 2014

On July 22, Indianapolis-area high school students and IUPUI and Notre Dame undergraduate students with an interest in pursuing careers in medicine gathered at the feet of students at the IU School of Medicine to get tips and tricks from their more experienced peers who had "made it."

The impromptu mentorship sessions were a part of the annual luncheon hosted by the Indiana Clinical and Translational Sciences Institute for students participating in summer research programs supported by the institute. Each year, the Indiana CTSI funds more than 50 high school, undergraduate and medical students through the IU School of Medicine Student Research Program in Academic Medicine (SRPinAM), IUPUI Center for Research and Learning and Indianapolis Project SEED, a non-profit organization that provides economically disadvantaged students access to educational opportunities in the sciences. This year's luncheon took place in the Health Informatics and Translational Sciences Building on the canal basin in downtown Indianapolis.

"The purpose of the CTSI summer research program is really to provide an opportunity for everyone to learn a little bit about research first hand," said Anantha Shekhar, M.D., Ph.D., director of the Indiana CTSI, Associate Dean for Translational Research at the IU School of Medicine and associate vice president for university clinical affairs at IU. "Whether you're a high school student, an undergraduate student or a medical student, you can't really appreciate what research is until you actually do it yourself -- until you actually get your hands into an experiment or a particular scientific question -- to understanding firsthand how do you do research, how to ask research questions, how to design a research experiment.

"Not everyone needs to be a full-time researcher in their life, but I think it's an important lesson to have in the future career you eventually pursue -- whether you're going to be a primary care physician or a teacher or whatever else -- you have to have that scientific curiosity and approach to answering questions based on objective data."

Elizabeth Rubens, M.Ed., director of the Indiana Clinical and Translational Sciences Institute Undergraduate Research Program, agrees that the opportunity to hone skills applicable to their future success -- whether in research or other careers -- is a key aspect of the program.

"We've got a wonderful group of students scholars as always this year," said Dr. Rubens, who also directs the Multidisciplinary Undergraduate Research Institute (MURI) in the IUPUI Center for Research and Learning, a division of the Office of the Vice Chancellor for Research.

"Not only are they working on their specific projects but we have Wednesday afternoon sessions that they're all required to attend that are devoted to skill builders, developing transferrable research skills that they can take from this experience and apply towards new experiences in the college careers and beyond."

The directors of the other summer research programs supported by the Indiana CTSI are Nadia Carlesso, M.D., Ph.D., director of SRPinAM and Elmer Saunders, director of Indianapolis Project Seed. Dr. Carlesso also serves as a professor of pediatrics and molecular and medical genetics at the IU School of Medicine and Mr. Saunders as a biology teacher at Southport High School in Indianapolis.

Also hailing from Southport High School is Darren Dixon, one of the student participants in Indianapolis Project Seed. Dixon, who is now an incoming freshmen at IUPUI, spent his summer working in the lab of John Goodpasture, Ph.D., associate professor of chemistry and director of Forensic
Students explore careers in science with help from the Indiana CTSI.

Sciences Program at the School of Science at IUPUI. Dixon's lab work involved using gas chromatography/mass spectrometry to analyze chemical residue patterns on the fragments of a pipe bomb detonated under supervision of a bomb squad in Martinsville.

"I had never worked in a lab and I also had never worked with explosives -- both were really interesting," said Dixon, a mathematics and computer science major who choose to add a minor in forensics based upon his experience this summer. "I really enjoyed the experience of working in the lab. The whole experience was great -- I felt like my mentor and my whole lab group was there to support me."

Another incoming freshmen participating in research this summer was Rebecca Pyle, one of only nine recent graduates from Union Bible College and Academy in Westfield, Ind., who recently started her first year as a nursing student at Indiana State University.

"I didn't get the same in-depth biology and chemistry experience as you might get at a larger school -- this really helps prepare you for your future," said Pyle, whose mentor this summer was James A. Marrs, Ph.D., associate professor of biology at the School of Science at IUPUI. Pyle's work involvement contributed to research an enzyme with potential applications to the treatment of osteoporosis being conducted at IUPUI on behalf of Eli Lilly and Company. Last year, Pyle also participated in an observersonship at St. Vincent's Bariatric Center under Leslie Shu, M.D., also through Indianapolis Project Seed. Both opportunities were "amazing experiences," she said.

Not every student participating in summer research through the Indiana CTSI hailed from central Indiana. Conor McCarthy and David Schmitz are two of four undergraduate participants in in the program from Notre Dame. McCarthy, who is a senior, and Schmitz, who is a junior, spent their summer under the mentorship of Mythily Srinivasan, M.D., Ph.D., associate professor in the Department of Oral Pathology, Medicine and Radiology at the IU School of Dentistry.

The students' lab worked involved measuring immune responses to peritonitis bacteria using cell cultures. Schmitz said the worked helped him develop a better understanding of the disease, including the ways in which peritonitis more severely affects individuals with conditions such as diabetes, heart disease or obesity.

The experience drove home the importance of strong study design, he said.

"I think my most memorable experience was learning about the importance of experiment design; the amount of time actually spent in the lab doing these experiments was relatively small compared to the bigger picture," he said. "The whole experience really helped us understand how much planning goes into an experiment before you actually start it. It's a lesson I think I'll really be able to use down the line."

In addition to the informal mentoring sessions, IU School of Medicine students also delivered short presentation on their personal journeys to medical school to inform and inspire younger participants in the program. Other activities at the luncheon included an address from Dr. Shekhar and a group photo on the canal.

Story by Kevin Fryling

Return to the Indiana CTSI Newsletter
Indiana CTSI-Kelley School of Business partnership advises Community Health Needs Assessment, Intravital Fluorescent Microscopy projects

Sept. 9, 2014

MBA candidates from the IU Kelley School of Business recently teamed up with the Indiana Clinical and Translational Sciences Institute and several other organizations to design and evaluate a plan to create sustainable Community Health Needs Assessment (CHNA) service for the local hospital community.

The need for the creation of a CHNA service stems from a new requirement under the Patient Protection and Affordable Care Act of 2010 which states that every hospital organizations must conduct such an assessment every three years. MBA students presented their analysis of the proposed service on July 29 at The Polis Center, 1200 Waterway Blvd., Indianapolis.

The project, "Healthy Communities at Indiana University," or "HC@IU," is a collaboration among the Indiana CTSI's Community Health Engagement Program (CHEP), the IU Richard M. Fairbanks School of Public Health at IUPUI and the Polis Center. The Polis Center is a self-funded research unit of the IU School of Liberal Arts at IUPUI that seeks practical, effective and cost-efficient ways for communities to enhance their capacity for change.

Co-sponsors on the CHNA service project are Douglas Miller, M.D., Richard M. Fairbanks Professor Emeritus of Aging Research and former director of the Indiana CTSI CHEP; Karen R. Comer, MLA, director of collaborative research and health geoinformatics at the Polis Center; and Cynthia Stone, Dr.PH., clinical associate professor and director of the health policy and management concentration at the Richard M. Fairbanks School of Public Health at IUPUI.

Additional participants in the session included David Bodenhammer, Ph.D., executive director for the Polis Center; Paul Halverson, Dr.PH., dean of the Fairbanks School of Public Health; and Anantha Shekhar, M.D., Ph.D., director of the Indiana CTSI and associate vice president for university clinical affairs at IU, who serve as executive decision makers for the proposed service venture.

The MBA candidates, Cathyrn Luckoski, Miriam Barr and Amy Rose, worked on the project through the Kelley School of Business-Indiana CTSI ATP Business Management Assistance Program. Their analysis included a breakdown of potential market demand for the service as well as operational and strategic measures required to implement and launch the project. They also gathered data on the current local healthcare climate, potential clients, and stakeholders and reviewed public health policy among other tasks to develop a plan for a CHNA with the goal of community health improvement.

In addition, on Aug 19, a second group of MBA candidates delivered a presentation at the Research 4 Building on the IUPUI campus, also as part of the Kelley School of Business-Indiana CTSI ATP Business Management Assistance Program. The students, Jacob Dalton, Rachel Reyes, Bernard Shen and Kim Suhre, spent more than 100 hours analyzing the processes at the Intravital Fluorescent Microscopy group, which is currently supported by the IU Center for Biological Microscopy, in order to provide recommendations on improving efficiency, service marketing and potential pricing structures for the group’s transition to a core service.

Other groups to benefit from the Indiana CTSI-Kelley School of Business partnership include the Indiana Institute for Personalized Medicine, which has utilized the project on three occasions in support of various aspects of the institute, including the launch of personalized medicine service at Eskenazi Health. David A. Flockhart, M.D., director of the IIPM and Harry and Edith Gladstein Professor of Cancer Epidemiology and Genetics at the IU School of
Medicine, reports that advice and materials provided by the MBA candidates, including an in-depth workflow analysis and communications strategies, have been used to inform a grant submission and high-level communications with the National Institutes of Health.

The faculty adviser for the Indiana CTSI-Kelley School of Business partnership is Mohan V. Tatikonda, Ph.D., professor of operations management at the IU Kelley School of Business in Indianapolis. The CTSI advisor on the project is Lilith Reeves, chief technology officer at the Indiana CTSI.

**Story by Lauren Scheid and Kevin Fryling**

*Return to the Indiana CTSI Newsletter*
Independent Investigator Incubator aims to 'spin off' successful researchers through mentoring

Sept. 9, 2014

The Indiana Clinical and Translational Sciences Institute -- in collaboration with the IU School Medicine Transforming Research Initiative (TRI) -- has launched a new program to support junior faculty members who wish to improve their ability to compete in the modern research environment through a new targeted mentorship program.

The IUSM Independent Investigator Incubator, or "I3," is a new project to "spin off" successful researchers through access to significant one-on-one time and professional coaching from a senior faculty "supermentor," as well as support services such as a professional grant writer, administrative support and a biostatistician. The program will especially target new faculty during the crucial first three years of their research careers.

"This effort is all about figuring out how we can better train junior faculty who want to be independent investigators to do what they need to do to be successful," said Aaron E. Carroll, M.D., professor of pediatrics and associate dean for research mentoring at the IU School of Medicine, who will lead the incubator. "We're offering resources and the ability to be paired with very successful faculty members who have agreed to make a serious commitment to the personal and professional success of junior independent investigators."

"Highly successful independent investigators are the individuals who drive the translation of new discoveries into practice, and one of the key areas of focus for the Indiana CTSI is creating programs that enhance career development of researchers," said Anantha Shekhar, M.D., Ph.D., director of the Indiana CTSI and associate vice president for University Clinical Affairs at IU. "The goals of I3 fit perfectly within the mission of the Indiana CTSI and we're pleased to house and support the program."

The TRI is a strategic plan focused on improving areas such as research funding, team science, mentoring, research communication, and faculty recruitment and retention in order to keep the school of medicine's research enterprise competitive.

We are investing in our junior faculty," said David Wilkes, leader of the TRI and executive associate dean for research affairs and August M. Watanabe Professor of Medical Research at the IU School of Medicine. "Mentoring was identified as one of the six goals within the TRI, and I3 is the first step at meeting our objective of developing in depth research-specific mentoring school-wide."

The incubator is inspired in part by a successful model at the University of Utah School of Medicine, which is among the academic medical centers seeing promising results from similar programs.

"This is a model that has been tried elsewhere with success, but not a lot places are doing it yet so it still puts us on the cutting edge," said Dr. Carroll. "We're really trying to concentrate mentorship among those who have a real skill and a real passion for it."

The incubator isn't an attempt to challenge the tradition of pairing up junior and senior faculty mentors and mentees at the division and departmental level, he added, but instead provides another potential path to faculty interested in participating. Mentors will focus on helping mentees hone skills that aren't limited to a specific scientific discipline, including grant writing, time management and successfully balancing multiple research projects.

The incubator has recruited six "supermentors" and is currently seeking three to four junior faculty participants per mentors -- a total of 24 -- to match with these faculty. The bulk of the program will occur in the form of one-on-one
Independent Investigator Incubator aims to ‘spin off’ successful researchers through mentoring

Dr. Carroll also plans to form a supermentor review committee to provide group feedback on grant applications prior to submission as well as incorporate peer mentorship among other junior participants into the program.

Success of the program will be measured based upon papers published, grants submitted and awarded, and feedback from participants, including reported job satisfaction.

"If you've had really excellent mentorship you understand there's is no substitute," Dr. Carroll said. "I've personally been fortunate to experience very good mentorship during my fellowship and in my division and department -- and the experience has really impressed upon me how important it is that everyone gets their chance."

Dr. Carroll notes the incubator also supports other goals of the Transforming Research Initiative, such as improving IU's ability to recruit high quality faculty.

"From my experience interviewing candidates I have learned that when junior faculty are trying to figure out where they want to start their career, the knowledge that the institution is willing to put forth this level of resources and dedication to research career development is very attractive. It's a real selling point."

If you're a faculty member interested in joining the Independent Investigator Incubator as a mentee, visit http://www.indianactsi.org/i3-apply.

Story by Kevin Fryling

Return to the Indiana CTSI Newsletter
Access Technology Program Updates -- September 2014

July 8, 2014

Access Technology Program News

Pascal Lafontant, Ph.D., an associate professor of biology at DePauw University is employing technology at the IU-Bloomington Microscopy Center which previously required collaboration with researchers in Saudi Arabia. The research, which involves analysis of Zebrafish hearts, uses a Serial Block Face Scanning Electron Microscopy (SBF-SEM) as well as an ion beam scanning electron microscope, or FIB-SEM.

The SBF-SEM uses an ultramicrotome inside of a SEM to remove ~100 nm of material automatically and, sequentially, to iteratively image a sample and thereby reconstruct a 3-D volume from fixed tissue. The FIB-SEM uses an ion beam instead of a microtome to remove 12 to hundreds of nanometers of material from a sample face, and images the freshly revealed face, iteratively and automatically, after which 100s of individual images are reconstructed into a 3D image of tissue, including the internal structure.

Staff at that IUB-EMC can perform FIB-SEM analyses for any CTSI investigator or train users on this microscope. Now, due to this collaboration with the IUB-EMC, Dr. Lafontant is only one hour by car from his collaborators, not an ocean away.

In addition, Kelly Schermerhorn, Ph.D., of New England Biolabs, Massachusetts, is collaborating with Stephen Bell, professor of molecular and cellular biology at IU Bloomington, to investigate the structures of DNA polymerases. Over the course of a week, four transmission electron microscope sessions were completed to image her protein oligomer with single particle analysis of negatively stained samples.

Around 1,400 images were collected with our automated acquisition system, which speeds up acquisition, ensures quality images free from drift, automatically cycles through many defocus settings, lowers costs by obviating fee-for-service charges and utilizes the instrument overnight for efficiency.

Dr. Schermerhorn samples contained ~50 protein complexes per image, which will enable her to average tens-of-thousands of particles in the process of reconstructing a 3D model of this protein complex.

Biostatistics Walk-in Clinic

The IU School of Medicine Department of Biostatistics will soon begin to host a no-cost weekly walk-in clinic. A biostatistician will be available to provide brief consultations on study design, sample size and power calculations, data analysis advice, interpretation of results and statistical software.

If more in-depth (or potentially fee-based) support is needed, a biostatistician will guide you to the appropriate person.

No reservations are required. This service is provided courtesy of the Department of Biostatistics and the Indiana CTSI Design and Biostatistics Program.

For the time and location of the weekly clinic, visit www.biostat.iupui.edu.

Return to the Indiana CTSI Newsletter

{comments on}
Good named financial officer for Indiana CTSI

Sept. 9, 2014

Tammy J. Good, MS, CPRA, CRA, has been named a financial officer with the Indiana Clinical and Translational Sciences Institute. She began her new role in July.

Good holds more than 12 years of research administration experience, and more than 20 years of general administrative experience. Previously, she served as an associate director and grants services manager, a clinical research financial compliance officer and a contract specialist in the Indiana University Office of Research Administration.

She has also served a grants specialist for the IU School of Medicine Department of Medical and Molecular Genetics and the IUSB Dean's Office. Prior to IU, she worked at the law firm of R. Lee Money in Greenwood, Ind.

In her role at the Indiana CTSI, Good is responsible for accounting duties related to the daily operations for university general fund and auxiliary activities of the Indiana CTSI as well as grant and auxiliary funds. She will also support Robert J. Dimmitt, director of finance for the Indiana CTSI, in all areas of fiscal compliance, including submitting queries, verifying data, preparing reports, initiating transactions, reconciling accounts and performing basic problem solving analyses.

Good holds bachelor's in management from Indiana Wesleyan University and certificates in pre-award research administration and research administration from the Research Administrators Certification Council. She is currently pursuing a master's in management with a focus on research administration from Emmanuel College in Boston.

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IU School of Medicine-IU Health Strategic Research Initiative yields benefits for research and patients

Sept. 9, 2014

After two years of investment by the IU School of Medicine-IU Health Strategic Research Initiative, patients are reaping the benefits of new genetic testing systems, neuroscience specialists are creating new tools to battle concussions, and top scientists have been recruited to IU to join the medical school's research and patient care team.

"In a little more than two years, we're already seeing important research discoveries and transformation in patient care as a result of the SRI investments," said Jay L. Hess, M.D., Ph.D., dean of the IU School of Medicine and IU vice president for university clinical affairs.

"In each of the SRI research areas, we're targeting our strengths to ensure that the initiative results in discoveries that will both advance science and transform how we deliver care," Dr. Hess said.

"Our goals with the SRI were to continue developing the School of Medicine's research enterprise and to leverage that development into better patient care," said David S. Wilkes, M.D., executive associate dean for research affairs. "I'm pleased that we're making progress on both goals."

**Cardiovascular disease**

Heart patients at IU Health quickly began seeing changes when physician-scientists in the summer of 2012 began the state's first comprehensive program to implement genetic testing in research and clinical care in heart disease.

Research into the genetic underpinnings of heart disease has developed to the point that many cardiovascular patients -- and their families -- will benefit from the tests, said Peng-Sheng Chen, M.D., the Medtronic Zipes Chair in Cardiology and director of the Krannert Institute of Cardiology at the IU School of Medicine.

With Strategic Research Initiative funding, the cardiovascular program has developed the laboratory expertise and received regulatory approval to use the results of genetic tests for patient care as well as research purposes. As a result, IU Health is the first health system in the state that can do such testing without sending samples to an outside testing company, Dr. Chen said.

More than 128 patients have received genetic counseling at the cardiovascular program's genetic clinic. In another cardiovascular program, more than 1,100 patients at the IU Health cardiac catheterization lab have agreed to provide samples for research into the relationships between genetics and the effectiveness and safety of heart drugs.

Strategic Research Initiative funding is also supporting basic science research in heart disease. One early result was a recent paper in the respected journal Nature by Ching-Pin Chang, M.D., Ph.D., associate professor of medicine, identifying a new molecule that could prove key in treating heart failure.

**Neurosciences**

In the neurosciences, efforts are underway to build on the IU School of Medicine's growing expertise in concussion and other neuroscience research with Strategic Research Initiative investments. Projects underway include:

An infographic illustrates key accomplishments of the IU School of Medicine-IU Health Strategic Research Initiative.
Creating a sports-related "complex concussion" clinic at the IU Health Neuroscience Center. This project, led by Thomas McAllister, M.D., chairman of the Department of Psychiatry and a nationally recognized expert in concussions, will focus on patients whose symptoms haven't improved as expected or are worse several weeks after their injury. Clinic patients will have the opportunity to participate in future research projects, with the goal "to better understand why some get better and some don't after similar injuries," Dr. McAllister said.

Assembling a traumatic brain injury patient database. Led by Richard Rodgers, M.D., assistant professor of neurological surgery and a surgeon at Goodman Campbell Brain and Spine, specialists are collecting standardized data about each patient for which the neurological surgery group provides a consultation. Information about more than 500 patients has been collected since the project started a year ago. For now, the data can be used for quality improvement purposes such as monitoring lengths of hospital stays or infection problems. The goal is to convert it to a true research database to look at such questions as whether patient outcomes differ depending on whether they have a history of alcohol abuse, Dr. Rodgers said.

Initiation of a cerebrovascular outcomes center, which was created as part of IU Health's successful application for Methodist Hospital to be designated a comprehensive stroke center, the first in Indiana. The outcomes center has been capturing information on all types of stroke patients at Methodist, providing data to improve treatment and, in time, provide a resource for research, said Jason Mackey, M.D., assistant professor of neurology and director of the center. For example, in the past year, the average length of time from a stroke patient's arrival in the emergency department until receiving a standard clot-dissolving drug was cut nearly in half.

Cancer

At the Indiana University Melvin and Bren Simon Cancer Center, a $1.4 million Strategic Research Initiative investment helped create a new precision genomics program that will conduct genetic analyses of breast cancer patients to personalize their treatments.

A team led by Bryan Schneider, M.D., associate professor of medicine, and Milan Radovich, Ph.D., assistant professor of surgery and of medical and molecular genetics, is using targeted DNA sequencing in a new clinical trial for women with triple negative breast cancer, to test whether certain treatment choices improve survival rates. Following chemotherapy and surgery, patients who are at high risk for relapse will be eligible to participate in the trial.

Those selected for the targeted DNA sequencing portion of the trial will receive individualized treatments based on the results of the analysis of their genetic makeup. The analyses will be conducted by the cancer center physicians in partnership with Paradigm, a nonprofit genomic sequencing and molecular information company. This research project has formed the platform for a clinical precision therapeutics program using genetic profiling to link novel treatments to patients with rare tumors and tumors that are resistant to treatment.

Funding from the Strategic Research Initiative and The Neurosurgery Foundation at Goodman Campbell (associated with the IU Department of Neurological Surgery) has supported a collaborative cancer and neuroscience initiative, the Brain Tumor Working Group. Led by Karen Pollok, Ph.D., associate professor of pediatrics, and Aaron Cohen-Gadol, M.D., associate professor of neurological surgery, the basic science and clinical research initiative resulted in a $300,000 IUPUI Signature Center grant to Dr. Pollok and Dr. Cohen-Gadol for the Center for the Cure of Glioblastoma.

Pilot projects

With about $5.3 million from the Strategic Research Initiative, 69 early-stage research projects have been funded at the IU School of Medicine, many of them focusing on cancer. These pilot projects are designed to develop new ideas and generate preliminary data that can then be used to seek funding from agencies such as the National Institutes of Health for full research projects. Although often key to future success, funding for such pilot work is often difficult to find.
Strategic Research Initiative pilot projects include research on:

- Potential molecules to block the viruses that cause cervical and other cancers.
- Several types of childhood leukemia and potential new treatments.
- Several aspects of pancreatic cancer, such as identifying targets to block its spread to the liver.
- Synthesizing compounds that could improve treatment of brain cancer.
- Several issues related to heart disease and heart failure in both children and adults.

**Personalized medicine**

The Strategic Research Initiative also invested $504,000 to support new personalized medicine initiatives. Using a customized “laboratory on a chip” designed by the IU School of Medicine, physicians and researchers will be able to test patients for genetic differences that affect how they respond to common medications. For example, about 7 percent of all people lack the necessary enzymes to metabolize codeine properly. As a result, they get no pain relief.

The personalized medicine initiative includes plans for a long-term study of the benefits of the personalized medicine test among patients at Eskenazi Health and payment for initial use of the tests in 3,000 cardiovascular, neuroscience and cancer patients at IU Health.

**Top talent**

One of the important goals of the Strategic Research Initiative is to add to the IU School of Medicine's research capabilities. Thus far, 17 accomplished new faculty members have been recruited with initiative funding assistance from well-respected universities as well as internally from IU. They are:

- Costantine Albany, M.D., assistant professor of clinical medicine, specializing in genitourinary malignancies, from the Indiana University fellowship program.
- Ching-Pin Chang, M.D., Ph.D., associate professor of medicine and a specialist in cardiac development. Formerly at Stanford University.
- Thomas Everett, Ph.D., associate research professor of medicine and a biomedical engineer with expertise in optical mapping and electrical mapping of cardiac arrhythmias. Formerly at the University of California San Francisco.
- J. Emanuel Finet, M.D., assistant professor of clinical medicine and a specialist in the genetic basis of heart failure. Formerly at Duke University.
- Jiali Han, Ph.D., chairman of the Department of Epidemiology, School of Public Health. Formerly at Harvard University.
- Steven Johnson, Ph.D., assistant professor of biochemistry and molecular biology and head of the cancer initiative's Chemical Biology and Drug Discovery program. Formerly at the University of Washington.
- W. Aaron Kay, M.D., assistant professor of clinical medicine and head of the adult congenital heart disease program. Formerly at the Ohio State University.
- Leonidas Koniaris, M.D., professor of surgery and a specialist in the relationships between cancer and other diseases in order to improve cancer treatment outcomes. Formerly at Thomas Jefferson University.
- Bert O'Neil, M.D., the Joseph W. and Jackie J. Cusick Professor of Oncology and director of the IU Simon Cancer Phase 1 and GI programs. Formerly at the University of North Carolina.
- Hongmei Nan M.D., Ph.D., associate research professor of epidemiology and director of the epidemiology core. Formerly at the University of Maryland.
- Sophie Paczesny, M.D., Ph.D., associate professor of pediatrics and a specialist in cancer and stem cell transplants. Formerly at the University of Michigan.
- Victoria Pratt, Ph.D., associate professor of clinical medical and molecular genetics and director of the pharmacogenomics clinical diagnostic laboratory. Formerly at Quest Diagnostics.
- Safi Shahda, M.D., assistant professor of medicine and a specialist in gastrointestinal cancer, from the Indiana University fellowship program.
- Yiquing Song, M.D., Sc.D., associate professor of epidemiology in the Fairbanks School of Public Health. Formerly at Harvard University.
Clinical trials

The Strategic Research Initiative also has provided $750,000 to an initiative to link computer systems at IU and IU Health that track participants in clinical trials of new therapies. The initiative will link a system implemented by the Indiana Clinical and Translational Sciences Institute at IU, Purdue and Notre Dame for clinical trials work to its electronic counterpart at IU Health.

Combining the system will provide important benefits for patient safety because physicians will be able to quickly see whether a patient is participating in a clinical trial. The combined system will also help researchers seeking potential participants for the research trials as well as people searching for trials in which they want to participate.

*Story by Eric Schoch*

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Indiana CTSI Opportunities — September 2014

Sept. 9, 2014

Several Indiana CTSI-funded programs are accepting applications. They are:

**Indiana Biobank RFA -- Due Sept. 15**

The Indiana Biobank requests applications from researchers who wish to store biospecimens in support of pilot or feasibility studies. The IB is a statewide resource of human biological specimens that are linked to electronic medical records whose mission is to create a collection of well characterized specimens that can serve as a research resource to enhance translational research.

This RFA seeks to expand the custom collections available through the Indiana Biobank. Applicants can request samples collected from up to 20 individuals. The types of samples that may be collected include: blood (for RNA, plasma, serum or DNA), saliva, or urine. Applicants must provide an approved specimen collection protocol or must work with IB staff to develop a collection protocol that satisfies criteria established by the IB.

The IB currently contains samples from over 15,000 individuals, all of which are linked (with informed consent) thorough the medical record number to the Indiana Network for Patient Care. The IB has the capacity to collect specific specimens (e.g., plasma, serum, urine) to meet an investigator's research needs. With informed consent, IB specimens can be used for broad, unspecified future research.

Faculty at IU, Purdue and Notre Dame are eligible for this opportunity. Three applications will be funded for up to $5,000 each. Applications are due 5 p.m. Monday, Sept. 15.

To apply, visit the Indiana CTSI grants portal and enter your institutional username and password. Application instructions are located under "Pilot Funding for Custom Biospecimen Collection Using INDIANA BIOBANK (IB) Infrastructure - 2014.09."

Questions on the appropriate scope of proposals to Tatiana Foroud, M.D., at tforoud@iu.edu, or Brooke Patz at bpatz@iu.edu. Questions on grant submissions or budgeting to Anne Nguyen at 317-278-2874 or info@indianactsi.org. All other questions to icts@iu.edu or 317-278-2874.

**Strategic Pharma-Academic Research Consortium -- Due Sept. 23**

Researchers working in the area of autoimmune disease are sought for a new opportunity from the Strategic Pharma-Academic Research Consortium for Translational Medicine.

Established by the Indiana Clinical and Translational Sciences Institute, SPARC consists of partners from both academia and the pharmaceutical industry. Inaugural members are Indiana CTSI, The Ohio State University, Northwestern University, Washington University in St. Louis, Eli Lilly and Co. and Takeda Pharmaceuticals, Inc.

This award will provide up to $400,000 over two years. Applicants must have at least two project-specific personnel from different participating academic member institutions.

Complete guidelines and application forms are available through the Indiana CTSI grants portal. Applicants may log in using their institutional username and password. (Applicant at eligible institutions who are not listed on the drop down menu may log in by creating an account with the Indiana CTSI using the instructions to the right of the login area.) Materials are accessible under "Strategic Pharma-Academic Research Consortium Awards Program - 2014.08 (SPARC)."

The deadline to submit a letter of intent is Tuesday, July 29. Complete proposals for selected applicants are due Tuesday, Sept. 23. The funding start date for successful applicants will be no earlier than Wednesday, Oct. 1, 2014.

For more information, contact Anne Nguyen at 317-278-2874 or annguye@iu.edu.

**Fall 2014 Core Pilot Grants -- Due Sept. 29**

The Indiana CTSI Fall 2014 Core Pilot Grants seeks applications from researchers who wish to use technologies and expertise afforded by the Indiana CTSI core facilities at Indiana University, Purdue University and the University of Notre Dame.

The program aims to promote the use of technologies and expertise afforded by the CTSI Core Facilities. Examples of eligible projects include obtaining critical preliminary data for a grant application (either new award or competing renewal), obtaining a critical reagent or resource for new studies (e.g.: a new transgenic or knockout mouse model) or pilot experiments to test a new idea or establish a new line of research.

Successful proposals will demonstrate outstanding scientific merit that can be linked to generating extramural funding or novel intellectual property (IP). Success of the program will be viewed, in part, by the fostering of new funded grants or providing significant contributions to grant renewals. Proposals will be judged with equal measure on scientific merit and the likelihood of generating new intellectual property or extramural grant support.

Applications to this program are expected to have a maximum requested amount of $10,000; projects typically are one to two years in duration.
Funding is for utilization of designated Indiana CTSI core facilities only. The Indiana CTSI website includes descriptions of all available cores at IU, Purdue and Notre Dame. The Indiana CTSI seal denotes cores eligible under this program.

The application deadline is 4 p.m. Monday, Sept. 29.

Faculty from IU, Purdue, and Notre Dame are eligible to apply. For university- and campus-specific eligibility guidelines, or to apply, visit the Indiana CTSI grants portal and enter your institutional username and password. Applications instructions are located under "Pilot Funding for Research Use of Core Facilities - 2014.09."

For more information, email Anne Nguyen at 317-278-2874 or info@indianactsi.org.

**Spinal Cord and Brain Injury Research Fund — Open December 2014**

In 2007, the State of Indiana established the Indiana Spinal Cord and Brain Injury Research Fund (login required), which releases a request for proposals (RFP) each December.

The overall objective of this RFP is to foster and encourage research for the prevention, treatment and cure of spinal cord and brain injuries, including acute management, medical complications, rehabilitative techniques, and neuronal recovery.

The Indiana CTSI supports this initiative for PIs and/or collaborators from its affiliated institutions (IU, Purdue and Notre Dame) by providing assistance with successful proposal development via its Project Development Team program. The PDTs are teams comprised of members with a wide variety of expertise who can provide feedback on study design, protocol development, biostatistical design and grantsmanship, as well as facilitating collaborations and networking.

For more information on how the PDTs can assist with your ISCBIRF proposal prior to submission, please contact Julie Driscol at judrisco@iu.edu.

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On the Horizon — September 2014

Breast Cancer Prevention Symposium - Oct. 16-18

The Fourth International Breast Cancer Prevention Symposium, "Genes, the Environment and Breast Cancer Risk," will be Oct. 16 to 18 at Purdue University.

The goal of this symposium is to bring together global public health actors, advocates and researchers on breast cancer prevention to discuss the impact of environmental factors such as foods, stress and exercise on the genome. The symposium will cross disciplines to study different levels of gene-environment interactions; the epigenetic mechanisms of gene expression control; health policy and practices; and socioeconomic and cultural contexts in which these environmental factors come into play.

This event is presented by the Purdue University International Breast Cancer and Nutrition (IBCN) Group, co-directed by Connie M. Weaver, Ph.D., Distinguished Professor and chair of food and nutrition at Purdue and a deputy director of the Indiana CTSI.

Abstract submissions opened in mid-March. For more information, visit www.purdue.edu/breastcancer or www.facebook.com/PurdueIBCN.

Fourth Annual Indiana CTSI Disease and Therapeutic Response Modeling Symposium

The Indiana Clinical and Translational Sciences Institute Fourth Annual Disease and Therapeutic Response Modeling Symposium will be Nov. 12 and 13 at the IUPUI Campus Center.

Speakers include Jamie Dananberg, Ph.D., executive vice president at Takeda Pharmaceuticals; Nick Holford of the University of Auckland, New Zealand; John Urquhart, M.D., of the AARDEX Group, Switzerland; Mark Sale, M.D., of Next Level Solutions, LLC; Sean Mooney, Ph.D., of the Buck Institute for Research on Aging; Stephen Hall, Ph.D., of Eli Lilly and Co.; and Benjamin Ribba, Ph.D., of the French Institute for Research in Computer Science and Automation (INRIA), France.

Registration is required by Tuesday, Nov. 4. Academic, government and Eli Lilly and Co. employees may register for free at http://operations.medicine.iu.edu/index.php?cID=163. Other guests must pay a fee of $250 to register at http://go.iu.edu/e0J.

A limited number of hotel rooms have been arranged at a discounted rate at the Omni Severin Hotel in Indianapolis for $159 per night.

For questions or more information, contact Ayman Akil at aakil@iupui.edu, Abhishek Gulati at agulati@iupui.edu or Cheryl Weatherholt at weather@iu.edu.

Submit your events!

Other events will be listed as they are scheduled on the Indiana CTSI's newly upgraded events calendar. To submit an event, email date, time, location, description and contact information to info@indianactsi.org.

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