Children's Research Institute
A member of Children's Hospital and Health System.

MEDICAL COLLEGE OF WISCONSIN

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Medical College of Wisconsin & Children's Research Institute
Establish New National Pediatric Kidney Disease Research Center
With Translational Research Focus to Expedite Bench to Bedside Cures

The National Institutes of Health (NIH) has awarded $4.6 million over the next five years to the Medical College of Wisconsin to establish a Research Center of Excellence in Pediatric Nephrology at Children's Research Institute. As one of only two such Centers in the country, it will build on current groundbreaking research programs at the College and Children's Research Institute, expediting new and exciting treatments for thousands of children with genetic, acquired or progressive kidney disease.

"This new Center of Excellence designation will enhance our ability to implement our translational research program, where research and clinical care are fully integrated," said Ellis D. Avner, M.D., principal investigator of the program and director of Children's Research Institute. Dr. Avner is a professor of pediatrics, and associate dean for research at the Medical College.

"In coordination with the mission of Children's Research Institute, this designation and funding will lead to significant improvements in the health care of children, providing us with the resources to understand and effectively treat progressive kidney diseases in children. It also will permit us to attract and mentor a new group of physicians and scientists who will study childhood kidney diseases."

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Dr. Avner also sees patients at the Polycystic Kidney Disease Clinic at Children's Hospital of Wisconsin.

The basic molecular and cellular mechanisms of the majority of pediatric disorders are still poorly understood. Since renal disease also is a progressive childhood disease, it is often a harbinger of cardiovascular disease in adults. The grant will focus on three major areas: polycystic kidney disease, which is a genetic disorder characterized by the growth of numerous fluid filled cysts in the kidneys; hypertension and diabetes-induced disease; and occurring injuries when the kidney lacks oxygen.

According to the new Center's associate director, Richard Roman, Ph.D., professor of physiology and pediatrics, and director of the Kidney Disease Center at the Medical College, "Our research will provide physicians with new ways to treat patients and assess effectiveness, while clinical observations will help us learn more about kidney disease and provide data that could spark new investigations. This fits in with NIH's focus on a bench-to-bedside approach to translational research as a way of expediting clinical cures in all disciplines."

Researchers at the Center are working to delineate the genetic and cellular mechanisms of childhood kidney disease and its progression and develop unique therapies that will limit or even cure genetic or acquired kidney disorders. Basic research at the laboratory bench at the molecular and cellular level can unveil discoveries that can lead to clinical improvement at the patient's bedside. This work is expected to translate ultimately to new diagnostic tests and new clinical trials for specific therapies in children with genetic and acquired kidney diseases which lead to progressive loss of kidney function.

Michael Dunn, M.D., dean and executive vice president, whose research focus is kidney disease, says, "The Center will draw on the rich interdisciplinary environment at the Medical College, particularly thorough collaboration with its Human Molecular Genetics Center and the Kidney Disease Research Center. The Medical College is embracing this type of 'translational

research,' or scientific discoveries that are turned into practical patient therapies, as a vital component of improving human health.

"Also, the grant will enable us to recruit additional physician researchers who can pursue a career in pediatric nephrology research."

One research project headed by Drs. Avner and William E. Sweeny Jr., M.S., assistant professor of pediatrics, will explore the growth of cysts in polycystic disease, an inherited disease that is the third-leading cause of chronic kidney failure. The other major project headed by Dr. Roman and Howard J. Jacob, Ph.D., director of the Human and Molecular Genetics Center, focuses on identifying the genetic basis of susceptibility to develop glomerular disease, a condition associated with hypertension and diabetes, which accounts for 80 percent of the patients with chronic kidney failure on dialysis. These two conditions account for medical costs of more than $19 billion per year in the U.S. alone.

This information could lead to diagnostic tests to identify individuals more susceptible to the development of hypertension and diabetic induced kidney disease and perhaps new therapies for the prevention of end stage kidney disease in hypertensive and diabetic patients that account for almost one-third of the adult population.

About Children's Research Institute

Children's Research Institute advances state-of-the-art pediatric health care practice through dedicated laboratory and clinical research. The institute focuses solely on initiatives that promise to provide discoveries leading to new answers and improved solutions to children's unmet health care needs. Children's Research Institute is affiliated with Children's Hospital of Wisconsin and is a member of Children's Hospital and Health System. The health system is able to fulfill its mission thanks in part to philanthropic gifts and support from members of the community. For more information visit the Web site at www.chw.org/research.

Pediatric Kidney/Add Three

About Medical College of Wisconsin

Founded in 1893, the Medical College of Wisconsin is a national, private, academic institution dedicated to leadership and excellence in its fourfold mission: Education, Discovery, Patient Care and Community Engagement. Its core competency is medical knowledge, which underpins every aspect of its mission. As a major national research center, Medical College faculty receives more than $125 million annually in external support for research and training grants. It is home to ten national research centers and is recognized as a world leader in research in such areas including heart disease, genetics, obesity, medical imaging and bone marrow transplantation. The Medical College is at the forefront of discovering the genetic influences of complex diseases such as hypertension, renal failure and cancer. The Medical College's almost 1,000 faculty physicians provide care to more than 290,000 patients annually.

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