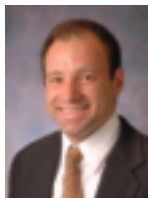


## Center for Cardiovascular Medicine



### Principal Investigators

John A. Bauer, PhD, Center Director

Peter J. Giannone, MD

Baogen Y. Su, PhD

Loren E. Wold, PhD

*Much of the clinical care for pediatric cardiovascular and pulmonary medicine has been based on evidence derived in adult therapeutic trials. This is a central problem since infants, children and adults differ greatly in their normal physiology, cardiopulmonary structure and function, drug responses and disease manifestations.*

*To improve therapies and outcomes for pediatric cardiovascular disease, the Center for Cardiovascular Medicine is dedicated to conducting innovative, mechanism-based research and to fostering preventative strategies to promote cardiovascular health in adulthood.*

### Clinical, Teaching And Research Interests

**John A. Bauer, PhD**, is Director of the Center for Cardiovascular Medicine at The Research Institute at Nationwide Children's Hospital, a member of The Heart Center at Nationwide Children's Hospital and an Associate Professor of Pediatrics at The Ohio State University College of Medicine. Dr. Bauer's research program is in the areas of basic and translational research in cardiovascular disease and therapeutics. He is an author of more than 70 peer-reviewed scientific manuscripts and book chapters, has more than 150 presentations and published abstracts at national and international meetings and serves as a reviewer of research proposals for several national agencies including the American Heart Association and National Institutes of Health. Current projects in his research group include the identification of inflammatory and oxidant mechanisms in cardiac failure and the development of novel strategies to control blood vessel growth and maturation. His current leadership role involves the development and coordination of collaborative projects for translational 'bench-to-bedside' research involving The Heart Center and The Research Institute.

**Peter J. Giannone, MD**, is a member of the Section of Neonatology at Nationwide Children's Hospital and an Assistant Professor of Clinical Pediatrics at The Ohio State University College of Medicine. His research interests are in the areas of inflammation and how it relates to diseases and consequences associated with preterm birth. These interests include necrotizing enterocolitis (NEC), the effects of prenatal inflammation on downstream cardiac and vascular development and function. Dr. Giannone's NEC research focuses on the role Poly (ADP-ribose) Polymerase-1 (PARP) plays in the cell death pathways triggered in the intestinal epithelium during NEC. He also aims to determine the developmental regulation and activation of the innate immune system of the small intestine upstream from PARP activation, specifically the Toll-like receptors (TRLs). Dr. Giannone currently is working with human intestinal specimens from infants who have had surgery for NEC, human intestinal cell lines, as well as a rat NEC model to help examine the role PARP and the innate immune system plays in NEC. Dr. Giannone's laboratory is also working closely with Dr. John A. Bauer to elicit the effects prenatal inflammation has on postnatal cardiac development and function and Dr. Giannone continues to publish neonatal outcome's research in the area of neonatal cardiovascular adaptation.

**Baogen Y. Su, PhD**, has been a principal investigator in the Center for Cardiovascular Medicine at The Research Institute at Nationwide Children's Hospital and a Research Assistant Professor of Pediatrics at The Ohio State University College of Medicine. Dr. Su's primary research interest is to study transcriptional and post-transcriptional regulation of endothelial nitric oxide synthase (eNOS) gene. eNOS plays an important role in regulating vascular tone and maintaining vascular integrity. Although constitutively expressed, eNOS expression is also subjected to regulation. His lab has recently cloned the swine eNOS promoter. Experiments have focused on identifying nuclear factors and their binding sequences that are involved in the regulation of the eNOS gene by mechanical force and proinflammatory cytokines. Dr. Su is also interested in studying vascular smooth muscle (VSM) phenotypes and their role in vascular wall remodeling occurring in many vascular diseases. His lab has demonstrated that differentiation of smooth muscle cells is regulated by p38 MAP kinase pathway and involves reactive oxygen species. Furthermore, VSM of different phenotypes have distinct responses toward mechanical deformation

and proinflammatory cytokines. Studies are under way to investigate signal transduction pathways, as well as to identify genes involved in regulating such phenomenon.

**Loren E. Wold, PhD**, is a principal investigator in the Center for Cardiovascular Medicine at The Research Institute at Nationwide Children's Hospital and a Research Assistant Professor of Pediatrics at The Ohio State University College of Medicine. Dr. Wold's research is based on how cardiovascular function is affected by different disease states, including diabetes, obesity and hypertension. His laboratory uses isolated heart and isolated myocyte preparations to study the organ at the tissue and cell level, with endpoints including real-time function, intracellular calcium concentration and intracellular reactive oxygen species (ROS) signaling. Dr. Wold's research focuses primarily on diabetes-related cardiovascular dysfunction and the role of calcium and ROS, hypertensive cardiomyopathy and the role of ROS, cardiac-resident stem cell biology, developmental aspects of cardiovascular disease and prenatal imprinting of cardiovascular disease.

### Research Funding (Over \$50,000)

**John A. Bauer, PhD**

*Coronary Rarefaction in Type 1 Diabetes*, American Diabetes Association, \$100,000

**Peter J. Giannone, MD**

*Fetal Imprinting of Cardiac Inflammatory Responses*, American Heart Association of Ohio, \$60,500

### Publications

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