

Winter 2018 Congenital Heart Defect Research Award recipients:

- **Craig Broberg of Oregon Health & Science University, Portland** – Using existing clinical records from multiple hospitals across the country on patients born with a systemic right ventricle due to transposition of the great arteries who are now adults, this study will study factors that determine which patients do well and which have severe heart failure, such as need for heart transplant. The study will be the largest collection of data on such patients thus far. It will provide a greater understanding of what leads to heart deterioration, and therefore what treatment options may have the most potential benefit.
- **Srinivas Manideep Chavali of University of California, San Francisco** – While poor neurodevelopmental outcomes in the survivors of congenital heart disease (CHD) remain a serious concern, the underlying pathology is not yet clearly understood. This research will focus on the role of blood flow in building myelin, which protects and coats brain cells, allowing for healthy brain development. A better understanding of the relationship between CHDs and brain health will aid in developing treatment.
- **Ibrahim Domian of Massachusetts General Hospital** – Understanding how the heart forms is important to treat congenital heart defects and this study will look at a specific gene which controls how proteins are broken down to form the heart. This will help isolate specific targets that need to be controlled to produce a healthy heart.
- **Nicole Fleming of University of North Carolina, Chapel Hill** – Using zebrafish, which are fast-growing and easy to manipulate, and whose heart cells are easy to see, this study aims to understand defective ventricular growth in embryos and better understand pharmacological treatments that may improve heart function.
- **Chulan Kwon of Johns Hopkins University School of Medicine** – Examining the biology of cardiac progenitor cells (CPCs), which act as building blocks for a developing heart will provide fundamental insights into how improper regulation of factors affecting CPC multiplication can lead to congenital heart disease, which may provide a new direction for preventive or therapeutic approaches. In addition, the knowledge gained from this work might be directly applied to control CPCs in a dish, which will accelerate CPC-mediated heart regenerative research to repair heart disease.
- **Yuntao Song of Cincinnati Children's Hospital Medical Center** – Many congenital heart defects relate to a issue in the cardiac outflow tract. This study will examine the roles specific genes play in developing the cardiac outflow tract – which ones lead to a healthy development and which lead to defects.
- **Kathryn Vannatta of Nationwide Children's Hospital** – As more children survive congenital heart defects, society needs a better understanding of how to support them as they grow. This study will identify details about social difficulties experienced by children with severe forms of CHD, including levels of social withdrawal, disruptive

behavior, and whether survivors are victimized by peers. It will examine whether CHD survivors have more of those interactions or have fewer friends than healthy classmates. The study will test whether these difficulties are explained by cognitive and social-affective abilities or less engagement in physical activity and extracurricular activities, as well as the benefits of different parenting practices and types of school environments in promoting social competence.