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## Growth-Accommodating Transcatheter Pulmonary Valve System

Tech ID: 32504 / UC Case 2020-338-0

### BRIEF DESCRIPTION

UCI researchers have developed a novel transcatheter pulmonary valve (TPV) that addresses the current lack of options for children with progressive pulmonary valve regurgitation (PVR), which may lead to right ventricular (RV) dysfunction and failure. This TPV allows for implantation into patients of a younger age, preventing the progression of PVR and the RV issues that follow, and can also expand to accommodate the need for a larger pulmonary valve as the patient grows.

### SUGGESTED USES

- Treatment for children with progressive PVR.
- Prevention of RV dilation and failure caused by progressive PVR

### FEATURES/BENEFITS

Adaptability: smaller initial diameter allows for implantation at a younger age, but can expand to accommodate growth in heart valve size as the patient ages.

### TECHNOLOGY DESCRIPTION

Right ventricular outflow tract (RVOT) obstruction is frequent in patients with congenital heart disease. Surgery to relieve RVOT obstruction in infants involves the use of a transannular patch, which results in pulmonary valve regurgitation (PVR) and can lead to progressive RV dilation and failure. The current approach involves the implantation of transcatheter pulmonary valves (TPV) to stop the progression of PVR and prevent RV failure; however, progressive PVR must be addressed at a younger age in order to avoid RV dysfunction. The researchers at the University of California, Irvine, invented a progressive TPV that expands from 14 mm to 22 mm in diameter, making it suitable for implantation at a younger age and mitigates the need for a larger pulmonary valve as the patient grows.

### STATE OF DEVELOPMENT

Device design has been completed and inventors aim to secure funding for preclinical animal tests and further development.

### PATENT STATUS

Patent Pending

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### INVENTORS

» Kheradvar, Arash

### OTHER INFORMATION

### CATEGORIZED AS

- » **Medical**
- » Devices
- » Disease: Cardiovascular and Circulatory System
- » Other

### RELATED CASES

2020-338-0

## ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ▶ Percutaneous Heart Valve Delivery System Enabling Implanted Prosthetic Valve Fracture
- ▶ A distensible wire mesh for a cardiac sleeve
- ▶ Method to Improve the Accuracy of an Independently Acquired Flow Velocity Field Within a Chamber, Such as a Heart Chamber
- ▶ Percutaneous Heart Valve Delivery System
- ▶ System for Transcatheter Grabbing and Securing the Native Mitral Valve's Leaflet to a Prosthesis
- ▶ Real-time 3D Image Processing Platform for Visualizing Blood Flow Dynamics
- ▶ Method for Synchronizing a Pulsatile Cardiac Assist Device with the Heart
- ▶ Automated Histological Image Processing tool for Identifying and Quantifying Tissue Calcification
- ▶ Fully Automated Multi-Organ Segmentation From Medical Imaging
- ▶ Simple, User-friendly Irrigator Device for Cleaning the Upper Aerodigestive Tract and Neighboring Areas
- ▶ Automated 3D Reconstruction of the Cardiac Chambers From MRI or Ultrasound
- ▶ Minimally Invasive Percutaneous Delivery System for a Whole-Heart Assist Device

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