



Contact: Greg Fahy  
email: [gfahy@21cm.com](mailto:gfahy@21cm.com)  
Phone: 909-466-8633  
[www.21cm.com](http://www.21cm.com)

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## **21<sup>st</sup> Century Medicine Receives NIH Grant to Pursue Heart Preservation**

RANCHO CUCAMONGA, CALIF--21st Century Medicine (21CM) has received a Phase 2 grant of \$900,000 from the Small Business Innovation Research program of the National Institutes of Health. The grant will enable the research and development company to pursue solutions and processes for preserving hearts that are expected to dramatically improve the transplantation of human hearts.

This grant follows the successful completion of a previous Phase 1 grant of \$150,000 in which a device designed and built by 21CM was successfully used at the University of Rochester in New York State to preserve dog hearts for 24 hours by simple storage on ice. When transplanted, the hearts performed similarly to hearts preserved for only four hours using a currently available heart cold storage solution.

“The current time a human heart can be kept alive outside the body before it must be transplanted is less than six hours,” said J. Dean Barry, 21CM’s CEO. “This makes it extremely difficult to perform human heart transplants and puts many hearts out of reach of patients who would be perfect recipients but simply live too far away from the donor to receive the heart in time.”

21CM’s technology, developed with the cooperation of the University of Rochester should extend that time limit to 24 hours or even longer. This will allow

transcontinental, and perhaps even international, transportation of human hearts to those who need them.

21CM and its research partners at the University of Rochester plan to pursue results obtained at the University of Rochester showing that dog hearts can be preserved for at least 49 hours with no reduction in functionality or viability. The new NIH grant will be used primarily to show that the results obtained with the canine model in New York can be applied successfully to human hearts. The company plans to obtain human hearts from around the country and show they retain the ability to perform to a clinically appropriate standard after a total of 24 hours of simple cold storage using a new preservation solution known as UR solution (URS). In addition, the company will refine its device design to enable it to attempt even longer preservation periods of two days or more in future research.

Human hearts will be evaluated using a new machine that will circulate human blood through the hearts and measure the function of the hearts. “We will show that hearts preserved with our methods are functional before attempting any transplants into human recipients,” said Dr. Gregory Fahy, the Chief Scientific Officer of 21CM.

This approach by itself should provide a new model for the testing of organ preservation methods. “Right now, such methods are tested by simply transplanting the organs into patients and hoping for the best,” said Fahy. “We think there is a better way.” Dr. Fahy is the inventor of a previous device for testing the viability of kidneys that allowed the kidneys to be successfully transplanted after they had been tested and shown to be functional.

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**About 21CM, Inc.:** 21<sup>st</sup> Century Medicine ([www.21cm.com](http://www.21cm.com)) is a biomedical R&D company focused on developing preservation protocols, solutions & devices essential to

*storage & transportation of living systems both in a liquid state and at cryogenic temperatures. It provides hypothermic & cryothermic preservation products and services as well as contract research services to support transplantation medicine, drug discovery / development, and assisted reproduction, among others.*