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Serial entrepreneur takes software success to life sciences startup

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By [Dyke Hendrickson](#)

A blue-chip team of scientists and entrepreneurs recently launched a company to target one of the red-alert challenges of modern medicine: life-saving dialysis.

The company is called Renalworks Medical Corp., and it is pulling on some of the Hub's most accomplished institutions to improve this cumbersome procedure.

The chief executive officer and co-founder is **serial** entrepreneur Greg Erman, who switched industries after creating two Hub software companies. Other founders are Jay Vacanti, chief of pediatric surgery at Massachusetts General Hospital and Jeff Borenstein, director of biomedical engineering at the Charles Stark Draper Laboratory.

Intellectual property holders include MGH, Draper Labs, MIT, and the Center for Integration of Medicine and Innovative Technology.

The company recently closed its first funding round from Navigator Technology Ventures, and has a prototype that is engaged in proof of principle testing.

"Our mission is to transform kidney dialysis into a more effective treatment," said Erman, the CEO, who has organized the company. "Providing dialysis is a major need but the procedure now is like the old days when you had a mainframe that people would share. We want to develop a product that people can wear."

Erman previously founded MarketSoft Corp., a CRM enterprise software company, in 1998, which he ran until 2003, raising \$70 million in venture capital. Prior to that, he founded Waypoint Software Corp., which developed e-commerce applications for business-to-business product catalogs on the Internet. As CEO, he sold Waypoint to Open Market Inc., a publicly traded Internet

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commerce company, a move that earned his institutional investors an annualized 1,278 percent return.

By 2004, he was looking for a new company and began examining the medical field, in part because that industry is known as a slow adopter of technology. He said he examined close to 50 opportunities, before becoming intrigued by technology developed by Vacanti.

Vacanti, a researcher as well as a surgeon, has "invented" a tissue-engineering platform designed to grow human organs. His vision is to eliminate the organ-shortage problem but his work, in the short term, is being applied to renal assistance, or dialysis, which is the filtration of blood in order to clear toxins. Dialysis is done with refrigerator-sized machines in clinics that pull blood from the patient, filter it and then return it to the body. Most patients do this about four hours a day, three days a week.

Officials of Renalworks, in order to minimize the size of a unit, say they are attempting to provide "dialysis on a microchip."

They plan to use the benefits of semiconductor technology using microelectromechanical systems, or MEMS, including improved fluid flow and miniaturization. The company hopes to enable patients to wear a unit that administers continuous dialysis.

Erman said, "The final step would be to add the tissue-engineering technology that Jay has been working on back into the device and make it implantable, thereby realizing the vision that Jay began with: To grow an organ."

The goal is ambitious but several life-sciences professionals who are familiar with the project appear optimistic.

"The design and development of a wearable continuous dialysis system will dramatically help dialysis patients," said John Parrish, founder and a director of CIMIT, a Cambridge-based consortium of hospitals and universities. Parrish is a partner in the development.

"Up to now, we have developed the basic design component and filtration of impurities comparable to conventional dialysis machines," Parrish said.

Robert Creeden, managing director of the Center for Innovative Ventures at Partners HealthCare System Inc., said Renalworks has assembled highly capable people to attack the challenge.

"They have excellent scientists and a top management team," said Creeden, whose company has been working with Renalworks. "It is a promising idea that is targeting a large economic opportunity."

Company officials say there are nearly 400,000 people in the United States who have end-stage renal disease, which is defined as when a person's kidneys no longer function.

Industry analysts say the worldwide dialysis field will be worth about \$1 trillion by 2010.

"If we can make this technology work, we'll have a home run," said Erman.

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