



Realheart and KTH Receive SEK 4 Million Grant from Vinnova

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Realheart and KTH have received a grant of SEK 4 million from Vinnova to jointly develop a Swedish hybrid simulator that will enable advanced testing of algorithms that control Realheart's artificial heart, but also will contribute to increasing Sweden's overall competitiveness in cardiovascular device innovation.

A hybrid simulator consists of digital model of the human heart, lungs, and blood vessels, to which an artificial heart, for example, can be physically connected to study how the device interacts with the body. Similar methodology was used in the development of the clinical version of the Realheart® TAH and will in the next step be used to refine its physiological control algorithm.

Currently, hybrid simulators are available in Australia, Belgium, Germany, Switzerland, and the USA. This gives local companies an advantage in the ability to test their innovations at a low cost and iterative way. Importantly, testing in a hybrid simulator reduces the need for animal testing.

"This is a methodology that is being used more and more and we want Sweden to be at the forefront of this development. We also want a strong breeding ground for new products in our future product portfolio, such as our smaller artificial heart, MiniHeart, which is still in development. Having access to a hybrid simulator here in Stockholm will then be crucial" said Ina Laura Perkins, CEO of Realheart.

The work will be led by Dr Ina Laura Perkins and Dr Seraina Dual, Assistant Professor at the Department of Biomedical Engineering and Health Systems at KTH, who has many years of experience in testing heart pumps, sensor systems, and control algorithms.

"I am excited to co-lead this initiative to build a hub for cardiovascular device innovations here in Stockholm, Sweden. The hybrid simulator will help us get a step closer to patient-specific testing of novel innovative device concepts – such as the Realheart," said Dr Seraina Dual.

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Scandinavian Real Heart AB develops a total artificial heart (TAH) for implantation in patients with life-threatening heart failure. Realheart® TAH has a unique, patented design that resembles that of the natural human heart. The artificial heart consists of a four-chamber system (two atria and two ventricles) designed to generate a physiological blood flow pattern that mimics the body's natural circulation. A

unique concept in the medical technology world.