



CorWave presents promising early results for innovative wave membrane blood pump

- **Unique device combines physiological blood pumping and low-invasive surgery**
- **Aims to improve the quality of life and clinical outcomes for patients with advanced heart failure**

Paris, France, December 7, 2015 – CorWave, a startup focused on the development of innovative blood pumps based on wave membrane technology, today announces the promising early results for its LVAD (Left Ventricle Assist Device). The results were presented at the 10th EUMS (European Mechanical Circulatory Support) Summit in Paris. The CorWave pump's distinctive features include pulsatility and a blood speed close to the physiological pace, while requiring low-invasive surgery. These benefits should reduce adverse effects, allowing for the treatment of more patients.

The results were presented in a poster session at EUMS, held from December 2-5, 2015 and during the VAD update session held on Friday Dec 4. The data presented showed that the pump will be able to fully support a patient in pulsatile mode based on the high hydraulic power generated by the pump and its ability to instantly change flow rate. The CorWave physiologic pulsate function has been proven to be successful in *in vitro* and *in vivo* environments.

Mechanical pumps can significantly extend the life of late-stage heart failure patients. However, patients implanted with current devices experience significant adverse effects such as strokes, hemorrhages, clots or gastrointestinal bleeding, resulting in re-admission to hospital and reduced quality of life. The CorWave technology aims to reduce these adverse events, significantly improving the patient's quality of life and cutting the overall cost of treatment.

CorWave is the only company working on an alternative LVAD to currently marketed pumps. Using a completely novel approach, it has developed a system based on a wave membrane. The undulating polymer membrane gently pushes the blood on both sides of a membrane, from the outer edge to the inner orifice, where it exits the pump. The high frequency action of the CorWave pump produces a pulsating flow that mimics the action of the heart. Despite its small footprint, the CorWave device can pump 4 to 10L / min and therefore totally replace heart function. The flow speed induced by the pump (1.5m/sec) is similar to the heart flow speed and much lower than the ones observed in rotary pumps (4-10 m/sec).

"We believe the gentle movement of the membrane will allow for less alteration of the blood, leading to fewer complications" said Carl Botterbusch, CTO of CorWave. "We are already working on the next-generation pump based on a tubular shaped membrane which will combine minimally invasive surgery and physiologic pumping."

"In just a few years, the CorWave R&D team has excelled at building a paradigm changing LVAD. The next step is to further optimize the device through extensive *in vitro* and *in vivo* tests prior to the first-in-man implant." said Louis de Lillers, CEO of CorWave.



About heart failure

Heart disease is a growing challenge, with 550,000 new cases of heart failure diagnosed each year. 10% of patients progress to end stage heart disease, when the heart is no longer able to pump enough blood by itself. These patients have only a 26% chance of surviving one year if treated with optimal drug therapy. A small portion of this group will receive a heart transplant, but a lack of donors means that many patients will die while waiting. A device that assists the heart can help, either in allowing them to receive a transplant or in providing additional years of active life. LVADs are devices that meet this urgent clinical need. In 2014, the LVAD market generated more than \$700m (€641m) in sales with over 7,000 patients receiving an LVAD. 60,000 to 200,000 people could benefit from the implant as the clinical outcomes improve. Source: Heartwave, Thoratec/St Jude.

About EUMS

Organized alternately by Pitié Salpêtrière (Pr Leprince), Bad Oeynhausen (Pr Gummert), and Berlin (Pr Falke), the European Circulatory Support Summit (EUMS) is a leading European scientific event focusing on Left Ventricular Assist Devices (LVAD) and Total Artificial Hearts (TAH) gathering key opinion leaders from across the world. Now in its tenth year, EUMS promotes a platform of integrated care; allowing discussion, experience sharing and updates on a wide range of topics for cardiac surgeons, heart failure and interventional cardiologists, anesthesiologists, intensivists, rehabilitation MDs, psychiatrists and family practice MDs, as well as VAD coordinators, nurses and perfusionists.

<http://www.hdz-nrw.de/eums/>

About CorWave SA

CorWave is an early stage company focused on the development of innovative blood pumps based on wave membrane technology. CorWave is bringing a unique disruptive technology to fast growing markets with multi-billion dollar potential.

Working with academic research laboratories across Europe and the US, CorWave secured exclusive rights to five patent families in wave membrane technology.

The company was founded in 2011 by Paris based incubator MD Start. CorWave is backed by leading investors including Sofinnova, Bpifrance, Seventure, and Medtronic.

Located in downtown Paris at the Pepiniere Paris Sante Cochin, with 12 staff, the company raised €3.3m (\$3.6m) in 2013.

<http://www.corwave.com/>

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