Endovascular Patch Case Study

Overview

Aortyx is a pioneering company founded by researchers from IQS School of Engineering and the Hospital Clinic de Barcelona. They aim to provide a new generation of endovascular devices to treat vascular diseases.

The Electrospinning Company provides support to Aortyx on the design, development, and manufacture of their endovascular device.

Aortic Dissection

Aortic Dissection is a life-threatening condition in which the inner layer of the aorta tears, allowing blood to enter this tear. This causes the intima and media layers of the aorta to separate (dissect), resulting in a false lumen. Most patients suffering from aortic dissection need urgent treatment; without treatment their mortality rate drastically increases, even before reaching the hospital. Current treatments include highly invasive surgery like open surgical repair, endovascular treatment which has limited lifespan with many other complications, or medical therapies which are complementary to the other treatments.

Aortyx's adhesive endovascular patch addresses the challenges of these current treatments. The patch works by promoting the repair and recovery through tissue regeneration, it is bioresorbable, viscoelastic and can be used as a drug delivery platform.

We have worked closely with the team at Aortyx for their endovascular patch device which included optimising the production process. Aortyx is in the process of completing their animal trials and have closed over €2.4M funding round to start their First-In-Human (FIH) trials in 2022.

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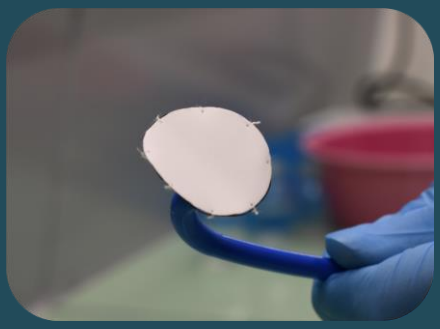
Challenges

The Aortyx endovascular patch is based on a unique electrospun architecture. The Aortyx team had created this product concept as part of their research and approached us with the request to translate this research concept into the industrial environment.



Aortyx's Endovascular Patch

Solutions

We worked with Aortyx to develop their concept, starting out with a feasibility study, followed by a series of development projects where we significantly shortened the production time.

Result

The close collaboration with Aortyx resulted in a series of prototypes that were used by Aortyx to do pivotal *in vitro* and *in vivo* studies. Parallel to this work, The Electrospinning Company was able to provide Aortyx with a significantly shorter production process. Aortyx is currently in the process of finalising their first product in their pre-clinical experiments.

> *"The interaction with The Electrospinning Company is unique. The entire team is extremely professional, but also very close and friendly. Working with The Electrospinning Company feels like working with your own R&D Team."*
>
> *- Aortyx*