

**Project idea/ Field of expertise:**

We have developed a **graft (adhesive patch)** made of a **biodegradable material** that mimics the artery's mechanical properties and promotes its **regeneration** to treat aortic dissection

**Organisation Name:**

**Institut Quimic de Sarrià, Barcelona**  
**(University Ramon Llull, Spain)**

**Adressed challenge(s)/ PPP(s):**

MEDICAL TECHNOLOGY INNOVATIONS

**Adressed topic(s) in Work Programme:**

NMBP-21-2020: Biological scaffolds for tissue regeneration and repair (RIA)



# Institut Químic de Sarrià, Barcelona (University Ramon Llull, Spain) & Aortyx, Spain

## VASCULAR ENGINEERING AND APPLIED BIOMEDICINE GROUP (GEVAB)



Dra. Mercedes Balcells Camps

Bioengineering



Dr. Jordi Martorell López

Chemical Engineering and Materials Science



Dr. José Javier Molins Vara

Chemical Engineering and Materials Science

Who we are  
Founders



**Noemi Balà, MSc**  
CTO  
• Materials Sciences  
Specialist at IQS



**Vicenç Riambau, MD, PhD**  
CMO  
• Chief of Department, Vascular  
Surgery at Hospital Clinic  
• Worldwide KOL in Vascular  
Surgery



**Salvador Borrós, PhD**  
CSO  
• Chief of Bioengineering and  
Materials Sciences at IQS



Aortyx: Gestión de la salud - Casos de éxito 2017



IPSE Aortyx Casos de éxito



Aortyx: Gestión de la salud - Casos de éxito 2017

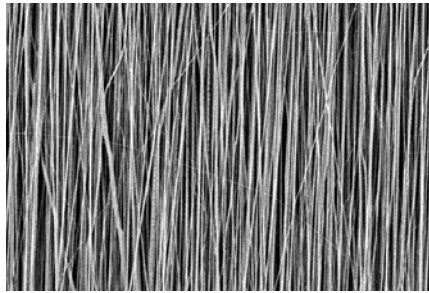


The group combines biomedical and engineering tools to understand the interaction between **biomechanical stimuli** and **biological response** to design novel **devices** and **diagnostic tools** to treat vascular diseases. The main focus is on **large vessels** diseases such as **atherosclerosis** or **aneurysms** but also in the integrity of **blood-brain** and **blood-retina barriers**.

# Our project idea / expertise

On the luminal side, fibers are aligned in a manner that reduces blood flow drag, and allows for rapid coverage by endothelial cells, inhibiting clotting in the main circulatory system.

On the luminal side, extracellular matrix peptides are covalently attached to promote rapid endothelial cell migration and proliferation.

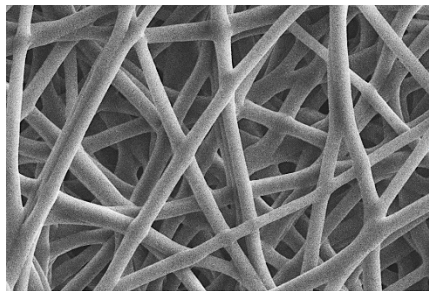


ECM-like peptides

Bioresorbable polymer

Vascular adhesive

Patch colonization



On the abluminal side, fibers are organized in a random matrix that establishes an optimal environment for long-term smooth muscle cell colonization.

On the abluminal side, a vascular adhesive is attached to the polymeric matrix. The patch has been thought as a drug delivery platform, to release therapeutic agents like thrombogenics, anti-proliferatives, anti-inflammatories...

# Consortium (if any)

## Known partners / Competence offer

<b>Name</b>	<b>Type</b>	<b>Country</b>	<b>Role in the project</b>
Holistick Medical	SME	France	Developing a device to treat cardiac defects, and in particular patent foramen ovale (PFO).
Arrotek	SME	Ireland	Design and manufacture of minimally invasive medical devices.

## Partner search

<b>Profile</b>	<b>Type</b>	<b>Country</b>	<b>Role in the project</b>
Therapeutic peptides	Tech Center	EU	Design and Development
Biocompatible adhesives	Tech Center	EU	Design and Development

# Contact details

---

<b>Contact person</b>	<b>Jordi Martorell, Manuel Morillas</b>
Organisation	Institut Quimic de Sarrià, Barcelona (University Ramon Llull, Spain)
Adress	Via Augusta 390, 08017 Barcelona, Spain
Phone	+34 932 672 135
E-mail	<a href="mailto:jordi.martorell@iqs.url.edu">jordi.martorell@iqs.url.edu</a> ; <a href="mailto:manuel.morillas@iqs.url.edu">manuel.morillas@iqs.url.edu</a>

---

<https://www.iqs.edu/en/research/scientific-technical-area/research-groups/gevab>

<https://aortyx.com/>