

M.Sc. internship: “Conception of a transcatheter cardiac valve prosthesis for implantation in the pulmonary veins as heterotopic treatment of mitral insufficiency”

Field : Biomedical Engineering

Description:

We are looking for a master student who will work on the conception of a new transcatheter valve implant aiming to limit blood backflow towards the lungs in the context of severe mitral insufficiency.

Severe mitral insufficiency requires replacement or repair of the regurgitant valve. For patients at high surgical risk, transcatheter valvular replacement has proven life-saving. However, current commercialized transcatheter devices, are expensive and complex and are reserved to a highly selected population with favorable anatomy. This project aims to develop a solution for these patients for whom there is currently no therapeutic option.

The student will work with a post-doctoral fellow and will participate to all steps of the device conception: from literature reviewing to the prototype fabrication (i.e. tissue conditioning, sewing ...) and testing. The testing part includes an *in vitro* phase consisting in verifying the tightness, opening and resistance of the device - this includes the setting of *in vitro* tests and test conditions – and an *in vivo* part consisting in the implantation of the prosthesis in an animal model to verify implantability and clinical performance. The project involves the use of animal tissues and models.

Requirements:

Typical profile: Master student in Biomedical engineering /Bioengineering student (research internship)
The position requires interest for lab work, capacities of initiative, thoroughness, curiosity and creativity. Language : English spoken/written and French spoken (and written).

Duration and funding:

The project is for 1 year, full-time. The student will be funded by a one year master scholarship.
Beginning: Fall session 2021

Laboratory:

This internship is offered by the @CoeurLab team directed by D^r François Tournoux, cardiologist-researcher at the Centre de Recherche du Centre Hospitalier de l'Université de Montréal (CRCHUM). The main research areas of our laboratory are heart failure and cardiomyopathies evaluation and management and the development of innovative solutions.

Application :

If interested, the candidate should send a CV, a motivation letter and his/her university transcripts and mention at least one reference person, before July 25th, 2021 to the contact below.

Contact:

Anne-Sophie Zenses, Eng – PhD, Post-doctoral fellow
CRCHUM, @CoeurLab, team of Dr F. Tournoux
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