Established in the mid-1980s and located in Charleroi CHU, the Laboratory of Experimental Medicine (LME) stands out through the resolutely multidisciplinary character of its research efforts and the direct connection to the hospital clinicians.

100 university beds within the Université libre de Bruxelles (ULB) network

Facilitated interaction with doctors, interns and postgraduates, direct access to sensitive samples for research and to medical equipment as well as access for doctors with research projects: these are the LME's many assets.

Research activities

The LME has structured its research activities in three major axes:

Aneurysm biology

Experimental in vitro model on the behaviour of aneurysms during cardiac cycles, in vivo measurements – blood flow, movement of the aneurysm wall.

Platelets, red blood cells and haemostasis

3D imaging of platelet aggregates – holography – real-time imaging of the shape of red blood cells, platelet aggregation, fibrinolysis monitoring.

Inflammation, oxidative stress and metabolism

Oxidative stress in cells, alteration of LDL by myeloperoxidase in circulation and endothelial cells, regulation of neutrophil and monocyte cell death.

Research partnerships

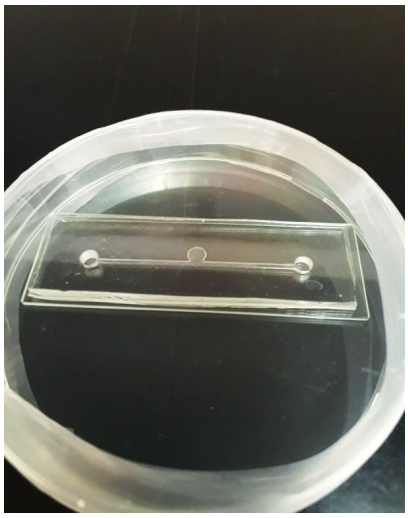
The LME has developed a large number of national (ULB, UMONS, ULiège, Catholic University of Louvain) and European research partnerships within the framework of the European sleep research consortium, the THROMBUS European Project, Action COST CA15120 (mathematical, biological and medicine modelling) and the ESA Life Science Working Group (tissue healing in space: techniques for the promotion and monitoring of tissue repair and regeneration).

Cerebrovascular excellence hub

In a similar vein, the LME is also actively involved in the “Cerebrovascular excellence hub” scientific programme, which aims to optimise treatment for patients who suffer from intracranial aneurysms or ischemic stroke. This programme covers two doctoral theses in progress, the EMPEROR project bearing the label of the Walloon competitiveness cluster BioWin, the European project INSIST, an ERC grant headed by Dr Yacine Boulaftali (Inserm, Paris), and the ESA BIOMICS project, an optimum cerebral perfusion and cerebral metabolism study on brain injury sufferers within an intensive care framework.

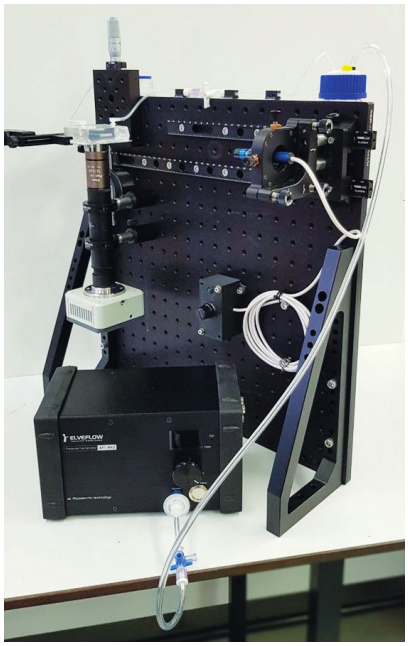
Future projects

And that’s not all: other research projects are currently being prepared. Starting with a new European research project on stroke. Microcirculation in intensive care, internal medicine, maxillofacial surgery and paediatrics are other paths of clinical investigation for the LME.

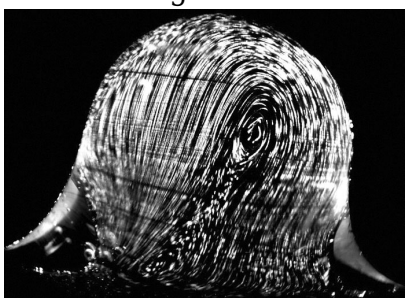


© LME - Figure 1: Lab made silicone channel the channel

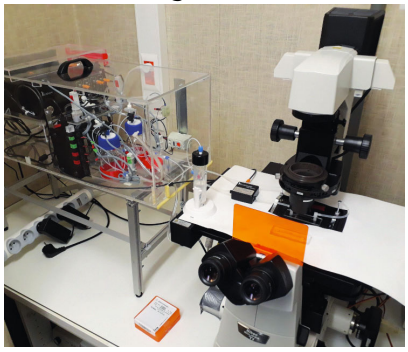
© LME - Figure 2: Endothelial cells grown inside



© LME - Figure 3: Lab made µPIV microscope µPIV



© LME - Figure 4: Particle tracking using



© LME - Figure 5: Lab made cell culture system for long term growth of cells under flow (left side) and monitoring using the fluorescent microscope

Regional collaborations and biotechnology partnerships

In addition, the creation of regional collaborations in Charleroi would increase recruitment possibilities for LME research projects, and could even lead to new clinical investigation opportunities. In an age where technology is taking up an increasingly large place in healthcare, the Laboratory naturally intends to serve as a liaison between certain biotechnology companies (Multitel, FMT, Hyphen Biomed, etc.) and the hospital. A win-win situation!

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