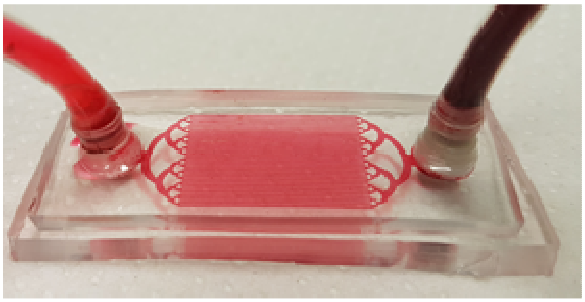
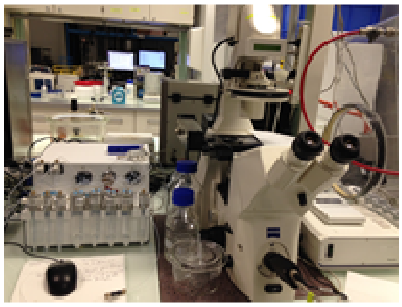
A post-doctoral position on miniaturized artificial microfluidic lung is available at C2N in the Microfluidics team for 2 years (starting June 2018):





Context: End-stage lung diseases may result in death either by oxygenation and carbon dioxide exchange insufficiency or by right heart failure. Despite recent dramatic improvements in the medical management of these diseases, lung transplantation remains ultimately the only therapeutic option. However, shortage of donor organs and long waiting times on list make this treatment only available for few patients. The aim of "BIOART LUNG 2020" RHU-ANR French project, coordinated by Professor Olaf Mercier of the Center of Thoracic Surgery of the Hospital Marie-Lannelongue is to develop a novel bio-artificial microfluidic lung as a durable method of replacing lung function in patients with end-stage refractory lung disease.

The position: This postdoctoral position will focus first on blood flow measurements under pressure inside the vascular network and secondly on the study of the oxygenation function of a tri-layer microfluidic device. Based on a new bonding protocol allowing perfect integration of a thin membrane between the blood capillaries and the air chamber, the post-doc will study the role of the membrane structuration on the oxygenation capacity of the system. He (She) will work in close collaboration with the team of Professor G. Uzan (Hospital P. Brousse) to develop a robust protocol for endothelial cells in the vascular network for minimizing shear stress. This project mixes **micro/nanotechnology based on innovative flexible polymers, microfluidics under high flow conditions and cell culture under stress conditions** with a perfect balance between **experimental science and fluidic simulations**. The post-doc will work inside the microfluidics team and directly with 3 researchers (G. Hwang, J. Gamby and A-M. Haghiri-Gosnet).

The candidate: We seek open-minded and curious candidates with strong expertise in different fields: microfabrication, microfluidics, engineering and biology with interest in multidisciplinary research. With a PhD in the field of microfluidics and an engineering vision, he should also express a clear taste towards experimental work coupled with COMSOL simulation. Finally, an additional expertise in cell culture within fluidic devices will be a strong asset.

The net salary: 2080€/month for a young post-doc (just PhD graduated) or 2915€/month for a CDD researcher with an experience of 2 years in research.

The group: The BIOSYS microfluidics team at C2N (https://www.c2n.universite-paris-saclay.fr/fr/recherche/mnbf/biosys/) has expertise in micro and nanofluidics [**Lab Chip** 11 (2011) 785-804], high performance separation techniques [**Langmuir**, 31(37) (2015) 10318-10325], biosensing [**Biomicrofluidics** 10 (2016) 014115], nanofabrication (nanoimprint and 3D Lithography [**Nanoscale** 8 (2016) 15479]), and microswimmers [5].
The lab: The Center of Nanosciences and Nanotechnology is one of the 6 nanofabrication labs in France with a state-of-the-art clean room in a very nice working environment in the Paris area.

Contact: You should send CV and 3 recommendations
to Anne-Marie Haghiri-Gosnet and Gilgueng Hwang
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