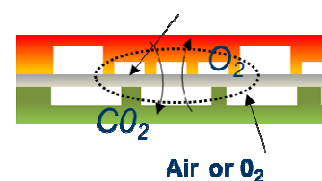


A post-doctoral position on miniaturized artificial microfluidic lung is available at C2N in the Microfluidics team starting Dec 2016 for 3 years:

Develop an endothelialized microfluidic polymer oxygenator, and ensure the research and technological development for a downstream industrial transfer – French RHU project BIOART LUNG2020.



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. Of the therapeutic options currently available, none directly target the right ventricle or replace impaired lung function over the long term. The aim of this study is to develop a novel bioartificial lung as a durable method of replacing lung function in patients with end-stage, refractory lung disease.

This postdoctoral position will thus focus on both design and development of an innovative microfluidic oxygenator with the clear objective to propose viable solutions to the whole consortium of this “BIOART LUNG 2020” RHU-ANR French project, namely the coordinating team of Professor Olaf Mercier of the Center of Thoracic Surgery of the Hospital Marie-Lannelongue and INSERM laboratories. The post-doc will work in close collaboration with the team of Professor Georges Uzan to develop a robust protocol for endothelial cells culture that will adapt to the specific stress conditions in the fluidic oxygenator and to validate the oxygenator cell seeding protocol. After 3 years of development the different routes for microfabrication will be transfer toward industrial partners XENIOS, Smart Canula and AIRBUS Industries. This innovative subject 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 directly with 3 researchers (G. Hwang, J. Gamby and A-M. Haghiri-Gosnet).

The candidate: We seek open-minded and curious candidates from a wide range of backgrounds: microfabrication, microfluidics, engineering, chemistry and biology with interest in multidisciplinary research. The candidate should have expertise in microfabrication (imprinting, molding, embossing, etc...) for the fabrication of fluidic prototypes. 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: 2070€/month for a young post-doc (just PhD graduated) or 2872€/month for a CDD researcher with an experience of 2 years in research.

The group: The Nanotechnology and microfluidic devices Team at C2N (<http://www.c2n.universite-paris-saclay.fr/en/research/departement-micronanodispositifs/nanoflu/>) with 10 researchers, postdocs and PhD students has expertise in micro and nanofluidics [1], high performance separation techniques [2], biosensing [3], nanofabrication (nanoimprint and 3D Lithography [4]), 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.

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