

2020-2021

Internship proposal at LMGP Lab & Eveon.

Impact of therapeutic proteins on the Performance of a drug reconstitution device

Abstract

The objective of the proposed project is to study the impact of therapeutic proteins on the performances of a drug reconstitution device developed by EVEON, in particular on the pump which is the main part of the device. For this purpose, pump parameters such as lifetime of the pump, pressure at the pump orifices or motor torque will be characterized as a function of protein concentration and aggregation state. The aim is to optimize the fluidic process to minimize protein instability and protein aggregation. .

Project description

EVEON designs, develops and manufactures smart and easy to use medical devices for biological molecules both for drug preparation and drug delivery. Drugs are often therapeutic protein solutions. One of the main objectives of EVEON's technologies is to ensure the preservation of the molecular stability of the proteins within the devices and hence guarantee drug efficacy.

The LMGP laboratory focuses its research on the understanding of the physicochemical mechanisms leading to therapeutic protein instability in contact with materials and air. Proteins from the solution adsorb at these interfaces, which can lead to aggregation and accumulation of protein deposits on device components. Such deposits impact the device functioning and the protein stability.

Recently, LMGP and EVEON created a joint laboratory whose mission is to optimize microfluidic processes compatible with therapeutic proteins. The scientific study aims to analyze the impact of the nature of materials and processes on the stability of therapeutic proteins. It is within the framework of this joint laboratory that this internship is proposed.

Scientific environment:

The candidate will work within the LMGP, Materials and Physical Engineering Laboratory, in the IMBM group in collaboration with the company EVEON. A common Laboratory (LabCom) has been established between the two partners.

Located in the heart of an exceptional scientific environment, Eveon and the LMGP offer the applicant a rewarding place to work.

EVEON Web Site: <https://eveon.eu/>

LMGP Web Site: <http://www.lmgp.grenoble-inp.fr/>

Profile & requested skills:

Engineer or Master student with a solid background in instrumentation, preferentially applied to the biomedical sector. Basics in protein biochemistry are a plus. A theoretical knowledge in microfluidics is also a plus.

Good writing skills and fluency in English are required.

A strong communication sense for collaborative work between two partners (LMGP, EVEON) is appreciated

Subject could be continued with a PhD thesis: NO

Allowance: Internship allowance will be provided

CONTACT :

LMGP : Marianne WEIDENHAUPT marianne.weidenhaupt@grenoble-inp.fr

EVEON : Adrien BOUILLET (Responsable du stage) abo@eveon.eu

Mathilde AUROIRE (Administratif) mau@eveon.eu