

Internship: Development of pharmaceutical sustained release products

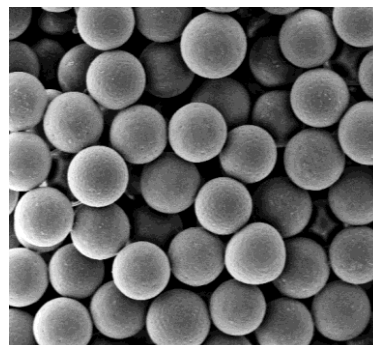
Location: **Nanomi B.V.**
Zutphenstraat 51
7575 EJ Oldenzaal
The Netherlands

Duration: **12 months** (minimum 6 months)

Company:

Nanomi is Dutch drug delivery company, subsidiary of Lupin Limited, specialized in the formulation, development and manufacture of pharmaceutical products based on particles, enabled by its microsieve™ based process technology. The company was founded in 2004, as an independent spin-off from the University of Twente, and is located in Oldenzaal, in the East of the Netherlands. Nanomi is developing sustained release products for its parent company Lupin but also for several top multinational companies in the pharma and biotech industries.

Nanomi's core technology is its proprietary microsieve™ emulsification process. Microsieves are silicon membranes fabricated by photolithographic techniques, which possess highly uniform pores with variable size and shape. Nanomi uses the microsieves to create emulsions and particles in the micron and nano range by dispersing droplets of one fluid into another immiscible one. This process allows a high degree of uniformity in particle size (C.V. around 5 %), much better than those produced by conventional microsphere production techniques like high speed homogenization.



In this way, highly monodisperse droplets and particles that serve as basis for sustained release pharmaceutical, products can be produced in a robust, reproducible and cost effective way. Particles designed by Nanomi's technology that contain an active pharmaceutical ingredient (API) can be injected into the patient by using smaller needles and a prolonged sustained release of the API can be obtained in time.

Assignment description:

During this internship you will become a part of a young and dynamic group of researchers in a multidisciplinary environment. The goal of the assignment will be to solve diverse formulation and/or process challenges and perform tasks within R&D projects.

The goal of the assignment will be to design, develop and optimize microsphere formulations and/or process production for the sustained drug delivery. Accordingly, the microspheres can be characterized in terms of size, surface charge, morphology, loading of the encapsulated compound and release profiles. Ultimately, optimization of all microsphere-related parameters will take place so as to obtain an outstanding system, either for research purposes or for customers. The performance and in-vitro analysis of such systems will be carried out as last

characterization step. You will have possibility to implement sterilization into the current microsphere production process and upscaling such process from laboratory to pilot and eventually commercial scale.

This assignment will allow you to conduct applied research for relevant internal or external/customer projects. You will gain knowledge in microsphere production/characterization and drug delivery, learn about equipment/instrumentation, learn to report your results in standard documents and gain skills for the preparation, optimization and analysis.

You will also be in charge of laboratory tasks related to organization, equipment maintenance and supply management. Data will be reported according to high standards and Nanomi's protocols. A presentation of the obtained results within the company will take place at least once during the assignment.

Laboratory work will be conducted in a well-equipped facility under supervision of skilled researchers.

The student should be proactive, be skilled in laboratory practice, and have a very good level of English. Background in pharmacy, pharmaceutical technology, chemistry or chemical engineering is required.

Additional information:

Nanomi is situated in the Valkenaer building in Oldenzaal, a town located 15 minutes by car from Enschede (158000 inhabitants). Enschede is a dynamic city with a lively city centre and green surroundings. It has also a large university campus (University of Twente), therefore being a very attractive location for student expats. Oldenzaal is connected with Enschede by bus and train.



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Accommodation: Nanomi can provide help during the student search for accommodation.

Application procedure: Students should send their CV and a motivation letter to info@nanomi.com.