

## **BSc/MSc-project**

**Title:** Microneedles for transdermal drug delivery

**Description:** Macroscale needles for drug delivery by injection are painful and problematic for people with trypanophobia (fear of needles). Typically, this administration method also requires health care professionals compared to e.g. oral drug delivery. In the last few years, several approaches using microneedles for transdermal drug delivery have been suggested. The miniaturization of the needles successfully addresses the challenges mentioned above.

The aim of this project is to fabricate a new type of biocompatible microneedles for transdermal drug delivery. More specifically, the goal is to design microneedles that are able to penetrate the skin and release the drug in a controlled manner into skin tissue. The microneedles might partially be fabricated in the DTU Danchip cleanroom facilities. Penetration of tissue and drug release will be characterized in the laboratories of DTU Nanotech. First contacts for a possible collaboration with Leo Pharma have been established and might be relevant depending on the selection of drug.

**Responsible institution:** DTU Nanotech

**Contact information:** Associate Professor Stephan Sylvest Keller, Biomaterial Microsystems group, DTU Nanotech, Technical University of Denmark; [stephan.keller@nanotech.dtu.dk](mailto:stephan.keller@nanotech.dtu.dk), Tel: +45 45255846

**Allowed no of students per report:** MSc: 1; BSc: 1-2

**Suggested DTU supervisor:** Assoc. Prof. Stephan Sylvest Keller