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## Master thesis: Surface-induced structural changes of protein drugs

*Are you interested in how we can improve the biological drugs of the future and want to learn how surfaces affect the stability of protein drugs? Would you like to work in an innovative-driven environment with experts in formulations for pharmaceuticals, foods, cosmetics, and cleaning? We are now seeking a Master student with an interest in protein drugs to explore surface-induced changes.*

### Background

The number of protein drugs on the pharmaceutical market increases yearly. The larger and more complex structure of proteins compared to small molecules affects their chemical and physical stability. Before a drug will be administered to the patient it will interact with several surfaces, such as primary packaging, syringes, and closed system transfer devices (CSTDs). All these surface interactions may lead to structural changes of the proteins, such as degradation and/or aggregation, and thereby affect protein drug efficacy. Further investigations are needed to understand these surface-induced changes and how to minimize structural changes upon interaction with the materials. This project work will be a part of the IMI financed RealHOPE project ([www.realhope.se](http://www.realhope.se)) investigating the effect of real-life handling on protein drugs.

### Goal

The aim of the project is to study surface-induced structural changes and aggregation of model protein drugs. The work will include experimental investigation of structural changes upon contact with clinically relevant materials using high-end surface characterization methods e.g. ellipsometry and QCM-d. Other experimental techniques may also become relevant depending on the development of the project.

### Requirements/knowledge

For this diploma work, the student should be enrolled in a master program in pharmacy, biotechnology/chemical engineering or similar, and have background knowledge on proteins and surface chemistry.

### Terms

Project period: Spring term 2023, 30 hp. Start upon agreement.

Placement: RISE, Malvinas väg 3, Stockholm.

### Application

Apply here: <https://www.ri.se/sv/jobba-hos-oss/lediga-jobb/master-thesis-surface-induced-structural-changes-of-protein-drugs>

For questions and more information, please contact Lina Nyström ([lina.nystrom@ri.se](mailto:lina.nystrom@ri.se), +46 10 516 65 33) or Ulla Elofsson ([ulla.elofsson@ri.se](mailto:ulla.elofsson@ri.se), +46 10 516 60 40)

Last day for application is 31 December 2023. Interviews with candidates will be conducted continuously, and decision of acceptance can be made at any point.