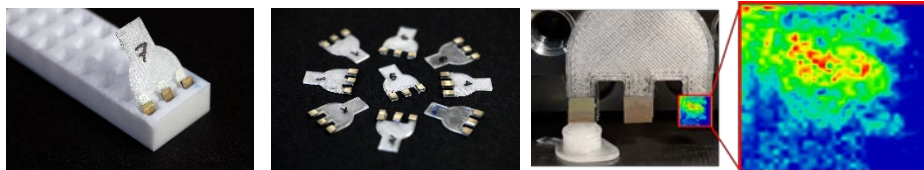


Master project

# Quantification of Drugs in Serum with Surface-enhanced Raman Spectroscopy



It is a well-known fact that drugs that have a narrow therapeutic range need to be monitored in the bloodstream throughout therapy. Therefore, Therapeutic Drug Monitoring (TDM) is routinely required in clinics for avoiding adverse effects and for providing effective treatment. Even though, due to the difficulties of current analytical methods TDM is not commonly applied in oncology clinics. Surface-enhanced Raman Spectroscopy (SERS) emerges as a possible TDM platform. Considering its short analysis procedure, label-free nature and analyte-specific signal output SERS is a good candidate for routine drug monitoring. It has been shown that the nanopillars substrates that developed in our group, can be used for the quantification of different types of analytes in various sample matrices either directly, or in combination with simple sample pretreatment.

## Example of specific project topics:

- How does the morphology of the nanopillars effect sample filtration?
- Can we increase the affinity of the analyte to the sensor surface?
- Does simple sample pretreatment methods increase the detection performance

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## About IDUN

*IDUN is a center of excellence funded by the Danish National Research Foundation and the Villum Foundation. The center is divided into two parts: IDUN Drug and IDUN Sensor, focusing on drug delivery and nanomechanical sensors, respectively.*