

# Mechanistic understanding of hygroscopicity alteration of pharmaceutical materials

Do you want to study and explore the solid state landscape of pharmaceutical materials in the company that follows the science and turns ideas into life changing medicines? Then AstraZeneca might be of interest to you!

**The thesis is aimed for:** Master's thesis project: 60 credits (two semester thesis)

**Program area:** Chemistry and Physics

**Region:** Göteborg/Västra Götaland

**Description:** Student Location: AstraZeneca Gothenburg, Sweden

**Supervisor:** Dr. Okky Putra and Dr. Phil Corner (Solid state senior scientists, Early Product Development and Manufacture, Pharmaceutical Sciences) and Prof. Lars Öhrström and Dr. Françoise Noa (Department of Chemistry and Chemical Engineering, Chalmers tekniska högskola)

## Opportunity

We have an exciting opportunity for a Master's student to investigate and improve understanding of hygroscopic behavior in pharmaceutical materials. This opportunity will let you access world class instrumentation in solid state chemistry that exists both in AstraZeneca Gothenburg and Chalmers University of Technology, such as single crystal X-ray diffractometers and high-resolution powder X-ray diffractometers.

## Background

Hygroscopicity is one of the most important physicochemical properties in the pharmaceutical field and may limit the development of drug candidates. One of the ways to alter hygroscopicity of a drug molecule is changing its crystal structure to reduce the interactions between hydrophilic moieties in the drug molecule with water using crystal engineering approaches (polymorph selection, co-crystallization, and salt formation). In this case, understanding the crystal structures of drug molecules is unequivocally important to provide molecular understanding of the alteration of hygroscopicity.

## Responsibility

- Task and methodology
- Salt and cocrystal screening
- Characterization of solid form: TGA, DSC, DVS, PXRD, SCXRD including some simulation

## Qualifications

- Basic understanding of organic, physical and solid state chemistry and its related techniques.

## Preferred experience or requirement

- Advanced (MSc) level knowledge in solid state chemistry and its related techniques.

## Application and Information

- Dr Okky Putra, Senior Solid-state Scientist, AstraZeneca R&D Gothenburg, okky.putra@astrazeneca.com, M: +46 72 5398313 P:+46 3177 62442