

▶ MASTER'S IN BIOPHYSICS ON "LIQUID PHASE ELECTRON MICROSCOPY OF BREAST CANCER CELLS"

A Master's project in biophysics is available for the project "Investigation of the Influence of Breast Cancer Drugs on HER2 Dimerization at the Molecular Level in Individual Cells Aiming to Find Clues for Causes of Drug Resistance: **HERe**" funded by the Else Kröner-Fresenius Stiftung.

The INM – Leibniz Institute for New Materials in Saarbrücken, Germany, is an internationally leading center for materials research. We focus on surface and interface phenomena and their exploitation in the development of innovative materials and structures. INM is a scientific partner to national and international research institutions and a provider of research and development for companies throughout the world. INM has about 250 employees and is an institute of the Leibniz Association.

The Innovative Electron Microscopy group at INM is world-leading in liquid-phase scanning transmission electron microscopy (STEM). We are looking for a Master's candidate in biophysics who will study the influence of drugs on breast cancer cells using the new analytical capabilities of liquid-phase STEM. HER2 positive breast cancer is an aggressive form of cancer, diagnosed in about 20% of breast cancer patients. Although it can be treated with the HER2-targeted antibody drug trastuzumab, primary or acquired drug resistance is often inevitable, presumably also as a consequence of cancer cell heterogeneity. We plan studying the influence of drug at the single cell level while taking cancer cell heterogeneity into account. We may possibly discover a molecular signature serving as predictor for drug resistance. The proposed research presents a groundbreaking new approach to examine the effect of HER2 targeting drugs on different subpopulations of cancer cells that was not possible before with any other method.

Objectives

The objectives of the Master's thesis are to improve techniques for electron microscopy of cancer cells, conduct statistical data analysis of spatial receptor distributions, examine drug effects in breast cancer cell sub-populations, and examine patient biopsies. The Master's student will also study fundamental principles behind the HER receptor interactions.

Requirements

The successful candidate has an BSc degree in physics, or biophysics. A specific requirement for this position is a good knowledge of data analysis. Hands-on experience with microscopy is a plus. A strong motivation for science, being a team player, and proficient writing and oral communication skills in English are required.

INM is an equal-opportunity employer with a certified family-friendly policy. We promote the professional opportunities of women and strongly encourage them to apply.

Contact

Please send your application via email to the attention of Prof. Niels de Jonge including a detailed CV along with a motivation letter.

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