Objectives: In this groundbreaking project, we are developing a novel protocol to remove anticoagulants (EDTA and Li Heparin) from human plasma samples, enabling more accurate analysis using Raman and FTIR spectroscopy techniques. By eliminating these chemicals, we can obtain a more accurate and reliable analysis of the samples, providing a clear window into the complex vibrational spectra of biological molecules. This will enable us to detect disease-specific vibrations in molecules and ultimately develop an accurate, non-invasive diagnostic tool that can differentiate healthy and unhealthy individuals. By introducing novelty in the field of medical diagnostics, this project has the potential to revolutionize healthcare.

Job Descriptions: We are seeking a highly motivated candidate to take on a multifaceted role in this project. The candidate will play a critical role in optimizing the filtration and dialysis processes to remove anticoagulants, preparing the samples for spectroscopic measurements, and performing FTIR and Raman measurements. The candidate will be responsible for acquiring and analyzing spectral data, as well as applying statistical models to accurately detect and classify disease markers.

Outcomes: The outcome of this project includes the development of an optimized protocol for removing anticoagulants from human plasma samples and detecting disease-specific biomarkers using spectroscopic techniques. The protocol will enable for accurate differentiation of healthy and unhealthy individuals and will be a valuable tool for healthcare professionals. Additionally, the project will provide a guideline for the implementation of machine learning algorithms applied to data from several spectroscopy techniques and will increase our understanding of the underlying biochemical processes involved in disease development.

We invite passionate and ambitious candidates to be part of this endeavor, aimed at transforming healthcare. We are seeking individuals with a background in Mathematics, Statistics, Computer Science, Chemistry, Physics or related fields in Biology and Medicine, as well as proficiency in programming, particularly in Python, R or Matlab. Candidates with knowledge in statistical data analysis, and a penchant for developing innovative machine learning models for classification and regression are highly encouraged to apply.

Application:

If you are a (prospective) master student and you are interested in this project, please get in touch with the scientist in charge: **Andreas Seifert (a.seifert@nanogune.eu).**

To apply for a

master position fill in the form below and follow the instructions and recomendations of the general call (**open until 30 June 2023**).

NOTES:

(i) All applicants will receive an answer after the end of the selection process; but please note that due to the large number of submissions that are expected, we cannot provide individual feedback.

(ii) Additional information about nanoGUNE's commitment towards

HR excellence in Research and Gender Equality are available on our website.

(iii) We encourage you to subscribe to our

HR mailing list to receive information related to nanoGUNE's open positions and open calls for different training and talent attraction programs.