In this project, we want to identify potential biomarkers for monitoring CAR-T (Chimeric Antigen Receptor T-cell) therapy using vibrational spectroscopy techniques such as Raman and FTIR. CAR-T therapy is a promising treatment option for certain types of cancer; however, it also entails potential risks and toxicities that must be carefully monitored and managed. In this context, biological samples from patients undergoing CAR-T therapy will be investigated by spectroscopic techniques, extracting relevant biochemical information for clinical decision-making. The goal is to develop a robust and reliable spectroscopy-based approach to predict the treatment progression and anticipate potential adverse effects of CAR-T therapy.

Job description:

- Perform systematic measurements with different vibrational spectroscopy techniques, such as Raman and FTIR.
- Handling and management of biological samples from patients undergoing CAR-T therapy.
- Optimization of spectroscopy protocols and establishment of strict standard operating procedures to ensure reliable and consistent data.
- Utilization of imaging techniques (such as fluorescence microscopy) and omics approaches to capture complementary information about the samples studied.

Main outcome of the project:

- Dataset of different spectroscopic techniques collected from patients undergoing CAR-T therapy.
- Identification of potential signatures associated with toxicities and side effects of the treatment.
- Optimized protocols for spectra acquisition and biosample handling.
- Advancement of our understanding of CAR-T therapy and its potential benefits and risks for certain types of cancer.

We encourage highly motivated candidates to carry out their final Master's thesis in an international, multidisciplinary research environment. Preferably, the students should have the following background: Biomedical Engineering, Biotechnology, Chemistry, Physics, etc. For more information, please visit our website http://www.nanogune.eu/nanoengineering.

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.