Research Project

Name of Institution and department: *Department of Diagnostic and Interventional Radiology, University Hospital Heidelberg*

Link to website: *https://www.klinikum.uni-heidelberg.de/kliniken-institute/kliniken/diagnostische-und-interventionelle-radiologie/klinik-fuer-diagnostische-und-interventionelle-radiologie/*

City and Country of Institution: *Heidelberg, Germany*

RESEARCH GROUP

Brief description of the research group and of its mission:

Our research group focuses on the quantitative analysis of CT scans from colorectal cancer patients, aiming to identify imaging biomarkers with prognostic value. We investigate the role of body composition, radiomics, and artificial intelligence-based techniques to enhance disease characterization while evaluating the utility and performance of cutting-edge software tools.

The study is based on the prospective observational ColoCare Study (ClinicalTrials.gov ID: NCT02328677). Ethics approval is already in place (S-134/2016). The respective hardware and software are available.

TITLE OF PROPOSED RESEARCH PROJECT

Quantitative image analysis of baseline and follow-up CT scans of colorectal cancer patients

OBJECTIVES

- *To understand the basic concept of radiomics analysis*
- *To learn to perform the main steps of radiomics analysis from image postprocessing to prediction model building*
- *To master the basics of 3D Slicer software*
- *To become familiar with writing scientific publications*

APPLICANT'S DUTIES

- *Segmentation of CT scans*
- *Extraction of radiomics features*
- *Statistical evaluation*
- *Manuscript drafting*

APPLICANT'S BENEFITS

- Participation based on own scientific outcomes of the project with presentations at national and international congresses, and publications of scientific papers in international journals

- Project Leader: Bettina Katalin Budai, MD, PhD
- Members: Dr. med. Tobias Nonnenmacher, Dr. sc. hum. Biljana Gigić