

Research Project

Name of Institution and department:

Division of Imaging Innovation Research, Maastricht Radiation Oncology Institute

Link to website: www.maastro.nl

City and Country of Institution:

Maastricht, The Netherlands

RESEARCH GROUP

The research group is led by Prof Regina Beets-Tan, professor of Radiology Maastricht University and member of the Board of Director of Maastricht Radiation Oncology Institute. It is a multidisciplinary research group consisting of radiologist, radiation oncologist, oncologist, surgeon, data scientist and physicist

The mission of the research is to improve AI powered imaging for better treatment stratification and prediction of treatment response of patients with cancer

TITLE OF PROPOSED RESEARCH PROJECT

Organ preservation in rectal cancer: AI to support better decision-making

Objective: To develop and validate multicentre artificial intelligence (AI) models that support safe organ-preserving management of rectal cancer by improving both patient selection after chemoradiotherapy and surveillance during Watch-and-Wait (W&W) follow-up.

Background: Organ-preserving treatment has become an established alternative to surgery for selected patients with rectal cancer who achieve an excellent response after chemoradiotherapy. Avoiding total mesorectal excision can substantially improve quality of life by preserving bowel function, continence and sexual function. However, identifying patients who can safely avoid surgery remains challenging. This research project aims to develop and validate multimodal AI for prediction of Complete response after neoadjuvant treatment.

APPLICANT'S DUTIES

- **Participate in clinical AI research in Colorectal cancer**
- **Tumor segmentation of MR images**
- **Collaborate with the multidisciplinary research team**

APPLICANT'S BENEFITS

- Participation on scientific outcomes of the project (co-authorship in publications)
 - Supervision by renowned research team of experts (radiology, surgery, radiation oncology) in colorectal cancer management
 - Learn from an expert multidisciplinary team about diagnosis and treatment of patients with colorectal cancer, opportunity to attend colorectal tumor boards in clinics, rectal surgery at OR
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- Project Leader: Prof Regina Beets-Tan, radiologist
 - Members: Prof G. Beets, surgeon Dr M de Bruin, data scientist