**Imaging meets omics**

**June 22, 2017**

**Course content**

The rapid advances in –omics technologies have enabled the study of disease from several molecular perspectives. This has already led to many novel insights in the underlying causes of disease, and has paved the way for more personalized molecular diagnostics and treatment selection based on the individual patient’s phenotype (multi-omics profile). In addition, recent technological advances have expanded the possibilities of medical imaging techniques towards high-resolution molecular, anatomical and functional imaging at the scale range from molecule to man. Increasingly, a cross-over between imaging and –omics technologies is taking place, with applications across the board from fundamental research to patient care. The Boerhaave course “Imaging meets –omics” will highlight how novel methodologies combining imaging and –omics data may lead to novel insights in biology, and clinical treatment approaches. The course aims to provide an entry-level overview of the field, where a line-up of expert speakers will highlight the current state-of-the-art in methodology, biology and clinical applications.

**Target group**: radiologists, oncologists, radiotherapists, nuclear medicine, surgeons, urologists, medical physicists, biomedical scientist

**Accreditatie**: 5 punten

**(spreektaal symposium / titels voordrachten: Engels)**

**Program**

8.15 **Registration**

**BIOLOGY**

Objective: To identify principal biologic tumor characteristics that can be targets for profiling using currently available imaging techniques

9.00 **Opening**

9.05 **Cancer Biology: integrating imaging and -omics to application**

 J.J.C. Neefjes

9.30 **Molecular pathology of bone and soft tissue tumours** J.V.M.G. Bovée

10.00 **Functional analysis of BRCAness in female cancer**

M.P.G. Vreeswijk

10.30 Coffee break

**METHODOLOGY**

Objective: To provide an overview of methods that can be used to extract clinical relevant information from big imaging data sets

11.00 **MR imaging radiomics of breast cancer**

K. Gilhuijs

11.30 **Mass spectrometry imaging to quantify tumor heterogeneity: correlation with clinical outcome parameters**

B.P.F. Lelieveldt

12.00 **Radiomics of prostate cancer**
J.F. Veenland

12.30 – 13.30 Lunch

**CLINICAL APPLICATIONS**

Objective: To demonstrate with three clinical scenarios how in vivo tumor phenotyping impacts on treatment strategies

13.30 **Imaging meets Radiotherapy**R.L.M. Haas

14.00 **Radiomics in Nuclear Medicine**

F.H.P. van Velden

14.30 **Multiparametric bone marrow imaging: what it tells you about BM metastasis biology**

A. Padhani

15.15 **Summary**

15.30 **Closure**

Sprekerslijst

* Prof. dr. Judith V.M.G. Bovée, MD,PhD, pathologist, LUMC
* Dr. R.L.M. Haas, MD PhD, radiation-oncologist, NKI-AvL Amsterdam / LUMC
* Prof. dr. B.P.F. Lelieveldt, computer scientist image analyses, LUMC
* Dr. K.G.A. Gilhuijs, Physicist, UMC Utrecht
* Prof. dr. J.J.C. Neefjes, head department Chemical Immunology, LUMC
* Prof. A. Padhani, radiologist, Mount Vernon Cancer Centre, London
* Dr. J.F. Veenland, researcher, Biomedical Imaging Group Rotterdam, ErasmusMC
* Dr. F.H.P. van Velden, medical physicist, LUMC
* M.P.G. Vreeswijk, PhD, researcher dept. Human Genetics, LUMC