Project 12:

**Identifying incidental PET positive non-tumorous lesions in the pelvis and their differentiation in PET/CT scans**

**NAME OF INSTITUTION:** Universitätsmedizin Rostock, Department of Diagnostic and Interventional Radiology, Pediatric- and Neuroradiology, Rostock/GERMANY

**RESEARCH GROUP AND ITS MISSION:**
MRI of the Prostate and Perfusion CT - the focus of our musculoskeletal (MSK) research group is on advanced MSK cross-sectional imaging (including hybrid imaging, such as PET/CT) as well as image-guided interventions at the MSK field. We are interested in both novel techniques and how imaging can be used to gain novel insights into musculoskeletal disease and enable individualized treatment. We also assess the usability of these advanced radiologic techniques regarding the outcome of the patients.

**OBJECTIVES:**
In the work-up of positron emission tomography (PET) and PET/CT (computed tomography) scans, fluorine-18-fluorodeoxyglucose (FDG) up taking lesions in the pelvis may cause differential diagnostic challenges, especially in the setting of staging in case of malignancy. Differential diagnoses, that may cause PET positive non-malignant lesions in the pelvis, are manifold and comprise inflammatory disorders, such as acute and chronic osteomyelitis (e.g. after hip arthroplasty) and lesions related to joint prosthesis infection, as well as arthritis (e.g. rheumatoid, septic and even tuberculous), endovascular graft-related infection and vasculitis, or even chronic inflammatory bowel disease. In addition, granulomatous disorders such as sarcoidosis, degenerative changes related to osteoarthritis, as well as benign processes such as osteoid osteomas, (intraosseous) hibernomas, myositis ossificans circumscripta, as well as disorders such as Paget’s disease and Langerhans cell histiocytosis may lead to incidental PET positive lesions in the pelvis. In this project, we screen our PET/CT database for these conditions to obtain prevalences and differential diagnostic clues.

**APPLICANT’S DUTIES:**
- Collecting and analysing imaging data and clinical data under supervision
o Generating figures and tables under supervision
o Participating in manuscript writing and editing as well as lecture design

APPLICANT’S BENEFITS:
o Supervision of research project by group leader, weekly personal meetings
o The fellow will be encouraged to present his/her project at national or international conferences
o The fellow will be author on publications from his/her research project
o The fellow will also have the opportunity to observe clinical PET/CT, CT and MRI reading and discussion rounds and interventional MSK procedures, if interested

Project Leader: Professor Marc-André Weber, MD, M.Sc., Professor of Radiology and Neuroradiology, Medical Director of the Institute of Diagnostic and Interventional Radiology, Pediatric Radiology and Neuroradiology
Members: 3 consultant radiologists, 6 radiology residents, 1 medical physicist, 9 medical students