EANM´18
WORLD LEADING MEETING

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European Association of Nuclear Medicine

BIOMEDICAL IMAGING AND THERAPY FOR PERSONALIZED HEALTHCARE

Annual Congress of the
European Association of Nuclear Medicine
October 13 – 17, 2018
Düsseldorf, Germany

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CME 9 (Translational Molecular Imaging & Therapy / Oncology)
Tuesday, October 16, 08:00-09:30

Session Title
Imaging Targets for Cancer Immunotherapy

Chairpersons
Nicolas Aide (Caen)
Silvana Del Vecchio (Naples)

Programme
08:00 - 08:30   Nicolas Aide (Caen): Role of Imaging in Cancer Immunotherapy
08:30 - 09:00   Egesta Lopci (Milan): PET Imaging of Immunotherapy in Lymphoma
09:00 - 09:30   Sandra Heskamp (Nijmegen): SPECT-CT Imaging of PD-L1 Expression in Cancer

Educational Objectives
1. To understand the basic principles of immunotherapy and the role of functional imaging with SPECT and PET in pre-clinical and clinical settings
2. To have an overview of the current status of molecular imaging for cancer immunotherapy and knowledge of associated challenges.
3. To examine potential clinical translation of new targets, tracers and patterns of treatment response.

Summary
Cancer cells can evade immune surveillance by inhibiting the native capacity of immune cells to recognize and destroy abnormal and foreign cells. One mechanism adopted by cancer cells to overcome immune response is to express on their plasma membranes proteins that by interacting with their co-receptors on immune cells limit their functional activity. Therapeutic disruption of these inhibitory interactions by specific antibodies restores the ability of immune cells to recognize and destroy tumor cells. Currently, three immune checkpoints including the programmed death 1 (PD-1) receptor, its endogenous ligand programmed death ligand 1 (PD-L1) and the cytotoxic T-lymphocyte associated antigen 4 (CTLA-4) have been exploited as suitable targets for blockade therapy in cancer patients. The same systems have been targeted for imaging purposes. Noninvasive visualization of targets for cancer immunotherapy is particularly challenging due to spatial and temporal heterogeneity of their expression within tumor lesions. This session will highlight the potential contribution of nuclear medicine procedures to patient selection, treatment monitoring and prediction of response in cancer immunotherapy studies. The three lectures of this session will present different imaging strategies to target immune checkpoints and address several issues including tracer development, biodistribution and pharmacokinetics, selective tumor uptake, validation of imaging findings and modulation of targets by therapeutic interventions such as radiation therapy.

Key Words
Immune checkpoints, imaging, programmed death 1 receptor, programmed death ligand 1, cytotoxic T-lymphocyte associated antigen 4.