In vivo imaging of host response to vaccines and infections

TRANSVAC Workshop

March 29th, 2019
Fontenay-aux-Roses, France

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Workshop objectives: To present and discuss latest advances in new technologies for imaging in living individuals 1) kinetics of vaccines distribution and persistence, 2) pathogens penetration and dissemination, 3) host response to vaccines and pathogens exposure. The meeting will be focus on implication of these approaches for preclinical research and translational medicine. International experts of diverse expertise on fluorescent based technologies as well as whole body PET-CT and MRI technologies will be invited to describe and comment the application of these tools for vaccine research and development.

Location: IDMIT research infrastructure (http://www.idmitcenter.fr/fr/) at the CEA center of Fontenay-aux-Roses (http://fontenay-aux-roses.cea.fr/far) in France.

Chairs: Dr. Hilde Depraetere (EVI, TRANSVAC Coordinator), Pr. Norbert Stockhofe (Wageningen Bioveterinary Research), Dr. Roger Le Grand (IDMIT), Dr. Catherine Chapon (IDMIT)

Local organizing committee: Dr. Catherine Chapon (IDMIT), Dr. Nidhal Kahlaoui (IDMIT), Dr. Céline Mayet (IDMIT), Dr. Frédéric Ducancel (IDMIT), Dr. Roger Le Grand (IDMIT)

Tentative program:

8:30 – Welcome at IDMIT

9:00 – Introduction: R. Le Grand- N. Stockhofe

9:05 – Presentation of TRANSVAC2: H. Depraetere

9:15 – Session 1: *In vivo* imaging of host response: Visualizing host cells in living animals

- **Mia Phillipson**, Department of Medical Cell Biology, Uppsala university, Sweden – *Title: Innate immune cells in tissue restoration*
- **Catherine Chapon**, CEA/DRF/Jacob/ImVA U1184, IDMIT, L3i
- **Edmond J. Remarque**, Department of Virology, Biomedical Primate Research Center, Rijswijk, The Netherlands - *Title: Statistical considerations for the analysis of repeated (imaging) measurements*

10:15 – Coffee break

10:45 – Session 2: Dynamics of pathogen and vaccine antigens distribution and/or dissemination: Local interactions and micro-environment

- **Jean-Nicolas Tournier**, Microbiology and Infectious Diseases Department, Institut de Recherche Biomédicale des Armées, 91220 Brétigny-sur-Orge,

France – *Title: Deciphering the cellular response to a live vaccine : coupling 2-photon imaging and flow cytometry*

- **Greetje Vande Velde**, Molecular Small Animal Imaging Center, KU Leuven, 3000, Leuven, Belgium
- **Régis Tournebize**, Unit of Technology and Service Photonic BioImaging (UTechS PBI), Center for Technological Resources and Research, INSERM 1202, Institut Pasteur, Paris
- **Thibaut Naninck**, CEA/DRF/Jacob/ImVA U1184, IDMIT, L3i

12:15 – Round table:

4-5 Selected panelist (scientists & physicians) & discussion with the audience

13:00 – Buffet

14:00 – Session 3: Whole body imaging of host/pathogens & antigens interactions

- **Juan José Vaquero**, Dpto. Bioingeniería e Ingeniería Aeroespacial, Universidad Carlos III de Madrid, Leganés, & Instituto de Investigación Sanitaria Gregorio Marañón, Madrid, Spain.
- **Phil Santangelo**, Wallace H. Coulter Department of Biomedical Engineering, Georgia Institute of Technology and Emory University, Atlanta, Georgia, USA.
- **Marieke Stammes**, Department of Parasitology, Biomedical Primate Research Center, Rijswijk, The Netherlands; Title "*The correlation between PET-CT and pathology in tuberculosis in non-human primates*"

15:00 – Session 4: Transfer to clinical investigation and practice

- **Tony Lahoutte**, In Vivo Cellular and Molecular Imaging Laboratory, Vrije Universiteit Brussel (VUB) & Nuclear Medicine Department, UZ Brussel , Brussels , Belgium- ***Title****: Immune-imaging using single domain antibody fragments*
- **Johannes Schwenck**, Werner Siemens Imaging Center, Eberhard Karls Universität Tübingen (EKUT) – DE
- **David Lewis**, Imperial College, London, UK- *Title: Using PET/CT to quantify vaccine-induced tissue inflammation and nodal activation in humans via glycolysis and binding of radioligands.*

16:00 – Coffee break

16:30 – Round table:

4-5 Selected panelists (scientists & physicians) & discussion with the audience

17:00 – Closing remarks: H. Depraetere – R. Le Grand- N. Stockhofe

17:30 – End of the meeting