

Joint Symposium 14

Drug Development Committee / Society of Radiopharmaceutical Sciences (SRS)

Saturday, October 24, 09:00-10:30

Session Title

Transporter's Imaging

Chairperson

Winnie Deuther-Conrad (Dresden, Germany)

Programme

- 09:00 - 09:29 Oliver Langer (Vienna, Austria / SRS): PET Imaging of P-Glycoprotein Activity at the Blood-Brain Barrier
- 09:29 – 09:58 Dag Sehlin (Uppsala, Sweden): Design and Modification of Labeled Antibodies for Active Transport Across the Blood-Brain Barrier
- 09:58 - 10:27 Pascale Mossel (Groningen, Netherlands / SRS): PET Imaging of P-gp Function at the Blood-Brain Barrier in CNS Diseases

Educational Objectives

1. Learn about transporters at the blood-brain barrier (BBB)
2. Learn about transport of labelled drugs and antibodies across the BBB
3. Learn about the role of tracers for imaging BBB transporters in CNS diseases

Summary

This session is focused on PET imaging of transporters at the blood-brain barrier (BBB).

The BBB is a dynamic barrier that separates blood from brain tissue. It expresses multiple influx and efflux transporters, which regulate the transport of exogenous and endogenous substances. Therefore, the BBB's principal function is to protect the Central Nervous System (CNS) and ensure a controlled and stable environment for correct neural function.

Furthermore, transporters at the BBB may be involved in drug-drug interactions (DDIs) and are related to the onset of several neurodegenerative diseases and can cause increased concentrations of neurotoxic compounds inside the CNS. Imaging and *in vivo* quantification of the transport across the BBB is of interest for the field. In this joint session, we will discuss the several active transporters at BBB, how we can measure these transporters with labelled drugs or how we can exploit carrier proteins at the BBB (i.e. the transferrin receptor 1) to shuttle radiolabelled antibodies into the brain. Also this session will address the role of PET tracers for imaging P-glycoprotein function at the BBB in CNS diseases.

Key Words

Blood-brain barrier, transporters, drugs, tracers, antibodies, PET