



## 3<sup>rd</sup> International Danube Symposium

### Enabling Whole Person Research: The Transformative Impact of Total Body PET, Complexity Science and Network Medicine

Date	21.-22. September 2023
Location	Park Hyatt Vienna, Am Hof 2, 1010 Vienna, AT
Organized by	Thomas Beyer, Marcus Hacker (Med Uni Vienna)
Scientific Board	Jörg Menche, Stefan Thurner, Enrico Petrillo, Joseph Loscalzo

#### SYNOPSIS

Recently introduced Total-body PET systems offer a paradigm shift in medical sciences, providing a comprehensive assessment of the entire patient with their biological and clinical state, rather than just isolated diseases or organs. This new and innovative technology enables researchers and healthcare providers to record total body tracer kinetics from which quantitative whole body functional parametric images can be obtained. These data offer the means to assess inter-organ communication and track the transition from health to disease, thus yielding potentially a more complete understanding of the subject's overall health in real time and progression over time with clinical intervention.

"Enabling Whole Person Research: The Transformative Impact of Total Body PET, Complexity Science and Network Medicine." is organized as an international, cross-discipline symposium to project on the role of total-body Positron Emission Tomography (PET) within a symbiotic partnership with network medicine and complexity sciences for advancing medical and clinical sciences towards whole person health research.

To fully realize the potential of total-body PET imaging, appropriate research questions with accompanying paradigms and protocols need to be derived. Advanced computational tools and novel workflows are required to make the vast amounts of data produced by these systems available to address the clinical research questions and clinical decision-making. This symposium will bring together experts from nuclear medicine, molecular biology, physiology, network medicine, and data sciences, to annotate the state-of-the-art in their domains and to carve our paradigms and protocols to better understand whole person health and disease.

The symposium will feature invited presentations by renown experts in diverse complementary fields. Moderated debates are structured along organ axes and physiological interventions. This visionary event is designed to build a cross-specialty community of experts from diverse disciplines to advance whole person research and complement other, more technically or clinically focused meetings. Join us and become part of a new and ambitious community dedicated to advancing the field of medical and clinical research.

Marcus Hacker and Thomas Beyer, on behalf of the Org and Sci Com



THURSDAY, SEP-21, 2023

- 0800-0830 Welcome and Motivation | SciOrgCom
- 0830-0915 BASICS I: How to endotype and redefine diseases and validate this by clinical trials | [Harald Schmidt \(Maastricht, NL\)](#)  
*Moderator Marcus Hacker, Vienna*
- 0915-1000 BASICS II: Molecular Imaging and TB-PET | [Simon Cherry \(UC Davis, USA\)](#)  
*Moderator Thomas Beyer, Vienna*
- 1000-1030 Coffee
- 1030-1200 The organization of biology  
*3 Presentations, 20min each, Moderator Thomas Beyer (Vienna, Austria)*  
Unlocking the Secrets of Biology through Art, Imaging and Data Science | [Jörg Menche \(Vienna, Austria\)](#)  
Visualizing Life: The Science of Imaging Biology | [Bernd Pichler \(Tübingen, Germany\)](#)  
Navigating Big and Bigger Complexity to uncover the Secrets of Health Data | [Tbd](#)
- 1200-1330 Lunch
- 1330-1500 The Network Effect: Examining Inflammation in the Body I  
*3 Presentations, 20min each, Moderator Zahi A Fayad (New York, USA)*  
Stress and the Cardiovascular System: Navigating the Intersection | [Ahmed Tawakol \(Boston, USA\)](#)  
Immune interactions in chronic inflammation: old friends and new foes | [Christoph Binder \(Vienna, Austria\)](#)  
Inflammation interactions: Understanding cross-talk in the body | [Frank Bengel \(Hannover, Germany\)](#)
- 1530-1600 Coffee
- 1600-1730 The Network Effect: Examining Inflammation in the Body II  
*3 Presentations, 20min each, Moderator Michael Trauner (Vienna, Austria)*  
Viral Invasion: Exploring the Systemic Response | [Andreas Bergthaler \(Vienna, Austria\)](#)



Defending the Organs: Understanding Organ-Specific Immune Responses |

[Christoph Bock \(Vienna, Austria\)](#)

Novel translational applications in immunology and oncology using total body PET | [Christian la Fougere \(Tübingen, Germany\)](#)

- 1730-1830 Case Story: Proliferation, Metabolic Networks and Stress intervention  
*2 Presentations, 20min each, Moderator Christoph Binder (Vienna, Austria)*  
Stress and Lung Cancer | [Marcus Hacker \(Vienna, Austria\)](#)  
Lung Cancer induced Cachexia | [Armin Frille \(Leipzig, Germany\)](#)
- 19300-2300 Austrian evening: Heuriger

#### FRIDAY, SEP-22, 2023

- 0800-0845 BASICS III: The Power of AI in whole Person Research | [Lalith Kumar Shiyam Sundar, Vienna, Austria](#)  
*Moderator tba*
- 0845-0930 BASICS IV: Discovering the Connections: A Deep Dive into Network Graph Analysis and Causality | [Jan Baumbach \(Hamburg, Germany\)](#)  
*Moderator Jörg Menche, Vienna, Austria*
- 0930-1000 Coffee
- 1000-1100 Keynote Lecture  
*Moderator Eva Schernhammer (Vienna, Austria)*  
The Network Medicine Field and Alliance | [Ed Silverman \(Boston, USA\)](#)
- 1100-1230 Exploring the Hormonal Symphony: Endocrine Network Analysis  
*3 Presentations, 20min each, Moderator Ed Silverman (Boston, USA)*  
The Brain-Hormone Connection: Investigating the Influence of Sex Hormones | [Catharine Gebhard \(Zürich, CH\)](#)  
The impact of psychosocial stress, stress management and new imaging approaches – From psychiatry to oncology | [Rupert Lanzenberger \(Vienna, Austria\)](#)  
The Signaling Function of Bile Acids | [Michael Trauner \(Vienna, Austria\)](#)



- 1230-1400 Lunch
- 1400-1530 Translational Innovations: Harnessing Technologies for Network Analysis in Health  
*3 Presentations, 20min each, Moderator Harald Schmidt (Maastricht, NL)*  
Revolutionizing Biology with Multiplexing: IHC and Spatial Transcriptomics in the Lead | [Andre Rendeiro \(Vienna, Austria\)](#)  
Illuminating Biology: Revealing Metabolic Fingerprints with Spatial Multi-Omics | [David Lewis \(Glasgow, UK\)](#)  
The Next Frontier in Cell Analysis: RadioFACS and RadioMACS | [Cécile Philippe \(Vienna, Austria\)](#)
- 1530-1600 Coffee
- 1600-1800 Building a Healthier Future through Early Detection and Targeted Intervention  
*4 Presentations, 20min each, Moderator Ramsey Badawi (USA)*  
Vienna Prevention Project | [Helmuth Haslacher \(Vienna, Austria\)](#)  
Total-Body PET: A Window into Health and Disease | [John Prior \(Lausanne, CH\)](#)  
Digital twins | [Gernot Plank \(Graz, Austria\)](#)  
The Future of Healthcare: Uncovering the Whole Picture with Whole-Person Research | [Helene Langevin \(NIHH\)](#)
- 1800-1830 Closing and Farewell

## Danube Symposium

📍 Park Hyatt Vienna

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