



**-Wallonia-
Life Sciences Day @ Osaka 2025**

May 29-30 2025

Belgium-Japan workshop

**Artificial Intelligence and Digital Twins for
Future Medicine and Human-Centered Societies:**

- a. New Ways of Screening and Clinical Trials
- b. Aging Well through Smart-Environments and Art-Therapy
- c. Human-Centric Digital and Robotized Society

Wallonia Brussels @ Osaka 2025 Universal Exposition

Belgium-Japan Workshop May 29-30

This Belgium-Japan workshop intends to explore the transformative potential of Artificial Intelligence (AI) and Digital Twins in healthcare and wellbeing.

This event will combine inspiring talks from leading experts with interactive discussions. Participants will explore how advanced technologies, such as AI and Digital Twins, can serve healthcare, wellbeing, and human-centric workplaces.

The objective of the workshop is to foster collaboration between Belgium–Wallonia and Japan in driving innovation at the intersection of academia and industry, in support of Society 5.0.

FIRST PART:

New Ways of Screening and Clinical Trials

May 29 2025, 10:00 a.m. 12:30 a.m.

Early detection of severe diseases remains a cornerstone of effective healthcare. This session will highlight advances in:

- Cancer, Alzheimer's disease and cardiovascular screening using AI-powered risk assessment.
- Polygenic Risk Scores (PRS) for personalized screening strategies.
- Exposome evaluation, integrating environmental and lifestyle factors into precision medicine.

The development of novel therapies faces challenges in efficiency, safety, and cost. This session will also focus on AI-driven drug discovery and validation, particularly for Alzheimer's disease.

- Emerging drugs for Alzheimer's disease
- Digital Twins in clinical trials, simulating healthcare system responses to clinical trials.

PROGRAM

Chairman: Prof. Benoit Macq (UCLouvain)

10:00-10:20 am Dr. Aloys du Bois d'Aische (CEO Eonix S.A.): **"Implementing Large Scale Screening Programs enhanced by Polygenic Risk Scores"**

10:20-10:40 am Prof Manabu Ikeda (Osaka University): **"Current Research on EEG and AI-Based Dementia Identification"**

10:40-11:00 am Prof. Philippe Chevalier (CEO N-Side S.A.) : **"Delivering the Right Drug, at the Right Time: Reinventing Clinical Trials with AI and Digital Twins"**

11:00-11:20 am Prof Marius Gilbert (ULB): **"Global Health Under Pressure: Lessons from Europe's SARS Epidemic Response"**

11:20- 11:40 pm: Prof. Midori Sugaya (Shibaura Institute) : **AI Solutions for Mental Health: Affordable Diagnostic Support Technologies and Applications in Smart Environments**

11:40- 12:10 PM Panel with the speakers– open discussion with the participants – how to increase Japan-Belgium cooperation

12:10-2:00 pm: Lunch-time walking dinner and networking

SECOND PART:

Aging Well through Smart-Environments and Art-Therapy

May 29 2025, 2:00 p.m. to 5:00 pm

Considering aging and impaired populations, AI and data-driven solutions may offer innovative ways to enhance well-being and caring:

- Fall prevention and nutrition improvement through smart monitoring.
- Mental health support to prevent depression and loneliness.
- Cultural engagement via shared virtual art experiences (e.g., virtual museum visits) for cognitively impaired persons.

PROGRAM

Chairwoman: Prof Keiko Gion (Kobe University)

2:00-2:15 pm: Christophe Créviaux – (CEO Fondation Vestalia): **“Presentation of the challenges in Aging EU”**

2:15-2:30 pm : Prof Hiroki Tsuruta (Kobe University), Nicolas Bioul (UCLouvain) and Prof Benoit Macq (UCLouvain) **“Design thinking methodology and application to smart environments for elderly and cognitively impaired persons”**

2:30-2:45 pm: Prof Laurence Ris (UMons): **Aging and Cognitive Decline: Insights from Neurodegeneration and Synaptic Mechanisms**

2:45-3:00 pm: Prof. Masataka Imura (Kwansei Gakuin University) **“Simulating Cognitive Impairments through VR: Raising Awareness of Alzheimer's Disease Effects”**

Pause:3:00- 3:15

3:15-3:30pm: Dr. Chen Feng (Shibaura Institute) and Dr. Sébastien Lugan (Royal Museums of Fine Arts of Belgium): **“Cognitive and Emotional Stimulation for Aging Brains through Shared Artistic Experiences at the Royal Museums in Brussels”**

3:30-3:45 pm : Prof Hiroki Tsuruta (Kobe University), Nicolas Bioul (UCLouvain) and Prof Benoit Macq (UCLouvain) **“Design thinking methodology and application to smart environments for elderly and cognitively impaired persons”**

3:45-4:00 pm: Benjamin Baugier (Multitel) and Prof Eric Haubruge (Liège University): **Enhancing nutritional well-being to optimize health through smart devices**

4:00-5:00 pm: Sandbox for join project ideation led by Prof. Keiko Gion

5:00 pm: Conclusions & After Work: Belgian Pavillon presentation.

THIRD PART:

Human-Centric Digital and Robotized Society

May 30 2025, 10:00 a.m. to 2 p.m.

A super smart Society includes a people-centric industry, where advanced technologies are used for the wellbeing of the workers as well as the customers or the end users. Digital Twin, IA and data management enable new ways to improve these intrinsic relations:

- Dynamic Human Resources management
- Upstream Digital Twins to enhance the final end-user experience
- AI, Digital Twin and Knowledge Management to create materials of the future
- Real-time management tasks to reduce heavy Human constraints (Project UCLouvain/Belrobotics)

These presentations will be followed by a thematic lunch to foster future BE–JP collaborations.

Program

Chairman: Prof. Benoit Macq (UCLouvain) -

10:00-10:05: Minister President Dr. Adrien Dolimont : **Welcome in smart-Wallonia**

10:05-10:30: Prof Marco Rignanese (CEO Matgenix): **"Leveraging AI, Digital Twins and Knowledge Management to Assist Humans in Designing the Next Generation of Materials and Molecules"**

10:30-10:50: Prof Gustavo Garcia (Ritsumei University): **"Large Language Models to Manage Personalized Human-Robots interactions"**

10:50-11:10: Prof Nicolas Docquier (Quandyga): **"Realtime simulation techniques for human centered applications in mechanics and biomechanics"**

11:10-11:30: Prof Tomohiro Kuroda (University of Kyoto): **"Smart Hospitals and Wearable Technologies: Toward a Human-Centric Digital Health"**

11:30-11:50: Arthur Pisvin (I-Care/ Sirris/ UCLouvain): **"Enhancing Operator Well-being through Dynamic Human Resources Management: A Prospective Application in I-Care and Hakibiko Factories"**

11:50-12:30: Panel and Conclusions- **Thomas de Saive**

12:30- 14:00: Walloon Gastronomy Lunch (+ Gastronomy Lab UX) and networking