



D³ 4 HEALTH – Digital Driven Diagnostics, prognostics and therapeutics for sustainable health care

MID-TERM RESULTS

October 10th | Aula Magna, Sapienza

10.30 Greetings

Antonella Polimeni, Rector of Sapienza

10.40 Introduction

Maria Sabrina Sarto, Deputy Rector for Research of Sapienza and D³4Health President

Carlo Catalano, Professor of Radiology, Head of the Department of diagnostic radiology of Sapienza and D³4Health Project Scientific Coordinator

10.50 – 11.40 SPOKE 1 & 2: Clinical use cases and new models of care supported by AI/E-Health based solution / Multilayer platform to support the generation of the Patients' Digital Twin – Moderator **Monica Miozzo** (UniMI)

10.50 – 10.55 Project overview - Monica Miozzo (UniMI)

10.55 – 11.10 Platform presentation - Carlo Tacchetti (UniSR)

11.10 – 11.20 Generative AI in health: enhancing models by synthetic data – Giuseppe Jurman (FBK)

11.20 – 11.30 Multicentric approach through Federated Learning– Stefano Brusamolino (Porini S.r.l.)

11.30 – 11.40 Discussion

11.40 – 12.20 SPOKE 3: Wearable technologies, sensors and biomarkers for care through Digital Twin approaches - Moderator **Valeria Panebianco** (Sapienza)

11.40 – 11.45 Brief Overview – Valeria Panebianco (Sapienza)

11.45 – 11.55 Wearable technologies and sensors – Alessandro D'Aloia (Sapienza)

11.55 – 12.05 Highly specialized AI algorithms for Digital Twin – Evaristo Cisbani (ISS)

12.05 – 12.15 Biomarker – Raffaella Chiaramonte (UniMI)

12.15 – 12.20 Discussion

12.20- 12.50 SPOKE 4: Biological and bioengineered in vitro models for care through Digital Twin approaches - Moderator **Fabrizio Candido Pirri** (PoliTO)

12.20 – 12.25 Brief Overview – Fabrizio Candido Pirri (PoliTO)

12.25 – 12.35 Technologies for biological twin development - Francesco Gervaso (CNR)

12.35 – 12.45 Biological and bioengineered in vitro models for personalized medicine – Oronzina Botrugno (UniSR)

12.45 - 12.50 Discussion

12.50-13.20 USE CASE 1: Metastatic Colon Cancer - Moderator **Vincenzo Spagnuolo** (PoliBA)

12.50-12.55 Clinical Needs - Federica Cipriani (UniSR)

12.55-13.00 Algorithm Development and Validation for Predicting Liver Metastasis Recurrence and Chemotherapy Response in Metastatic Colon Cancer Patients Post-Resection: data sources unification and Exploratory Data Analysis - Patrick Scuri (UniSR)

13.00 – 13.05 Mass Spectrometry based multi-omics strategies for colorectal cancer– Eduardo Sommella (UniSa)

13.05 – 13.10 Imaging biomarkers in metastatic colon cancer – Giorgio Maria Masci (Sapienza)
13.10 – 13.15 The role of therapeutic nanoparticles in 3D colorectal cancer models - Valentina Cauda (PoliTO)
13.15 – 13.20 Discussion

13.20 – 14.20 LIGHT LUNCH

14.20 – 14.50 USE CASE 2: Liver and Bile ducts cancer – Moderator **Domenico Alvaro** (Sapienza)

14.20 – 14.25 Clinico-pathological characteristics of cholangiocarcinoma at diagnosis and prognostic correlations: retrospective multicenter study - Vincenzo Cardinale (Sapienza)

14.25 – 14.30 Harnessing the full potential of open-data for survival prediction with small datasets through transfer learning: the cholangiocarcinoma case study and pan-cancer applications – Lorenzo Manganaro (aizoOn)

14.30 – 14.35 Intelligent system for radiomics in cholangiocarcinoma - Vitoantonio Bevilacqua (PoliBA)

14.35 – 14.40 Biomarkers in cholangiocarcinoma: prospective data – Valeria Lucarini (Sapienza)

14.40 – 14.45 Microfluids platform for the generation of single-cell tumor spheroids of epithelial cancer cell lines – Diego Di Bernardo (TIGEM)

14.45 - 14.50 Discussion

14.50 – 15.20 USE CASE 3: CNS Cancer – Moderator **Diego Centonze** (NEUROMED)

14.50 - 14.55 Central nervous system tumors: pediatric use case – Diana Ferro (OPBG)

14.55 - 15.00 Developing APIs for the Automated Detection of Cancer-related Biomarkers Through Explainable AI – Maurizio Mancini (Sapienza)

15.00 - 15.05 Imaging biomarkers in CNS tumors – Antonello Vidiri (IRCCS IFO-REGINA ELENA)

15.05 –15.10 Mimicking the neural microenvironment through 3D bioprinting technologies – Chiara Tonda-Turo (PoliTO)

15.10 – 15.20 Discussion

15.20 – 15.50 USE CASE 4: Type I Diabetes – Moderator **Claudio Russo** (UniMol)

15.20 – 15.25 Patients stratification through circulating microRNA - Guido Sebastiani (UniSI)

15.25 – 15.30 Predicting Partial Clinical Remission in Type 1 Diabetes - Edoardo Luigi Draetta (UniSR)

15.30 – 15.35 Predictive techniques for diabetic data analysis - Michele Nappi (UniSA)

15.35 – 15.40 Development of flow cytometry-based techniques for profiling extracellular vesicles and apoptotic bodies as potential biomarkers in type 1 diabetes and multiple sclerosis - Domenica Giannandrea (UniMI)

15.40-15.45 3D-printable materials for the design of in vitro diabetic skin models – Andrea Cosola (PoliTO)

15.45-15.50 Discussion

15.50 - 16.20 USE CASE 5: Multiple Sclerosis – Moderator **Antonella Conte** (Sapienza)

15.50 – 15.55 Clinical needs – Mara Rocca (UniSR)

15.55 – 16.00 Structural and diffusion biomarkers of Multiple Sclerosis from advanced MRI acquisition and analysis of the spinal cord – Alessia Sarica (UniCZ)

16.00 – 16.05 Graphene-based smart insole for gait monitoring - Negin Faramarzi (Sapienza)

16.05 – 16.10 Development of a digital twin of patients with multiple sclerosis for precision therapy – Enza Cece (ISS)

16.10 - 16.15 Towards the Clinical Digital Twin: challenges and perspectives – Gabriella Bretti (CNR)

16.15 – 16.20 Discussion

16.20 CLOSING REMARKS

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