



The Medicine and Technological Singularity

4th Symposium on the Advances on
Regenerative Medicine

September 14-15, 2023

Venue

Sala della Protomoteca,
Capitol Hill (Campidoglio), Rome

Organized by

The Centre for Regenerative Medicine, University of Rome "Tor Vergata", Italy
The Institute of Cardiovascular Sciences, St. Boniface Hospital Albrechtsen Research Centre,
University of Manitoba, Winnipeg, Canada

The University of Campania, "Luigi Vanvitelli", Naples, Italy
The International Stem Cells and Tissue Engineering Network

In partnership with: Rome Technopole

Website: <https://www.medicine-technological-singularity.org>

Conference Chairs

Paolo Di Nardo, (Roma, Italy)
Sanjiv Dhingra, (Winnipeg, Canada)
Vincenzo Desiderio, (Naples, Italy)

Scientific Committee

Paolo Di Nardo (Italy)
Sanjiv Dhingra (Canada)
Vincenzo Desiderio (Italy)
Roberto Bei (Italy)
Balwant Tuana (Canada)
Jan Kyselovic (Slovakia)
Vincenzo Tagliaferri (Italy)
Federica Trovalusci (Italy)
Felicia Carotenuto (Italy)
Emanuela Tamburri (Italy)
Fabio De Matteis (Italy)
Paolo Proposito (Italy)

Organizing Committee

Mauro D'Amico
Luca Porinelli
Olindo Cazzolla
Anna Maria Maccari
Beatrice Castaldo

Scientific Program

Protomoteca Hall

Thursday, September 14, 2023

9:00 (Protomoteca Hall)
Inauguration and Welcome Address

Panel Discussion on providing the Best Healthcare

9:30-11:00

Chair
Gerardo D'Amico

Panel Members:

Filippo Anelli (*Federazione Nazionale degli Ordini dei Medici Chirurghi e degli Odontoiatri*)

Pier Luigi Bartoletti (*Federazione Italiana Medici di Medicina Generale*)

Donatello Iacobone (*118 Asl Bat – Barletta, Andria, Trani*)

Rosaria Alvaro (*Federazione nazionale degli ordini delle professioni infermieristiche*)

Giorgio Simeoni (*Consiglio Regionale del Lazio*)

Francesco Schittulli (*Lega Italiana per la Lotta contro i Tumori*)

Antonio Felice Uricchio (*Italian National Agency for the Evaluation of Universities and Research Institutes - ANVUR*)

Giuseppe Di Domenica (*SIS 118*)

Nadia Di Carluccio (*Università degli studi di Foggia- Management delle PA Sanitarie*)

Coffee Break: 11:00 – 11:15

SESSION 1

11:15-12:30

Cybersecurity Challenges in Healthcare

Chairs

Belwant Tuana (*University of Ottawa, Canada*)

Federica Papaccio (*University of Salerno, Salerno, Italy*)

11:15

Matteo Lucchetti (*The National Cybersecurity Competence Center, Roma*)

Title: The Cybersecurity Competence Center CYBER 4.0: Cybersecurity for Health Systems

11:30

Giuseppe Bianchi (*Department of Electronic Engineering, University of Rome Tor Vergata*)

Title: The global challenges of cyber threats in medical devices

11:45

Leonardo Tricarico (*President, ICSA Foundation*)

Title: Lotta al Crimine Informatico. A che punto siamo

12:00

Giuseppe Corasaniti (*Universitas Mercatorum, Roma*)

Title: Artificial intelligence systems in healthcare: Essential legal issues

12:15

Francesca Nanni (*Department of Enterprise Engineering, University of Rome Tor Vergata*)

Title: Cyber4Health: raising awareness to promote medical devices' Security by Design

Lunch: 12:30 pm – 13:30 pm

SESSION 2

13:30–15:15

Transformation of Patient Care: Digital, Robotic and Innovative Treatments

Chairs

Roberto Bei (*Università di Roma “Tor Vergata”*)

Sanjiv Dhingra (*University of Manitoba, Canada*)

13:30

Marco Evangelos Biancolini (*Department of Enterprise Engineering, University of Rome Tor Vergata*)

Title: The medical digital twin: unleashing high-fidelity in silico simulations for patient-specific solutions

13:45

Gaetano Marrocco (*Department of Civil Engineering and Computer Engineering, University of Rome Tor Vergata*)

Title: Digitally empowered humans: how upcoming epidermal and implantable wireless devices will enhance preventive medicine and enable novel sensorial capabilities

14:00

Roberto Basili (*Department of Enterprise Engineering, University of Rome Tor Vergata*)

Title: Data and knowledge: information extraction and machine learning for clinical decision support systems

14:15

Loredana Zollo (*Departmental Faculty of Engineering, Campus Bio-Medico University, Rome*)

Title: Main Challenges of Human-Robot Interaction in Healthcare and Human Wellbeing

14:30

Shingo Maeda (*Dept of Mechanical Engineering, Tokyo Institute of Technology, Tokyo, Japan*)

Title: Soft active materials and soft robots

14:45

Ombretta Melaiu (*Dept Clinical Sciences and Translational Medicine, University of Rome "Tor Vergata"*)

Title: Organoids and organs-on-a-chip: new frontiers for predicting response and resistance to immunotherapy in cancer patients

15:00

Federica Papaccio (*University of Salerno, Salerno, Italy*)

Title: Patient-derived organoids for precision medicine

Coffee Break 15:15 – 15:30

SESSION 3

15:30 - 16:45

Innovative Treatments and Pioneering Clinical Research

Chairs

Vincenzo Desiderio (*University of Campania "Luigi Vanvitelli"*)

Nirmal Robinson (*University of South Australia*)

15:30

Giuseppe Tonini (*Policlinico Universitario, Campus Bio- Medico, Roma*)

Title: Precision Medicine in Medical Oncology: the role of liquid biopsy

15:45

Chiara Focaccetti (*Dept Clinical Sciences and Translational Medicine, University of Rome Tor Vergata*)

Title: In vivo effect of oral intake of the endocrine disruptor bisphenol-a (bpa) in balb-neut transgenic mice, that spontaneously develop mammary tumors

16:00

Gioacchin Iannolo (*Mediterranean Institute for Transplantation and Advanced Specialized Therapies, Palermo*)

Title: Normal and Tumoral Stem Cells, The Double Face of the Same Coin

16:15

Monica Benvenuto (*Department of Clinical Sciences and Translational Medicine, University of Rome "Tor Vergata"*)

Title: Combination strategies for the treatment of malignant mesothelioma

16:30

Loredana Cifaldi (*Department of Clinical Sciences and Translational Medicine, University of Rome "Tor Vergata"*)

Title: Dnam-1-chimeric receptor-engineered nk cells: a new frontier for car-nk cell-based immunotherapies

16:45

Vincenzo Lionetti (*Institute of Life Sciences, Scuola Superiore Sant'Anna, Pisa*)

Title: Early reconnection of the heart to the right vagus nerve prevents regional contractile dysfunction

SESSION 4

17:00 – 18:00

Future of Space Medicine

Chairs

Ren-Ke Li (*Toronto General Hospital, University of Toronto*)

Giuseppe Corasaniti (*Universitas Mercatorum, Roma*)

17:00

Alessandra Celletti (*Italian National Agency for the Evaluation of Universities and Research Institutes - ANVUR*)

Title: Life, Habitable Worlds and Celestial Mechanics

17:15

Marco Lucertini (*Italian Air Force*)

Title: Otoacoustic Emissions and Intracranial Pressure Monitoring`

17:30

Fabio Morgagni (*Istituto di Medicina Aerospaziale, Roma*)

Title: Medical support in manned spaceflight: state of the art and future challenges

17:45

Barbara Negri (*Agenzia Spaziale Italiana – Italian Space Agency*)

Title: The Italian Space Agency's initiatives for space biomedicine

Dinner: 19:00 – 21:00 (By invitation Only)

Friday, September 15, 2023

Protomoteca Hall

SESSION 5

9:00–10:45

Stem Cells, Biomaterials and Innovative treatments in Regenerative Medicine

Chairs

Maurizio Fraziano (*Department of Biology, University of Rome Tor Vergata*)

Shingo Maeda (*Dept of Mechanical Engineering, Tokyo Institute of Technology, Tokyo, Japan*)

09:00

Balwant Tuana (*Dept Cellular and Molecular Medicine, University of Ottawa, Canada*)

Title: The tail anchored membrane protein slmap as a target in cell differentiation and tissue formation

09:15

Sara Vasconcelos (*Institute of Biomaterials and Biomedical Engineering, University of Toronto, Canada*)

Title: Improving cardiac remuscularization in regenerative medicine through effective vascularization

09:30

Jan Kyselovic (*Comenius University Bratislava, Slovakia*)

Title: Role of pharmacological preconditioning in therapeutic potential of mesenchymal stem-cell-in ischemic cardiovascular disease

09:45

Caterina Boccia (*DAHFMO-Unit of Histology and Medical Embryology, Sapienza University of Rome*)

Title: Targeting il-6 signaling to stabilize the dystrophic muscle

10:00

Marianna Cosentino (*DAHFMO-Unit of Histology and Medical Embryology, Sapienza University of Rome*)

Title: A vascularized muscle engineered tissue (x-met) as a cardiac patch for

myocardial infarction repair

10:15

Hania Ammar (*Department of Physiology, Faculty of Medicine, Cairo University, Egypt*)

Title: Anti-inflammatory drugs and stem cell therapy in diabetic cardiomyopathy

10:30

Nirmal Robinson (*Centre for Cancer Biology, University of South Australia*)

Title: Unravelling the role of “don’t eat me signal” cd47 in regulating cellular and metabolic plasticity

Coffee: 10:45 – 11:00

SESSION 6

11:00 – 13:00

Biomaterials and Additive Manufacturing

Chairs

Emanuela Tamburri (*Dipartimento di Scienze Chimiche, Università di Roma “Tor Vergata”*)

Jan Kyselovic (*Comenius University Bratislava, Slovakia*)

11:00

Arslan ulHaq (*Dip.to di Scienze Cliniche e Medicina Traslazionale, Università degli Studi di Roma “Tor Vergata”*)

Title: Electrically conductive scaffolds mimicking the hierarchical structure of cardiac myofibers

11:15

Francesca Pescosolido (*Dip.to di Scienze Cliniche e Medicina Traslazionale, Università degli Studi di Roma “Tor Vergata”*)

Title: Strategies to produce new biomaterials with antibacterial properties for 2d and 3d structures

11:30

Noemi Fiaschini (*Nanofaber, Roma*)

Title: Innovative nanocoatings and nano-biomaterials for health and biomedicine – demo cases from the newskin oitb project and the «microsponge» drug delivery platform

11:45

Alba Scerrati (*Department of Translational Medicine, University of Ferrara*)

Title: Patient specific customized cranioplasty by 3d printing

12:00

Francesco Ricci (*Dept of Chemical Sciences and Technologies, University of Rome Tor Vergata, Italy*)

Title: DNA nanotechnology tools for diagnostic applications

12:15

Luca Montaina (*Dept of Chemical Sciences and Technologies, University of Rome Tor Vergata, Italy*)

Title: Electroconductive polymers in 3d printing: developing flexible electrodes for ecg monitoring

12:30

Rocco Carcione (*Dept of Chemical Sciences and Technologies, University of Rome Tor Vergata, Italy*)

Title: Exploring chemical approaches for design and fabrication biomimetic systems: from hard diamond to soft electroconductive polymers

12:45

Annalisa La Gatta (*Department of Experimental Medicine, University of Campania "Luigi Vanvitelli"*)

Title: Hyaluronan in (regenerative) medicine: towards safer and biomimetic matrices, and the 3D-printing challenges

Lunch: 13:00 – 14:00

SESSION 7

14:00 – 16:00

Innovative Treatments in Regenerative Medicine

Chairs

Gioacchin Iannolo (*Mediterranean Institute for Transplantation and Advanced*
Sanjiv Dhingra (*University of Manitoba, Canada*)

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14:00

Ren-Ke Li (*Toronto General Hospital Research Institute, Toronto, Canada*)

Title: Rejuvenation of aged heart using young stem cells prevents heart failure, possible mechanism

14:15

Maurizio Fraziano (*Department of Biology, University of Rome Tor Vergata*)

Title: Innovative therapeutic strategies to combat the global emergence of multi-drug resistant infections

14:30

Masood Kamali-Moghaddam (*University of Uppsala, Sweden*)

Title: Advanced molecular tools for detection and characterization of extracellular vesicles

14:45

Simona Chera (*Department of Clinical Science, University of Bergen, Norway*)

Title: Mapping master regulators of regeneration rhythms in the pancreatic islet

15:00

Giovanni Randon (*Istituto Nazionale dei Tumori, Milan, Italy*)

Title: Application of multi-omics in colorectal cancer

15:15

Paolo Cortesi (*Centro di Studio e Ricerca in Sanità Pubblica, Università Milano Bicocca*)

Title: Defining value in advanced therapies: the case of gene therapy in Haemophilia

15:30

Alessio Cortiana (*Dipartimento di Medicina e Chirurgia, Università degli Studi di Milano*)

Title: On the road saliva swab during pandemics, a possible way to foster community early testing and treating in epidemics and pandemics: the experience of people engagement in an urban and in a rural area during COVID-19 in an exploratory initiative, a strategy to deep

15:45

Francesco Paolo Maraglino (*Direzione Generale della Prevenzione Sanitaria, Ministero della Salute*)

Title: The future of preparedness and response to infectious Public Health emergencies

SESSION 8

16:00 – 17:00

Novel Devices for Healthcare

Chairs

Vincenzo Desiderio, PhD (*University of Campania "Luigi Vanvitelli"*)

Simona Chera (*Department of Clinical Science, University of Bergen, Norway*)

Augusto Giardini (*Catalent SpA*) (*TBC*)

Title: Advanced and automated innovation labs for diagnostic and therapeutic biopharma solution

Mauro Cislighi (*BVTech SpA*)

Title: Development, innovation and certification of medical and non-medical devices for health

Microtech s.r.l.

Title: TBD

MM Biotech s.r.l.

Title: TBD

Concluding remarks and vote of thanks

