



**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 (Italy)  
Sanjiv Dhingra (Canada)  
Vincenzo Desiderio (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  
Anna Rita Longhi**

# Scientific Program

**Thursday, September 14, 2023**

*Protomoteca Hall*

**9:00 Inauguration**

*Saluti istituzionali (Comune di Roma Capitale)  
Carlo Nucci (Deputy Rector, Università di Roma Tor Vergata)  
Sanjiv Dhingra (University of Manitoba, Canada)*

## **Panel Discussion on providing the Best Healthcare**

**9:30-11:00**

*Chair*

**Gerardo D'Amico (RAInews24)**

### **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** (*Agenzia per la Valutazione del Sistema Universitario e della Ricerca - ANVUR*)

**Giuseppe Di Domenica** (*SIS 118*)

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

**Lina Di Domenico** (*Dipartimento Amministrazione Penitenziaria, Ministero della Giustizia*)

**Coffee Break: 11:00– 11:15**

**SESSION 1**

**11:15-12:30**

## Cybersecurity Challenges in Healthcare

*Chairs*

**Balwant Tuana** (*University of Ottawa, Canada*)

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

**11:15**

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

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

**11:30**

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

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

**11:45**

**Riccardo Fragomeni** (*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**

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

**Title:** The global challenges of cyber threats in medical devices

**Lunch: 12:30 – 13:30 (By invitation Only)**

## SESSION 2

**13:30 – 15:15**

### Transformation of Patient Care: Digital, Robotic and Innovative Treatments

*Chairs*

**Roberto Bei** (*Centro Medicina Rigenerativa, 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**

**Daniilo Croce** (*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 – 17:15**

#### **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

**17:00**

**Saverio Parisi** (*University of Padua*)

**Title:** Infectious diseases scenarios and public health: knowledge, sharing and protection

## **SESSION 4**

**17:15 – 18:15**

### **Future of Space Medicine**

*Chairs*

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

**Giuseppe Corasaniti** (*Universitas Mercatorum, Roma*)

**17:15**

**Alessandra Celletti** (*Agenzia per la Valutazione del Sistema Universitario e della Ricerca - ANVUR*)

**Title:** Life, Habitable Worlds and Celestial Mechanics

**17:30**

**Marco Lucertini** (*Italian Air Force*)

**Title:** Otoacoustic Emissions and Intracranial Pressure Monitoring`

**17:45**

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

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

**18:00**

**Gabriele Mascetti** (*Agenzia Spaziale Italiana – Italian Space Agency*)

**Title:** The global scenario of human exploration and the key challenges for human health

**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*

**Francesca Nanni** (*Department of Enterprise Engineering, 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 break : 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 (By invitation Only)**

## **SESSION 7**

**14:00 – 16:00**

### **Innovative Strategies in Healthcare**

*Chairs*

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

**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 innovation for diagnostic and therapeutic biopharma solutions within FP7 in Rome Technopole

**Mauro Cislighi** (*BVTech SpA*)

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

**Concluding remarks and vote of thanks**