CHEMISTRY FOR A BETTER LIFE: SOLUTIONS TO HEALTH CHALLENGES

27th – 28th November 2025

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Avogadro Colloquia 2025
6th edition

Consiglio Nazionale delle Ricerche

Società Chimica Italiana

CNR | DSCTM

10.15 – 11.00 Opening and welcome
The Avogadro Medal
Gianluca Maria Farinola, SCI President
Lidia Armelao, CNR DSCTM Director
Maria Careri, SCI Scientific Commission Coordinator

Session 1. Molecular Imaging for Therapeutics and Diagnostics

CHAIRS: Maria Careri, Claudio Sangregorio

11.00 Multimodal imaging across scales to develop novel diagnostic and therapeutic strategies (**Frauke Alves**, Max Planck Institute for Multidisciplinary Sciences di Gottingen, Germany)

11.45 Route to molecular Magnetic Resonance Imaging (**Silvio Aime**, University of Turin)

12.10 Inorganic nanoparticles for tackling tumor therapy and Imaging (**Teresa Pellegrino**, Italian Institute of Technology, Genoa)

12.35 Proteins and phages nanobiovectors: the "Trojan Horse" approach in theranostics (**Matteo Calvaresi**, University of Bologna)

13.00 Harnessing molecular imaging agents for precision diagnostics (**Alessandro Maiocchi**, Bracco SpA)

13.30 – 14.30 Lunch

Session 2. Innovative Strategies for Successful Drug Development

CHAIRS: Gianluca Sbardella, Marcella Chiari

14.30 Assembling a new generation of theranostics via supramolecular design (**Angela Casini**, Technical University of Munich, Germany)

14.55 The emerging importance of small molecules in innate immunity and immunotherapy (**Angelo Fontana**, CNR ICB, Naples)

15.20 Functional synthetic platforms for nucleic acid delivery (**Paolo Caliceti**, University of Padua)

15.45 Nanomedicines and drug repurposing (**Ruggero Bettini**, University of Parma)

16.10 From the laboratory to the clinic: challenges and solutions to accelerate the development of new drugs (**Mauro Serratoni**, Novartis)

16.30 – 17.00 Coffee Break

17.00 – 18.00 Round Table Discussion

DISCUSSION LEADERS: Maria Careri, Gianluca Sbardella

Alberto Auricchio (The Telethon Institute of Genetics and Medicine), **Marcella Chiari** (CNR SCITEC), **Andrea Chiesi** (Chiesi Group), **Alessandro Maiocchi** (Bracco), **Mauro Serratoni** (Novartis)

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CHAIRS: Gianluca Maria Farinola, Matteo Bonomo

09.00 - 09.30 The Bertini Medal

Session 3. Artificial Intelligence-methods and Computational Modeling

CHAIRS: Benedetta Mennucci, Angela Casini

09.30 AI-driven transformations to precision medicine and care (**Sara Colantonio**, CNR ISTI, Pisa)

09.55 Turbocharging the search for new drugs with AI: the PyRMD approach (**Sandro Cosconati**, University of Campania Studies "Luigi Vanvitelli")

10.20 Role of computational methods in the era of precision medicine (**Andrea Cavalli**, CECAM-EPFL, Lausanne)

10.45 - 11.15 **Coffee Break**

Session 4. DNA and RNA-Based Technologies: the Potential of Genomics for Human Health

CHAIRS: Luisa De Cola, Paolo Melchiorre

11.15 Long non-coding RNAs regulate genome activity (**Piero Carninci**, Human Technopole, Milan)

11.40 CRISPR-based systems controlled by DNA-based molecular devices (**Alessandro Porchetta**, Tor Vergata University of Rome)

12.05 Engineering biomolecular communication and enhanced biosensing by DNA nanotechnology (**Alessandro Bertucci**, University of Parma)

12.30 - 13.30 **Lunch**

Session 5. From Molecular Assembling to Artificial Organs

CHAIRS: Lucia Toniolo, Alessandra Sanson

13.30 Advanced biomaterials for a better life using sustainable ingredients and green chemical tools (**João Mano**, University of Aveiro, Portugal)

14.15 From organs-on-a-chip to organisms-on-a-chip (**Manuela Raimondi**, Polytechnic University of Milan)

14.40 Minimalistic peptide self-assembly: a versatile toolbox for hydrogels for health (**Silvia Marchesan**, University of Trieste)

CHAIRS: Gianluca Maria Farinola, Luisa De Cola

15.15 Innovation by evolution: bringing new Chemistry to Life (**Frances H. Arnold**, **Nobel Laureate**, California Institute of Technology, USA)

16.00 Conclusions

Gianluca Maria Farinola, SCI President
Lidia Armelao, CNR DSCTM Director