

The Giovanni Armenise Harvard Foundation 20th Symposium
Enhancing Scientific Research through Technological Breakthroughs
June 21-24, 2026
Villa Cavalletti and Villa Grazioli, Grottaferrata, Italy

-- & --

The Giovanni Armenise Harvard Foundation: 30 Years of Science without Borders
Building Bridges and Ecosystems to Attract International Research Talent to Italy
Sala Zuccari in Palazzo Giustiniani, Rome, Italy

Three decades after the Giovanni Armenise Harvard Foundation began building bridges between Italian and Harvard biomedical research, its scientific community gathered once again for the biennial symposium.

Held from 21 to 24 June at Villa Cavalletti and Villa Grazioli in Grottaferrata, near Rome, the 20th Armenise Symposium brought together recipients of the Italian Career Development Award program and the Junior Faculty Grant at Harvard Medical School (HMS), as well as leading international scientists and early-career researchers for four days of scientific exchange under the theme: *Enhancing Scientific Research through Technological Breakthroughs*. Co-chaired by Rosa Bernardi (IRCCS San Raffaele Scientific Institute) and Galit Lahav (Harvard Medical School), the meeting explored how emerging technologies—from advanced imaging and multi-omics to synthetic biology and artificial intelligence—are transforming the tools available to researchers and the very questions that drive biomedical science.

The symposium opened with welcoming remarks from George Daley, Dean of Harvard Medical School, whose keynote lecture on generating hematopoietic stem cells from pluripotent stem cells illustrated how decades of advances in stem cell biology and developmental biology are converging toward regenerative medicine – in this case, towards off-the-shelf immunotherapy. His presentation set the tone for the meeting, demonstrating how technological progress enables researchers to tackle long-standing biomedical challenges with unprecedented precision.

The first full day focused on imaging technologies, showcasing how increasingly sophisticated approaches are revealing biological processes across multiple spatial and temporal scales. Chaired by HMS's Bernardo Sabatini, the opening session ranged from Davide Mazza's research on how the p53 transcription factor controls the cellular response to DNA damage and Josefina del Marmol's studies of the molecular basis of olfactory communication, to Federico Rossi's work on using novel optical and electrical probes to investigate the role of apical dendrites in sensory processing in visual cortical neurons. Together, the presentations illustrated how innovations in microscopy, imaging and quantitative analysis are allowing researchers to visualize cellular behavior with extraordinary detail.

The second imaging session shifted attention from individual cells to interactions within complex tissues. Guided by chair Daniela Latorre, speakers explored how advanced imaging technologies are providing new insights into viral infections, neuroimmune communication and inflammatory mechanisms involved in neurodegenerative diseases. Jennifer Oyler-Yaniv discussed cellular and collective mechanisms that contain viral infections at epithelial barriers, while Isaac Chiu examined the dialogue between the nervous and immune systems during lung inflammation and the role of sensory neurons as key regulators of the immune response. Gabriela Constantin concluded the session

by presenting research on how the dysfunction of neutrophils (the most common type of white blood cells) can become a driver of neurotoxic inflammation and neurodegeneration.

The afternoon turned to the expanding world of -omics technologies. Chaired by Marino Zerial, the session demonstrated how genomic, transcriptomic and proteomic approaches are transforming biomedical research by enabling comprehensive analyses of complex biological systems. Steve McCarroll presented his work on Huntington's disease that shows how the inherited DNA repeat that causes the disease undergoes decades of somatic expansion in specific types of neurons, a surprising model that explains many long-puzzling features of the illness. Stefano Gustincich introduced SINEUPs, an emerging class of long non-coding RNAs capable of enhancing protein translation, while Tiziana Bonaldi illustrated how her laboratory applies and develops mass spectrometry to dissect how cancer cell plasticity and therapy resistance are driven by epigenetic reprogramming that reshapes chromatin states and gene expression without genetic alterations.

Together, the talks highlighted the power of high-throughput technologies to reveal previously inaccessible layers of biological regulation.

Beyond scientific presentations, the symposium also provided opportunities to reflect on the future of biomedical technologies. A panel discussion moderated by science journalist Roberta Fulci brought together Francesca Ciccarelli, George Daley and Franca Fraternali to examine both the opportunities and limitations associated with emerging research technologies. The discussion emphasized that while technological innovation is advancing at remarkable speed, maximizing its impact will require sustained investment in interdisciplinary collaboration, computational expertise and responsible scientific development.

Poster sessions held over two evenings further reinforced the meeting's collaborative spirit. Accompanied by informal discussions, these sessions offered early-career researchers and established investigators alike the opportunity to exchange ideas, present ongoing work and develop new collaborations across disciplines and institutions.

The second day opened with a special lecture by newly elected National Academy of Sciences member Stephen Blacklow, who presented structural studies of ADAM10, the principal human alpha-secretase. His work points to a molecular roadmap for targeted modulation of ADAM10 activity for therapeutic purposes, demonstrating how advances in structural biology continue to reveal the molecular mechanisms governing protein maturation and activation, and opening new opportunities for therapeutic intervention.

Artificial intelligence emerged as one of the symposium's central themes during a dedicated session chaired by Arlene Sharpe. Here, Marinka Zitnik explored the concept of AI scientists by introducing PROTON, an AI agent for neurology that integrates molecular measurements, perturbational data, organoid systems, and longitudinal clinical records to enable discoveries across neurological diseases. Ross King presented Robot Scientists, which combine techniques from artificial intelligence and physical robots to execute cycles of automated scientific experimentation. Together, the presentations highlighted the growing role of AI not only as a computational tool but also as a transformative partner in hypothesis generation, experimental design and data interpretation.

The final scientific session, chaired by Irene Faraballa, looked at the future of engineering biology. Alessandro Bertero described how his lab uses genome architecting - an integrated framework to read, interpret, write, and scale cell fate - to address the challenge of turning pluripotent stem cells into mature muscle cells. Diego di Bernardo discussed how synthetic gene circuits can reduce the cost of

viral vector manufacturing for gene therapy, help engineer improved animal models of disease, and contribute to in-vivo gene therapy in diseases for which precise gene dosage is essential. Finally, Pam Silver presented strategies for designing microbes and using them as living sensors, and for using combinatorial sensing to develop novel therapeutics for treating unmet medical needs.

Their talks demonstrated how synthetic biology increasingly combines engineering principles with biological knowledge to create programmable systems capable of addressing major medical and societal challenges.

The symposium concluded with a keynote lecture by Francesca Ciccarelli on the drivers of somatic and cancer evolution. Her talk explored the fundamental forces shaping cancer transformation and progression, from intrinsic cellular programs to the complex extrinsic influences of the tumor microenvironment and the selection pressure exerted by therapy, and showed how these factors interact to generate diversity, fuel resistance, and ultimately determine patient outcomes.

On 24 June, immediately following the meeting in Grottaferrata, the Giovanni Armenise Harvard Foundation also celebrated its 30th anniversary with an institutional event held in the historic Sala Zuccari at Palazzo Giustiniani in Rome. Organized thanks to the support of Senator for Life Elena Cattaneo, the meeting reflected on the Foundation's enduring contribution to strengthening biomedical research and fostering international scientific exchange.

Opening remarks by Senator Elena Cattaneo and Francesca Galli, representing Italy's Ministry of Universities and Research, framed the discussion around a question that has guided the Foundation since its establishment: how to build the conditions that allow scientific talent to flourish and encourage outstanding researchers to pursue their careers in Italy.

The anniversary event brought together many of the individuals who have helped shape the Foundation's journey over the past three decades. Chairman Giampiero Auletta Armenise reflected on thirty years of support for biomedical research, while HMS Dean George Daley discussed the characteristics that have made Harvard and the Boston area one of the world's most successful research ecosystems. Executive Director Elisabetta Vitali presented the Foundation's impact through the discoveries it has enabled, the careers it has supported, and the values that continue to guide its activities, accompanied by a video celebrating the people and stories behind three decades of scientific achievement.

A roundtable discussion then broadened the perspective to consider the policies needed to attract and retain scientific talent in Italy. Moderated by science journalist Barbara Gallavotti, the panel brought together leaders from academia, research institutions and policy, including Maria Chiara Carrozza, Luca Paolazzi, Liborio Stuppia, Elisabetta Vitali and Marino Zerial.

The celebration concluded with the presentation of the inaugural Lisa D. Mayer Mentoring Award, launched in the spring of 2026 by the Foundation to recognize the central role that mentorship plays in nurturing scientific talent across generations. The award went to Matteo Iannaccone (for Italy) and Galit Lahav (for the US side).

Together, the symposium and the anniversary conference offered a powerful reflection on the Foundation's first thirty years: a history built on excellence in science, lasting partnerships between Italy and Harvard, and a steadfast belief that investing in outstanding people is the most effective way to advance biomedical research.

20th Symposium
Enhancing Scientific Research through
Technological Breakthroughs

June 21–24, 2026

[Villa Cavalletti](#) and [Villa Grazioli](#), Grottaferrata, Italy

Symposium Co-Chairs:

Rosa Bernardi, Group Leader, San Raffaele Scientific Institute

Galit Lahav, Chair, Department of Systems Biology, HMS

Enhancing Scientific Research through Technological Breakthroughs: Looking at science through a technology lens that has driven and enabled biological research over the last three decades, and into the future via AI.

Technological advances have a profound impact on biological research. They expand our capabilities and fundamentally transform the questions we pose. Technologies such as advanced imaging techniques have revolutionized our ability to visualize complex biological processes in cells and organisms, providing unprecedented insights into the mechanics of life. Omics technologies, encompassing genomics, proteomics, and metabolomics, have enabled comprehensive analyses of biological systems, allowing untangling intricate molecular networks and pathways. Synthetic biology merges biology with engineering principles, offering the potential to redesign organisms for novel purposes and produce biological systems with enhanced functionalities.

These transformative technologies underline the central theme of our conference: the dynamic and reciprocal relationship between technological innovation, scientific inquiry and biological discovery. As we look into the future, AI emerges as a pivotal force that is poised to further revolutionize our ability to process complex datasets, model biological phenomena, and predict outcomes with remarkable accuracy. This convergence of AI with biological research will redefine the landscape of science, enabling researchers to explore uncharted territories and ask more nuanced, forward-thinking questions.

Through keynote talks, poster sessions and a dynamic panel discussion, we aim to foster interdisciplinary dialogue, inspire collaboration and spark innovative ideas for new technological advancements that will drive and reshape the frontiers of biological research.

SUNDAY, JUNE 21, 2026

2:00 PM Hotel check-in begins

4:15 PM Large Bus to Villa Cavalletti (from Grazioli)

On-site mini shuttle service for up to eight passengers operates daily between Villas Grazioli and Cavalletti every 30 minutes from 8:00 AM – 11:00 PM

4:30 – 5:55 PM Symposium Registration (*Villa Cavalletti, San Giorgio foyer*)

6:00 PM Welcome and Introduction (*San Giorgio Meeting Room*)
George Daley, Dean – Harvard Medical School

6:15 PM Keynote Address – [George Daley](#) – Harvard Medical School
Hematopoietic stem cells from pluripotent stem cells

Speaker Introduction – Galit Lahav – Harvard Medical School

7:00 PM Welcome Reception (*Monumental Park Villa Cavalletti*)

7:30 PM Opening Dinner (*Terrazza Cavalletti*)

10:00 PM Large Bus to Villa Grazioli (from Cavalletti)

MONDAY, JUNE 22, 2026

7:00 – 8:45 AM Breakfast (*Terrazza Cavalletti or Grazioli Art Bistrot*)

8:45 AM Large Bus to Villa Cavalletti (from Grazioli)

9:00 – 10:30 AM Session 1 – Imaging I: From Single Molecules to Complex Cellular Interactions
(*San Giorgio Meeting Room*)

Session Chair: Bernardo Sabatini – Harvard Medical School
20-minute talks plus ~5 minute Q&A (25 minutes total)

9:00 – 9:25 AM [Davide Mazza](#) – Vita-Salute San Raffaele University
From molecules to systems: Live-cell transcription factor dynamics at multiple scales

9:30 – 9:55 AM [Josefina del Marmol](#) – Harvard Medical School
Nature's perfume: aldehydes and their role in mate recognition

- 10:00 – 10:25 AM [Federico Rossi](#) – Italian Institute of Technology
Probing dendritic computation with novel optical and electrical tools
- 10:30 – 10:55 AM Coffee Break (*Garden*)
- 11:00 AM – 12:30 PM Session 2 – Imaging II: Cell-Cell Interactions in Physiology and Disease**
Session Chair: Daniela Latorre – San Raffaele Scientific Institute
20-minute talks plus ~5 minute Q&A (25 minutes total)
- 11:00 – 11:25 AM [Jennifer Oyler-Yaniv](#) – Harvard Medical School
Viral containment by cell autonomous and collective mechanisms at the epithelium
- 11:30 – 11:55 AM [Isaac Chiu](#) – Harvard Medical School
Neuroimmune interactions in lung inflammation and host defense
- 12:00 – 12:25 PM [Gabriela Constantin](#) – University of Verona
Neutrophil-mediated neurotoxic inflammation in neurodegenerative diseases
- 12:30 – 1:55 PM Lunch (*Terrazza Cavalletti*)
- 2:00 – 3:30 PM Session 3 – Omics: Genome, Transcriptome, and Epigenome in Disease**
Session Chair: Marino Zerial – Human Technopole
20-minute talks plus ~5 minute Q&A (25 minutes total)
- 2:00 – 2:25 PM [Steve McCarroll](#) – Harvard Medical School
The ticking DNA clock: lifelong somatic expansion of DNA repeats and the pathogenesis of Huntington's disease
- 2:30 – 2:55 PM [Stefano Gustincich](#) – Italian Institute of Technology
SINEUPs are a functional class of antisense long non-coding RNAs enhancing translation
- 3:00 – 3:25 PM [Tiziana Bonaldi](#) – European Institute of Oncology
Decoding cancer epigenetic plasticity with mass spectrometry-driven proteomics
- 3:30 – 3:55 PM Coffee Break (*Garden*)
- 4:00 – 5:00 PM **Panel Discussion** (*San Giorgio Meeting Room*)
Developing the Technologies of the Future: Opportunities and Limitations
Moderator: Roberta Fulci, Italian science writer and journalist
Panelists: [Francesca Ciccarelli](#), [George Daley](#), [Franca Fraternali](#)
- 5:10 PM Large Bus to Villa Grazioli (from Cavalletti)

6:00 – 7:25 PM **Poster Session I**

Wine/Prosecco and Hors d'oeuvres

(Terrazza Grazioli; in the event of inclement weather, the session will be held in the Noble Fresco Room, ground floor)

7:30 PM Dinner (Terrazza Grazioli)

10:00 PM Large Bus to Villa Cavalletti (from Grazioli)

TUESDAY, JUNE 23, 2026

7:00 – 8:45 AM Breakfast (Terrazza Cavalletti or Grazioli Art Bistrot)

8:45 AM Large Bus to Villa Cavalletti (from Grazioli)

9:00 – 9:25 AM **Featuring National Academy of Sciences Newly-elected Member**

[Stephen Blacklow](#) – Harvard Medical School (San Giorgio Meeting Room)

Dynamic structural rearrangements in the maturation and activation of ADAM10, the primary human alpha-secretase

9:30 – 10:55 AM Session 4 – AI for Life Science: Discovery, Design and Automation

Session Chair: Arlene Sharpe – Harvard Medical School

20-minute talks plus ~5 minute Q&A (25 minutes total)

9:30 – 9:55 AM [Marinka Zitnik](#) – Harvard Medical School

Empowering biomedical discovery with AI scientists

10:00 – 10:25 AM [Ross King](#) – University of Cambridge

The Automation of Science

10:30 – 10:55 AM Coffee Break (Garden)

11:00 – 12:30 PM Session 5 - Engineering Biology: Genome Design, Synthetic Circuits, and Future Therapies

Session Chair: Irene Farabella – Italian Institute of Technology

20-minute talks plus ~5 minute Q&A (25 minutes total)

11:00 – 11:25 AM [Alessandro Bertero](#) – University of Torino

Genome architecting: decoding and designing differentiation

11:30 – 11:55 PM [Diego di Bernardo](#) – Telethon Institute of Genetics and Medicine

Engineering synthetic gene circuits for advancing cell and gene therapy

12:00 – 12:25 PM [Pam Silver](#) – Harvard Medical School, Wyss Institute (via Zoom)

Designing biology for health and sustainability

- 12:30 PM Lunch (*Terrazza Cavalletti*)
- 1:45 – 3:15 PM **Group I:** Olio et Amo Tasting (*optional, prior registration required*)
 Participants meet at the Academy (agriturismo Villa Cavalletti, #2 on map)
- 3:15 – 4:45 PM **Group II:** Olio et Amo Tasting (*optional, prior registration required*)
 Participants meet at the Academy (agriturismo Villa Cavalletti, #2 on map)
- 1:30 – 5:15 PM Free Afternoon (*for those not participating in the Olio et Amo Tasting*)
- 5:15 PM Large Bus to Villa Grazioli (from Cavalletti)
- 5:30 – 6:55 PM **Poster Session II**
 Wine/Prosecco and Hors d'oeuvres
(Terrazza Grazioli; in the event of inclement weather, the session will be held in the Noble Fresco Room, ground floor).
- 7:00 PM Keynote Address – [Francesca Ciccarelli](#) – The Francis Crick Institute
Drivers of somatic and cancer evolution
(Sala della Torre Meeting Room)
- Speaker Introduction – Rosa Bernardi – San Raffaele Scientific Institute
- 7:45 PM Concluding Remarks – Galit Lahav – Harvard Medical School
- 8:00 PM Dinner (*Terrazza Grazioli*)
- 10:30 PM Large Bus to Villa Cavalletti (from Grazioli)

WEDNESDAY, JUNE 24, 2026

- 7:00 – 10:00 AM Breakfast (*Terrazza Cavalletti or Grazioli Art Bistrot*) and Departures
- 10:30 AM Hotel check-out time

Su iniziativa della Senatrice a vita Prof.ssa Elena Cattaneo
Convegno

La Fondazione Giovanni Armenise Harvard: 30 anni di scienza senza confini
Come creare ponti ed ecosistemi per attrarre in Italia i talenti della ricerca internazionale

24 giugno 2026, 11:00-13:00
Sala Zuccari presso Palazzo Giustiniani
Via della Dogana Vecchia 29 – Roma

11:00 Saluti introduttivi

- **Elena Cattaneo** – Senatrice a vita e Professoressa ordinaria, Università degli Studi di Milano
- **Francesca Galli** – Dirigente, Ufficio di Gabinetto – Segreteria Tecnica, Ministero Università e Ricerca

11:20 L'impatto della Fondazione Armenise Harvard

- **Giampiero Auletta Armenise** – Chairman, Fondazione Giovanni Armenise Harvard
Trent'anni al fianco della ricerca biomedica
- **George Q. Daley** – Dean, Harvard Medical School
Gli ingredienti di un ecosistema di ricerca attrattivo: Harvard e l'area di Boston
- **Elisabetta Vitali** – Executive Director, Fondazione Giovanni Armenise Harvard
L'impatto della Fondazione Armenise Harvard: scoperte, persone, valori

Video

Volti e storie dai 30 anni della Fondazione Armenise Harvard

11:50 Tavola rotonda: quali politiche per attrarre talenti scientifici

- **Maria Chiara Carrozza** – Professoressa ordinaria – Ingegneria biomedica e biorobotica, Università degli Studi di Milano-Bicocca; precedentemente Presidente CNR
- **Luca Paolazzi** – Advisor, Istituto di Ricerca REF
- **Liborio Stuppia** – Rettore, Università degli Studi Chieti-Pescara; Delegato CRUI per la Ricerca
- **Elisabetta Vitali** – Executive Director, Giovanni Armenise Harvard Foundation
- **Marino Zerial** – Direttore, Human Technopole; Chair, Italian Scholarship Advisory Committee, Fondazione Giovanni Armenise Harvard

Modera: **Barbara Gallavotti** – Giornalista e divulgatrice scientifica

Contribuiranno alla discussione anche alcuni dei ricercatori rientrati in Italia grazie alla Fondazione.

12:50 The Lisa D. Mayer Mentoring Award: Consegna del premio

Presentato da George Q. Daley – Dean, Harvard Medical School

13:00 Pranzo

In collaborazione con



Avvertenza: L'accesso alla sala – con abbigliamento consono e, per gli uomini, obbligo di giacca e cravatta – è consentito fino al raggiungimento della capienza massima. Si richiede di arrivare con il necessario anticipo considerando le procedure di sicurezza che prevedono la presentazione di un documento di identità. Le opinioni e i contenuti espressi nell'ambito dell'iniziativa sono nell'esclusiva responsabilità dei proponenti e dei relatori e non sono riconducibili in alcun modo al Senato della Repubblica o ad organi del Senato medesimo.

CON IL PATROCINIO DI

**MEDAGLIA DEL
PRESIDENTE
DELLA
REPUBBLICA**



Ministero degli Affari Esteri
e della Cooperazione Internazionale

*A conference presented by
Prof. Elena Cattaneo, Senator for Life*

The Giovanni Armenise Harvard Foundation: 30 Years of Science without Borders
Building Bridges and Ecosystems to Attract International Research Talent to Italy

24 June 2026, 11:00-13:00
Sala Zuccari in Palazzo Giustiniani
Via della Dogana Vecchia 29 – Rome

11:00 Welcoming Remarks

- **Elena Cattaneo** – Senator for Life and Professor, University of Milan
- **Francesca Galli** – Head of Unit, Cabinet Office – Technical Secretariat, Ministry of Universities and Research

11:20 The Impact of the Armenise Harvard Foundation

- **Giampiero Auletta Armenise** – Chairman, Giovanni Armenise Harvard Foundation
Thirty Years alongside Biomedical Research
- **George Q. Daley** – Dean, Harvard Medical School
The Ingredients of an Attractive Research Ecosystem: Harvard and the Boston Area
- **Elisabetta Vitali** – Executive Director, Giovanni Armenise Harvard Foundation
The Impact of the Armenise Harvard Foundation: Discoveries, People, Values

Video

Faces and Stories from 30 Years of the Armenise Harvard Foundation

11:50 Roundtable: The Policies Needed to Attract Scientific Talent

- **Maria Chiara Carrozza** – Professor of Biomedical Engineering and Biorobotics, University of Milan-Bicocca; formerly President, National Research Council of Italy
- **Luca Paolazzi** – Advisor, REF Research Institute
- **Liborio Stuppia** – Rector, University of Chieti-Pescara; Delegate for Research, Conference of Italian University Rectors
- **Elisabetta Vitali** – Executive Director, Giovanni Armenise Harvard Foundation
- **Marino Zerial** – Director, Human Technopole; Chair, Italian Scholarship Advisory Committee, Giovanni Armenise Harvard Foundation

Moderator: **Barbara Gallavotti** – Journalist and Science Communicator

The discussion will also include the contributions of some of the researchers who returned to Italy thanks to the Foundation.

12:50 The Lisa D. Mayer Mentoring Award: Prize Conferral

Presented by George Q. Daley – Dean, Harvard Medical School

13:00 Lunch

In collaboration with



Notice: Access to the event hall is permitted until maximum capacity is reached. Appropriate attire is required, including jacket and tie for men. Please arrive early to allow for security procedures, which require an identification document. The opinions and content expressed within the scope of the conference are the sole responsibility of the proponents and speakers and cannot in any way be attributed to the Senate of the Republic or to any of its constitutive bodies. The Senate reserves the right to take photographs and audio-video recordings of the event, which may be broadcast on Senate channels and used for Senate informational purposes.

**MEDAL OF THE
PRESIDENT
OF THE
REPUBLIC**



Senato
della Repubblica

WITH THE PATRONAGE OF



Ministry of Foreign Affairs
and International Cooperation