

PERSONAL INFORMATION AND CURRENT POSITION

Professional Profile & Career Highlights

Current Positions

- Director, Laboratory of Epigenetics, Istituti Clinici Scientifici Maugeri IRCCS, Pavia (2018–Present)
- Adjunct Professor, Faculty of Medicine (Harvey Course), University of Pavia (2022–Present)

Core Expertise

Epigenetics, Chromatin Biology, Cardiovascular Regeneration, Senescence, Cancer Metabolism, and Translational Medicine.

Career Trajectory

- Global Experience: 30+ years across Italy (Rome, Pavia), Germany (Goethe University Frankfurt), USA (NIH/NCI Bethesda), Canada (McMaster University).
- Leadership Roles:
 - Director, Division of Cardiovascular Epigenetics, Goethe University (2012–2017)
 - Senior Scientist, IDI-IRCCS Rome (1996–2012)
 - NIH Visiting Scientist (1995–1996, 1989–1992)
- **Key Achievements:**
 - Secured €5M+ in competitive grants (EU Horizon, Italian Ministry of Health, German DFG).
 - Mentored 25+ PhD/Master's students; supervised 15+ theses (2018–2025).
 - Filed 2 patents on senolytic compounds (2022, approved 2024).

Education

- MD (1986), Clinical Pathology Residency (1992), Università "La Sapienza," Rome.
 - National Scientific Qualification: Full Professor in General/Clinical Pathology (2019–2030).
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Research Impact & Translational Focus

Research Themes

- 1. Epigenetics of Aging & Disease:**
 - Mechanisms linking DNA methylation, histone modifications (acetylation/methylation), and non-coding RNAs to cardiovascular/metabolic diseases.
 - Developed a "cardiac-specific epigenetic clock" using DNA methylation biomarkers (*Clin Epigenetics* 2023).
- 2. Senescence & Inflammaging:**
 - Identified oxidative stress signatures in diabetic cardiac cells; rescued via α -ketoglutarate/TET reactivation (*Circ Res* 2017).
 - Pioneered senolytic drugs targeting HDAC6-HSP90 α to counteract fibrosis (*Aging Cell* 2025, Patent #102022000000359).
- 3. Stem Cell & Cancer Biology:**
 - NO-dependent reprogramming of stem cells for cardiovascular regeneration (*Nature Commun* 2018).
 - lncRNA-based therapeutics for breast cancer metastasis (*Cell Death Dis* 2018, *Clin Epigenetics* 2024).

Major Grants (Selected)

- €1.5M (Hessen State, DE): *Cardiovascular Epigenetics Platform* (2012–2017).
- €250K (ERA-CVD EU): *Cardiomyocyte-non-myocyte interplay in heart failure* (2017–2020).
- €776K (Lombardia Region): *Next-gen immunotherapy molecules* (2019–2021).
- €330K (PNRR Italy): *AI-driven aging models (I-COMET)* (2023–Present).

- €300K (EU NextGeneration): *HSP90 inhibitors for cellular senescence* (2024–Present).
- €1.9M (FRRB-Regione Lombardia): *Exploiting a Xanthinic Scaffold for HSP90 Inhibitors: Targeting Inflammation and Cellular Senescence* (2026-2028).

Technical Innovation

- AI-integrated epigenomics, 3D cell modeling, CHIP-seq optimization, and high-throughput drug screening.
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Leadership, Metrics

Honors & Leadership

- Awards: Fogarty Fellowship (USA), AIRC Fellowship (IT), Functional Genomics Award (AHA, 2016).
- Editorial Roles: *Frontiers in Cardiovascular Medicine*, *PLOS ONE*, *International Journal of Molecular Sciences*.
- Peer Review: ERC, Horizon Europe, Swiss/Israeli/Hong Kong Science Foundations.
- Societies: Fellow, American Heart Association; Council Member, European Society of Cardiology.

Publication Impact

- 142 peer-reviewed papers (H-index 59 (Google Scholar), 53 (Scopus/WoS)).
- 10,000+ citations (Google Scholar); 20+ papers in high-impact journals (*Circulation*, *Circ Res*, *Nature Commun*, *PNAS*).
- **Selected Recent Key Papers:**
 - o **First cardiac lncRNA biomarker for heart failure** (*Circ Res* 2017).
 - o **DNA methylation bio-clock for cardiac aging** (*Clin Epigenetics* 2023).
 - o **HDAC6-P300 inhibition reshapes cancer chromatin** (*Clin Epigenetics* 2024).
 - o **A new senolytic compound with HSP90-alpha inhibitory properties** (*Aging Cell* 2025)

In His Words:

"My most recent research explores senescence pathways to develop epigenetic therapeutics, advancing precision medicine for healthy aging."

MOST RELEVANT PUBLICATIONS (Total Publications: 142 | Citations: 10,000+ | H-index: 58 Google Scholar).

(Selected for Scientific Impact & Innovation)

Epigenetics & Cardiovascular Disease

1. **Spallotta et al. (2017)**
 Stable oxidative cytosine modifications accumulate in cardiac mesenchymal cells from Type 2 diabetic patients: Rescue by α -ketoglutarate and TET-TDG reactivation.
Circulation Research (IF: 14.5)
 Landmark study identifying epimetabolic memory in diabetes; 300+ citations.
 2. **Mongelli et al. (2023)**
Distinguishable DNA methylation defines a cardiac-specific epigenetic clock.
Clinical Epigenetics (IF: 4.8)
Pioneered a cardiac aging biomarker tool with clinical diagnostic potential.
 3. **Cencioni et al. (2018)**
 Zeb1-Hdac2-eNOS circuitry identifies early cardiovascular precursors in naïve mouse embryonic stem cells.
Nature Communications (IF: 11.8)
Key mechanism for stem cell-derived cardiovascular regeneration.
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Senescence & Therapeutics

4. **Atlante et al. (2025)**
A Xanthine Derivative With Novel Heat Shock Protein 90-Alpha Inhibitory and Senolytic Properties.
Aging Cell (IF: 8.0)
Groundbreaking senolytic drug design (linked to Patent #102022000000359).
 5. **Spallotta et al. (2016)**
Cardiac epi-metabolic signature in diabetic patients: Rescue by TDG/TET reactivation.
Circulation (Abstract 19033)
Finalist for AHA Young Investigator Award; therapy concept in clinical trials.
 6. **Minetti et al. (2006)**
Functional recovery of dystrophic muscles via deacetylase inhibitors.
Nature Medicine (IF: 28.6)
First proof of epigenetic drugs reversing muscular degeneration; 1,000+ citations.
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Non-Coding RNA & Cancer

7. **Gottardi Zamperla et al. (2024)**
HDAC6 inhibition disrupts HDAC6-P300 interaction reshaping cancer chromatin.
Clinical Epigenetics (IF: 4.8)
Mechanistic basis for breast cancer therapy (AACR 2024 highlight).
 8. **Atlante et al. (2018)**
 α -ketoglutarate dehydrogenase inhibition counteracts breast cancer lung metastasis.
Cell Death & Disease (IF: 6.3)
Metabolic-epigenetic axis targeting metastasis.
 9. **Greco et al. (2017)**
Increased BACE1-AS lncRNA and β -amyloid levels in heart failure.
Cardiovascular Research (IF: 5.5)
First lncRNA biomarker for heart failure progression.
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Translational Mechanisms

10. **Colussi et al. (2011)**
Lysine acetylation dissociates connexin 43 in dystrophic heart.
PNAS (IF: 9.4)
Explained arrhythmia in muscular dystrophy; therapy target.
11. **Illi et al. (2003)**
Shear stress-mediated chromatin remodeling regulates vascular gene expression.
Circulation Research (IF: 11.5)
Seminal link between hemodynamics and epigenetics; 500+ citations.
12. **Mongelli et al. (2024)**
COVID-19 survivors show accelerated biological aging & telomere shortening.
International Journal of Molecular Sciences (IF: 5.6)
Clinical impact of viral infection on aging trajectories.