

Gianni Ciofani, Ph.D.

Senior Researcher Tenured

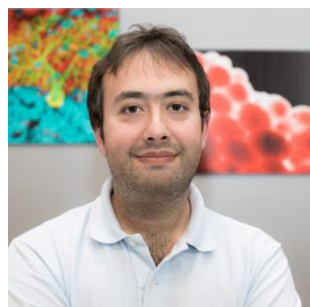
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Summary

Gianni Ciofani (born in La Spezia, Italy, on August 14th, 1982) is Senior Researcher Tenured at the *Istituto Italiano di Tecnologia* (Italian Institute of Technology, IIT), where he is Principal Investigator of the Smart Bio-Interfaces Research Line and Coordinator of the Center for Materials Interfaces (Pontedera, Italy).

He received his Master Degree in Biomedical Engineering (with honors) from the University of Pisa, Italy, in July 2006, and, in the same year, his Diploma in Engineering (with honors) from the *Scuola Superiore Sant'Anna* (Sant'Anna School of Advanced Studies, SSSA) of Pisa, Italy. In January 2010, he obtained his Ph.D. in Innovative Technologies (with honors) from SSSA. He joined IIT as Post-Doctoral Fellow from January 2010 to August 2013, and then as Researcher from September 2013 to October 2015. From October 2015 to October 2019 he was Associate Professor at the Polytechnic University of Torino (Torino, Italy), maintaining at the same time his research activity in IIT, where he is Senior Research Tenured since November 2019. In 2021, he was appointed Coordinator of the Center for Materials Interfaces; in the same year, he has been Visiting Professor at Waseda University, Tokyo (Japan).

His main research interests are in the field of smart nanomaterials for nanomedicine, *in vitro* models, and biology in altered gravity conditions. He is coordinator or unit leader of several projects (about 5 MEur granted); in particular, he was awarded a European Research Council (ERC) Starting Grant and two ERC Proof-of-Concept Grant in 2016, 2018, and 2022, respectively. Thanks to grants from the Italian Space Agency (ASI) and the European Space Agency (ESA), he had the opportunity to carry out experiments onboard the International Space Station (ISS) in 2017 and 2019. In 2018, his real-scale model of the blood-brain barrier was highlighted in the Annual Report on the ERC Activities and Achievements.

Gianni Ciofani is author of more than 160 papers on international journals (Scopus *H-index* 42, excluding self-citations), 3 edited books, and 16 book chapters, and delivered about 60 invited talks/lectures in international contexts. He serves as Reviewer for many funding agencies (including ERC, Swiss National Science Foundation, French National Research Agency, National Science Center of Poland), for about 200 international journals, and as Editorial Board Member of *Bioactive Materials*, *International Journal of Nanomedicine*, *Journal of Physics: Materials*, *Nanomedicine UK*, *Nano Trends*, and *Scientific Reports*; he is Specialty Chief Editor (Nanobiotechnology) for *Frontiers in Bioengineering and Biotechnology*.

Gianni Ciofani is co-founder (2022) and Scientific Advisor of “Kidaria Bioscience SRL”, an IIT spin-off company dedicated to the preparation and characterization of cosmetic and nutraceutical products based on natural-derived active ingredients. He is also co-founder (2021) and member of the executive committee of “ERC in Italy APS”, a non-profit association of ERC awardees born to promote fundamental and frontier research in Italy.

Education

- January 18th, 2010

Ph.D. in Innovative Technologies, Sant'Anna School of Advanced Studies of Pisa (Italy), with the thesis “Study and design of drug delivery systems for cell therapy”. Final mark: 100/100 *summa cum laude*

- January 30th, 2007

Professional qualification (Industrial Engineering - Marks 234/240)

- November 16th, 2006

Diploma in Engineering, Sant'Anna School of Advanced Studies of Pisa (Italy), with the thesis "Carbon nanotube mediated electroporation for *in vivo* gene therapy: A feasibility study". Final mark: 100/100 *summa cum laude*

- July 4th, 2006

M.Sc. in Biomedical Engineering, School of Engineering of the University of Pisa (Italy), with the thesis "Theoretical and experimental study of a system for the neuronal regeneration". Final mark: 110/110 *summa cum laude* and with "Excellence Award"

- July 13th, 2004

B.Sc. in Biomedical Engineering, School of Engineering of the University of Pisa (Italy), with the thesis "Study of a microparticle-based system for enzyme immobilization suitable for an extracorporeal device". Final mark: 110/110 *summa cum laude*

- July 4th, 2002

Musical diploma in clarinet, Conservatory "Giacomo Puccini" of La Spezia (Italy). Final mark: 8/10

- July 13th, 2001

High School degree, Scientific High School "Ulisse Dini" of Pisa (Italy). Final mark: 100/100

Scientific experience

- March 1st, 2021 - present

Center Coordinator, Italian Institute of Technology, Center for Materials Interfaces (Pontedera, Italy)

- November 1st, 2019 - present

Senior Researcher Tenured, Italian Institute of Technology, Smart Bio-Interfaces (Pontedera, Italy)

- October 16th, 2021 - December 19th, 2021

Visiting Professor, Waseda University, Unit for Energy and Nanomaterials (Tokyo, Japan)

- March 1st, 2017 - October 31st, 2019

Senior Researcher, Italian Institute of Technology, Smart Bio-Interfaces (Pontedera, Italy)

- October 26th, 2015 - October 31st, 2019

Associate Professor, Polytechnic University of Torino, Department of Mechanical and Aerospace Engineering (Torino, Italy)

- November 2nd, 2015 - February 28th, 2017

Affiliated Researcher, Italian Institute of Technology, Center for Micro-BioRobotics (Pontedera, Italy)

- September 1st, 2013 - October 25th, 2015

Researcher, Italian Institute of Technology, Center for Micro-BioRobotics (Pontedera, Italy)

- January 16th, 2010 - August 31st, 2013

Post-Doctoral fellow, Italian Institute of Technology, Center for Micro-BioRobotics (Pontedera, Italy)

- January 15th, 2007 - January 14th, 2010

Ph.D. student in Innovative Technologies, Sant'Anna School of Advanced Studies of Pisa, Center for Research in Microengineering (Pontedera, Italy)

- December 3rd, 2007 - January 15th, 2010

Research assistant, Sant'Anna School of Advanced Studies of Pisa, Center for Research in Microengineering (Pontedera, Italy)

- November 1st, 2008 - June 20th, 2009

Visiting Ph.D. student, Center of Investigation "Principe Felipe", Polymer Therapeutics Laboratory (Valencia, Spain)

- September 24th, 2007 - November 25th, 2007

Visiting Ph.D. student, Waseda University, Department of Life Science and Medical Bioscience, School of Advanced Science and Engineering, in the framework of the Italy-Japan Joint Lab ROBOCASA (Tokyo, Japan)

- July 25th, 2006 - December 24th, 2006

Research assistant, Sant'Anna School of Advanced Studies of Pisa, Center for Research in Microengineering (Pontedera, Italy)

Research projects

Grants

1. Advanced 3D *in vitro* models based on magnetically-driven docking of modular microcaffolds (MagDock), grant number 101081539, European Research Council (ERC) Proof of Concept Grant, 2023-2024 (Principal Investigator)
2. Tuscany Health Ecosystem (THE), grant number ECS00000017, PNNR Innovation Ecosystem, 2022-2025 (Unit Coordinator)
3. Protection mediated by antioxidant nanotechnology against neuronal damage in space (PROMETEO), grant number 2021-2-R.0, Italian Space Agency, 2022-2024 (Principal Investigator)
4. Patient-derived hybrid nanocarriers for personalized nanomedicine of glioblastoma multiforme (CyberNano), grant number 24454, *Fondazione AIRC*, 2021-2025 (Principal Investigator)
5. Insight into new therapeutic preclinical strategies in autosomal recessive spastic ataxia of Charlevoix-Saguenay type, grant number RF-2016-02361610, Italian Ministry of Health, 2018-2022 (Unit Coordinator)
6. Magnetic solid lipid nanoparticles as a multifunctional platform against glioblastoma multiforme (SLaMM), grant number 709613, European Research Council (ERC) Starting Grant, 2017-2022 (Principal Investigator)
7. Nichoid in space: Advanced *in vitro* models for “on orbit” investigations (Nichoid-ET), grant number 4000133244/20/NL/GLC, European Space Agency, 2021-2022 (Principal Investigator)
8. Elucidating modes of interaction of redox-active nanomaterials with biological systems exposed to microgravity (InterGravity), grant number 4000129652/20/NL/MH/ac, European Space Agency, 2020-2022 (Principal Investigator)
9. A deep characterization of a nanotechnological antioxidant for space using simple invertebrates (NanOxSpace), grant number 4000130094/20/NL/MH/ac, European Space Agency, 2020-2022 (Principal Investigator)
10. Advanced *in vitro* physiological models: Towards real-scale, biomimetic and biohybrid barriers-on-a-chip (BBBhybrid), grant number 832045, European Research Council (ERC) Proof of Concept Grant, 2019-2020 (Principal Investigator)
11. Nanotechnological countermeasures against oxidative stress in muscle cells exposed to microgravity (NOEMI), project number ILSRA-2014-0012 (implementation phase), European Space Agency & grant number 2018-0156, *Fondazione CaRiPlo*, 2018-2020 (Principal Investigator)
12. Cerium oxide nanoparticles as countermeasure against reactive oxygen species production in altered gravity conditions: Preliminary investigation on planarians (PlanOx2), grant number CORA-GBF-2017-001, European Space Agency, 2017-2019 (Principal Investigator)
13. Nanotechnology solutions against oxidative stress in muscle tissue during long-term microgravity exposure (NANOROS), grant number 2016-7-U.0, Italian Space Agency, 2016-2019 (Principal Investigator)
14. Starting grant “*Compagnia di San Paolo*”, grant number 55_AI16GC01, *Compagnia di San Paolo*, 2016-2018 (Principal Investigator)
15. New self-powered devices for cochlear stimulation based on piezoelectric nanomaterials, grant number RF-2011-02350464, Italian Ministry of Health, 2014-2018 (Unit Coordinator)

Supervised granted fellowships

1. Polydopamine nanoparticles-based hyperthermal chemotherapy in the treatment of liver cancer, grant number 26814-2021, AIRC Fellowship, 2022-2025 (Supervisor of Dr. Melis Emanet)
2. Evaluating anti-angiogenic effects of trastuzumab-decorated piezoelectric nylon-11 nanovectors in breast cancer, grant number 26590-2021, AIRC Fellowship, 2022-2025 (Supervisor of Dr. Ozlem Sen)
3. Development of novel approaches using trimagnetic nanoparticles for intracellular hyperthermia of prostate cancer cells, grant number 800924, Marie Skłodowska-Curie / AIRC Fellowship, 2020-2023 (Supervisor of Dr. Valentin Nica)
4. A biomimetic and neuroprotective delivery nanocapsule for the targeted treatment of post-ischemic stroke effects (BIONICS), grant number 793644, Marie Skłodowska-Curie Individual Fellowship, 2018-2020 (Supervisor of Dr. Christos Tapeinos)

5. Piezoelectric nanoparticle-mediated inhibition of cell proliferation: Molecular mechanisms in breast cancer and therapeutic implications, grant number FUV-2017, *Fondazione Umberto Veronesi*, 2017-2018 (Supervisor of Dr. Attilio Marino)

In-kind projects

1. Nanotechnological countermeasures against oxidative stress in muscle cells exposed to microgravity (NOEMI), project number ILSRA-2014-0012 (definition phase), European Space Agency, 2015-2017 (Principal Investigator)
2. *In vitro* effects of the Bayer's proprietary compound BAY 43-9006 (Sorafenib) linked to magnetic nanoparticles on HepG2 cell line, project number US208314731, Bayer HealthCare Pharmaceuticals Inc., 2014-2016 (Principal Investigator)

International scientific activities

Project proposal evaluation

- Swiss National Science Foundation (2018, 2019, 2020, 2022)
- European Space Agency, ESA (2022)
- Austrian Science Fund, FWF (2022)
- National Science Center of Poland, Panel Member (2022)
- French National Research Agency, ANR (2015, 2019, 2022)
- American University of Beirut, Lebanon (2021)
- Research Quality Assessment (VQR) for the Italian National Agency for the Evaluation of Universities and Research Institutes (2021)
- Worldwide Cancer Research grants (2021)
- *Progetti di Rilevante Interesse Nazionale*, PRIN Italy (2021)
- *Deutschen Forschungsgemeinschaft*, DFG (2021)
- Wellcome trust/DBT India Alliance (2016, 2021)
- European Research Council (2018, 2020)
- National Science Center of Poland (2017, 2018, 2019)
- Dutch Research Council (2019)
- Israel Science Foundation (2019)
- Estonian Research Council, ETAg (2015, 2019)
- Chilean National Commission for Scientific and Technological Research, CONICYT (2016)

Service for international journals

- Specialty Chief Editor of *Nanobiotechnology*, specialty section of *Frontiers in Bioengineering and Biotechnology* (2018-present)
- Associate Editor of *Nanobiotechnology*, specialty section of *Frontiers in Bioengineering and Biotechnology* (2017-2018)
- Editorial Board Member of *Nano Trends* (2022-present), *Nanomedicine UK* (2020-present), *Scientific Reports* (2019-present), *Journal of Physics: Materials* (2019-present), *Bioactive Materials* (2019-present), *International Journal of Nanomedicine* (2018-present)
- Guest Editor of the Research Topics "Space (Nano)Medicine" (2020-2022), "Advanced Theranostic Nanomedicine in Oncology" (2018-2020), "Antioxidant Nanomedicine" (2019-2020), and "Smart Tools for Caring: Nanotechnology Meets Medical Challenges" (2018-2019) for *Frontiers in Bioengineering and Biotechnology*
- Guest Editor of the Focus Issues "Nanophotosensitizers for Cancer Therapy" (2021), and "Piezoelectric Materials for Nanomedicine Applications" (2020) for *Journal of Physics: Materials*
- Guest Editor of the Special Issue "Exploring Challenges ahead of Nanotechnology for Biomedicine" for *Bioactive Materials* (2016-2017)
- Guest Editor of the Special Issue "Nanoparticle-Mediated Cell and Tissue Stimulation" for *Nanomaterials* (2016-2017)

- Referee for about 200 international journals, among which: *ACS Applied Materials & Interfaces*, *ACS Nano*, *Acta Biomaterialia*, *Advanced Functional Materials*, *Advanced Healthcare Materials*, *Advanced Materials*, *Advanced Science*, *Biomaterials*, *Journal of Controlled Release*, *Macromolecular Bioscience*, *Materials and Design*, *Nanomedicine*, *Nature Communications*, *Scientific Reports*, *Small*

Service for international conferences

- Session chair at the Trends in Nanotechnology Conference (Tirana, Albania; October 3rd - 7th, 2022)
- Organizer and co-chair of the symposium “Antioxidant nanomaterials for biomedical applications”, 32nd Conference of the European Society for Biomaterials (Bordeaux, France; September 5th, 2022)
- Session chair at the 32nd Conference of the European Society for Biomaterials (Bordeaux; France 4th - 8th, 2022)
- Session chair at the Trends in Nanotechnology Conference (Tirana, Albania; October 4th - 8th, 2021)
- Organizer and co-chair of the “Bio-Nano International Workshop” (On-line; September 29th, 2021)
- Organizer and co-chair of the symposium “Smart (nano)biomaterials and their applications”, 31st Conference of the European Society for Biomaterials (Porto, Portugal; September 6th, 2021)
- Session chair at the 31st Conference of the European Society for Biomaterials (Porto, Portugal; September 5th - 9th, 2021)
- Organizer and co-chair of the “Bio-Nano Cross-Over International Workshop” (On-line; May 25th, 2021)
- Organizer and co-chair of the symposium “Tissue engineering under external stimuli”, TERMIS-EU (Rhodes, Greece; May 28th, 2019)
- Organizer and general chair of the International Workshop “Advanced theranostic nanomedicine in oncology” (Pontedera, Italy; January 31st, 2019)
- Session chair at the Orbitaly Conference (Milano, Italy; October 17th - 19th, 2018)
- Organizer and general chair of the International Workshop “Smart tools for caring: Nanotechnology meets medical challenges” (Pontedera, Italy; March 2nd, 2018)
- Session chair at the East-West Chemistry Conference (Skopje, Macedonia; October 12th - 14th, 2017)
- Session chair at the NanoBio&Med2016 Conference (Barcelona, Spain; November 22nd - 24th, 2016)
- Member of the international advisory committee of the 1st biennial conference BioMaH “Biomaterials for Tissue and Genetic Engineering and Role of Nanotechnology” (Roma, Italy; October 17th - 20th, 2016)
- Session chair at the 10th Nanoscience and Nanotechnology Conference (Istanbul, Turkey; June 17th - 21st, 2014)
- Member of the international advisory committee and session chair of the Energy Materials and Nanotechnology Spring Meeting (Las Vegas, USA; February 27th - March 2nd, 2014)
- Referee for the following international conferences: NER 2013, EMBC 2013, EMBC 2014, MNM 2014, ICRA 2014, IROS 2014, IROS 2015, EMBC 2015, ICRA 2016, EMBC 2016, NER 2017, EMBC 2017, EMBC 2018, NER 2019, EMBC 2019, EMBC 2020, NER 2021, EMBC 2021, EMBC 2022

Service for scientific organizations

- *Accademia di Gagliato*, president of the selection committee for the “Salvatore Venuta” scholarships; 2022 - present
- ERC in Italy *APS*, member of the executive committee (secretary); 2021 - present
- Member of the round-table for the definition of the Space Life Sciences Roadmap of the Italian Space Agency, chair of the work-group “Pharmaceutics, Technologies, and New Experimental Models”; 2020-2022

Membership of scientific organizations

- ERC in Italy *APS*; 2021 - present
- Association of ERC Grantees (*AERG*); 2021 - present
- American Chemical Society (*ACS*); 2020 - present
- *Gruppo Nazionale di Bioingegneria* (*GNB*); 2019 - present
- European Society for Biomaterials (*ESB*); 2014 - present

Technology transfer activities

- Co-founder and Scientific Advisor of Kidaria Bioscience SRL (www.kidaria.it), an IIT start-up incorporated on May 31st, 2022, aiming at the preparation, characterization, and testing of vegetal extracts with antioxidant properties for cosmetic and nutraceutical applications
- 2nd place at the StartCup Toscana Contest for NABIS, a start-up project aiming at the development of nanostructured platforms for advanced *in vitro* models (2022)
- “2031” Award for the NABIS start-up project (2021)
- Pre-acceleration program “Bocconi for Innovation (B4I)” of Bocconi University (Milano, Italy) for the Kidaria Bioscience start-up project (27/02/2021 - 08/06/2021)
- SmartCup Liguria 2020: Life Science Section Award, “Confesercenti Liguria” Award, “Studio Demetra” Award, “Associazione Culturale Sintesi” Award, “EBN Business Innovation Network” Award, and “InnoEU” Award for the Kidaria Bioscience start-up project

Academic service

- Faculty member of the Ph.D. course in BioRobotics, Sant'Anna School for Advanced Studies (Pisa, Italy), a.y. 2017/2018 - present
- Member of the committee for the admission and for the final examination of the Ph.D. course in BioRobotics, Sant'Anna School for Advanced Studies (Pisa, Italy), a.y. 2013/2014 - present
- Faculty member of the B.Sc. and M.Sc. courses in Biomedical Engineering, Polytechnic University of Torino (Torino, Italy), a.y. 2015/2016 - 2019/2020
- Member of committees for the selection of Assistant Professors at the Polytechnic University of Torino (Torino, Italy)
- Member of committees for the evaluation of Assistant Professors at the Sant'Anna School for Advanced Studies (Pisa, Italy)
- Member of committees for the selection of post-doctoral fellows at the Sant'Anna School for Advanced Studies (Pisa, Italy), Polytechnic University of Torino (Torino, Italy), and Italian Institute of Technology (Genova, Italy)
- External evaluator and/or member of the final exam committee for Ph.D. candidates at the Polytechnic University of Milano (Milano, Italy), Polytechnic University of Torino (Torino, Italy), University of Torino (Torino, Italy), Indian Institute of Technology (Roorkee, India), Sant'Anna School for Advanced Studies (Pisa, Italy), University of Genova (Genova, Italy), University Federico II (Napoli, Italy), Yeditepe University (Istanbul, Turkey), University of Salento (Lecce, Italy), National University of Ireland (Galway, Ireland)
- National Scientific Qualification, obtained from the Italian Ministry of University and Research, to the function of Full Professor of Experimental Matter Physics (2018-2028), Applied Physics (2017-2027), and Bioengineering (2017-2027)

Teaching activities

- *Introduction to bionanomaterials*, Sant'Anna School for Advanced Studies (Pisa, Italy), a.a. 2019/2020 – present
- *Advanced bio-molecular assembling science* (Collaborator), Waseda University (Tokyo, Japan), a.a. 2021/2022
- *Biomimetic systems*, Polytechnic University of Torino (Torino, Italy), a.a. 2015/2016 - 2018/2019
- *Bionanotechnologies*, Polytechnic University of Torino (Torino, Italy), a.a. 2015/2016 - 2018/2019
- *Cell and tissue engineering* (Collaborator), Polytechnic University of Torino (Torino, Italy), a.a. 2015/2016 - 2019/2020
- *Engineering for regenerative medicine* (Collaborator), Polytechnic University of Torino (Torino, Italy), a.a. 2015/2016 - 2016/2017
- *Bioinspired soft robotics: Fundamentals on fabrication and characterization technologies* (Collaborator), Sant'Anna School for Advanced Studies (Pisa, Italy), a.a. 2016/2017 - 2018/2019
- *Chemical bioengineering* (Collaborator), Polytechnic University of Torino (Torino, Italy), a.a. 2015/2016 - 2016/2017

- *Fundamental technologies for micro-biorobotics* (Collaborator), Sant'Anna School for Advanced Studies (Pisa, Italy), a.a. 2013/2014 - 2015/2016

Mentoring activities

Ph.D. students

1. *Multi-modal modulation of cell activities in cancer therapy*. Candidate: Maria Cristina Ceccarelli, Ph.D. course in Biorobotics, Sant'Anna School of Advanced Studies of Pisa (Italy). Graduation expected in 2026
2. *Targeted 5-fluorouracil-loaded polydopamine nanoparticles for chemo/photothermal therapy in the treatment of colorectal cancer*. Candidate: Alessio Carmignani, Ph.D. course in Biorobotics, Sant'Anna School of Advanced Studies of Pisa (Italy). Graduation expected in 2024
3. *Design, fabrication and characterization of a multimodal cell stimulation bioreactor for bone tissue engineering*. Candidate: Margherita Montorsi, Ph.D. course in Biorobotics, Sant'Anna School of Advanced Studies of Pisa (Italy). Graduation expected in 2024
4. *Analysis of protein corona with Raman spectroscopy for blood-brain barrier targeted drug delivery*. Candidate: Melike Belenli, Ph.D. course in Biorobotics, Sant'Anna School of Advanced Studies of Pisa (Italy). Graduation expected in 2023
5. *Engineered in vitro models to mimic the anatomy and physiology of the human alveolus through advanced biomaterials and nanotechnologies*. Candidate: Michela Licciardello, Ph.D. course in Doctoral Program in Bioengineering and Medical-Surgical Sciences, Polytechnic University of Torino & University of Torino (Italy). Final Mark: Approved *cum laude*; July 2022
6. *Innovative drugs against degenerative disease: Applications for Earth and space biomedicine*. Candidate: Nicoletta di Leo, Ph.D. course in Biorobotics, Sant'Anna School of Advanced Studies of Pisa (Italy). Final Mark: Approved *cum laude*; June 2022
7. *Nanotechnology solutions and advanced in vitro models for the treatment of glioblastoma multiforme*. Candidate: Daniele De Pasquale, Ph.D. course in Biorobotics, Sant'Anna School of Advanced Studies of Pisa (Italy). Final Mark: Approved *cum laude*; April 2021
8. *Cerium oxide nanoparticles: A powerful nanotechnological tool in modulating reactive oxygen species detrimental effects*. Candidate: Ilaria Pezzini, Ph.D. course in Biorobotics, Sant'Anna School of Advanced Studies of Pisa (Italy). Final Mark: Approved; September 2020
9. *Smart nanomaterials for the treatment of central nervous system diseases*. Candidate: Matteo Battaglini, Ph.D. course in Biorobotics, Sant'Anna School of Advanced Studies of Pisa (Italy). Final Mark: Approved *cum laude*; May 2020
10. *Organic bioelectronics platforms for electrical and chemical stimulation of biological systems*. Candidate: Alberto Bonisoli, Ph.D. course in Biorobotics, Sant'Anna School of Advanced Studies of Pisa (Italy). Final mark: 100/100; June 2018
11. *Smart nanomaterials to overcome highly invasive tumor resistance*. Candidate: Agostina Francesca Grillone, Ph.D. course in Biorobotics, Sant'Anna School of Advanced Studies of Pisa (Italy). Final mark: 100/100 *summa cum laude*; June 2017
12. *Nanoparticles and nanostructured surfaces as smart solutions for the modulation of cellular functions*. Candidate: Attilio Marino, Ph.D. course in Biorobotics, Sant'Anna School of Advanced Studies of Pisa (Italy). Final mark: 100/100 *summa cum laude*; October 2016
13. *Smart nanomaterials for the stimulation and the differentiation of mesenchymal stem cells*. Candidate: Antonella Rocca, Ph.D. course in Biorobotics, Sant'Anna School of Advanced Studies of Pisa (Italy). Final mark: 100/100 *summa cum laude*; November 2015
14. *Overcoming the limitations of traditional medical therapies: design of functional nanostructured materials*. Candidate: Eugenio Redolfi Riva, Ph.D. course in Biorobotics, Sant'Anna School of Advanced Studies of Pisa (Italy). Final mark: 100/100 *summa cum laude*; June 2015
15. *Engineering of traditional and smart materials for interaction with living matter*. Candidate: Giada Graziana Genchi, Ph.D. course in Biorobotics, Sant'Anna School of Advanced Studies of Pisa (Italy). Final mark: 100/100 *summa cum laude*; November 2013

M.Sc. students

1. *Patient-derived specific treatment against glioblastoma multiforme based on lipid magnetic nanovectors.* Candidate: Simone Amadio, M.Sc. course in Biomedical Engineering, Polytechnic University of Torino (Italy). Final mark: 103/110; March 2022
2. *Cerium oxide nanoparticles as antioxidant agents: Study of interaction with muscle cells under simulated microgravity.* Candidate: Sara Gorrieri, M.Sc. course in Biomedical Engineering, Polytechnic University of Torino (Italy). Final mark: 108/110; July 2021
3. *Nanostructured lipid carriers as effective delivery systems of photosensitizers for photodynamic therapy against glioblastoma multiforme.* Candidate: Marta Pero, M.Sc. course in Biomedical Engineering, Polytechnic University of Torino (Italy). Final mark: 102/110; July 2021
4. *Polydopamine nanoparticles for the treatment of Autosomal Recessive Spastic Ataxia of Charlevoix-Saguenay: A study about blood-brain barrier crossing.* Candidate: Jamila Colica, M.Sc. course in Molecular Biotechnologies, University of Pisa (Italy). Final mark: 106/110; May 2021
5. *Innovative bioprinting strategies based on two-photon polymerization.* Candidate: Sara Grasselli, M.Sc. course in Biomedical Engineering, Polytechnic University of Torino (Italy). Final mark: 110/110 *summa cum laude*; March 2021
6. *Analysis of nanoceria effects on regenerative capability and stem cells of planarians exposed to oxidative stress.* Candidate: Maria Grazia D'Elia, M.Sc. course in Molecular and Cell Biology, University of Pisa (Italy). Final mark: 110/110 *summa cum laude*; October 2020
7. *Design, fabrication and characterization of a multimodal cell stimulation bioreactor for bone tissue engineering.* Candidate: Margherita Montorsi, M.Sc. course in Biomedical Engineering, Polytechnic University of Torino (Italy). Final mark: 106/110; October 2020
8. *Nanostructured lipid carriers for the delivery of idebenone in autosomal recessive spastic ataxia of Charlevoix-Saguenay.* Candidate: Gaia Macaluso, M.Sc. course in Molecular Biotechnologies, University of Pisa (Italy). Final mark: 110/110 *summa cum laude*; September 2020
9. *Superparamagnetic iron oxide nanoparticles loaded in hybrid lipid/polymer nanoparticles as a multifunctional platform to treat brain cancer.* Candidate: Giulio Avvenuto, M.Sc. course in Nanotechnologies for ICTs, Polytechnic University of Torino (Italy). Final mark: 104/110; July 2020
10. *Biomedical nanovectors for the transport of antioxidants of natural origin.* Candidate: Nadia Moles, M.Sc. course in Biomedical Engineering, Polytechnic University of Torino (Italy). Final mark: 110/110; July 2020
11. *Optimization of transfection process to obtain fluorescent Influenza virus-like particles for drug delivery.* Candidate: Eleonora Giro, M.Sc. course in Biomedical Engineering, Polytechnic University of Torino (Italy). Final mark: 108/110; July 2020
12. *Polydopamine nanoparticles in the treatment of autosomal recessive spastic ataxia of Charlevoix-Saguenay.* Candidate: Alessio Carmignani, M.Sc. course in Molecular Biotechnologies, University of Pisa (Italy). Final mark: 110/110 *summa cum laude*; May 2020
13. *Electrospun cellulose acetate fibers: A new approach for in vitro models of the blood-brain barrier.* Candidate: Umberto Buratti, M.Sc. course in Biomedical Engineering, Polytechnic University of Torino (Italy). Final mark: 106/110; March 2020
14. *Antioxidant-loaded nanostructured lipid carriers: Evaluation of a potential therapy for neurodegenerative disorders.* Candidate: Sara Gioi, M.Sc. course in Biomedical Engineering, Polytechnic University of Torino (Italy). Final mark: 104/110; March 2020
15. *Biointerfaces based on conductive polymer/nanoceria composites.* Candidate: Valeria Serino, M.Sc. course in Biomedical Engineering, Polytechnic University of Torino (Italy). Final mark: 101/110; March 2020
16. *Analysis of brain and muscle co-activation in mobile brain/body imaging settings.* Candidate: Claudio Gabbiani, M.Sc. course in Biomedical Engineering, Polytechnic University of Torino (Italy). Final mark: 108/110; December 2019
17. *Characterization of lipid-based nanoparticles for magnetic stimulation of drug-resistant cancer cells.* Candidate: Mattia Ainardi, M.Sc. course in Biomedical Engineering, Polytechnic University of Torino (Italy). Final mark: 98/110; October 2019
18. *Effects of structural properties on magnetic heating of nanocomposite magnetic lipid vectors for glioblastoma hyperthermia.* Candidate: Deniz Aksu, M.Sc. course in Biomedical Engineering, Polytechnic University of Torino (Italy). Final mark: 96/110; October 2019

19. *Advanced in-vitro models of the blood-brain barrier*. Candidate: Micol Baronio, M.Sc. course in Biomedical Engineering, Polytechnic University of Torino (Italy). Final mark: 108/110; October 2019
20. *Development and testing of nanoparticles for the transport of antioxidant drugs in mitochondrial pathologies*. Candidate: Chiara Caracci, M.Sc. course in Biomedical Engineering, Polytechnic University of Torino (Italy). 110/110 *summa cum laude*; October 2019
21. *Alternative transfection vehicle for CRISPR/Cas9 delivery*. Candidate: Lorenza Ghione, M.Sc. course in Biomedical Engineering, Polytechnic University of Torino (Italy). Final mark: 102/110; October 2019
22. *Brain lipids antioxidant nanoparticles for the treatment of post-ischemic stroke insult*. Candidate: Matteo Lauria, M.Sc. course in Biomedical Engineering, Polytechnic University of Torino (Italy). Final mark: 104/110; October 2019
23. *Classification of breast cancer cells based on actin and EGFR imaging and machine learning*. Candidate: Daniele Mollicone, M.Sc. course in Biomedical Engineering, Polytechnic University of Torino (Italy). Final mark: 110/110 *summa cum laude*; October 2019
24. *Follow the miRNA: Tracking the release of genetic material from novel lipidic nanoparticles in neuroblastoma using FRET imaging*. Candidate: Rosa Pascarella, M.Sc. course in Biomedical Engineering, Polytechnic University of Torino (Italy). Final mark: 108/110; October 2019
25. *Lipid magnetic nanovectors against glioblastoma: Investigations on blood-brain barrier crossing and on magnetothermal therapy with in vitro multicellular system*. Candidate: Alice Camponovo, M.Sc. course in Biomedical Engineering, Polytechnic University of Torino (Italy). Final mark: 110/110 *summa cum laude*; April 2019; winner of the National Bioengineering Group master thesis award
26. *Multi-stage hybrid antioxidant nanovectors for the treatment of central nervous system pathologies*. Candidate: Federica Lucia Pepe, M.Sc. course in Biomedical Engineering, Polytechnic University of Torino (Italy). Final mark: 95/110; April 2019
27. *Microfluidic devices for drug nanocarriers formulation and evaluation*. Candidate: Gaia Pacassoni, M.Sc. course in Biomedical Engineering, Polytechnic University of Torino (Italy). Final mark: 108/110; December 2018
28. *Temporally specific optogenetic inactivation in a working memory sensorimotor task*. Candidate: Marta Boscaglia, M.Sc. course in Biomedical Engineering, Polytechnic University of Torino (Italy). Final mark: 110/110 *summa cum laude*; October 2018
29. *Cerium oxide nanoparticle synthesis by ethylene glycol-assisted precipitation and biocompatibility assessment on C2C12 mouse myoblasts*. Candidate: Luca Davo, M.Sc. course in Biomedical Engineering, Polytechnic University of Torino (Italy). Final mark: 103/110; October 2018
30. *Smart piezoelectric and magnetothermal nanotransducers for the treatment of glioblastoma multiforme*. Candidate: Simone Migliorin, M.Sc. course in Biomedical Engineering, Polytechnic University of Torino (Italy). Final mark: 104/110; October 2018
31. *ROS-scavenging magnetic nanocubes as a novel theranostic for brain cancer*. Candidate: Francesca Tomatis, M.Sc. course in Biomedical Engineering, Polytechnic University of Torino (Italy). Final mark: 105/110; October 2018
32. *Delivery of piezoelectric nanotransducers across the blood-brain barrier: A smart tool for remote electric stimulation against glioblastoma multiforme*. Candidate: Enrico Almici, M.Sc. course in Biomedical Engineering, Polytechnic University of Torino (Italy). Final mark: 110/110 *summa cum laude*; April 2018; winner of the National Bioengineering Group master thesis award
33. *TPP-functionalized nanoceria-loaded lipid nanostructures for the treatment of neurodegenerative diseases*. Candidate: Ivana Cavaliere, M.Sc. course in Biomedical Engineering, Polytechnic University of Torino (Italy). Final mark: 108/110; April 2018
34. *Composite scaffolds with porosity over multiple length scales for skin regeneration*. Candidate: Viola Sgarminato, M.Sc. course in Biomedical Engineering, Polytechnic University of Torino (Italy). Final mark: 110/110 *summa cum laude*; April 2018
35. *Electrospun polymeric membranes doped with piezoelectric nanoparticles: Characterization and effects on bone-like cells*. Candidate: Michela Licciardello, M.Sc. course in Biomedical Engineering, Polytechnic University of Torino (Italy). Final mark: 103/110; December 2017
36. *A closed-loop neuroprosthesis with proprioceptive feedback due to mechanical vibration of tendons*. Candidate: Alessia Botta, M.Sc. course in Biomedical Engineering, Polytechnic University of Torino (Italy).

Final mark: 110/110 *summa cum laude*; October 2017; winner of the National Bioengineering Group master thesis award

37. *Gelatin/nanoceria nanocomposite fibers as antioxidant scaffolds for neuronal regeneration*. Candidate: Daniele De Pasquale, M.Sc. course in Molecular and Industrial Biotechnologies, University of Pisa (Italy). Final mark: 104/110; December 2016
38. *Natural polymer based sub-micron fibers doped with cerium oxide nanoparticles for skeletal muscle tissue regeneration*. Candidate: Paolo Massimo di Corato, M.Sc. course in Biomedical Engineering, Polytechnic University of Torino (Italy). Final mark: 87/110; July 2016
39. *Piezoelectric thin films as artificial sensory epithelium for cochlear prosthetics*. Candidate: Maria Comito, M.Sc. course in Biomedical Engineering, University of Pisa (Italy). Final mark: 110/110; July 2016; winner of the National Bioengineering Group master thesis award
40. *Development of conducting polymer-based microwrinkled biointerfaces as smart scaffolds for stimulation and guidance of axonal growth*. Candidate: Alberto Bonisoli, M.Sc. course in Biomedical Engineering, University of Roma "La Sapienza" (Italy). Final mark: 110/110 *summa cum laude*; October 2014
41. *Development and characterization of a novel bio-hybrid robotic actuator driven by C2C12 skeletal muscle cells*. Candidate: Giada Graziana Genchi, M.Sc. course in Biotechnologies, University of Bari (Italy). Final mark: 110/110 *summa cum laude*; October 2010

Internships

1. *Synthesis and testing of bio-hybrid polydopamine nanoparticles*. Bengu Sueda Sengul (Sabanci University, Istanbul, Turkey), B.Sc. Internship, 14/06/2021 - 22/08/2021
2. *Preparation, characterization, and in vitro testing of hybrid lipid/polymeric nanoparticles for drug targeting*. Egemen Acar (Sabanci University, Istanbul, Turkey), B.Sc. Internship, 01/07/2019 - 31/08/2019
3. *Altered gravity conditions for the modulation of cellular activities*. Ewelina Lorenc (Jagiellonian University, Krakow, Poland), M.Sc. Internship, 09/07/2018 - 10/09/2018
4. *Preparation and characterization of nanoceria-doped substrates*. Paolo Donati (Università degli Studi di Camerino, Camerino, Italy), Post-Graduate Internship, 14/04/2017 - 16/06/2017
5. *Enhancing far-red and NIR light sensitivity of opsins using chlorophyll derivatives*. Andrea Degl'Innocenti (Max Plank Institute for Biophysics, Frankfurt, Germany), Post-Doctoral Internship, 16/11/2015 - 15/05/2016
6. *Investigation of boron nitride nanotubes applications for cancer therapy*. Tiago Hilario Ferreira (Centro de Desenvolvimento da Tecnologia Nuclear, Belo Horizonte, Brazil), Ph.D. Internship, 18/02/2013 - 17/07/2013

Invited talks/seminars

1. *Protection mediated by antioxidant nanotechnology against neuronal damage in space – Introduction to the PROMETEO Project*. Invited seminar at the East Virginia Medical School, Norfolk (USA); November 1st, 2022
2. *Smart nano-heaters tackling brain cancer*. Invited key-note talk at the Trends in Nanotechnology Conference, Tirana (Albania); October 5th, 2022
3. *Remotely-triggered cancer therapy: The role of smart nanoparticles*. Invited key-note talk at the European Microwave Week, Milano (Italy); September 26th, 2022
4. *Nanozymes in biomedicine: Route towards clinical applications*. Invited key-note talk at the 32nd Conference of the European Society for Biomaterials, Bordeaux (France); September 5th, 2022
5. *Where RNA meets nano: The present and the future*. Introductory speech at the international meeting "NanoGagliato", Gagliato (Italy); July 29th, 2022
6. *Grape-derived extracts as potential active pharmaceutical and cosmetic ingredients*. Invited lecture at the workshop "Innovative approaches in cosmetic testing, in compliance with the European regulation", Genova (Italy); June 23rd, 2022
7. *Smart solutions in nanomedicine*. Invited lecture at Università Campus Bio-Medico, Roma (Italy); May 24th, 2022
8. *Pharmaceutics, technologies, and new experimental models*. Invited report at the Italian Space Agency workshop on the Roadmap for Space Life Sciences, Roma (Italy); May 23rd, 2022
9. *Active nanomaterials for advanced biomedical applications*. Invited seminar at the Sant'Anna School of Advanced Studies, Pisa (Italy); February 8th, 2022

10. *Smart nanomaterials in biomedicine*. Invited seminar at the University of Siena, Siena (Italy); January 19th, 2022
11. *Innovative smart nanomaterials towards clinical applications*. Invited lecture at the Unit for Energy and Nanomaterials, Waseda University, Tokyo (Japan); December 17th, 2021
12. *Wireless nanomedicine: The potential of piezoelectric nanomaterials in the clinical practice*. Invited on-line lecture at the BeMAGIC Winter School “Magnetolectricity in biomedicine: Healthcare for the 21st century”, Zurich (Switzerland); November 9th, 2021
13. *Smart nanomaterials for advanced biomedical applications*. Invited key-note talk at the Trends in Nanotechnology Conference, Tirana (Albania); October 6th, 2021
14. *Piezoelectric materials for biomedical applications: From tissue engineering to cancer nanomedicine*. Invited on-line key-note talk at the 31st Conference of the European Society for Biomaterials, Porto (Portugal); September 6th, 2021
15. *Nanotechnology: Successes and opportunities*. Introductory speech at the international meeting “NanoGagliato”, Gagliato (Italy); August 28th, 2021
16. *Piezoelectric polymers for biomedical applications: From tissue engineering to cancer nanomedicine*. Invited on-line talk at the Advanced Functional Polymers for Medicine Conference, Pisa (Italy); July 14th, 2021
17. *A new generation of nanovectors tackling brain cancer*. Invited on-line talk at the New Trends in Material Science and Engineering: 1st International Virtual Conference, L’Aquila (Italy); June 16th, 2021
18. *Lipid-based magnetic nanosystems for cancer therapy*. Invited on-line lecture at the Kiel University, Kiel (Germany); June 15th, 2021
19. *Innovative nanotechnological approaches for the treatment of glioblastoma multiforme*. Invited on-line talk at the European Materials Research Society Spring Meeting, Strasbourg (France); May 31st, 2021
20. *Innovative nanomaterials and space medicine*. Invited on-line talk at the workshop “Space factories: Emerging applications on space stations”, Tel Aviv (Israel); May 4th, 2021
21. *Piezo-stimulation against cancer: Clinical perspectives*. Invited on-line talk at the Global Nanobiotechnology Consortium E-Conference, Tampa (USA); March 13th, 2021
22. *Stimuli-responsive nanomaterials for biomedical applications*. Invited on-line seminar at the University of Sydney, Sydney (Australia); July 2nd, 2020
23. *Smart bio-interfaces*. Invited talk at the Sino-Italian Science and Technology Innovation Cooperation Matchmaking Meeting, Hangzhou (China) and at the Sino-Italian Meeting for Cooperation on Innovative Trends, Keqiao (China); October 24-25th, 2019
24. *Multifunctional hybrid nanovectors*. Invited lecture at the XXXVIII Annual School of Bioengineering, Bressanone (Italy); September 10th, 2019
25. *Nano-lessons: Learning from failures*. Introductory speech at the international meeting “NanoGagliato”, Gagliato (Italy); July 13th, 2019
26. *Hybrid nanoparticles for the treatment of central nervous system disorders*. Invited lecture at the International School of Nanomedicine, 4th Course: “Precision Nanomedicine”, Erice (Italy); July 3rd, 2019
27. *Piezoelectricity applied to tissue engineering: A new approach based on remote cell stimulation*. Invited talk at the TERMIS-EU conference, Rhodes (Greece); May 28th, 2019
28. *Molecular countermeasures to space flight: The case of nano-antioxidants*. Invited lecture at the Scuola Superiore Sant’Anna, Pisa (Italy); March 15th, 2019
29. *Hybrid nanostructured materials for advanced biomedical applications*. Invited seminar at the Osaka University, Osaka (Japan); February 22th, 2019
30. *Smart nanomedicine*. Invited seminar at the Eindhoven University of Technology, Eindhoven (The Netherlands); November 30th, 2018
31. *Hybrid nanocarriers for theranostic applications*. Invited seminar at the Sabancı University, Istanbul (Turkey); November 21st, 2018
32. *Piezoelectric effects of nanomaterials on bio-interfaces*. Invited talk at OrbItaly 2018, Milano (Italy); October 17th, 2018
33. *Smart nanomaterials for biomedical applications: From Earth to space*. Invited talk at the NanoInnovation Conference & Exhibition, Roma (Italy); September 14th, 2018
34. *Nanoparticle-assisted remote electric stimulation inhibits glioblastoma multiforme cell proliferation*. Invited talk at the European Advanced Materials Congress, Stockholm (Sweden); August 23th, 2018

35. *Smart nanomaterials for the control of biological functions*. Invited seminar at the National University of Ireland, Galway (Ireland); July 13th, 2018
36. *Control of biological functions mediated by nanostructured materials*. Invited lectures at the *Università Cattolica del Sacro Cuore*, Brescia (Italy); May 14th-15th, 2018
37. *Piezoelectric nanostructured materials as innovative smart bio-interfaces*. Invited talk at the Materials Research Society Spring Meeting, Phoenix (USA); April 5th, 2018
38. *Multifunctional hybrid nanovectors: A new tool to overcome highly invasive tumor resistance*. Invited talk at the 29th Conference of the International Society for Medical Innovation and Technology, Torino (Italy); November 10th, 2017
39. *Lipid-based hybrid nanovectors as theranostic tools*. Invited talk at the East-West Chemistry Conference, Skopje (Macedonia); October 12th, 2017
40. *Bioapplications of smart ceramic nanoparticles*. Invited talk at the Clusters & Nanostructures Gordon Research Conference, South Hadley (USA); July 12th, 2017
41. *Remote control of cellular functions mediated by smart nanomaterials*. Invited key-note talk at the workshop "NanoBioMed Sardinia", Alghero (Italy); June 25th, 2017
42. *Smart materials in nanomedicine*. Invited talk at the NanoBio&Med 2016 conference, Barcelona (Spain); November 24th, 2016
43. *Piezoelectric nanomaterials for tissue engineering*. Invited talk at the 1st Biennial Conference on Biomaterials for Tissue and Genetic Engineering and the Role of Nanotechnology (BioMaH), Roma (Italy); October 18th, 2016
44. *Active nanomaterials for biomedical applications*. Invited talk at the conference "Nanotechnology in medicine: From molecules to humans", Herrnstein (Austria); July 6th, 2016
45. *Smart substrates for tissue engineering*. Invited seminar at the Department of Materials, Loughborough University, Loughborough (UK); June 17th, 2016
46. *Piezoelectric nanomaterials for cell stimulation*. Invited seminar at the Department of Life Science and Medical Bioscience, TWIns, Waseda University, Tokyo (Japan); May 17th, 2016
47. *Potential applications of smart nanoparticles in neurodegenerative diseases*. Invited talk at the workshop "Engineered biomaterials and biomedical devices in the regenerative medicine of the nervous system", Torino (Italy); November 20th, 2015
48. *Modulation of cellular responses: The two-photon polymerization approach in the control of the physical micro/nanoenvironment*. Invited talk at the 37th Annual International Conference of the IEEE EMBS, Milano (Italy); August 26th, 2015
49. *Multi-functional nanomaterials for cancer therapy*. Invited talk at the European Materials Research Society Spring Meeting, Lille (France); May 14th, 2015
50. *Hypergravity to investigate cell differentiation*. Invited talk at the workshop "Biology in Space: Challenges and Opportunities", Pisa (Italy); November 7th, 2014
51. *Boron nitride nanotubes in the biomedical research*. Invited talk at the 10th Nanoscience and Nanotechnology Conference, Istanbul (Turkey); June 20th, 2014
52. *Nanotransducers for biomedical applications: The example of boron nitride nanotubes*. Invited talk at the Energy Materials and Nanotechnology Spring Meeting, Las Vegas (USA); March 2nd, 2014
53. *Piezoelectric nanostructured scaffolds for regenerative medicine*. Invited talk at the Materials Research Society Spring Meeting, San Francisco (USA); April 5th, 2013
54. *Piezoelectric nanomaterials for biomedical applications*. Invited lecture at the symposium "Piezoelectric bone surgery", Torino (Italy); March 9th, 2013
55. *Piezoelectric quasi-1D nanostructures for biomedical applications*. Invited lecture at the symposium "Piezoelectric nanodevices: Present and future", *Accademia Nazionale dei Lincei*, Roma (Italy); September 28th, 2012
56. *Smart nanoparticles in the biomedical research*. Invited lecture at the Spring Conference of the *Europäische Akademie Bad Neuenahr-Ahrweiler* "Nanomedicine. Visions, risks, potential", Berlin (Germany); April 19th, 2012
57. *Applications of ceramic nanoparticles in nanomedicine*. Invited talk at the International Conference on Processing and Manufacturing of Advanced Materials (THERMEC 2011), Quebec City (Canada); August 4th, 2011

58. *Nanoparticles for biomedical applications, with a special view on boron nitride nanotubes*. Invited seminar at the World Premier International Research Center for Materials Nanoarchitectonics (MANA), National Institute for Materials Science (NIMS), Tsukuba (Japan); November 10th, 2009

Invited dissemination talks

1. *Antiossidanti tradizionali ed innovativi: Possibili applicazioni per la salute dell'astronauta*. Invited talk at the *Festival dello Spazio*, Busalla (Italy); July 2nd, 2022
2. *Scienza ed innovazione sul territorio: I centri dell'Istituto Italiano di Tecnologia della Provincia di Pisa*. Invited talk at *Cascina Europa*, Cascina (Italy); June 22nd, 2022
3. *AIRC nelle Scuole: CyberNano*. Invited lecture at *Scuola Media "F. Sacchetti"*, San Miniato (Italy); March 23rd, 2022
4. *Onde di energia per la stimolazione di nanomateriali intelligenti*. Invited on-line talk at the *Festival della Scienza*, Genova (Italy); October 26th, 2020
5. *La medicina del futuro: Dalla terra allo spazio*. Invited talk at *Monterosso un Mare di Libri*, Monterosso al Mare (Italy); July 30th, 2020
6. *NANOROS: Risultati della ricerca sulla stazione spaziale*. Invited talk at the *Festival dello Spazio*, Busalla (Italy); July 28th, 2019
7. *Antiossidanti nanotecnologici dalla terra allo spazio*. Invited talk at *Serate Scientifiche Lungarno con l'Istituto Italiano di Tecnologia*, Pisa (Italy); July 22nd, 2019
8. *SLaMM - Magnetic solid lipid nanoparticles as a multifunctional platform against glioblastoma multiforme*. Invited talk at the "BeERC" event 2018, Genova (Italy); December 3rd, 2018
9. *NANOROS: Tecnologie in orbita*. Invited talk at the *Festival della Scienza*, Genova (Italy); November 5th, 2017
10. *Nanomateriali intelligenti e loro applicazioni in biomedicina*. Invited talk at the *Accademia del Gusto di La Spezia*, Ameglia (Italy); September 28th, 2017
11. *NANOROS: Nanotechnology solutions against oxidative stress in muscle tissue during long-term microgravity exposure*. Invited talk at the *Festival dello Spazio*, Busalla (Italy); July 27th, 2017
12. *SLaMM - Magnetic solid lipid nanoparticles as a multifunctional platform against glioblastoma multiforme*. Invited talk at the "BeERC" event 2017, Genova (Italy); March 16th, 2017

Other talks/seminars

1. *Piezoelectric materials and cancer nanomedicine*. Talk at the "Bio-Nano International Workshop", on-line; September 29th, 2021
2. *Smart nanomaterials: The route towards clinical applications*. Key-note talk at the "Bio-Nano Cross-Over International Workshop", on-line; May 25th, 2021
3. *Hybrid magnetic/lipid nanovectors for brain cancer therapy*. Talk at the 6th Nano Today Conference, Lisbon (Portugal); June 19th, 2019
4. *Multifunctional hybrid nanovectors for brain drug delivery*. Talk at the 5th Core-to-Core International Symposium "3D Lab-Exchange Program", Okinawa (Japan); February 26th, 2019
5. *Innovative smart nanomaterials for brain cancer therapy*. Talk at the 14th International Conference on Nanostructured Materials, Hong Kong (China); June 25th, 2018
6. *Smart nanotools for the development of multifunctional biomedical platforms*. Talk at the 4th Core-to-Core International Symposium "3D Lab-Exchange Program", Bonn (Germany); March 8th, 2018
7. *Remote modulation of cell activities mediated by smart nanoparticles*. Talk at the 5th Nano Today Conference, Waikoloa (USA); December 10th, 2017
8. *Lipid-based hybrid theranostic nanovectors for brain cancer treatment*. Talk at the 28th Conference of the European Society for Biomaterials, Athens (Greece); September 8th, 2017
9. *Remote nanomaterials-mediated cell activation*. Talk at the 5th International Conference on Multifunctional, Hybrid and Nanomaterials, Lisbon (Portugal); March 6th, 2017
10. *Smart bio-nanomaterials*. Talk at the 3rd Core-to-Core International Symposium "3D Lab-Exchange Program", Pisa (Italy); September 22nd, 2016
11. *Boron nitride nanotubes as smart biomaterials*. Talk at the 13th International Conference on Nanostructured Materials, Quebec City (Canada); August 9th, 2016

12. *Nanoparticle-assisted piezoelectric cell stimulation*. Lecture at the University of Genova, Genova (Italy); April 29th, 2016
13. *Smart multi-functional nanomaterials for biomedical applications*. Talk at the 4th Nano Today Conference, Dubai (UAE); December 9th, 2015
14. *Two-photon polymerization of Ormocomp® 3D structures doped with piezoelectric barium titanate nanoparticles*. Talk at the 27th Conference of the European Society for Biomaterials, Krakow (Poland); September 3rd, 2015
15. *Targeted delivery of anti-cancer drug sorafenib through magnetic solid lipid nanoparticles*. Talk at the TechConnect World Innovation Conference & Expo, National Harbor (USA); June 15th, 2015
16. *Nanotechnology-based smart bio-interfaces*. Lecture at the *Politecnico di Torino*, Torino (Italy); April 22nd, 2015
17. *Smart bio-interfaces*. Talk at the 1st Core-to-Core International Symposium "3D Lab-Exchange Program", Kamagawa (Japan); September 12th, 2014
18. *Smart nanostructured materials in the biomedical research*. Talk at the 12th International Conference on Nanostructured Materials, Moscow (Russia); July 14th, 2014
19. *Recombinant human elastin-like magnetic microparticles for drug delivery and targeting*. Talk at the 4th International Symposium on Surface and Interface of Biomaterials, Roma (Italy); September 25th, 2013
20. *Smart nanomaterials for biomedical applications*. Seminar at the Department of Life Science and Medical Bioscience, TWIns, Waseda University, Tokyo (Japan); May 14th, 2013
21. *Myoblast behavior on human recombinant elastin-like coatings*. Talk at the conference Nanomedicine: From molecules to diagnosis and therapy, Roma (Italy); October 2nd, 2012
22. *Boron nitride nanotubes for biological and medical applications*. Talk at the 13th International Conference on the Science and Application of Nanotubes, Brisbane (Australia); June 28th, 2012
23. *In vivo preliminary investigation of boron nitride nanotubes compatibility*. Talk at the 9th World Biomaterials Congress, Chengdu (China); June 3rd, 2012
24. *Hypergravity effects on proliferation and differentiation of C2C12 muscle-like cells*. Talk at the 62nd International Astronautical Conference, Cape Town (South Africa); October 7th, 2011
25. *Adhesion and proliferation of PC12 cells on ZnO nanowire arrays*. Talk at the Congress of the Italian Society for Biomaterials (SIB 2011), Bari (Italy); May 24th, 2011
26. *Potential applications of barium titanate nanoparticles in nanomedicine: A preliminary study*. Talk at the 10th Nanotechnology Conference: IEEE NANO 2010, Seoul (Korea); August 18th, 2010
27. *BioNanoRobotics: How nano can we go?* Seminar at the Department of Nanomedicine and Biomedical Engineering of the University of Texas, Houston (USA); February 11th, 2010
28. *Piezoelectric nanotubes for cellular stimulation*. Talk at the 1st ASME Global Congress on NanoEngineering for Medicine and Biology, Houston (USA); February 9th, 2010
29. *Potential biomedical applications of boron nitride nanotubes, with special attention on boron neutron capture therapy*. Seminar at the annual meeting of the Italian-Switzerland Society of Biomedical and Chemical Sciences, Bellinzona (Switzerland); November 27th, 2009
30. *Boron nitride nanotubes as innovative biomaterials*. Talk at the 2nd WUT-NIMS-EMPA Workshop on Nanomaterials for sustainable Development, Tsukuba (Japan); November 12th, 2009
31. *Boron nitride nanotubes as innovative vectors for cell therapy*. Seminar at the Department of Life Science and Medical Bioscience, Waseda University, Tokyo (Japan); September 24th, 2009
32. *Investigation of interactions between boron nitride nanotubes and C2C12 cells*. Talk at the 9th Nanotechnology Conference: IEEE NANO 2009, Genova (Italy); July 29th, 2009
33. *Magnetic driven drug targeting*. Talk at the 2nd European Summer School in Nanomedicine, Cascais, Lisbon (Portugal); June 15th, 2009
34. *Cell cultures and nanotechnology: Towards the medicine of the future*. Talk at the AICC annual meeting, *Istituti Ortopedici Rizzoli*, Bologna (Italy); November 27th, 2008
35. *Study and design of drug delivery systems for cell therapy*. Micro Nano COE special seminar, School of Engineering, Nagoya University, Nagoya (Japan); November 21st, 2007
36. *Polymeric micro- and nanoparticles as drug delivery systems for cell therapy*. Seminar at the Consolidated Research Institute for Advanced Science and Medical Care (ASMEW), Waseda University, Tokyo (Japan); October 24th, 2007

Awards and other achievements

- “Premio Sciacchetrà 2022”, awarded by “Associazione Amici delle Cinque Terre”
- Cover image of issue 9(24), December 2021, of *Biomaterials Science*
- Cover image of issue 8(21), November 2021, of *Advanced Materials Interfaces*
- Cover image of issue 109(11), November 2021, of *Journal of Biomedical Materials Research A*
- Cover image of issue 21(9), September 2021, of *Macromolecular Bioscience*
- Cover image of issue 5(10), October 2020, of *Advanced Materials Technologies*
- Cover image of issue 12(26), July 2020, of *ACS Applied Materials and Interfaces*
- Cover image of issue 5(21), June 2020, of *ACS Omega*
- Cover image of issue 5(3), March 2020, of *Advanced Materials Technologies*
- Cover image of issue 5(2), February 2019, of *ACS Biomaterials Science and Engineering*
- Cover image of issue 11(1), January 2019, of *Nanoscale*
- International Association for Advanced Materials (IAAM) 2018 Scientist Medal
- Cover image of issue 14(6), February 2018, of *Small*
- Cover image of issue 6(9), May 2017, of *Advanced Healthcare Materials*
- Winner of the “Spin Your Thesis!” Campaign (2016), promoted by the ESA, presenting the experiment *Hypergravity-induced oxidative stress in planarians: Nanotechnology-based countermeasures*
- Cover image of issue 4(11), August 2015, of *Advanced Healthcare Materials*
- Cover image of issue 7(7), February 2015, of *Nanoscale*
- Cover image of issue 31(11), November 2014, of *Pharmaceutical Research*
- Winner of the “Spin Your Thesis!” Campaign (2014), promoted by the ESA, presenting the experiment *Implementation of hypergravity in mammalian cell transfection procedures*
- Cover image of issue 14(5), May 2014, of *Macromolecular Bioscience*
- Winner of the “Spin Your Thesis!” Campaign (2013), promoted by the ESA, presenting the experiment *Combination of hypergravity and nanotechnology for the improvement of the differentiation of mesenchymal stem cells into osteoblasts*
- Cover image of issue 114(1), July 2012, of the *Journal of Bioscience and Bioengineering*
- European Biomaterials and Tissue Engineering Doctoral Award (EDA) 2011
- “Nital I-Robot - Scuola Superiore Sant’Anna” 2010 award for the Ph.D. Thesis
- “Massimo Grattarola” 2010 award for the Ph.D. Thesis
- Winner of the “Salvatore Venuta” 2010 scholarship for young researchers in nanomedicine
- Winner of the “Spin Your Thesis!” Campaign (2010), promoted by the ESA, presenting the experiment *Investigation of hypergravity on proliferation, metabolism and differentiation of muscle cells*
- STSBC-Roche 2009 award (Italian-Switzerland Society of Biomedical and Chemical Sciences and Roche Diagnostics Ltd.) for researches in the fields of biomedicine and/or biotechnology
- Excellent Paper Award 2009 of the Society for Biotechnology of Japan, with the paper *Bi-compartmental device for dynamic cell co-culture: Design, realisation and preliminary results* (*Journal of Bioscience and Bioengineering*, 105(5): 536-544, 2008)
- AICC 2008 award (Italian Cell Culture Association, national branch of the European Tissue Culture Society) for young researchers in the biomedical field
- ISIB-CNR 2006 award (Institute of Biomedical Engineering, National Research Council) for the M.Sc. Thesis
- Winner of the 8th Parabolic Flight Campaign (2005), promoted by the ESA and NOVESPACE, presenting the experiment *Verification of the Fitts’ law in microgravity and hypergravity environment and energetic considerations*

Publication list

International journals

1. Emanet M., Okuda M., Sen O., Lavarello C., Petretto A., Takeoka S., Ciofani G. Sumac (*Rhus coriaria*) extract-loaded polymeric nanosheets efficiently protect human dermal fibroblasts from oxidative stress. *ACS Applied Bio Materials*, 10.1021/acsabm.2c00857

2. Battaglini M., Feiner N., Tapeinos C., De Pasquale D., Pucci C., Marino A., Bartolucci M., Petretto A., Albertazzi L., Ciofani G. Combining confocal microscopy, dSTORM, and mass spectroscopy to unveil the evolution of the protein corona associated with nanostructured lipid carriers during blood-brain barrier crossing. *Nanoscale* 14(36): 13292-13307 (2022)
3. Marino A., Battaglini M., Tapeinos C., Larranaga A., Ciofani G. Innovative nanotechnology tools for the functional control and tracking of human stem cells. *Materials Today Advances*, 16C: 100298 (2022)
4. Emanet M., Sen O., Pignatelli F., Lavarello C., Petretto A., Ciofani G. Hazelnut extract-loaded nanostructured lipid carriers and evaluation of their antioxidant properties. *Frontiers in Bioengineering and Biotechnology*, 10: 953867 (2022)
5. Marino A., Battaglini M., Moles N., Ciofani G. Natural antioxidant compounds as potential pharmaceutical tools against neurodegenerative diseases. *ACS Omega*, 7(30): 25974-25990 (2022)
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