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Curriculum Vitae
Lucia Gemma Delogu, Ph.D.

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PERSONAL INFORMATION

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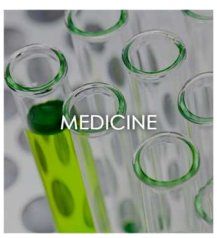
SHORT BIOGRAPHY

***Lucia Gemma Delogu**, Ph.D., is the head of the ImmuneNano-Lab at the Department of Biomedical Sciences of the University of Padua (UNIPD, Padua, Italy) www.delogulab.eu. After acquiring her experience in Immunology and Material Science at the University of Southern California (Los Angeles, USA) and at Sanford-Burnham Institute (San Diego, USA), she served for 5 years as Assistant Professor (non tenure track) at the University of Sassari (Italy) and as Visiting Professor at the Technische Universität Dresden (TUD; Dresden, Germany).*
*Dr. Delogu has been the **Scientific Coordinator of two interdisciplinary EU projects**, under HORIZON2020, including a RISE project on nanomedicine and immune interactions of nanomaterials, involving more than 10 leading Institutions and high-profile international scientists on nanotechnology and nanomedicine. In this field, she has received several awards, including the "**Marie S. Curie Individual Fellow**" at TUD under HORIZON2020 from the European Commission, the "200 Young Best Talents of Italy 2011" from the Italian Ministry of Youth, and "Bedside to Bench & Back Award" from the National Institutes of Health, USA. Since 2020, Dr. Delogu is in charge of the Italian chapter and a member of the road map working group of the Advanced Material Global Pandemic & Future Preparedness Taskforce (AMPT) www.amptnetwork.com/.*

CURRENT RESEARCH INTERESTS

Dr. Delogu introduced the "NanoImmunity-by-design" concept, for the design of nanomaterials based not solely on their physicochemical characteristics but also on their immunomodulatory properties.
*She pioneered the use of **systems immunology approach by high-dimensional single-cell strategies in the context of nanomaterial applications.** Her research focuses on the biological interactions of nanomaterials and nanoparticles, with a particular focus on their immunomodulation properties, biomedical applications and toxicological profile. For more info please visit: www.delogulab.eu.*



Nanomaterials in Biomedicine
Delogu's research relies on the translation of nanomaterials in the medical scenario, in collaboration with international leaders in nanomaterial synthesis and chemical characterization (e.g., MXenes, graphene, graphene oxide, graphene nanoribbons, carbon nanotube fibers). In this field, Dr. Delogu obtained, as scientific coordinator, two ***European projects***: G-IMMUNOMICS, partnering project of the European Graphene Flagship, and Carbo-IMMAP financed under HORIZON 2020.

Nanoparticles and Human Health

The European Scientific Committee on Health, Environmental, and Emerging Risks, 2018 (SCHEER) recently issued a statement listing **micro-** and **nano-plastics** in the environment as one of 14 priority issues. Dr. Delogu research is aimed to support hazard identification and human health risk assessment of microplastics and nanoplastics, investigating their biological and immune effects, and the underlying toxicological pathways. Dr. Delogu participated to the call H2020 on micro-nanoplastics impact as WP leader for the nanotoxicology part and her project "EXAMINA" entered in the resever list "top 10%). Moreover, Dr. Delogu research aims at providing new insights on the potential toxicity of **nanoparticles** contained in food and everyday products, from the gene to the protein level.

Space Biology

One of the major problems of long space flights is the immune function dysregulation. Dr. Delogu research takes advantage of nanomaterial and nanoscaffold immune properties under microgravity conditions, to develop new tools able to compensate this issue. Moreover, microgravity conditions are an excellent environment to understand inflammation mechanisms and to apply this knowledge to medical needs on the earth.
Dr. Delogu is WP leader for the biocompatibility of the EU project WHISKIES, "Wound Wound Healing In Space: Key challenges towards Intelligent and Enabling Sensing platforms" funded by the **European Space Agency (ESA)**, for promoting tissue regeneration using nanomaterial-based tools.

Key words: Nanomaterials, Nanoparticles, Air Pollution, Micro-/Nano-plastics, Immune System, Immune Modulation, High-Dimensional Approaches, Systems Biology, Systems Immunology, Human Health, Biomedicine, Nanotoxicology, Nanotechnology, Space Biology.

EDUCATION

5/2008	Ph.D. in Biochemistry, Biology, and Biotechnology **obtained with honors** at the Department of Biomedical Sciences, University of Sassari, Italy And at the Sanford-Burham Institute, San Diego, USA (in co-tutoring) Name of Ph.D. Supervisors: Dr. Laura Morelli; Co-Supervisor: Prof. Francesco Cucca
11/2004	M.S. in Natural Sciences, 110/110 Summa cum Laude University of Sassari, Italy

CURRENT POSITION

9/2019 – Current	Assistant Professor (tenure track), RTD-B in the Italian academic system. Department of Biomedical Science University of Padua, Italy

PREVIOUS POSITIONS

*Dr. Delogu gained an extensive **teaching and research expertise** in international and multicultural environments during her activity in different countries (Italy, USA, and Germany).*

6/2018 – 8/2019	Visiting Scientist and Research group leader, **Marie S. Curie Individual Fellow,** Technische Universität Dresden (TUD), Germany
11/2017 – 5/2018	Visiting Scientist, University of Trieste, Italy
11/2012 – 11/2017	**Assistant Professor non-tenure track (5 years),** University of Sassari, Italy
Summer 2017	Visiting Professor, Technische Universität Dresden (TUD), Germany
Summer 2016	Visiting Professor, Technische Universität Dresden (TUD), Germany
5/2013	Visiting Researcher, National Institute of Health (NIH), Bethesda, USA
10/2009 – 10/2011	Postdoctoral Fellow, Dept. of Pharmacy, University of Sassari, Italy
7/2007 – 4/2009	Postdoctoral Fellow, University of Southern California, USA

TEACHING ACTIVITIES

Dr. Delogu gained more than eight years of teaching experience. For 7 years, more than 35% of her activity was dedicated to teaching due to the internal University policy.

2019 – Present	Biological Chemistry, Department of Biomedical Sciences University of Padua, Italy
2010 – 2017	Lab courses in Biology,Molecular Biology, (Applied Biochemistry), Department of Chemistry and Pharmacy, University of Sassari, Italy (72 hours per years with monthly exams, enrollment: > 150 students).
2011	Molecular Biology and Bioinformatics, Department of Chemistry and Pharmacy, University of Sassari (enrollment: > 150 students).

ACADEMIC LICENSES AS ASSOCIATE AND FULL PROFESSOR GRANTED BY THE ITALIAN MINISTRY OF EDUCATION, UNIVERSITY, AND RESEARCH

1) General Biological Chemistry (Associate Professor);
2) Applied Biology (Associate Professor);
3-4) Clinical Biochemistry (Associate and Full Professor);
5-6) Pathology (Associate and Full Professor).

AWARDS, FELLOWSHIPS AND HONOURS

2019	"Excellent scientist from Sardinia in the world 2019" from Sardinian Federation (Lausanne)
2019	Award "Sardinian Women 2019" by the International Inner Wheel Castello, Italy
2018	Italian Habilitation as Associate and Full Professor in Clinical Biochemistry and Pathology
2017	"Advanced Lecture on Graphene", Cambridge Graphene Center, United Kingdom
2017	"Fèminas Award"-Science and Culture Section, Coldiretti Italian Association, Italy
2017	**Marie Skłodowska-Curie Individual Fellow by the European Commission Horizon2020**
2017	Awarded of "Dresden Senior Visiting Professor Fellow-Excellence in Science program", Technische Universität Dresden, Dresden, Germany (39300 euros)
2016	Awarded of a "Eleonore Trefftz Fellow-Excellence in Science program", Technische Universität Dresden, Dresden, Germany (39300 euros)
2013	"**Bedside to bench & Back Lecture Series Achievement Award", (NIH), Bethesda USA**
2012	"Medicine, Biology e Nanotechnology Award", Association Del Prete, Italy (6000 euro)
2011	Sardinia Region: "Best projects not funded in International calls as coordinators"
2011	"**200 Best Young Talents in Italy" (Science Section), Italian Ministry of Youth, Italy**
2007	"Master and Back Award" to University of Southern California, USA (23000 euro)
2003	Best student of the year Award, University of Sassari, Italy (1000 euro)

SUPERVISION OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS

All mentioned positions were acquired on Dr.Delogu's grants:

2018 – Present	Leader of the *ImmuneNano-Lab* (now 1 postdoc, 1 PhD student + 2 visiting scientists) Department of Biomedical Sciences, University of Padua, Italy

2010 – 2018 5 M.Sc./5 fellows/3 PhD students/2 postdocs Dept. of Pharmaceutical Sciences, at the University of Sassari (UNISS, Italy) and at Technische Universität Dresden (TUD, Germany).

As an example of mentorship skills:
- M. Orecchioni Ph.D student published 9 articles as a results of the Ph.D. under my mentorship (5 as first author in top journal such as Nature Comm) + he obtained ASHG USA postdoctoral fellow at La Jolla Institute San Diego, USA.
- Dr. S. Ferrari postdoctoral fellow is now Scientific Director of the Company "PERTEC" with an annual revenue of 750 K euros and more than 30 M euros of acquired funding

INVITED SEMINARS

2009-2020 Dr. Delogu held 19 invited seminars *hosted by key leaders in the context of: Graphene (i.e. Andrea Ferrari, Cambridge University; Bengt Fadeel, KI; Arben Merkoci, ICN2), Immunology (i.e. Erkki Ruoslahti Burnham Insitute San Diego and Francesco Marincola NIH USA) and Nanotechnology (i.e. Ennio Tasciotti Methodist Research Center Houston).*

1. 2/14/2020 ICN2, Barcelona. Title: Nanomaterials, graphene and the immune cells: interactions and applications. Host: Arben Merkoci Barcellona
2. 6/12/2019 University of Ca' Foscari, Title: Future applications for 2D materials: the immune system scenario Host Alessandro Michelini
3. 12/6/2019 Karolinska Institutet, Stockholm, Sweden. Title: Graphene for targeted anti-cancer treatment (Nanomedicine Symposium). Host: Bengt Fadeel
3. 30/5/2019 University of Barcelona, ISI GLOBAL, Spain Title: Hundreds of characters and many stories Nanomaterials and their interaction with immune cells. Host: Jordi Sunyer Deu
4. 4/2/2019 University of Bruxelles Center of Microgravity, Belgium Title: Carbon Nanomaterials interaction with immune cells: a box of opportunities. Host: Carlo Iorio
5. 25/2/2019 New York University Abu Dhabi, Abu Dhabi, United Arab Emirates, Title: Hundreds of characters and Many stories: Nanomaterials and immune cells
6. 4/3/2019 Italian Institute of Technology, Genoa, Italy, Title: Future applications of graphene: the painting of immune cells interaction. Host: Vittorio Pellegrini
7. 30/1/2018 Institute for Pediatric Research, Padua, Italy; Title: Nanomaterials in Medicine: interactions with immune cells and bio-applications. Host: Antonella Viola
8. 3/11/2017 University of Cambridge, Cambridge, UK; Title: Carbon Nanomaterials with the immune cells: a box of opportunities. Host: Andrea Ferrari
9. 20/02/2017 IIT, Genoa, Italy; Title: New opportunities from nanomaterial interaction with immune cells. Host: Fabio Benfenati
10. 21/10/2015 University of Rome Tor Vergata Italy; Title: Carbon Nanomaterials in Nanomedicine: applications and interactions with immune cells. Host: Gianni Cesareni
11. 29/11/2015 Houston Methodist Research Institute USA; title: Interaction of Carbon nanomaterials with immune cells: perspectives in Medicine. Host: Ennio Tasciotti
12. 2/7/2015 Cedar Sinai Medical Center, Department of Medicine Los Angeles, USA; title: Nanotechnology in everyday clinical practice: How far are we with carbon nanomaterials? Host: Lauda Tomasi
13. 29/6/2015 Sandford Burnham Medical Discovery Center, La Jolla, San Diego, USA; Title: Carbon Nanomaterials in Medicine: Immune cell Interactions? Host: Erkki Ruoslahti
14. 27-29/5/2015 University of Dresden, Dresden, Germany; title: Issues and promises of carbon nanomaterials for biomedical applications. Host: Gianaurelio Cuniberti
15. 9/04/2015 SIDRA Medical and Research Center, Doha, Qatar; title: New advances in biomedicine from nanotechnology: issues and promise of carbon nanomaterials. Host: Davide Bedognetti
16. 19/5/2013 National Institute of Health, Bethesda USA; title: Carbon Nanotubes for Biomedical Applications. Host: Davide Bedognetti

17. 11/5/2012 University of Trieste, Italy; title: Carbon Nanotubes: applications in medicine. Host: Renato Gennaro
18. 1/7/2011 University of Genoa, Italy; title: Nanotechnology and functionalized carbon nanotubes in Nanomedicine. Host: Andrea De Maria
19. 4/12/2009 CNRS, Strasbourg, France; title: PEGylated carbon nanotubes into T cells. Host: Alberto Bianco

ORGANISATION OF SCIENTIFIC MEETINGS

1) Since September 2020, she is part of the committee for the Organization of the DBS talks at UNIPD involving over 100 scientits
2) 10-14/9/2018 Graphene Week 2018, San Sebastian, Spain; Role: co-organizer and chairman of the section "Graphene for space flight applications".
3) 24-27/06/2017 International Workshop Nano Biomed-Sardinia, Alghero, Italy (www.nanobiomedsardinia.eu); Role: main organizer and chairman. International event with > 200 participants, 11 Countries involved, several distinguished guests including 8 ERC winners.
4) 20/01/2017 Main Organizer at the Max Planck Institute of Molecular Biology in Dresden, Germany of the Seminar "Why fat does not accumulate in the muscle of a healthy vertebrate? A system biology approach" by Prof. G. Cesareni, University of Rome Tor Vergata, Italy. Number of participants:>100
5) 2016 One-day Event "Science and Culture" in UNISS, Italy; plenary speakers included Prof. F. Marincola Chief of the Sidra Center, Doha, Qatar. Role: main organizer. Number of participants: >200
6) 2016 International Conferences on Modern Materials and Technologies, Perugia, Italy. Role: scientific committee. Number of participants :> 300
7) 2011-2017 Lecture series at UNISS in the fields of nanobiotechnology and immunology with recognized scientists (12 in total) from different National and International Institutions (i.e. France, USA, UK, Netherlands, Germany, Qatar). Role: main organizer. Number of participants :> 100.
8) 2014 "Science Day 2014 Symposium on Nanobiotechnology" University of Sassari, Italy. Role: Scientific committee. Number of participants: > 50.
9) 8-9/06/2012 International Conference "Cadmium Symposium". Role: Scientific Committee. Number of participants: >500, from more 18 countries.
10) 22/02/2011 Workshop "Chemical and biotech patents by Sardinia Research PATLIB". Role: Scientific committee. Number of participants: >200.

INSTITUTIONAL RESPONSIBILITIES AND REVIEWING ACTIVITIES

2020 – To date In charge of the Italian chapter and member of road map working group of the Advanced Material Pandemic & Future Preparedness Taskforce (AMPT).
2019 – To date Ph.D. School in Biomedical Sciences at the University of Padua, Italy
2013 – 2017 Member, "*Ph.D. School in Life Science*", University of Sassari, Italy
2015 **Invited expert on the review panel of EU FP7 from Project Officer FET Flagships**
2012 **Invited expert in different review panels for the National Science Centre, Poland**

Editorial Board: J. of Translational Medicine, Autoimmunity, Frontiers in Molecular Biosciences and in Bioengineering and Biotechnology, Flat Chem.

Invited Referee (>80 Papers refereed): Advanced Science, ACSNano, Nanotoxicology, Carbon, etc.

MEMBERSHIPS OF SCIENTIFIC SOCIETIES

SITC (Society for immunotherapy of Cancer)
SIB (Italian Society of Biochemistry)
Since 2020 Member of the AMPT road map working group

MAJOR COLLABORATIONS

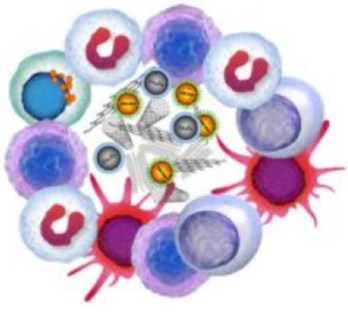
A broad portfolio of collaborations with international leaders in the context of nanotechnology, immunology, biomedicine, nanotoxicology, and engineering. Here to mention some of them having ongoing projects or joint publications with Dr. Delogu:

- Prof. Alberto Bianco (CNRS, France): graphene impact on immune cells;
- Prof. Bengt Fadeel (Karolinka Institutet, Sweden): impact of 2D materials on human health;
- Prof. Yury Gogotsi (Drexel University, USA): MXene biomedical applications;
- Prof. Davide Bedognetti (Sidra Medicine, Qatar): nanomaterials for applications in immunology;
- Prof. Jordi Sunyer (ISGLOBAL, Spain): air pollution and human health;
- Prof. Kostas Kostarelos/Prof. Cinzia Casiraghi (The University of Manchester, UK): nanomedicine;
- Prof Andrea Ferrari (Cambridge Graphene Center, UK): graphene impact on human health;
- Prof. Matteo Pasquali (Rice University, USA): carbon fibers for cardiovascular applications;
- Prof. Klaus Ley/Marco Orecchioni (La Jolla Institute, USA): immune properties of nanomaterials;
- Prof. Xinliang Feng (TUD, Germany): immune properites of graphene nanoribbons;
- Prof. Bjorn Schumacher (CECAD, Germany): impact of nanomaterials on *C. Elegans*;
- Prof. Acelya Yilmazer (Ankara University, Turkey): biomedical/antiviral applications of nanomaterials;
- Prof. Marie Career (Univ. Grenoble Alpes, France): nanomaterials to fight the COVID-19 pandemic;
- Prof. Carlo Iorio (Université libre de Bruxelles, Belgium): Space Biology and nanomaterials;
- Prof. Ennio Tasciotti (Methodist Hospital Houston, USA): nanoscaffolds in tissue engineering;
- Prof. Yiyong May (Shanghai Jiao Tong University, China): immune impact of nanomaterials;
- Prof. Flavia Vitale (University of Pennsylvania, USA): biomedical applications of nanomaterials;
- Prof. Meital Reches (The Hebrew University of Jerusalem, Israel): nanomaterials and human health.

PORTFOLIO OF EXPERIENCE WITH NANOMATERIALS AND NANOPARTICLES

Dr. Delogu gained experience in handling and testing on cells the following nanoparticles and nanomaterials:

- MXenes
- Graphene
- Graphene oxide
- Graphene nanoribbons
- Carbon nanotube fibers
- Carbon nanotubes
- Nanodiamonds
- Carbon quantum dots
- Graphene quantum dots
- Graphitic carbon nitride
- Transition metal dichalcogenides
- Silica nanosheets
- Particulate matter



- Nanomaterial-based hydrogels
- Nanomaterial-based scaffolds
- Lipid nanocapsules
- Micro and nanoplastics

FUNDINGS

*Dr. Delogu obtained **funds for more than 2 M of Euros**, including three EU Projects, two as Coordinator (under the EU Joint translational calls and HORIZON 2020) involving multi-disciplinary teams from ten different Institutions across Europe, North America (USA), Asia (China), and Middle East (Qatar).*

2020	Starting Grant **from the University of Padua (Italy)**. Role: **Beneficiary** Budget: **25.000,00 euros+ 5.000 euros**
2019	Project "WHISKIES**: wound healing in space: key challenges towards intelligent and enabling sensing platform" by the European Space Agency.** Role: **Principal investigator** Total Budget: **2.248.800 euros**
2018	Project "IMM-GNRs: **Human Immune profiling of Graphene Nanoribbons" by the European Commission Marie Skłodowska-Curie Individual Fellow. <u>Call success rate about 10%</u>.** Role: **Beneficiary** Budget: **128.595,60 euros (Starting month June 2018)**
2017	Project "G-NANOULTRA: **Graphene as a new nanocontrast agent for cancer ultrasonography diagnosis and therapy" by the Government of Sardinia Region,Italy. This project was the first in the raking of the Biological Section in Sardinia.** Role: **Coordinator** Budget: **60.000,00 euros**
2016	Project **"*Multifunctional nanotools for advanced cancer diagnostics*" by the Italian PRIN program from the Ministry of Education, University and Research (MIUR).** Role: **Partner Unit Coordinator;** Total Budget**: 372.319,00 euros**
2016	Project **"*Carbo-IMmap – Immune activity Mapping of Carbon Nanomaterials*" by the European Commission Marie Skłodowska-Curie Actions Research and Innovation Staff Exchange in the framework of H2020 program.** **Call success rate: about 20%** Role: **Coordinator** Total Budget: **796.500,00 euros**
2015	Project **"G-IMMUNOMICS – "Characterization of Graphene immune-impacts through omics approaches and genotoxic analysis" by the EU Flag-ERA JTC program in the framework of H2020 Graphene Flagship. The project was among the 13 financed in all Europe and among the two in coordination selected in Italy**. Role: **Coordinator** Total Budget**: 977.542,00 euro**
2015	Project **"Graphene Enchelon-Graphene based electrochemical and sers liquid biopsy detection; Starting grant from the Government of Sardinia Region for EU calls (Best international projects of Sardinia not funded).** Role: **PI of the Research Unit** Budget: **10.000,00 euros**
2015	Project **"Nanotechnologies and graphene: new advances to fight leukemia" by the Italian Leukemia Association (AIL).**

Role: **PI;** Budget: **13.000,00 euros**

2015 Project **"Graphene and Imaging Streaming: the fight against myelomonocytic leukemia" by The Foundation of Sardinia Bank.**

Role: **PI** Budget: **85.400,00 euros**

2014 Project **"TheranosticNano: nanomaterials as imaging agents and therapeutic systems" by The Foundation of Sardinia Bank.**

Role: **PI** Budget: **10.000,00 euros**

2013 Project **"Nanotechnology e immunotherapy: carbon nanotubes interaction with natural killer cells" by The Foundation of Sardinia Bank.**

Role: **PI** Budget: **15.000 euros**

2012 Project **"Nanotechnology in biomedicine: functionalized carbon nanotubes as potential immunomodulator systems" by Government of Sardinia Region, Italy.** Role: **Coordinator** Budget: **126.765,00 euros (all to Delogu Unit).**

2011 Project **"New perspectives in nanotechnology: carbon nanotubes as potential immunotherapeutic agents" by The Foundation of Sardinia Bank.**

Role: **PI;** Budget: **18.000,00 euros**

2011 Project **"TheranosticNANO Ultrasound contrast agents and immunomodulator systems" starting grant from the Government of Sardinia Region "Best projects not funded in National calls as coordinators".**

Role: **Coordinator** Budget: **10.000,00 euros**

2010 Project "**Carbon nanotubes in pharmacology: impact on the immune system and gene expression" by The Foundation of Sardinia Bank, Italy.** Role: **PI** Budget: **14.000,00 euros**

Selected INVITED/KEYNOTE LECTURES since 2013

2020 Plenary Speaker "Vancouver Nanomedicine Day 2020" (Virtual)
2020 Plenary Speaker "Advanced Material Pandemic & Future Preparedness Taskforce (AMPT)" (Virtual)
2020 Plenary Speaker "NALS 2020 (Nanomaterials Applied to Life Sciences)" Madrid, Spain
2019 Plenary Speaker "Nanoday 2019", Barcelona, Spain
2019 Plenary Speaker "NanoBiomed 2019", Milan, Italy
2019 Plenary Speaker "Graphene Week 2019", Helsinki, Finland
2019 Plenary Speaker "Chem2Dmat" Dresden, Germany
2019 Plenary Speaker "Graphene 2019", Rome, Italy and "Nanomed 2019", Lisbon, Portugal
2018 Plenary Speaker "3rd Innovative technologies in Biomedicine", Krakow, Poland, (declined)
2018 Plenary Speaker "Graph China 2018", Xi'An, China (declined)
2018 Invited "Trends In Nanotechnology Conference", Lecce, Italy
2018 Plenary Speaker "Graphene NowNano", organized by the University of Manchester, UK
2018 Invited Speaker "Graphene 2018", Dresden, Germany
2018 Keynote Speaker "3rd Innovative technologies in Biomedicine International Conference" Title: Nanomaterials interaction with immune cells: from immunotherapies to regenerative medicine
2018 Keynote Speaker "Graph China 2018", Xi'An, China Title: Interactions of Graphene with immune cells: applications and potentialities (declined for incompatibility with previously planned invitation to the Nanotox Conference)
2018 "Nanotox 2018", Neuss, Germany. Title: Graphene impact on immune cells
2018 "Graphene Week 2018" San Sebastian, Spain
-10/9 Within the Partnering Division Meeting
Title: G-immunomics project results
-11/9 Within the Workshop Graphene for spaceflight applications
Title: Nanomaterials for health applications in space

-13/9 Within the Biomedical Section
Title: Trascriptomic and single cell interaction properties of graphene in human primary immune cells

2018 Plenary Speaker "Trends In Nanotechnology Conference", Lecce, Italy. Title: Nanomaterials and Immune Cells: a box of opportunities

2018 "Frontiers in Immunology Workshop" Milano Bicocca, Italy. Title: Carbon nanomaterials interaction with immune cells

2018 "Attracting Researchers to Apply for Marie Skłodowska-Curie Individual Fellowships at TU Dresden Workshop" in Dresden, Germany; Title: Tips for a successful Marie S. Curie Fellow Application

2017 Keynote Speaker at the "Chem2Dmat Conference" in Strasbourg, France; Title: Carbon Nanomaterials from immune cell interaction to bone regeneration.

2017 Keynote Speaker at the "Trends in Nanotechnology International Conference (TNT2017)", Dresden, Germany; title: Graphene and immune cells.

2017 "2nd Nanotechnology Conference and Expo Dubai", Dubai, United Emirates; title: Graphene for bone regeneration.

2016 "3rd Edition Nanotech Dubai 2016 Conference and Exhibition", Dubai, United Arab Emirates; Title: Impact of different shaped and functionalized graphene on immune cell subpopulations

2016 "Nanobio&med 2016", Barcellona, Spain; Title: Immune characterization of graphene oxide and amino functionalized graphene using new high-throughput analysis

2016 Plenary Speaker "Graphene week 2016", Warsaw, Poland; title: Immune cell impact of different shaped and functionalized graphene

2016 "Graphene 2016 International Conference & Exhibition", Genoa, Italy; title: Graphene oxide lateral dimensions can mediate different molecular responses of human immune cells

2015 "4th International Immunology Summit", Houston, USA; title: Molecular impact induced by differently shaped graphene oxide on immune cells

2014 "7th International Symposium On Macro- and Supramolecular Architectures and Materials" Johannesburg, South Africa, title: Carbon nanomaterials for theranostic applications

2014 "3rd International Conference and Exhibition on Clinical & Cellular Immunology", Baltimore, USA, Title: Functionalized carbon nanotubes as immunomodulator systems and ultrasound contrast agents

2013 Keynote speaker at the conference "Immunotherapy: what's new in the future oncology?" Istituto Scientifico Romagnolo per la cura dei Tumori, Meldola, Forlì Italy, title: Functionalized carbon nanotubes for immunotherapy

Selected posters as corresponding author

1. 7-9/03/2020 Maternal and Child Health Symposium 2020, Doha, Qatar; title: *"Immune compatibility profile and ex vivo cellular uptake of carbon nanodots"*
2. 7-9/03/2020 Maternal and Child Health Symposium 2020, Doha, Qatar; title: **"***Impact of the surface functionalization on nanodiamonds biocompatibility: a comprehensive view of perturbation on human immune cells relevant for vaccination strategies".*
3. 20-26/11/2019 CUDOS Congress, Doha, Qatar; title: *"Biocompatibility of different functionalized nanodiamonds on ex vivo human immune cells"*
4. 23-27/09/2019 Graphene Week, Helsinki, Finland; title: *"Functionalized carbon nanodots interaction with human immune cells: compatibility and internalization"*
5. 18-21/9/2018 Nanotox Conference, Neuss, Germany; title *"maGO-CaP: a novel graphene-based nanotool for bone regeneration"*
6. 18-21/9/2018, Nanotox Conference, Neuss, Germany; title *"the importance of swine model for the immune characterization of graphene nanomaterials"*
7. 16-17/7/2018 Advanced Materials 30th Conference, TU Dresden, Germany; *"Graphene-based tool for bone regeneration"*

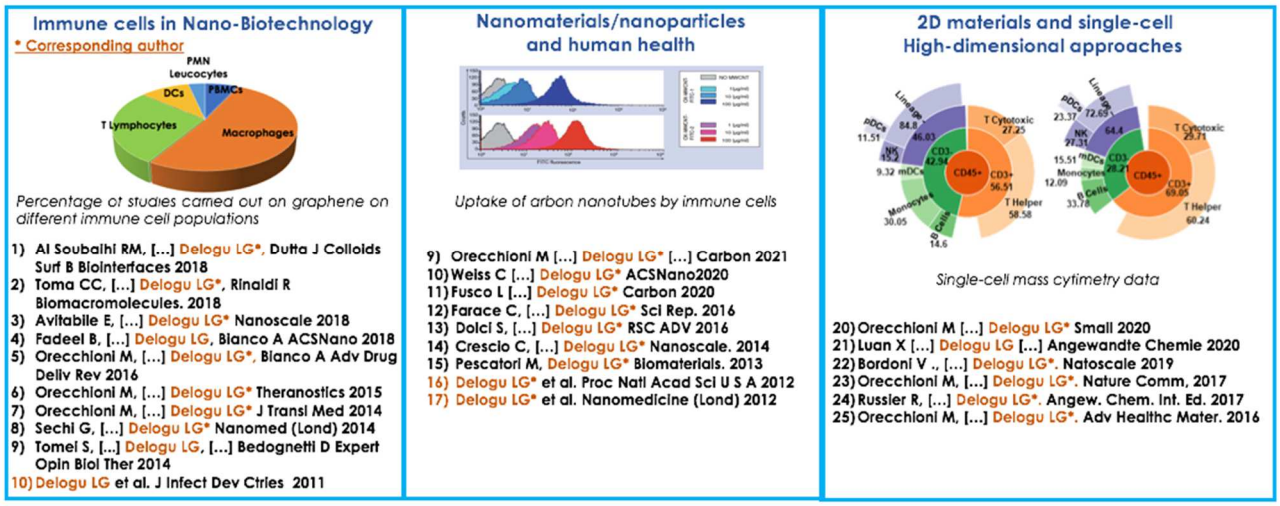
8. 26-29/7/2018, Graphene 2018, Dresden, Germany; title *"maGO-CaP: a novel graphene-based nanotool for bone regeneration"*
9. 24-27/6/2017 NanoBiomedSardinia, Alghero, Italy, title "The application of swine model for immune characterization of graphene nanomaterials"
10. 24-27/6/2017 NanoBiomedSardinia, Alghero, Italy, title *"Graphene oxide-calcium phosphate: the revolutionary nanomaterial for bone regeneration"*
11. 24-27/6/2017 NanoBiomedSardinia, Alghero, Italy, title *"Space scaffolds and bone regeneration in microgravity*"
12. 24-27/6/2017 NanoBiomedSardinia, Alghero, Italy; title *"Functionalized nanodiamonds: effects of human immune cells in ex vivo experiments"*.
13. 10-13/3/2017 Hearth Rhythm society HSR 2017, Chicago, USA; title *"Biocompatibility of Carbon Nanotubes Fibers in Clinical Applications"*
14. 7-10/3/2017 NanoSpainConf2017, San Sebastian, Spain; title *"Molecular impact of functionalized nanodiamonds on ex vivo human immune cells response"*
15. 16-10/12/2015 4th Nanotoday Conference, Dubai (UAE); title *"Molecular impact of small and large graphene oxide on immune cells"*.
16. 25-26/11/2015 International Conference NanotechItaly 2015, Bologna, Italy; title *"Graphene oxide with different shape dimensions impact on immune cells"*.
17. 25-27/6/2015 Federation of Clinical Immunology Society FOCIS meeting San Diego, USA; title "*Molecular impact of graphene oxide with different shape dimensions on immune cells*".
18. 15-16/4/2015, BRECIS International Conference, Doha, Qatar; title "*Carbon nanomaterials as contrast agents for breast cancer diagnosis and therapy*".
19. 23-27/11/2014, 7th International Symposium On Macro- and Supramolecular Architectures and Materials, Johannesburg, South Africa; title: "*Carbon nanomaterial immunomodulators are able to fight immune function dysregulation in spaceflight conditions*".
20. 26-28/11/2014, Nanotech Italy International Conference, Venice, Italy; tile: "*Carbon nanomaterial immunomodulators are able to fight immune function dysregulation in spaceflight conditions*".
21. 5/12-16/2013, "Nanotech Conference 2013" Washington, USA; title: "*Cystine-functionalized superparamagnetic nanoparticles interaction human immune cells ex vivo*".
22. 21-23/11/2012, "NanotechItaly 2012" Venice, Italy; title: "*Carbon Nanotubes for Biomedical applications*".
23. 4-6/10/2012 "ESMRMB 2012", Lisbon, Spain; title: "*Cystine-functionalized superparamagnetic nanoparticles on immune cells*".
24. 15-22/4/2012 7th ENII Spring school in advanced immunology, Porto Conte Alghero, Italy; title: "*Carbon nanotubes for biomedical applications.*"
25. 3/2012 International conference organized by Nature Publishing Group: Nanotechnology in Biomedicine 2012 Miami Winter Symposium, Miami, USA; title: "*Immunostimulatory Effect of Functionalized carbon nanotubes*".
26. 30/5-1/6/2010 International Conference "EuroNanoForum & Nanotech Europe 2011", Budapest, Hungary; title: "*Functionalized carbon nanotubes on human immune cells*.

SCIENTIFIC PRODUCTION

The 10 publications of Dr. Delogu's independent career are reported in the table below. The IF (above in bold) and citations (below) are on the right. These publications provide evidence of creative independent thinking and how Dr. Delogu's achievements have typically gone beyond the state of the art.

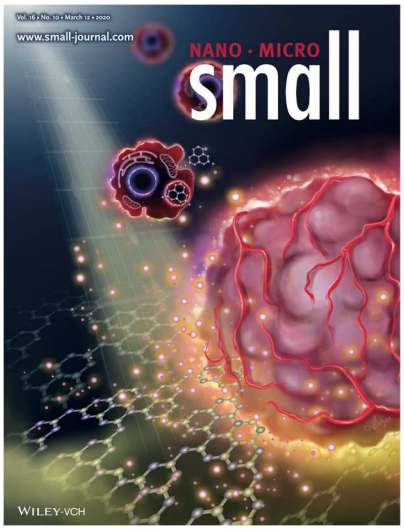
1	Orecchioni M, Bordoni V, Fuoco C, Reina G, Lin H, Zoccheddu M, Yilmazer A, Zavan B, Cesareni G, Bedognetti D, Bianco A, **Delogu LG***. Toward High-Dimensional Single-Cell Analysis of Graphene Oxide Biological Impact: Tracking on Immune Cells by Single-Cell Mass Cytometry. ***Small*, 2020.**	**11.4**

2	Weiss C, Carriere M, Fusco L, Capua L, Regla-Nava JA, Pasquali M, Scott JA, Vitale F, Unal MA, Mattevi C, Bedognetti D, Merkoçi A, Tasciotti E, Yilmazer A, Gogotsi Y, Stellacci F, **Delogu LG***. Toward Nanotechnology-Enabled Approaches against the COVID-19 Pandemic. ***ACS Nano*, 2020.**	**14.5** 14
3	L Fusco, A Gazzi, G Peng, Y Shin, S Vranic, D Bedognetti, F Vitale, A Yilmazer, X Feng, B Fadeel, C Casiraghi, **LG Delogu***. Graphene and other 2D materials as theranostic tools: a multidisciplinary analysis to uncover the hidden potential of cancer theranostics. ***Theranostics*, 2020.**	**8.5** 6
4	L Fusco, E Avitabile, V Armuzza, M Orecchioni, I Akcan, D Bedognetti, T Da Ros, **Delogu LG***. Impact of the surface functionalization on nanodiamond biocompatibility: a comprehensive view on human blood immune cells. ***Carbon*, 2020.**	**8.8** 2
5	Orecchioni M, Bedognetti D, Newman L, Fuoco C, Spada F, Hendrickx W, Marincola FM, Sgarrella F, Rodrigues FA, Ménard-Moyon C, Cesareni G, Kostarelos K, Bianco A, **Delogu LG***. Single cell mass cytometry and transcriptome profiling reveal the impact of graphene on human primary immune cells. ***Nature Communications*, 2017.**	**12.1** *49*
6	Russier R, Léon V, Orecchioni M, Hirata E, Virdis P, Fozza C, Sgarrella F, Cuniberti G, Prato M, Vazquez E, Bianco A, **Delogu LG***. Few-Layer Graphene Kills Selectively Tumor Cells from Myelomonocytic Leukemia Patients. ***Angew. Chem. Int. Ed.*, 2017.**	**12.9** *38*
7	Orecchioni M, Jasim DA, Pescatori M, Manetti R, Fozza C, Sgarrella F, Bedognetti D, Bianco A, Kostarelos K, **Delogu LG***. Molecular and Genomic Impact of Large and Small Lateral Dimension Graphene Oxide Sheets on Human Immune Cells from Healthy Donors. ***Adv Healthc Mater.*, 2016.**	**7.3** *58*
8	Orecchioni M, Cabizza R, Bianco A, **Delogu LG***. Graphene as cancer theranostic tool: progress and future challenges. ***Theranostics*, 2015.**	**8.7** *177*
9	Pescatori M, Bedognetti D, Venturelli E, Ménard-Moyon C, Bernardini C, Muresu E, Piana A, Maida G, Manetti R, Sgarrella F, Bianco A, **Delogu LG***. Functionalized carbon nanotubes as immunomodulator systems. ***Biomaterials***, 2013.	**10.3** *92*
10	**Delogu LG***, Vidili G, Venturelli E, Ménard-Moyon C, Zoroddu MA, Pilo G, Nicolussi P, Ligios C, Bedognetti D, Sgarrella F, Manetti R, Bianco A. Functionalized multiwalled carbon nanotubes as ultrasound contrast agents. ***Proc Natl Acad Sci U S A*, 2012.**	**9.4** *120*



SELECTED OBTAINED COVERS (IF>10)

Small 2020



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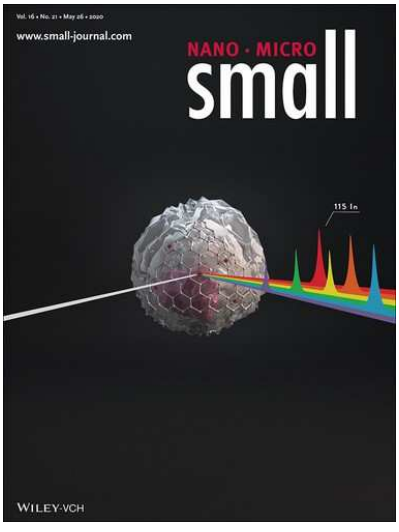
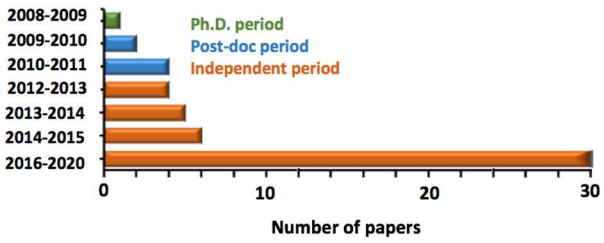
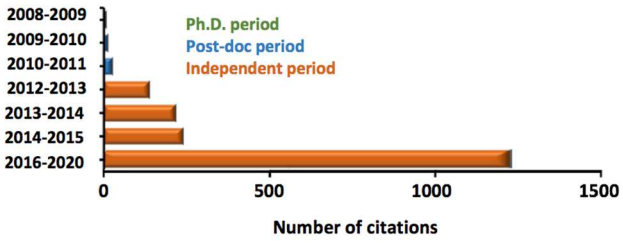


PUBLICATION OVERVIEW AND FULL LIST





53 publications since 2009	**H-index= 26**
36 as corresponding author	**18 publications IF>5; 11 publications IF>9**

***=corresponding author; IF= impact factor**

1. Biocompatibility studies of macroscopic fibers made from carbon nanotubes: Implications for carbon nanotube macrostructures in biomedical applications. Yan, J.S., Orecchioni, M., Vitale, F., ...**Delogu, L.G.***, Pasquali, M. Carbon, 2021, 173, pp. 462–476. **IF: 8.8**

2. Effects of air pollution particles (ultrafine and fine particulate matter) on mitochondrial function and oxidative stress – Implications for cardiovascular and neurodegenerative diseases. Daiber, A., Kuntic, M., Hahad, O., **Delogu LG**...Schulz, R., Münzel, T. Archives of Biochemistry and Biophysics, 2020, 696, 108662. **IF: 3.0**

3. Degradation of Structurally Defined Graphene Nanoribbons by Myeloperoxidase and the Photo-Fenton Reaction. Luan, X., Martín, C., Zhang, P., **Delogu LG** ...Mai, Y., Bianco, A. Angewandte Chemie - International Edition, 2020, 59(42), pp. 18515–18521. **IF: 12.9**

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8. Toward High-Dimensional Single-Cell Analysis of Graphene Oxide Biological Impact: Tracking on Immune Cells by Single-Cell Mass Cytometry Orecchioni, M., Bordoni, V., Fuoco, C., ...Bianco, A., **Delogu, L.G.*** Small, 2020, 16(21), 2000123. **IF: 11.4**

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11. Graphene and other 2D materials: a multidisciplinary analysis to uncover the hidden potential as cancer theranostics L Fusco, A Gazzi, G Peng, Y Shin, S Vranic, D Bedognetti, F Vitale, A Yilmazer, X Feng, B Fadeel, C Casiraghi, **LG Delogu LG***, Theranostics, 2020. **IF: 8.7**

12. A closer look at the genotoxicity of graphene based materials. Gurcan C, Taheri H, Bianco A, **Delogu LG*** and Yilmazer A. J. Phys.: Mater. 3 (2020) 014007 doi1. 0.1088/2515-7639/ab5844. **IF: 2.04**

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Early achievements track-record

PhD work (2005-2008): During my PhD at the Univ. of Sassari (Supervisor: Dr. Laura Morelli) I integrated my PhD research as a Visiting Ph.D. Student at the **Sanford-Burnham Institute**, San Diego, USA (2007).
Post-doc (2007-2012): I have been post-doctoral fellow at the **Univ. of Southern California**, Los Angeles, USA (2007-2009) there, I started to work in the field of nanotechnology. At the end of 2009 I started my post-doctoral position back in Sardinia, Italy where I was pursuing an independent career path taking advantage of the skills acquired in USA. I started to create my own research lines, my own scientific network of collaborations in Europe being able to obtain the attention of key leaders in the field of carbon materials and immunology (i.e. Francesco Marincola). **Since the beginning of my post-doc in Italy all my research activity was carried out on *my* grants and awards** (i.e. "Medicine, Biology e Nanotechnology Award").
Independent career (2012-present): I obtained the position of Assistant Professor (non tenure track) in 2012. I mainly focused my research activity on carbon-based nanomaterials for biomedical applications, with a particular emphasis on the potential use of their immune properties. My laboratory in Sassari was all created from the ground, all the supplies were purchased on my own grants including all the very basic instruments for a life science lab. Also, I was able to obtain the first BD Flow Cytometer dedicated to research in Sardinia. In January 2018, I joined the Institute of Pediatric Research (Padua, Italy) and created the ImmuneNano-lab (www.delogulab.eu). Soon later I was awarded of an IF Marie S. Curie Grant in Germany (Prof. Xinliang Feng's group). Since September 2019, I serve as Assistant Professor in Biochemistry (tenure track) at the University of Padua (Padua, Italy). As I started my independent career, my 5-years goal was to contribute to nanotechnology with seminal original works in nanotechnology. As reported in my CV, I achieved this goal with >50 publications without my PhD supervisor. My 15-years goal is not to just contribute to the field of nanotechnology but to transform it, by introducing new visions on the bridge with immunology. **My novel concept "NanoImmunity-by-design" (Gazzi *et al.* J. Phys. Mater, 2020,)**, where the production and use of NMs are not solely based on physicochemical properties but also shaped by their predictable immune properties, aims to shape the future field of nanosafety and nanomedicine. Going far beyond the state of the art, I revealed for the first time the echogenic properties of functionalized carbon nanotubes (**Delogu *et al.*,**

PNAS 2012 IF>9), this work become a seminal paper in the context of theranostic applications based on ultrasonography. I also was the first to propose their use as immunomodulatory systems (**Pescatori M *et al.*, Biomaterials 2013 IF>10**) representing a cutting-edge study for the exploration of amino-functionalized carbon materials in the context of immunotherapy and later on for space biology applications (**Crescio C *et al.*, Nanoscale 2014 IF>7**), my efforts and preliminary data lead to the new section "Space biology" within the Graphene scientific community. More recently, I provided new insights for nano-based cancer treatment, demonstrating, by an innovative approach in single-cell mass cytometry, that certain types of graphene can trigger a T-helper 1 immune response, which is critical for the induction of immune-mediated tumor regression (**Orecchioni M *et al.*, Nat. Comm. 2017 IF>12, Orecchioni M et al. Small 2020 IF>10**). Moreover, I proposed few-layer graphene potential therapeutic applications for myelomonocytic leukemia (**Russier R *et al.*, Angew. Chem. 2017 IF>12**).

I am renovating nanotechnology through a marriage with systems immunology as a means of discovering previously unknown relationships and interactions between nanomaterials and the immune system. Thanks to this approach, I am at elucidating the signaling pathways, immune modulatory activities and the single-cell impact of nanomaterials on the distinct immune cell subpopulations, for the creation of useful models exploitable in biomedicine and nanosafety.