

Allegato B

LUCA DIGIACOMO Curriculum Vitae ai fini della pubblicazione

Place: Rome

Date: 24/07/2024

Part I – General Information

Full Name	Luca Digiaco
Date of Birth	
Place of Birth	
Citizenship	
Permanent Address	
Mobile Phone Number	
E-mail	
Spoken Languages	Italian, English

Part II – Education

Type	Year	Institution	Notes
PhD in Life and Health Sciences - Molecular Biology and Cellular Biotechnology	2018	School of Advanced Studies, University of Camerino (MC), Italy	Thesis title: “ <i>Mechanistic insight into the nanoparticle-protein corona and its exploitation for novel targeted therapeutics</i> ”. Evaluation: Excellent.
Master’s Degree: Physics of Matter	2014	University of Pisa (PI), Italy	Thesis title: “ <i>Structural, dynamical and optical properties of gold nanorod/DNA complexes for gene delivery applications</i> ”. Evaluation: 103/110.
Bachelor’s Degree: Physics	2011	University of Catania (CT), Italy	Thesis title: “ <i>Stochastic resonance: theory and applications</i> ”. Evaluation: 110/110 cum laude.

Part III – Appointments

III.A – Academic Appointments

Start	End	Institution	Position
2021	2024	Department of Molecular Medicine, Sapienza University of Rome.	Type-A fixed-term researcher (RTDA) within the program “ <i>Progetti DM 1062 del 10/08/2021</i> ”, funded by the Italian Minister of University and Research (MUR). Project title: “ <i>Identification and Differentiation of Microplastics in Aquatic Ecosystems Using Fluorescence Lifetime Imaging Microscopy</i> ”.
2020	2021	Department of Molecular Medicine, Sapienza University of Rome.	Principal Investigator of the project “ <i>A graphene-based blood test for the early detection and molecular staging of pancreatic ductal adenocarcinoma</i> ”, funded by “Fondazione AIRC” through the “Fellowship for Italy” program.
2018	2020	Department of Molecular Medicine, Sapienza University of Rome.	Research fellow for the project “ <i>Nanoparticle-enabled blood test for pancreatic cancer detection</i> ”, funded by “Fondazione AIRC”, PI: Prof. Giulio Caracciolo.
2017	2017	Laboratory for Fluorescence Dynamics, University of California, Irvine (USA).	Visiting student working on the project “ <i>Effects of the protein corona on endocytic pathways and intracellular trafficking of lipid gene vectors</i> ”, under the mentorship of Prof. Enrico Gratton.

III.B – Other Appointments

Start	End	Achievement
2022	2033	“ Abilitazione Scientifica Nazionale alle funzioni di professore universitario di Seconda Fascia nel Settore Concorsuale 02/D1 - FISICA APPLICATA, DIDATTICA E STORIA DELLA FISICA.”
2022	2024	Scientific collaborator with the company <i>Altamira Therapeutics</i> within the project: “ <i>siRNA-peptide-HSA complexes: from synthetic identity to physiological response</i> ”.
2021	2022	Editor for Special Issue: “ <i>Understanding the Bio–Nano Interactions in Nanomedicine: Functional Nanomaterials and Beyond</i> ”, published by “ <i>Nanomaterials</i> ” (ISSN 2079-4991, MDPI, I.F. 4.4).
2019	2024	Reviewer for International Peer-Review Journals, including <i>Scientific Reports</i> (Nature Publishing Group), <i>Nature Communications</i> (Nature Publishing Group), <i>Journal of Controlled Release</i> (Elsevier), <i>Biochimica et Biophysica Acta</i> (Elsevier), <i>Nano Letters</i> (ACS Publications), <i>Small</i> (Wiley).

Part IV – Teaching experiences

IV.A – Main teaching experiences

Year	Institution	Lecture/Course
2023-2024 2022-2023	Sapienza University of Rome.	Fisica Medica. CdS: <i>Medicina e chirurgia "C"</i> (abilitante all'esercizio della professione di Medico Chirurgo) - Roma Azienda Policlinico Umberto I LM-41.
2023-2024 2022-2023	Sapienza University of Rome.	Fisica Medica. CdS: <i>Igiene dentale (abilitante alla professione sanitaria di Igienista dentale)</i> - Corso di laurea A - Roma Azienda Policlinico Umberto I L/SNT3.
2023-2024 2022-2023	Sapienza University of Rome.	Misure elettriche ed elettroniche. CdS: <i>Igiene dentale (abilitante alla professione sanitaria di Igienista dentale)</i> - Corso di laurea A - Roma Azienda Policlinico Umberto I L/SNT3.
2023-2024 2022-2023	Sapienza University of Rome.	Medical Physics. CdS: <i>Medicine and surgery (abilitante all'esercizio della professione di Medico Chirurgo)</i> - Medicina e chirurgia "F" LM-41
2023-2024 2022-2023	Sapienza University of Rome.	Medical Physics. CdS: <i>Dentistry and Dental Prosthodontics</i> LM46.
2023-2024 2022-2023	Sapienza University of Rome	Membro della Commissione di Esame e Cultore della Materia: Fisica Medica. CdS: <i>Medicina e chirurgia (abilitante all'esercizio della professione di Medico Chirurgo)</i> - Roma Azienda Ospedaliera Sant'Andrea.
2021-2022	Sapienza University of Rome	Fisica applicata. CdS: <i>Scienze delle professioni sanitarie tecniche diagnostiche</i> - Corso di laurea A - Roma Azienda Policlinico Umberto I LM/SNT3
2018-2024	Sapienza University of Rome	Membro della Commissione di Esame e Cultore della Materia: Fisica Medica. CdS: <i>Medicina e chirurgia "C"</i> (abilitante all'esercizio della professione di Medico Chirurgo) - Roma Azienda Policlinico Umberto I LM-41.
2018-2024	Sapienza University of Rome	Membro della Commissione di Esame e Cultore della Materia: Fisica Medica. CdS: <i>Medicina e chirurgia "D"</i> (abilitante all'esercizio della professione di Medico Chirurgo) - Roma Azienda Policlinico Umberto I LM-41.
2018-2024	Sapienza University of Rome	Membro della Commissione di Esame e Cultore della Materia: Fisica Medica. CdS: <i>Odontoiatria e Protesi Dentiaria</i> - Roma Azienda Policlinico Umberto I LM-41.

IV.B – Additional teaching experiences

2022-2023	Sapienza University of Rome	Statistics, a gentle introduction. <i>A theoretical and practical course on Statistics within the Ph.D. program in Morphogenesis and Tissue Engineering</i>
2022-2023	Sapienza University of Rome	Thesis supervisor, Master's Degree in Medical Biotechnologies . Thesis title: <i>“Development and validation of multicomponent lipid nanoparticles for gene therapy and DNA vaccination.”</i>
2022	Sapienza University of Rome	Application of Synchrotron Radiation X-ray Techniques to Soft Matter. <i>A brief course within the program of the School of Specialization in Medical Physics.</i>
2022	Sapienza University of Rome	Presidente Commissione di Aula per il concorso di ammissione al Corso di laurea magistrale a ciclo unico interfacoltà tra le Facoltà di Farmacia e Medicina, Medicina e Odontoiatria, Medicina e Psicologia, in <i>Medicine and Surgery - Medicina e chirurgia "F" e Dentistry and Dental Prosthodontics.</i>
2018-2024	Sapienza University of Rome	Teaching assistant in research laboratories: Coaching undergraduate and Ph.D. students in laboratory settings, assist them with writing assignments and reports, guiding them through experimental procedures and techniques, providing support and feedback on practical and theoretical aspects of coursework.

Part V - Society memberships.

Year	Title
2015	Member of the Italian Physical Society (SIF)
2016	Member of the Biophysical Society

Part VI - Funding Information [grants as PI-principal investigator or I-investigator]

Year	Title	Program	Grant value
2022	Nanoparticle-enabled in vitro diagnostic test for the early detection of pancreatic cancer.	P.I. of the project, funded by Sapienza University of Rome within the program “ <i>Be-for-ERC</i> ”.	
2022	An X-ray test for the early detection of pancreatic cancer	I. of the project, funded by Sapienza University of Rome within the program “ <i>Progetti di Ricerca (Piccoli, Medi) - Progetti Medi</i> ”.	
2019	A graphene-based blood test for the early detection and molecular staging of pancreatic ductal adenocarcinoma.	P.I. of the project, funded by <i>Fondazione AIRC</i> within the program “ <i>Fellowship for Italy</i> ”.	
2019	The protein corona of graphene oxide as a diagnostic tool for the early diagnosis and molecular staging of pancreatic ductal adenocarcinoma.	P.I. of the project, funded by Sapienza University of Rome within the program “ <i>Avvio alla Ricerca</i> ”.	
2018	Early diagnosis of pancreatic cancer by biomolecular corona of graphene nanoflakes.	P.I. of the project, funded by Sapienza University of Rome within the program “ <i>Avvio alla Ricerca</i> ”.	
2018	Nanoparticle-enabled blood test for pancreatic cancer detection	I. of the project, funded by <i>Fondazione AIRC</i> , within the program “ <i>Investigator Grant</i> ”. P.I.: Professor Giulio Caracciolo.	

Part VII – Summary of Scientific Achievements

Product type	Number	Data Base	Start	End
Papers	61	Scopus	2015	2024
Total Impact factor				377.05
Total Citations				2366
Average Citations per Product				38.79
Hirsch (H) index				25
Normalized H index*				2.5

*H index divided by the academic seniority.

Part VIII – Research Activities

Keywords	Brief description	Main collaborations	Selected publications
Micro and nano-plastics; fluorescence lifetime analysis; environmental monitoring.	· Development of a fast and portable fluorescence lifetime-based instrument for the detection of micro and nano-plastics in aqueous environments. · Study of the potential health risk induced by human exposure to micro- and nano-plastics, at a cellular level.	· Flim LABs s.r.l. (Italy) · University of Camerino (Italy) · Catholic University of the Sacred Heart (Italy)	· Selected Publication 1
Personalized protein corona; early cancer detection; pancreatic ductal adenocarcinoma; precision nanomedicine.	· Study of nanomaterial-plasma protein interactions, the subsequent formation of a protein corona, and the factors shaping its features and composition. · Implementation of the protein corona technology in nanoparticle-enabled blood tests for the early detection and staging of neoplasms, including but not limited to pancreatic ductal adenocarcinoma.	· University Campus-Biomedico di Roma (Italy) · Michigan State University (USA) · Catholic University of the Sacred Heart (Italy)	· Selected Publication 3 · Selected Publication 4 · Selected Publication 5 · Selected Publication 6 · Selected Publication 8
Lipid-based nanoparticles, gene delivery, drug delivery, DNA vaccines, nanoparticle-cell interactions.	· Rational design, production, chemical-physical characterization and biological validation of lipid-based nanoparticles for gene delivery, drug delivery and vaccination. · Employment of state-of-the-art techniques to gain a comprehensive understanding of structure-activity relationships, cellular internalization pathways, intracellular dynamics, subcellular localization, interactions with immune cells and interactions with target sites of the developed systems.	· Scuola Normale Superiore (Italy) · Graz University of Technology (Austria) · Elettra Synchrotron SAXS (Italy) · University of Camerino (Italy) · University of California, Irvine (USA) · Michigan State University (USA)	· Selected Publication 2 · Selected Publication 7 · Selected Publication 9 · Selected Publication 10
Confocal microscopy, spatial-temporal image correlation spectroscopy.	Development of novel processing tools for analysing confocal fluorescence images and image time-series to explore nanoparticle-cell interactions at cellular and subcellular levels.	· University of California Irvine (USA) · Scuola Normale Superiore (Italy)	· Selected Publication 11 · Selected Publication 12

Part IX– List of Publications

1. Xiao, S.; Filippini, A.; Casadei, M.; Caracciolo, G.; Digiaco, L.; Rossetta, A. Fast and portable fluorescence lifetime analysis for early warning detection of micro- and nanoplastics in water. *Environmental Research* **2024**, *244*, doi:10.1016/j.envres.2023.117936.
2. Giulimondi, F.; Digiaco, L.; Renzi, S.; Cassone, C.; Pirrottina, A.; Molfetta, R.; Palamà, I.E.; Maiorano, G.; Gigli, G.; Amenitsch, H.; et al. Optimizing Transfection Efficiency in CAR-T Cell Manufacturing through Multiple Administrations of Lipid-Based Nanoparticles. *ACS Applied Bio Materials* **2024**, *7*, 3746-3757, doi:10.1021/acsabm.4c00103.
3. Giulimondi, F.; Quagliarini, E.; Digiaco, L.; Renzi, S.; Palmieri, V.; Papi, M.; Pozzi, D.; Caracciolo, G. Reproducibility of Biomolecular Corona Experiments: A Primer for Reliable Results. *Particle and Particle Systems Characterization* **2023**, *40*, doi:10.1002/ppsc.202200169.
4. Digiaco, L.; Renzi, S.; Quagliarini, E.; Pozzi, D.; Amenitsch, H.; Ferri, G.; Pesce, L.; De Lorenzi, V.; Matteoli, G.; Cardarelli, F.; et al. Investigating the mechanism of action of DNA-loaded PEGylated lipid nanoparticles. *Nanomedicine: Nanotechnology, Biology, and Medicine* **2023**, *53*, doi:10.1016/j.nano.2023.102697.
5. Digiaco, L.; Quagliarini, E.; Pozzi, D.; Coppola, R.; Caracciolo, G.; Caputo, D. Stratifying Risk for Pancreatic Cancer by Multiplexed Blood Test. *Cancers* **2023**, *15*, doi:10.3390/cancers15112983.
6. Cui, L.; Digiaco, L.; Xiao, S.; Wang, J.; Amici, A.; Pozzi, D.; Caracciolo, G.; Marchini, C. Insights into the effect of polyethylene terephthalate (PET) microplastics on HER2 signaling pathways. *Toxicology in Vitro* **2023**, *91*, doi:10.1016/j.tiv.2023.105632.
7. Quagliarini, E.; Wang, J.; Renzi, S.; Cui, L.; Digiaco, L.; Ferri, G.; Pesce, L.; De Lorenzi, V.; Matteoli, G.; Amenitsch, H.; et al. Mechanistic Insights into the Superior DNA Delivery Efficiency of Multicomponent Lipid Nanoparticles: An In Vitro and In Vivo Study. *ACS Applied Materials and Interfaces* **2022**, *14*, 56666-56677, doi:10.1021/ACSAMI.2C20019.
8. Quagliarini, E.; Digiaco, L.; Renzi, S.; Pozzi, D.; Caracciolo, G. A decade of the liposome-protein corona: Lessons learned and future breakthroughs in theranostics. *Nano Today* **2022**, *47*, doi:10.1016/j.nantod.2022.101657.
9. Quagliarini, E.; Digiaco, L.; Caputo, D.; Coppola, A.; Amenitsch, H.; Caracciolo, G.; Pozzi, D. Magnetic Levitation of Personalized Nanoparticle–Protein Corona as an Effective Tool for Cancer Detection. *Nanomaterials* **2022**, *12*, doi:10.3390/nano12091397.
10. Giulimondi, F.; Vulpis, E.; Digiaco, L.; Giuli, M.V.; Mancusi, A.; Capriotti, A.L.; Laganà, A.; Cerrato, A.; Zenezini Chiozzi, R.; Nicoletti, C.; et al. Opsonin-Deficient Nucleoproteic Corona Endows UnPEGylated Liposomes with Stealth Properties In Vivo. *ACS Nano* **2022**, *16*, 2088-2100, doi:10.1021/acs.nano.1c07687.
11. Giulimondi, F.; Digiaco, L.; Vulpis, E.; Loconte, L.; Ferri, G.; Cardarelli, F.; Pozzi, D.; Zingoni, A.; Caracciolo, G. In vitro and ex vivo nano-enabled immunomodulation by the protein corona. *Nanoscale* **2022**, *14*, 10531-10539, doi:10.1039/d2nr01878k.
12. Digiaco, L.; Quagliarini, E.; Marmioli, B.; Sartori, B.; Perini, G.; Papi, M.; Capriotti, A.L.; Montone, C.M.; Cerrato, A.; Caracciolo, G.; et al. Magnetic Levitation Patterns of Microfluidic-Generated Nanoparticle–Protein Complexes. *Nanomaterials* **2022**, *12*, doi:10.3390/nano12142376.
13. Cui, L.; Renzi, S.; Quagliarini, E.; Digiaco, L.; Amenitsch, H.; Masuelli, L.; Bei, R.; Ferri, G.; Cardarelli, F.; Wang, J.; et al. Efficient Delivery of DNA Using Lipid Nanoparticles. *Pharmaceutics* **2022**, *14*, doi:10.3390/pharmaceutics14081698.
14. Cui, L.; Quagliarini, E.; Xiao, S.; Giulimondi, F.; Renzi, S.; Digiaco, L.; Caracciolo, G.; Wang, J.; Amici, A.; Marchini, C.; et al. The protein corona reduces the anticancer effect of graphene oxide in HER-2-positive cancer cells. *Nanoscale Advances* **2022**, *4*, 4009-4015, doi:10.1039/d2na00308b.
15. Caputo, D.; Coppola, A.; Quagliarini, E.; Di Santo, R.; Capriotti, A.L.; Cammarata, R.; Laganà, A.; Papi, M.; Digiaco, L.; Coppola, R.; et al. Multiplexed Detection of Pancreatic Cancer by Combining a Nanoparticle-Enabled Blood Test and Plasma Levels of Acute-Phase Proteins. *Cancers* **2022**, *14*, doi:10.3390/cancers14194658.
16. Vulpis, E.; Giulimondi, F.; Digiaco, L.; Zingoni, A.; Safavi-Sohi, R.; Sharifi, S.; Caracciolo, G.; Mahmoudi, M. The Possible Role of Sex As an Important Factor in Development and Administration of Lipid Nanomedicine-Based COVID-19 Vaccine. *Molecular Pharmaceutics* **2021**, *18*, 2448-2453, doi:10.1021/acs.molpharmaceut.1c00291.

17. Sharifi, S.; Caracciolo, G.; Pozzi, D.; Digiaco, L.; Swann, J.; Daldrup-Link, H.E.; Mahmoudi, M. The role of sex as a biological variable in the efficacy and toxicity of therapeutic nanomedicine. *Advanced Drug Delivery Reviews* **2021**, *174*, 337-347, doi:10.1016/j.addr.2021.04.028.
18. Quagliarini, E.; Renzi, S.; Digiaco, L.; Giulimondi, F.; Sartori, B.; Amenitsch, H.; Tassinari, V.; Masuelli, L.; Bei, R.; Cui, L.; et al. Microfluidic formulation of dna-loaded multicomponent lipid nanoparticles for gene delivery. *Pharmaceutics* **2021**, *13*, doi:10.3390/pharmaceutics13081292.
19. Perini, G.; Giulimondi, F.; Palmieri, V.; Augello, A.; Digiaco, L.; Quagliarini, E.; Pozzi, D.; Papi, M.; Caracciolo, G. Inhibiting the growth of 3D brain cancer models with bio-coronated liposomal temozolomide. *Pharmaceutics* **2021**, *13*, doi:10.3390/pharmaceutics13030378.
20. Digiaco, L.; Quagliarini, E.; La Vaccara, V.; Coppola, A.; Coppola, R.; Caputo, D.; Amenitsch, H.; Sartori, B.; Caracciolo, G.; Pozzi, D. Detection of pancreatic ductal adenocarcinoma by ex vivo magnetic levitation of plasma protein-coated nanoparticles. *Cancers* **2021**, *13*, doi:10.3390/cancers13205155.
21. Digiaco, L.; Giulimondi, F.; Capriotti, A.L.; Piovesana, S.; Montone, C.M.; Chiozzi, R.Z.; Laganà, A.; Mahmoudi, M.; Pozzi, D.; Caracciolo, G. Optimal centrifugal isolating of liposome-protein complexes from human plasma. *Nanoscale Advances* **2021**, *3*, 3824-3834, doi:10.1039/d1na00211b.
22. Digiaco, L.; Caputo, D.; Coppola, R.; Cascone, C.; Giulimondi, F.; Palchetti, S.; Pozzi, D.; Caracciolo, G. Efficient pancreatic cancer detection through personalized protein corona of gold nanoparticles. *Biointerphases* **2021**, *16*, doi:10.1116/6.0000540.
23. Di Santo, R.; Quagliarini, E.; Digiaco, L.; Pozzi, D.; Di Carlo, A.; Caputo, D.; Cerrato, A.; Montone, C.M.; Mahmoudi, M.; Caracciolo, G. Protein corona profile of graphene oxide allows detection of glioblastoma multiforme using a simple one-dimensional gel electrophoresis technique: A proof-of-concept study. *Biomaterials Science* **2021**, *9*, 4671-4678, doi:10.1039/d1bm00488c.
24. Palchetti, S.; Digiaco, L.; Giulimondi, F.; Pozzi, D.; Peruzzi, G.; Ferri, G.; Amenitsch, H.; Cardarelli, F.; Mahmoudi, M.; Caracciolo, G. A mechanistic explanation of the inhibitory role of the protein corona on liposomal gene expression. *Biochimica et Biophysica Acta - Biomembranes* **2020**, *1862*, doi:10.1016/j.bbmem.2019.183159.
25. Molfetta, R.; Lecce, M.; Quatrini, L.; Caracciolo, G.; Digiaco, L.; Masuelli, L.; Milito, N.D.; Vulpis, E.; Zingoni, A.; Galandrini, R.; et al. Immune complexes exposed on mast cell-derived nanovesicles amplify allergic inflammation. *Allergy: European Journal of Allergy and Clinical Immunology* **2020**, *75*, 1260-1263, doi:10.1111/all.14103.
26. Digiaco, L.; Pozzi, D.; Palchetti, S.; Zingoni, A.; Caracciolo, G. Impact of the protein corona on nanomaterial immune response and targeting ability. *Wiley Interdisciplinary Reviews: Nanomedicine and Nanobiotechnology* **2020**, *12*, doi:10.1002/wnan.1615.
27. Digiaco, L.; Jafari-Khouzani, K.; Palchetti, S.; Pozzi, D.; Capriotti, A.L.; Laganà, A.; Zenezini Chiozzi, R.; Caputo, D.; Cascone, C.; Coppola, R.; et al. A protein corona sensor array detects breast and prostate cancers. *Nanoscale* **2020**, *12*, 16697-16704, doi:10.1039/d0nr03439h.
28. Di Santo, R.; Digiaco, L.; Quagliarini, E.; Capriotti, A.L.; Laganà, A.; Chiozzi, R.Z.; Caputo, D.; Cascone, C.; Coppola, R.; Pozzi, D.; et al. Personalized graphene oxide-protein corona in the human plasma of pancreatic cancer patients. *Frontiers in Bioengineering and Biotechnology* **2020**, *8*, doi:10.3389/fbioe.2020.00491.
29. Caputo, D.; Digiaco, L.; Cascone, C.; Pozzi, D.; Palchetti, S.; Di Santo, R.; Quagliarini, E.; Coppola, R.; Mahmoudi, M.; Caracciolo, G. Synergistic analysis of protein corona and haemoglobin levels detects pancreatic cancer. *Cancers* **2020**, *13*, 1-11, doi:10.3390/cancers13010093.
30. Papi, M.; Palmieri, V.; Palchetti, S.; Pozzi, D.; Digiaco, L.; Guadagno, E.; Del Basso De Caro, M.; Di Domenico, M.; Ricci, S.; Pani, R.; et al. Exploitation of nanoparticle-protein interactions for early disease detection. *Applied Physics Letters* **2019**, *114*, doi:10.1063/1.5098081.
31. Papi, M.; Palmieri, V.; Digiaco, L.; Giulimondi, F.; Palchetti, S.; Ciasca, G.; Perini, G.; Caputo, D.; Cartillone, M.C.; Cascone, C.; et al. Converting the personalized biomolecular corona of graphene oxide nanoflakes into a high-throughput diagnostic test for early cancer detection. *Nanoscale* **2019**, *11*, 15339-15346, doi:10.1039/c9nr01413f.
32. Palchetti, S.; Digiaco, L.; Pozzi, D.; Zenezini Chiozzi, R.; Capriotti, A.L.; Laganà, A.; Coppola, R.; Caputo, D.; Sharifzadeh, M.; Mahmoudi, M.; et al. Effect of Glucose on Liposome-Plasma

- Protein Interactions: Relevance for the Physiological Response of Clinically Approved Liposomal Formulations. *Advanced Biosystems* **2019**, 3, doi:10.1002/adbi.201800221.
33. Palchetti, S.; Caputo, D.; Digiaco, L.; Capriotti, A.L.; Coppola, R.; Pozzi, D.; Caracciolo, G. Protein corona fingerprints of liposomes: New opportunities for targeted drug delivery and early detection in pancreatic cancer. *Pharmaceutics* **2019**, 11, doi:10.3390/pharmaceutics11010031.
 34. Giulimondi, F.; Digiaco, L.; Pozzi, D.; Palchetti, S.; Vulpis, E.; Capriotti, A.L.; Chiozzi, R.Z.; Laganà, A.; Amenitsch, H.; Masuelli, L.; et al. Interplay of protein corona and immune cells controls blood residency of liposomes. *Nature Communications* **2019**, 10, doi:10.1038/s41467-019-11642-7.
 35. Ferri, G.; Digiaco, L.; Lavagnino, Z.; Occhipinti, M.; Bugliani, M.; Cappello, V.; Caracciolo, G.; Marchetti, P.; Piston, D.W.; Cardarelli, F. Insulin secretory granules labelled with phogrin-fluorescent proteins show alterations in size, mobility and responsiveness to glucose stimulation in living β -cells. *Scientific Reports* **2019**, 9, doi:10.1038/s41598-019-39329-5.
 36. Digiaco, L.; Palchetti, S.; Giulimondi, F.; Pozzi, D.; Zenezini Chiozzi, R.; Capriotti, A.L.; Laganà, A.; Caracciolo, G. The biomolecular corona of gold nanoparticles in a controlled microfluidic environment. *Lab on a Chip* **2019**, 19, 2557-2567, doi:10.1039/c9lc00341j.
 37. Digiaco, L.; Giulimondi, F.; Mahmoudi, M.; Caracciolo, G. Effect of molecular crowding on the biological identity of liposomes: An overlooked factor at the bio-nano interface. *Nanoscale Advances* **2019**, 1, 2518-2522, doi:10.1039/c9na00195f.
 38. Di Santo, R.; Digiaco, L.; Palchetti, S.; Palmieri, V.; Perini, G.; Pozzi, D.; Papi, M.; Caracciolo, G. Microfluidic manufacturing of surface-functionalized graphene oxide nanoflakes for gene delivery. *Nanoscale* **2019**, 11, 2733-2741, doi:10.1039/c8nr09245a.
 39. Di Domenico, M.; Pozzi, D.; Palchetti, S.; Digiaco, L.; Iorio, R.; Astarita, C.; Fiorelli, A.; Pierdiluca, M.; Santini, M.; Barbarino, M.; et al. Nanoparticle-biomolecular corona: A new approach for the early detection of non-small-cell lung cancer. *Journal of Cellular Physiology* **2019**, 234, 9378-9386, doi:10.1002/jcp.27622.
 40. Caracciolo, G.; Safavi-Sohi, R.; Malekzadeh, R.; Poustchi, H.; Vasighi, M.; Zenezini Chiozzi, R.; Capriotti, A.L.; Laganà, A.; Hajipour, M.; Di Domenico, M.; et al. Disease-specific protein corona sensor arrays may have disease detection capacity. *Nanoscale Horizons* **2019**, 4, 1063-1076, doi:10.1039/c9nh00097f.
 41. Ferri, G.; Digiaco, L.; D'autilia, F.; Durso, W.; Caracciolo, G.; Cardarelli, F. Data descriptor: Time-lapse confocal imaging datasets to assess structural and dynamic properties of subcellular nanostructures. *Scientific Data* **2018**, 5, doi:10.1038/sdata.2018.191.
 42. Digiaco, L.; Palchetti, S.; Pozzi, D.; Amici, A.; Caracciolo, G.; Marchini, C. Cationic lipid/DNA complexes manufactured by microfluidics and bulk self-assembly exhibit different transfection behavior. *Biochemical and Biophysical Research Communications* **2018**, 503, 508-512, doi:10.1016/j.bbrc.2018.05.016.
 43. Caracciolo, G.; Palchetti, S.; Digiaco, L.; Chiozzi, R.Z.Z.; Capriotti, A.L.; Amenitsch, H.; Tentori, P.M.; Palmieri, V.; Papi, M.; Cardarelli, F.; et al. Human Biomolecular Corona of Liposomal Doxorubicin: The Overlooked Factor in Anticancer Drug Delivery. *ACS Applied Materials and Interfaces* **2018**, 10, 22951-22962, doi:10.1021/acsami.8b04962.
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Part X – List of Selected Publications

• Selected Publication 1

Authors	Xiao S., Filippini A., Casadei M., Caracciolo G., Digiaco mo L. , Rossetta A.
Contribution	Co-corresponding author
Title	Fast and portable fluorescence lifetime analysis for early warning detection of micro- and nanoplastics in water
Year	2024
Journal	Environmental Research , 244, art. no. 117936
Journal I.F.	7.770
Number of citations	0
DOI	10.1016/j.envres.2023.117936

• Selected Publication 2

Authors	Giulimondi F., Digiaco mo L. , Vulpis E., Loconte L., Ferri G., Cardarelli F., Pozzi D., Zingoni A., Caracciolo G.
Contribution	Co-first author
Title	In vitro and ex vivo nano-enabled immunomodulation by the protein corona
Year	2022
Journal	Nanoscale , 14 (29), pp. 10531 - 10539,
Journal I.F.	6.700
Number of citations	5
DOI	10.1039/d2nr01878k

• Selected Publication 3

Authors	Digiaco mo L. , Quagliarini E., La Vaccara V., Coppola A., Coppola R., Caputo D., Amenitsch H., Sartori B., Caracciolo G., Pozzi D.
Contribution	First author
Title	Detection of pancreatic ductal adenocarcinoma by ex vivo magnetic levitation of plasma protein-coated nanoparticles
Year	2021
Journal	Cancers , 13 (20), art. no. 5155
Journal I.F.	6.575
Number of citations	10
DOI	10.3390/cancers13205155

• Selected Publication 4

Authors	Digiaco mo L. , Giulimondi F., Capriotti A.L., Piovesana S., Montone C.M., Chiozzi R.Z., Laganà A., Mahmoudi M., Pozzi D., Caracciolo G.
Contribution	First author
Title	Optimal centrifugal isolating of liposome-protein complexes from human plasma
Year	2021

Journal	Nanoscale Advances , 3 (13), pp. 3824 - 3834
Journal I.F.	5.598
Number of citations	12
DOI	10.1039/d1na00211b

• Selected Publication 5

Authors	Digiaco L. , Jafari-Khouzani K., Palchetti S., Pozzi D., Capriotti A.L., Laganà A., Zenezini Chiozzi R., Caputo D., Cascone C., Coppola R., Flammia G., Altomare V., Grasso A., Mahmoudi M., Caracciolo G.
Contribution	First author
Title	A protein corona sensor array detects breast and prostate cancers
Year	2020
Journal	Nanoscale , 12 (32), pp. 16697 - 16704
Journal I.F.	7.779
Number of citations	18
DOI	10.1039/d0nr03439h

• Selected Publication 6

Authors	Di Santo R., Digiaco L. , Quagliarini E., Capriotti A.L., Laganà A., Chiozzi R.Z., Caputo D., Cascone C., Coppola R., Pozzi D., Caracciolo G.
Contribution	Co-first author
Title	Personalized graphene oxide-protein corona in the human plasma of pancreatic cancer patients
Year	2020
Journal	Frontiers in Bioengineering and Biotechnology , 8, art. no. 491
Journal I.F.	5.890
Number of citations	49
DOI	10.3389/fbioe.2020.00491

• Selected Publication 7

Authors	Giulimondi F., Digiaco L. , Pozzi D., Palchetti S., Vulpis E., Capriotti A.L., Chiozzi R.Z., Laganà A., Amenitsch H., Masuelli L., Mahmoudi M., Screpanti I., Zingoni A., Caracciolo G.
Contribution	Co-first author
Title	Interplay of protein corona and immune cells controls blood residency of liposomes
Year	2019
Journal	Nature Communications , 10 (1), art. no. 3686
Journal I.F.	12.121
Number of citations	166
DOI	10.1038/s41467-019-11642-7

• Selected Publication 8

Authors	Digiaco L., Palchetti S., Giulimondi F., Pozzi D., Zenezini Chiozzi R., Capriotti A.L., Laganà A., Caracciolo G.
Contribution	First author
Title	The biomolecular corona of gold nanoparticles in a controlled microfluidic environment
Year	2019
Journal	Lab on a Chip , 19 (15), pp. 2557 - 2567
Journal I.F.	6.774
Number of citations	43
DOI	10.1039/c9lc00341j

• Selected Publication 9

Authors	Digiaco L., Pozzi D., Amenitsch H., Caracciolo G.
Contribution	First author
Title	Impact of the biomolecular corona on the structure of PEGylated liposomes
Year	2017
Journal	Biomaterials Science , 5 (9), pp. 1884 - 1888,
Journal I.F.	5.831
Number of citations	24
DOI	10.1039/c7bm00387k

• Selected Publication 10

Authors	Digiaco L., Cardarelli F., Pozzi D., Palchetti S., Digman M.A., Gratton E., Capriotti A.L., Mahmoudi M., Caracciolo G.
Contribution	First author
Title	An apolipoprotein-enriched biomolecular corona switches the cellular uptake mechanism and trafficking pathway of lipid nanoparticles
Year	2017
Journal	Nanoscale , 9 (44), pp. 17254 - 17262
Journal I.F.	7.233
Number of citations	76
DOI	10.1039/c7nr06437c

• Selected Publication 11

Authors	Digiaco L., Digman M.A., Gratton E., Caracciolo G.
Contribution	First author
Title	Development of an image Mean Square Displacement (iMSD)-based method as a novel approach to study the intracellular trafficking of nanoparticles
Year	2016
Journal	Acta Biomaterialia , 42, pp. 189 - 198
Journal I.F.	6.319

Number of citations	15
DOI	10.1016/j.actbio.2016.07.031

• Selected Publication 12

Authors	Cardarelli, F; Digiaco, L. ; Marchini, C.; Amici, A.; Salomone, F.; Fiume, G.; Rossetta, A.; Gratton, E.; Pozzi, D. .; Caracciolo, G
Contribution	Co-first author
Title	The intracellular trafficking mechanism of Lipofectamine-based transfection reagents and its implication for gene delivery
Year	2016
Journal	Scientific Reports , 6, art. no. 25879
Journal I.F.	4.259
Number of citations	162
DOI	10.1038/srep25879

Part XI– Patents

2022	Italian patent: <i>Nanoparticelle lipidiche multicomponenti ad elevata fusogenicità cellulare per la veicolazione di acidi nucleici e relativo processo di preparazione.</i> Inventors: Caracciolo Giuio, Pozzi Daniela, Quagliarini Erica, Renzi Serena, Digiaco Luca, Amici Augusto, Marchini Cristina, Cui Lishan, Wang Junbiao, Cardarelli Francesco. ID: IT102022000016386.
2020	Italian patent: <i>Test sierologico per coadiuvare la diagnosi e il monitoraggio del glioblastoma multiforme.</i> Inventors Giulio Caracciolo, Angelina Di Carlo, Daniela Pozzi, Luca Digiaco, Riccardo Di Santo, Erica Quagliarini. ID: IT102020000031139.
2020	International patent (P.C.T.): <i>A method to assist in the early diagnosis of pancreatic adenocarcinoma.</i> Inventors: Giulio Caracciolo, Daniela Pozzi, Sara Palchetti, Luca Digiaco, Damiano Caputo, Roberto Coppola. ID: PCT/IB2020/056251.
2019	Italian Patent: <i>Metodo per coadiuvare la diagnosi precoce dell'adenocarcinoma del pancreas.</i> Inventors: Giulio Caracciolo, Daniela Pozzi, Sara Palchetti, Luca Digiaco, Damiano Caputo, Roberto Coppola. ID: IT201900012555.

Part XII –Conferences, Congresses, Meetings, Schools, and Symposia.

2023	Oral presentation at the conference: “Focus on 2D Materials for Regenerative Medicine”, Rome (Italy). Presentation title: <i>Leveraging the protein corona of graphene oxide for the early detection of pancreatic cancer</i>
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2022	Oral presentation (as an invited speaker) at the Global Summit on Nanomaterials: Applications and Properties", Dubai (UAE) and online event. Presentation title: <i>"The Protein Corona of Nanoparticles for the Early Detection and Staging of Pancreatic Cancer"</i> .
2022	Oral presentation at the "2 nd Global Experts Meet on Materials Science & Engineering", Rome (Italy). Presentation title: <i>"The Protein Corona of Nanomaterials as an Effective Tool For Pancreatic Cancer Detection"</i> .
2020	Oral presentation at the conference: "Nanoinnovation 2020", Rome (Italy). Presentation title: <i>"The protein corona of nanoparticles as a tool for the early detection of pancreatic cancer"</i> .
2019	Oral presentation at the "International School of Nanomedicine. Course: Precision Nanomedicine - Nanotechnology and precision medicine", Erice (Italy). Presentation title: <i>"The protein corona of nanoparticles as a powerful tool for the early diagnosis of pancreatic ductal adenocarcinoma"</i> .
2019	Poster presentation at the "NANOtoday Congress", Lisbon (Portugal). Presentation title: <i>"The protein corona of graphene oxide nanoflakes as a diagnostic tool for pancreatic cancer detection"</i> .
2019	Poster presentation at the meeting: "Biophysics at Rome", Rome, Italy. Presentation title: <i>"Study of graphene-protein interactions for the early detection of pancreatic cancer"</i> .
2018	Poster presentation at "Applied Nanotechnology and Nanoscience International Conference (ANNIC)", Berlin (Germany). Presentation title: <i>"A gold nanoparticle-based blood test for the early detection of pancreatic cancer"</i> .
2018	Oral presentation at the "Summit of the European Foundation for Clinical Nanomedicine (CLINAM)", Basel (Switzerland). Presentation title: <i>"Novel insights on nanoparticle-blood interactions for early diagnosis of pancreatic cancer"</i> .
2018	Poster presentation at the conference: "Congresso nazionale della società italiana di Biofisica pura ed applicata (SIBPA)", Ancona (Italy). Presentation title: <i>"The biomolecular corona of Temozolomide-loaded liposomes enhances anti-cancer efficacy in glioblastoma cells"</i> .
2017	Attendance at the "Big Data Image Processing & Analysis Course - Data analysis and image processing (BigDIPA)", at the Centre for Complex Biological Systems, University, of California Irvine (USA)
2017	Poster presentation at the meeting: "Biophysics at Rome", Rome, Italy. Presentation title: <i>"Protein Corona affects cellular uptake and intracellular trafficking of lipid nanoparticles"</i> .
2017	Poster presentation at the "61st annual meeting of the BioPhysical Society", New Orleans (USA). Presentation title: <i>"Intracellular dynamics of nanoparticles probed by an Image-derived Mean Square Displacement Approach"</i> .
2016	Oral presentation at "BeMM Symposium: Biology and Molecular Medicine", Rome (Italy). Presentation title: <i>"Transfection efficiency boost in hard-to-transfect cells by MENS reagents."</i>
2016	Poster presentation at the symposium "SAXS on nanosystems", Trieste (Italy). Presentation title: <i>"Structure of liposomes in biological media: a synchrotron SAXS study"</i> .
2016	Poster presentation at the "Annual meeting of the German Biophysical Society", Erlangen (Germany). Presentation title: <i>"Development of an image correlation analysis to study the intracellular dynamics of nanoparticles"</i> .
2016	Attendance at the "School of fluorescence microscopy (super resolution techniques)" at "Istituto scientifico romagnolo per lo studio e la cura dei tumori", Bologna (Italy).
2015	Oral presentation at the "101° congress of the Italian Society of Physics (SIF), Section of Biophysics", Rome (Italy). Presentation title: <i>"Intracellular trafficking of lipid-based gene delivery systems investigated by Single Particle Tracking"</i> .

Roma, 24/07/2024

Luca Digiacomio