Massimiliano Lucidi

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Date of birth 22 August 1993 | Nationality Italian

CURRENT POSITION

March 2023- March 2026

Researcher (SSD: BIO/19)

Researcher (RTD-A) in Microbiology for carrying out research activities within the National Biodiversity Future Centre (NBFC) at the Microbiology laboratory (chief Prof. Paolo Visca), Department of Sciences, University Roma Tre, Viale G. Marconi, 446, 00146, Rome, Italy.

EDUCATION AND TRAINING

February 2021- February 2023

Research fellow (SSD: BIO/19)

For carrying out research activities within the project "PRIN 2017 - protocol: 20177J5Y3P – Next-generation antibacterials: new targets for old drugs and new drugs for old targets" (coordinator Prof. Paolo Visca), at the Microbiology laboratory (chief Prof. Paolo Visca), Department of Sciences, University Roma Tre, Viale G. Marconi, 446, 00146, Rome, Italy.

October 2017 – December 2020

PhD in Bioengineering (Applied Electronics)

At the Photonics laboratory (chief Prof. Gabriella Cincotti), Department of Engineering, University Roma Tre, Via Vito Volterra, 62, 00146, Rome, Italy.

PhD theme: "Identification and quantification of bacterial pathogens by biophotonics approaches". PhD Thesis defense on 7th April 2021.

January 2019

Professional qualification and registration within the National Order of Biologists (ONB)

Registration number: AA_081521; section A.

September 2015 – June 2017

Master degree in Biology for Molecular, Cellular and Pathophysiological Research

Graduation grade: 110/110 summa cum laude

Department of Sciences, University Roma Tre – Viale G. Marconi, 446, 00146, Rome, Italy.

Master's degree title: "Construction of new shuttle-vectors for gene cloning and expression in *Acinetobacter baumannii*" (supervisor: Prof. Paolo Visca).

October 2012 – September 2015

Bachelor degree in Biology

Graduation grade: 110/110 summa cum laude

Department of Sciences, University Roma Tre - Viale G. Marconi 446, 00146, Rome, Italy.

Bachelor's degree title: "Potassium channels and their involvement in tumorigenic processes" (supervisor: Prof. Fabio Polticelli).

COMPETENCES AND SKILLS

Mother tongue: Italian

Other language: English (B2)

Driving licence: B

PROFESSIONAL EXPERIENCES

Experiences abroad

One-month experience in Bucharest (Romania) financed by the grant winning of Short-

term Scientific Mission (Comulis grant application, COST Action CA17121; link: https://www.comulis.eu/stsm-application). Title of the project: Correlative multimodal approach based on nanoscale far-field, near-field and topographic imaging to characterize the morphology and antibiotic susceptibility of ESKAPE pathogen bacteria.

Didactic experiences

Lecturer of the course "Photobiology" (teaching code: 20810218; SSD: ING-ING/06; Master Degrees in Biomedical Engineering (LM-21) and Biologia Molecolare, Cellulare e della Salute (LM-6), University of Roma Tre) of the academic years: 2020-2024.
Lecturer of the course "Metodologie biomolecolari per la qualità e la sicurezza microbiologica degli alimenti" (teaching code: 20410513; SSD: BIO/19; Bachelor Degree in Scienze e Culture Enogastronomiche (L-26) University of Roma Tre) of the academic years: 2023-2024.
Lecturer of the course "Elementi di Microbiologia" (Centre Pour L'Etude, La Recherche Et La Diffusion Osteopathiques; https://www.cerdo.it/) of the academic year: 2021-2022.
Expert in the subject matters with SSD: BIO/19.
Co-supervisor for the preparation of 8 degree and master's degree theses at the Department of Science and the Department of Engineering of the University of Roma Tre.

Participation in projects

Project of Lazio Region (2018-2020). Project title: "KETs - enabling technologies" New Device for the microbiological analysis of food "- MBSmart. Role: unit component.
PRIN (2019-2022). Project title: Next-generation antibacterials: new targets for old drugs and new drugs for old targets. Role: unit component.
Fondazione per la Ricerca sulla Fibrosi Cistica (2019-2021). Project title: Gallium as an antibacterial agent in cystic fibrosis: animal studies for the delivery of inhalable formulations to the clinic (project: FFC#19/2019). Role: unit component.
Fondazione per la Ricerca sulla Fibrosi Cistica (2023-2025). Project title: Induction of *Pseudomonas aeruginosa* persisters in cystic fibrosis lung infections: the role of cefiderocol (FFC#7/2023). Role: unit chief.

Courses, Doctoral Schools and workshops attended

Theoretical/practical workshop on imaging techniques "Innovative approaches for label-free manipulation and monitoring of biological cells and tissues" at the Tor Vergata University (Rome, 23/5/2019).
Theoretical / practical workshop on microscopy_ "5thNIC @ IIT Nanoscopy 2.0 Pratical workshop on Advanced Microscopy" (Genoa, 3-6/12/2018).
XXXVII Annual school of Bioengineering (Bressanone, BZ, 3-5/9/2018).
3rd International Medical Imaging Summer School (MISS): Medical Imaging meets Deep Learning (Favignana, TP, 29/7-4/8/2018).
Maker Faire 2017 exhibition: DIY experiments with microscopy and spectrophotometry (Rome, 1-3/10/2017).

Membership in groups/associations

Member of the Italian Society of General Microbiology and Microbial Biotechnology (SIMGBM).
Member of the American Chemical Society.

Reviewer and Editor activities

Reviewer for the journal ACS Infectious Diseases.
Reviewer for the journal ACS Synthetic Biology.
Reviewer for the journal BMC Microbiology.
Reviewer for the journal Environmental Microbiology.
Reviewer for the journal F1000Research.
Reviewer for the journal Future Science OA.
Reviewer for the Journal of Biomedical Engineering.
Reviewer for the journal Langmuir.
Reviewer for the journal Microbial Genomics.
Reviewer for the journal Microbiology Spectrum.
Reviewer for the journal Microorganisms.
Reviewer for the journal Open Chemistry.

Reviewer for the journal Optica.
Reviewer for the journal Optics Express.
Reviewer for the journal Plasmid.
Reviewer for the journal Scientific Reports.
Editor of a special issue for Frontiers in Genetics.

Awards

Grants for Young Scientists from the Federation of European Microbiological Societies (FEMS) for participation in the scientific congress "11th International Symposium on the Biology of *Acinetobacter* 2017".
Award for the best scientific work presented at the Photonics conference, Italian Convention on Photonic Technologies, Lecce, Italy 2018.
Grants for Young Scientists from the Federation of European Microbiological Societies (FEMS) for participation in the scientific congress "12th International Symposium on the Biology of *Acinetobacter* 2019".
Award for the best oral presentation at the Italian Conference of Optics and Photonics (ICOP) 2020.
Franco Tatò 2021 award for the best PhD thesis in the field of Microbial Biotechnology.
Giovanni Magni 2021 award for the best publication in the field of genetics, genomics, and molecular biology of microorganisms for the scientific work "Lucidi M, Visaggio D, Prencipe E, Imperi F, Rampioni G, Cincotti G, Leoni L, Visca P. 2019. New Shuttle Vectors for Real-Time Gene Expression Analysis in Multidrug-Resistant *Acinetobacter* Species: *In Vitro* and *In Vivo* Responses to Environmental Stressors. Appl Environ Microbiol 85".

LIST OF PUBLICATIONS

Journal publications

[1] **Lucidi M#, Runci F#, Rampioni G, Frangipani E, Leoni L, Visca P**. 2018. New Shuttle Vectors for Gene Cloning and Expression in Multidrug-Resistant *Acinetobacter* Species. Antimicrob Agents Chemother **62**. #These authors equally contributed to this work.

[2] **Marsan M, Lucidi M, Pudda F, Pirolo M, Frangipani E, Visca P, Cincotti G**. 2019. Geometrical-optics approach to increase the accuracy in LED-based photometers for point-of-care testing. Biomed Opt Express, BOE **10**:3654–3662.

[3] **Lucidi M, Marsan M, Pudda F, Pirolo M, Frangipani E, Visca P, Cincotti G**. 2019. Geometrical-optics approach to measure the optical density of bacterial cultures using a LED-based photometer. Biomed Opt Express, BOE **10**:5600–5610.

[4] **Runci F, Gentile V, Frangipani E, Rampioni G, Leoni L, Lucidi M, Visaggio D, Harris G, Chen W, Stahl J, Averhoff B, Visca P**. 2019. Contribution of Active Iron Uptake to *Acinetobacter baumannii* Pathogenicity. Infect Immun **87**.

[5] **Lucidi M, Visaggio D, Prencipe E, Imperi F, Rampioni G, Cincotti G, Leoni L, Visca P**. 2019. New Shuttle Vectors for Real-Time Gene Expression Analysis in Multidrug-Resistant *Acinetobacter* Species: *In Vitro* and *In Vivo* Responses to Environmental Stressors. Appl Environ Microbiol **85**.

[6] **Nichele L, Persichetti V, Lucidi M, Cincotti G**. 2020. Quantitative evaluation of ImageJ thresholding algorithms for microbial cell counting. OSA Continuum, OSAC **3**:1417–1427.

[7] **Lucidi M, Hristu R, Nichele L, Stanciu GA, Tranca DE, Holban AM, Visca P, Stanciu SG, Cincotti G**. 2020. STED nanoscopy of KK114-stained pathogenic bacteria. J Biophotonics e202000097.

[8] **Lucidi M, Tranca DE, Nichele L, Unay D, Stanciu GA, Visca P, Holban AM, Hristu R, Cincotti G, Stanciu S.** 2020. SSNOMBACTER: A collection of scattering-type Scanning Near-Field Optical Microscopy and Atomic Force Microscopy images of bacterial cells. GigaScience 9(11).

[9] **Bashiri S, Lucidi M, Visaggio D, Capecchi G, Cincotti G, Visca P, Capellini G.** 2021. Growth phase- and desiccation- dependent *Acinetobacter baumannii* morphology: an atomic force microscopy investigation. Langmuir 37(3): 1110–1119.

[10] **Lucidi M, Hristu R, Nichele L, Stanciu GA, Visca P, Banica CK, Cincotti G, Stanciu SG**. 2021. Characterization of *Acinetobacter baumannii* filamentous

cells by Re-scan confocal microscopy and complementary fluorometric approaches. IEEE Journal of Selected Topics in Quantum Electronics 27(5): 1-7.

[11] **Mellini M, Lucidi M, Imperi F, Visca P, Leoni L, Rampioni G.** 2021. Generation of genetic tools for gauging multiple gene expression at single cell level in *Pseudomonas aeruginosa* and other bacteria. Appl Environ Microbiol 87(10):e02956-20.

[12] **Artuso I, Turrini P, Pirolo M, Lucidi M, Tescari M, Visaggio D, Mansi A, Lugli GA, Ventura M, Visca P.** 2021. Phylogenomic analysis and characterization of carbon monoxide utilization genes in the family *Phyllobacteriaceae* with reclassification of *Aminobacter carboxidus* (Meyer *et al.* 1993, Hördt *et al*. 2020) as *Aminobacter lissarensis* (McDonald *et al*. 2005). Systematic and Applied Microbiology 44(3): 126199.

[13] **Visaggio D, Pirolo M, Frangipani E, Lucidi M, Sorrentino R, Mitidieri E, Ungaro F, Luraghi A, Peri F, Visca P**. 2021. A highly sensitive luminescent biosensor for the microvolumetric detection of the *Pseudomonas aeruginosa* siderophore pyochelin. ACS Sens. doi: 10.1021/acssensors.1c01023.

[14] **Artuso I[#], Lucidi M[#], Visaggio D, Capecchi G, Lugli GA, Ventura M, Visca P.** 2021. Genome diversity of domesticated *Acinetobacter baumannii* ATCC 19606^{T} strains. Microbial Genomics. In press. doi: 10.1099/mgen.0.000749. [#]These authors equally contributed to this work.

[15] **Spinnato MC, Lo Sciuto A, Mercolino J, Lucidi M, Leoni L, Rampioni G, Visca P, Imperi F**. 2022. Effect of a Defective Clamp Loader Complex of DNA Polymerase III on Growth and SOS Response in *Pseudomonas aeruginosa*. 2. Microorganisms 10:423.

[16] **D' Agostino I, Ardino C, Poli G, Sannio F, Lucidi M, Poggialini F, Visaggio D, Rango E, Filippi S, Petricci E, Visca P, Botta L, Docquier J-D, Dreassi E**. 2022. Antibacterial alkylguanidino ureas: molecular simplification approach, searching for membrane-based MoA. European Journal of Medicinal Chemistry 114158.

[17] **Fardelli E, Lucidi M, Di Gioacchino M, Bashiri S, Persichetti L, Capecchi G, Gasperi T, Sodo A, Visca P, Capellini G**. 2022. Bio-physical mechanisms of dehydrating membranes of *Acinetobacter baumannii* linked to drought-resistance. Biochimica et Biophysica Acta (BBA) - Biomembranes 1864:184045.

[18] **Canciello S, Parisi M, Lucidi M, Visca P, Cincotti G.** 2022. An image processing-based quantification of gram variability in *Acinetobacter baumannii*. Microscopy Research and Technique https://doi.org/10.1002/jemt.24271.

[19] **Parisi M, Lucidi M, Visca P, Cincotti G.** 2023. Super-Resolution Optical Imaging of Bacterial Cells. IEEE Journal of Selected Topics in Quantum Electronics 29:1–13.

[20] **Asaftei M, Lucidi M, Cirtoaje C, Holban A-M, Charitidis CA, Yang F, Wu A, Stanciu GA, Sağlam Ö, Lazar V, Visca P, Stanciu SG**. 2023. Fighting bacterial pathogens with carbon nanotubes: focused review of recent progress. RSC Adv 13:19682–19694.

[21] **Lucidi M, Capecchi G, Visaggio D, Gasperi T, Parisi M, Cincotti G, Rampioni G, Visca P, Kolmakov K.** 2024. Expanding the microbiologist toolbox via new far-red-emitting dyes suitable for bacterial imaging. Microbiol Spectr 12:e0369023.

[22] **Lucidi M, Imperi F, Artuso I, Capecchi G, Spagnoli C, Visaggio D, Rampioni G, Leoni L, Visca P.** 2024. Phage-mediated colistin resistance in *Acinetobacter baumannii*. Drug Resist Updat 73:101061.

[23] **Lucidi M, Visaggio D, Migliaccio A, Capecchi G, Visca P, Imperi F, Zarrilli R.** 2024. Pathogenicity and virulence of *Acinetobacter baumannii*: Factors contributing to the fitness in healthcare settings and the infected host. Virulence 15:2289769.

[24] **Sposato D, Mercolino J, Torrini L, Sperandeo P, Lucidi M, Alegiani R, Varone I, Molesini G, Leoni L, Rampioni G, Visca P, Imperi F**. 2024. Redundant

essentiality of AsmA-like proteins in *Pseudomonas aeruginosa*. mSphere 9:e0067723.

Proceedings of international conferences

Lucidi M, Runci F, Rampioni G, Frangipani E, Leoni L, Visca P. Construction of new shuttle-vectors for gene cloning and expression in *Acinetobacter baumannii.* 11th International Symposium on the Biology of *Acinetobacter*, Seville, Spain, 2017. ⌂

Marsan M, Lucidi M, Cincotti G. Determination of *E. coli* and *S. aureus* concentration using a LED-based photometer. Sixth National Congress of Bioengineering, Milan, Italy, 2018. ¥

Marsan M, Lucidi M, Cincotti G. Geometrical-optics based spectrophotometry for absorbance and refractive index measurements. Fotonica, Convegno Italiano sulle Tecnologie Fotoniche, Lecce, Italy, 2018. ¥

Lucidi M, Marsan M, Visaggio D, Visca P, Cincotti G. Automated live/dead cell counting in confocal microscopy images of *Acinetobacter baumannii*. Sixth National Congress of Bioengineering, Milan, Italy, 2018. ¥

Lucidi M, Marsan M, Visaggio D, Visca P, Cincotti G. Image processing for single-cell live/dead ratio characterization in the human pathogen *Acinetobacter baumannii.* Fotonica, Convegno Italiano sulle Tecnologie Fotoniche, Lecce, Italy, 2018. ⌂

Lucidi M, Prencipe E, Cincotti G, Visca P. Development of vectors for transcriptional analysis in multidrug-resistant *Acinetobacter* species. 12th International Symposium on the Biology of *Acinetobacter*, Frankfurt, Germany, 2019. ¥

Lucidi M, Prencipe E, Visca P. New promoter-probe vectors for gene expression analysis in multidrug-resistant *Acinetobacter* species. Microbiology-SIMGBM 2019, Florence, Italy, 2019. ¥

Lucidi M, Stanciu SG, Tranca DE, Hristu R, Holban AM, Nichele L, Stanciu GA, Cincotti G. Label-based and label-free optical nanoscopy of pathogenic bacterial species. Advanced Laser Technologies, Prague, Czech Republic, 2019. Attendance as invited speaker. ⌂

Visaggio D, Lucidi M, Bashiri S, Cincotti G, Capellini G, Visca P. Desiccation and hypotonicity tolerance in pathogenic *Acinetobacter baumannii*. Microbiology-SIMGBM 2019, Florence, Italy, 2019. ¥

Lucidi M, Stanciu SG, Tranca DE, Hristu R, Holban AM, Nichele L, Stanciu GA, Cincotti G. Extensive characterization of pathogenic bacterial species by STED microscopy. Italian Conference of Optics and Photonics (ICOP) 2020. Online conference, 2020. ⌂

Lucidi M. Factors contributing to the persistence of pathogenic *Acinetobacter* in the hospital setting. Invited speaker at 32th ECCMID (European Congress of Clinical Microbiology and Infectious Diseases) 2022, Lisbon, Portugal. ⌂

Lucidi M, Capecchi G, Visaggio D, Gasperi T, Parisi M, Cincotti G, Rampioni G, Visca P, Kolmakov K. Synthesis and applications of a far-red emitting fluorophore set in bacterial live-cell imaging, membrane staining and nanoscopy. SIMGBM, Cagliari, Italy, 2024. ¥

⌂, participation as oral presenter.
¥, participation as poster author.

Bibliometric scores

Total number of publications: **30** (source: https://www.scopus.com/)
Total number of citations: **225** (source: https://www.scopus.com/)
H-index: **7**

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Rome, 10th April 2024