Orietta Massidda, PhD

Curriculum vitae

Laboratory of Bacterial Genetics and Physiology
Department of Cellular, Computational and Integrative Biology – CIBIO
Interdepartmental Center of Medical Sciences – CISMed

Current Position

- Associate Professor in Microbiology and Clinical Microbiology – MED/07 (06/A3)

Education

- 1997 – Certified PhD equivalence in Microbiology in the United States of America.
- 1996 – PhD in Basic and Applied Microbiology - University of Padova
- 1990 – Specialist in Clinical Microbiology with full marks & honors (50/50 cum laude) - University of Genova
- 1985 – State examination and enrollment in the Italian Biology College - University of Cagliari
- 1984 – S.B. Biological Sciences with full marks & honors (110/110 cum laude) - University of Cagliari

Professional training and experience

- November 2017 – to present: Tenured Associate Professor in Microbiology BIO/19 and in Microbiology and Clinical Microbiology MED/07 (06/3A) – Department of Cellular, Computational and Integrative Biology, University of Trento, Italy.
- December 2006 – October 2017: Tenured Associate Professor in Microbiology and Clinical Microbiology MED/07 (06/3A) – Faculty of Medicine & Surgery, Department of Biomedical Sciences and Biomedical Technologies, and, since 2012, Department of Surgical Science, University di Cagliari, Italy.
- October 1998 – December 2006: Researcher in Microbiology and Clinical Microbiology MED/07 (06/3A), Faculty of Medicine & Surgery, Department of Biomedical Sciences and Biomedical Technologies, University di Cagliari, Italy.
- March 1997 – October 1998: Senior Research Scientist in the laboratory of Microbial Biochemistry, Research Center, Glaxo-Wellcome, Verona, Italy.
- November 1994 – March 1997: Postdoctoral Research Associate in the laboratory of Bacterial Genetics and Physiology, Department of Microbiology and Immunology, Medical School, Temple University, Philadelphia, PA (USA).
- March 1988 – October 1994: Fellowship for Specialization School and then for Doctorate School, Department of Molecular Biology, University of Siena, Italy (1988-1992) and Institute of di Microbiology, University of Ancona (1993-94),
- Visiting Scientist (February 1992-December 1992 and June 1993-November 1993), in the laboratory of Bacterial Genetics and Physiology, Department of Microbiology and Immunology, Temple University School of Medicine, Philadelphia, PA (USA)
- January 1986 – March 1988: Postdoctoral Fellowship in the laboratory of Bacterial Genetics and Physiology, Department of Microbiology and Immunology, Medical School, Temple University, Philadelphia, PA (USA)
- March 1984 – December 1985: Internal graduate student at the Institute of Microbiology and Virology, Faculty of Medicine & Surgery, University of Cagliari, Italy

Honors and awards

- Productivity award Glaxo-Wellcome, Verona (1998)
- PhD Fellowship award (1992-1996) – University of Padova
- Specialization School Fellowship award (1986-1990) - LR/7 Regione Autonoma della Sardegna

National Scientific Habilitation

- 20.03.2018 – Habilitation for full Professor (Fascia I) in 06/A3 (MED/07 Microbiology & Clinical Microbiology)
- 10.04.2018 – Habilitation for full Professor (Fascia I), 05/I2 (BIO/19, Microbiology)

Short Biography

I obtained a Bachelor degree (BS) in Biology from the University of Cagliari. Soon after this, I began an extensive experience in the USA, by working in the laboratories of Prof. Lolita Daneo-Moore and Prof. Gerald Shockman, who pioneered cell wall and division studies in Gram-positive cocci. For a few years I returned to Italy, where I followed the course of Clinical Microbiology specialization at the University of Genoa and the PhD School in Microbiology at the University of Padova, carrying out the work at the Department of Molecular Biology, University of Siena under the supervision of Prof. Giuseppe Satta and then at the Institute of Microbiology, University of Ancona, with Prof. Piero Varaldo, after G. Satta's premature passing. Following my last postdoctoral research at Temple University, I won an international selection for a Senior Researcher position at Glaxo-Wellcome, Verona to study cell division in *Streptococcus pneumoniae,* as part of the European Community (EC) FP4 Cell Factory project, coordinated by Dr. Miguel Vicente (CSIC, Madrid). Carrying out this work allowed me to establish my own line of research, that has continued to be my main focus when I moved, as an independent researcher, to the University of Cagliari and participated as PI in the EC FP5 SANITAS project, also coordinated by Dr. Vicente.

Following this, I worked, first as a tenured researcher and then as associate professor, at the University of Cagliari until 2017, where I have coordinated other projects established a number of fruitful international collaborations, carving out a unique *niche* in the study of streptococci which, despite their obvious importance in human health, have fewer genetic tools available and require a specialized expertise. All these studies, despite the limited resources for basic research, produced original contributions and demonstrated the ability to independently conduct the proposed research programs, coordinating a research group besides carrying out extensive didactic activity and administrative duties. Since November 2017, I moved, as an associate professor, to the Center/Department CIBIO at the University Trento to find a more stimulating research environment with more institutional support.

From 1998 to the present, my research activity has mostly revolved around the problem and process of cell division in *S. pneumoniae*, as a model for pathogenic Gram-positive cocci. The main goal is to identify the mechanisms that regulate the recruitment of the *S. pneumoniae* cell division proteins to the division site and their biologically significant interactions that would eventually bring to the development of new antibiotics, a urgent and compelling need for Public Health.

Area of scientific interests and main scientific contributions:

My scientific activity has focused primarily on the following areas of microbiology research:

i) Physiology and biochemistry of enterococci

My first research interest focused on the cell wall physiology of enterococci. We characterized the properties of *Enterococcus hirae* PBP6, which is the only DD-carboxypeptidase in enterococci. These studies focused on the role of the PBP5 synthesis repressor, *psr*, which is involved in the regulation of the cell wall properties and, consequently, affects peptidoglycan metabolism and β-lactam resistance in enterococci. I had a prominent role in all these studies.

ii) Antibacterial agents and Antibiotic resistance

I then studied β-lactam resistance in *Staphylococcus aureus* and *Aeromonas hydrophila*. In the latter topic, I cloned and characterized one of the first class B β-lactamases, carbapenemases, and developed a method, that became widely used, to identify them. During my doctoral work, I focused on the problem of borderline methicillin-resistance in *S. aureus*, determining that a second β-lactamase activity was likely responsible for the borderline-resistance phenotype. Moreover, I sequenced and characterized the unique β-lactamase plasmid associated with borderline methicillin-resistance in *S. aureus*. I had a lead role in all these studies. More recently, my work has focus in the mechanims of β-lactam resistance in *S. pneumoniae*.

iii) Cell division in the Gram-positive pathogen *Streptococcus pneumoniae*

My research interest in bacterial cell division started with my industrial experience at Glaxo-Wellcome, in Verona**.** It was there that I identified the conserved chromosomal region that contains many of the genes involved in cell division and cell wall biosynthesis (*dcw* cluster) in *S. pneumoniae* and began to study the function of the genes themselves, conservation of their order and regulation. The contributions that best represent my work are the identification of the *dcw* cluster and the characterization of its extension (*ylmE-divIVA*) conserved among Gram-positive bacteria. Another contribution is the characterization of the role of DivIVA in *S. pneumoniae*, that nicely complemented and extended studies of this fascinating protein in other species. Also relevant is the work on the *S. pneumoniae* FtsA cell division protein (a homolog of eukaryotic actin and fairly well conserved among bacteria) that was shown for the first time to polymerize *in vitro* in the presence of ATP and to assemble into helical polymers. Furthermore, the works on the conserved Eukaryotic-type Serine/Threonine protein kinase, StkP, which in *S. pneumoniae* is required to achieve proper shape, acting as a molecular switch in the control of cell growth *vs* cell division and the characterization of LocZ, one of the StkP's substrates previously of unknown function.

LocZ controls division site selection in pneumococci, and likely in other streptococci, lactococci and enterococci, providing a new example for correctly placing and building the septum in bacteria**.** More recently, my work has focused on the characterization of the role of FtsA in *S. pneumoniae* and in the regulation of peptidoglycan synthesis required for septation, which involved the protein GpsB, a regulator of cell wall in Gram-positive bacteria and the proteins RodZ, IreB and KhpB. I served as the primary investigator or co-investigator in all of these studies.

Funded Research Projects

- 2022-2025 – GlaxoSmithKline Srl: "Investigation of the whole genome diversity of antimicrobial resistant (AMR) in clinically relevant bacterial species and identification/validation of AMR-associated genes (PI) - 145 .000 €
- 2021-2022 – Bridge-funding CIBIO: "Whole genome sequence and genome analysis of antimicrobial resistant bacteria of relevant clinical interest" (PI) - 30.000 €
- 2020-2022 – Rivestimenti Inorganici Virucidi per Interior Design - RIVID (co-PI) - 54.000 €
- 2010–2012 – Funding Basic Research Project funds LR7, CRP2_401 - (Scientific Coordinator) 196.836 €
- 2012–Premiality on Project of National Interest (PRIN) 2010 – University of Cagliari, (PI) 10.000 €
- 2010–Premiality on Project of National Interest (PRIN) 2008 – University of Cagliari, (PI) 10.000 €
- 2008–2009 – Bank of Sardinia Research Foundation - (Scientific Coordinator) 15.000 €
- 2006–2008 MIUR Project (DM 28142) - Development of methodologies for the modeling and study of drugs and biopharmaceuticals. Call for the construction and/or upgrade of public-private research laboratories.
- 2005–2006 – Bank of Sardinia Research Foundation - (Scientific Coordinator) 15.000 €
- 2001–2004 EC Project FP5-QLK3-CT-2000-00079: “Screening Assays for New Bacterial Inhibitors Based on Targets Active in Septation”, SANITAS (PI) - 205.000 €
- 1999, 2000, 2001, 2002-2003, 2004, 2005, 2006, 2007, 2008, 2009, 2011, 2012, 2013, 2014, 2015, 2016, 2017 (ex-60%; CAR; FIR funds) – University of Cagliari

Scientific Responsibility/Supervisor of Funded Research Projects

- 2019–2021: Marie Skłodowska-Curie Fellowships (H2020-MSCA-IF-2018 Program) for Project "Cost and benefit of β-lactam resistance in *Streptococcus pneumoniae*: interplay between the resistance determinants and the cell elongation and division components” (StreptoMANIAC) –. Fellowship Awardee: Dr. Dalia Denapaite
- 2003–2011: MIUR Postdoctoral Fellowship for the Project: "Characterization of cell division targets in *Streptococcus pneumoniae* for the identification of new antibacterial compounds against pathogens" (2003-2007 and 2007-2011 renewal). Fellowship Awardee: Dr. Daniela Fadda

Teaching activity:

MD, DDS, MS* and *BS courses

- From 2021/2022-to present: Courses of General and Clinical Bacteriology (Integrated Course of Microbiology & Clinical Microbiology), Center of Medical Sciences (CISMed), University of Trento.
- From 2018/2019–to present: Course of Bacterial Pathogenesis (in English), CdS Molecular & Cellular Biotechnologies (LM), Dept CIBIO, University of Trento.
- From 2017/2018–to 2020-2021: Course of Microbial Biotechnology, CdS Biomolecular Sciences & Technologies, Dept CIBIO, University of Trento.
- From 2006/2007–to 2016/2017: Courses of General and Clinical Bacteriology (Integrated Course of Microbiology), Faculty of Medicine & Surgery, Medical & Surgery School, University of Cagliari.
- From 2008/2009–to 2016/2017: Course of Clinical Microbiology, Faculty of Medicine & Surgery, Dental School, University of Cagliari.
- From 1999/2000–to 2017/2018: Course of Microbiology and Clinical Microbiology, Faculty of Medicine & Surgery, School of Allied Health, University of Cagliari.
- From 2000/2001–to 2005/2006: Course of General Bacteriology (Integrated Course of Microbiology), Medical & Surgery School, Faculty of Medicine & Surgery, University of Cagliari.

Specialization Schools

- From 2007/2008–to 2016/2017: course of Microbiology and Clinical Microbiology, Specialization School in Urology, Gastroenterology, Gynecology, Pharmacology - Faculty of Medicine & Surgery, University of Cagliari (8 hours/course).
- From 1998/1999–to 2016/2017: courses of Bacterial Cytology and Physiology, Bacterial Genetics, Molecular Microbiology, Recombinant Techniques and Antibacterial Agents (60 hours), Specialization School in Microbiology and Virology, Faculty of Medicine & Surgery, University of Cagliari.

Doctorate School

- From 2022–to present: Doctorate School in "Biomolecular Sciences", Department CIBIO, University of Trento.
- From 2008–to 2015: Doctorate School in "Development and Sperimentation of Anti-Infective Agents", University of Cagliari.

Supplementary Teaching Activity

- From 2006/2007– to 2016/2017: Coordinator of the course "Interactive seminars on Microbiology and Clinical Microbiology topics" Medical School, Faculty of Medicine & Surgery, University of Cagliari.
- From 2003/2004–to 2014/2015: Coordinator of the practical course on "Antibiotics and antibiotic-resistance: current situation and future perspectives", Medical School, Faculty of Medicine & Surgery, University of Cagliari.

Supervision of Students and Postdocs

- MD Student's theses supervised: 2
- Bachelor's & Master Student's theses supervised: 12
- Specialization School in Microbiology and Virology Student's theses supervised: 10
- PhD Students supervised in Massidda's lab: 5
- Postdocs supervised in Massidda's lab: 12

Editorial Activity and Scientific Reviewer

- from 2022-to present: Associated Editor of Frontiers Microbiology
- from 2010-2021: Member of the Editorial board of "World Journal of Microbiology and Biotechnology" (http://www.springer.com/chemistry/biotechnology/journal/11274?detailsPage=editorialBoard)
- Consultant Reviewer for the following scientific journals: Applied & Environmental Microbiology, Biologia, Cellular and Molecular Biology Bratislava, Chemotherapy, Clinical Microbiology, Emerging Infectious Diseases, Environmental Microbiology, FEMS Microbiology Reviews, Frontiers in Microbiology, Journal of Bacteriology, Journal of Biochemistry, Journal of Clinical Microbiology, Microbial Drug Resistance, Microbiology, Molecular Microbiology, Protein Science, World Journal of Microbiology and Biotechnology.
- Consultant Reviewer for the evaluation of research projects for: the Natural Sciences and Engineering Research Council of Canada, the Canadian Blood Services, the South Africa's National Research Foundation, the Czech Science Foundation, University of Insubria, Sapeinza University and the Netherlands Organisation for Scientific Research (NWO).

Administrative Duties and Committees

- From 2022-2021–to present: of the course in Medicine & Surgery, Interdepartmental Center of of Medical Sciences (CISMed) - University Trento.
- From 2021–to present: Delegate for the Didactic Activities, Interdepartmental Center of Medical Sciences (CISMed) - University of Trento.
- From 2019–to 2022: Member and then President of the Paritetic Committee for the Department CIBIO - University of Trento.
- From 2017– to 2021: Delegate for the "Research Integrity" for the Department CIBIO - University of Trento.
- From 2006–2017: Member of Autoevaluation Committee (CAV) and then Member of the Committee for Quality Assurance (QA) and accreditation of the Course in Medical & Surgery - Faculty of Medicine & Surgery, University of Cagliari.
- From 2013–2017: President of the Committee for Scientific Research of the Department of Surgical Science.
- From 2001–2005: Member of the Committee "Research in Medicine" Group of the University of Cagliari.

Meeting Organization

- Co-organizer and Chair of the international EMBO Workshop "The Great Wall Symposium 2023", Sintra 18-20, September (https://thegreatwall-symposium.org/), with I. Boneca (Institute Pasteur), S Filipe (Univeristy of Lisboa), D. Roper (University of Warwick), N. Ruiz (Ohio State University) and E. Tocheva (University of British Columbia),
- Organizer of the international EMBO Workshop "Bacterial Cell Division: Orchestrating the Ring Cycle", Prague 14-17 September 2016 (http://events.embo.org/16-bact-cell-div/) with P. Branny and W. Vollmer. The meeting has been evaluated as "excellent".

Key Seminars

- July 2015: Centre for Bacterial Cell Biology, Institute for Cell and Molecular Biosciences, Newcastle University. Invited by Prof. Waldemar Vollmer.
- September 2010: Institute of Microbiology, Academy of Sciences of the Czech Republic, Prague. Invited by Dr. Pavel Branny.
- June 2005: Jean-Pierre Ebel Institute of Structural Biology, CNRS, Grenoble. Invited by Dr. Thierry Vernet.
- November 1991: the Faculté de Médicine, Universite´Paris VI, Paris. Invited by Prof. Jaques Acar, Laboratoire de Microbiologie Médicale, Fondation-Hospital Saint-Joseph, Paris.

Invited or Selected Speaker at National and International meetings

- **O Massidda.** Regulation of peptidoglycan synthesis during growth and division. XXXIV SIMGBM Congress. 21-24 September, Cagliari, Italy. (Invited speaker).
- **O Massidda.** Are old and new cell wall growth and division proteins still attractive targets to develop new antibiotics? XXXIII SIMGBM Congress. 19-22 June, Firenze, Italy. (Invited speaker).
- RM Cleverley, F Corona, H-CT Tsui, **O Massidda**. ME Winkler, RJ Lewis. Role of GpsB as a cell cycle regulator in *Streptococcus pneumoniae*. Conditional lethal mutants reveal that FtsA is needed at early and late stages of cell division in *Streptococcus pneumoniae*. 14th Europnumo. June 11-14, 2019, Greifswald, Germany. (Talk on Abstract Selection).
- N Holecková, L Doubravová,**O Massidda**, V Molle, K Buriánková, O Benada, O Kofroňová, A Ulrych and P Branny. LocZ is a new cell division protein that directs septum placement in *Streptococcus pneumoniae*. The Great Wall Symposium. Firenze, Italy, 21-23 September, 2015. (Talk on Abstract Selection)
- A Mura, D Fadda, D Musu, Al Rico, M Krupka, D Denapaite, P Branny, M Vicente**, O Massidda**. FtsA is required for proper FtsZ localization and septum formation in *Streptococcus pneumoniae*. The Great Wall Symposium. Firenze, Italy, 21-23 September, 2015.
- A Mura, D Musu, Al Rico, M Krupka, D Denapatie, P Branny, M Vicente and **O Massidda**. Conditional lethal mutants reveal that FtsA is needed at early and late stages of cell division in *Streptococcus pneumoniae*.12th Europneumo Meeting. Oxford, United Kingdom, 7-10 July 2015. (Talk on Abstract Selection).
- **O Massidda**. Peptidoglycan synthesis during growth and division: the secret of bacteria to keep “in shape”. Invited speaker for the Prof. Giuseppe Satta Memorial Lecture. 42th Meeting of the Italian Society of Microbiology (SIM). September 28-1 October, 2014, Torino, Italy. (Invited Speaker).
- **Massidda O.** The *dcw* cluster of *Streptococcus pneumoniae*: a model to evaluate new conserved targets among Gram-positive pathogens through genomics. Micro-Matrix Workshop on Strategies to address antimicrobial resistance through the exploitation of microbial genomics. Las Navas del Marqués (Madrid), 17-20 april, 2004. (Invited Speaker)
- **Massidda O.** Resistanze Batteriche. Urologia Pratica. Convegno Nazionale per Specialisti Urologi del Territorio. Chia Laguna, 1-3 Ottobre, 2003. (Invited Speaker)
- **Massidda O.** Chemio-antibiotico resistenze. Congresso Nazionale “Le Infezioni in Urologia”. 28-30. Settembre, 2000, Chia Laguna, Italy. (Invited Speaker).
- **Massidda O.** The dcw cluster in *Streptococcus*. Lecture at the EC Biotechnology Consortium. September, 1999, Edinburg, UK (Invited Speaker).

Invited Speaker at CME accredited courses

- Old and New Therapies in the Times of Multiresistant Bugs: "Focus on the new antibiotics: When, How and From where they will come from?". 8 June 2017, Ospedale Businco, Cagliari.
- Antibiotics and antibiograms: "Antibiograms for Gram-positives: methods and problems". 21-22 June 2013, Hotel Mediterraneo, Cagliari.
- Emerging and Reemerging Respiratory Pathogens & Autoimmunity: “*Streptococcus pneumoniae*: New life for an old pathogen”. 18-19 January 2013, Hotel Mediterraneo, Cagliari.
- “From the Field to the Table. The pathway of Antibiotic Resistance” Istituto Zooprofilattico Sperimentale Del Piemonte, Liguria and Valle D’Aosta. 30 November 2012, Torino.
- Good practice in the management of infections in the critical patients: multidisciplinary experiences. 15 November 2011, T-Hotel, Cagliari.
- Urinary Tract infections: "Antibiotic Resistance in Uropathogenic Bacteria”. 28-29 January 2011, Hotel Mediterraneo, Cagliari.
- Nosocomial Infections in oncohematologic and/or hematopoietic stem-cell transplanted patients: prevention, diagnosis and therapy. 28 October 2010, Ospedale Binaghi, Cagliari.
- Problems related to the identification and detection of resistance in Gram-positive and Gram-negative bacteria: Staphylococci & Enterococci. II Theoretical and Practical Course in Microbiology and Parassitology, 17-18 October 2008, Hotel Mediterraneo, Cagliari.

Publications

- HCT Tsui, M Joseph, JJ Zheng, AJ Perez, I Manzoor, BE Rued, JD Richardson, P Branny, L Doubravová, **O Massidda**, ME Winkler. (2023). Negative regulation of MurZ and MurA underlies the essentiality of GpsB- and StkP-mediated protein phosphorylation in *Streptococcus pneumoniae* D39. Mol Microbiol, *in press* (doi: 10.1111/mmi.15122).

- Rehman HU, Russo F, Calovi M, **Massidda O**, Rossi S. (2023). Antimicrobial Performance of Innovative Functionalized Surfaces Based on Enamel Coatings: The Effect of Silver-Based Additives on the Antibacterial and Antifungal Activity. Int J Mol Sci, 24:2364.

- Murgia F, Fiamma M, Serra S, Marras G, Argiolas R, Mattana C, Mattu MG, Garau MC, Doneddu S, Olla S, Cocco E, Lorefice L, Muntoni S, Paffi P, Porru S, Abis M, Bellizzi S, Pani A, Angioi A, Simbula G, Mussap M, **Massidda O**, Carta F, Atzori L. (2022). The impact of the secondary infections in ICU patients affected by COVID-19 during three different phases of the SARS-CoV-2 pandemic. Clin Exp Med, 2:1-13.

- Lamanna MM, Manzoor I, Joseph M, Ye ZA, Benedet M, Zanardi A, Ren Z, Wang X, **Massidda O**, Tsui HT, Winkler ME. (2022). Roles of Essential RodZ in Assembly of the Peripheral Peptidoglycan Elongasome and Regulation of Class A PBP1b in Ovoid-Shaped Cells of *Streptococcus pneumoniae* D39. Mol Microbiol, 118:336-368.

- Russo, F, Furlan B, Calovi M, **Massidda O**, Rossi S. (2022). Silver-based vitreous enamel coatings: Assessment of their antimicrobial activity towards *Escherichia coli* and *Staphylococcus aureus* before and after surface degradation. Surf Coat Technol,445:128702.

- Ciani C, Pérez-Ràfols A, Bonomo I, Micaelli M, Esposito A, Zucal C, Belli R, D'Agostino VG, Bianconi I, Calderone V, Cerofolini L, **Massidda O**, Whalen MB, Fragai M, Provenzani A. (2022). Identification and Characterization of an RRM-Containing, RNA Binding Protein in *Acinetobacter baumannii*. Biomolecules,12:922.

- Kurotschka PK, Fulgenzio C, Da Cas R, Traversa G, Ferrante G, **Massidda O**, Gágyor I, Aschbacher R, Moser V, Pagani E, Spila Alegiani S, Massari M. (2022). Effect of Fluoroquinolone use in primary care on the development and decay over time of *Escherichia coli* resistance to fluoroquinolones: a matched case-control study. Antibiotics, 11:822

- Murgia F, Fiamma M, Serra S, Olla S, Garau MC, Cocco E, Lorefice L, Muntoni S, Paffi P, Porru S, Abis M, Finco G, Bellizzi S, **Massidda O**, Carta F, Atzori L. (2022). The impact of secondary infections in COVID-19 critically ill patients. J Infect, 84:e116-e117.

- Calovi M, Furlan B, Coroneo V, **Massidda O**, Rossi S. (2022). Facile Route to Effective Antimicrobial Aluminum Oxide Layer Realized by Co-Deposition with Silver Nitrate. Coatings12, 12:28

- Perez AJ, Villicana JB, Tsui HT, Danforth ML, Benedet M, **Massidda O**, Winkler ME. FtsZ-Ring Regulation and Cell Division Are Mediated by Essential EzrA and Accessory Proteins ZapA and ZapJ in *Streptococcus pneumoniae.* (2021). Front Microbiol. 12:780864.

- Fulgenzio C, Massari M, Traversa G, Da Cas R, Ferrante G, Aschbacher R, Moser V, Pagani E, Vestri AR, **Massidda O**, Kurotschka PK. (2021). Impact of prior antibiotic use in primary care on *Escherichia coli* resistance to third generation cephalosporins: a case-control study. Antibiotics, 10:451.

- Vollmer W, **Massidda O**, Tomasz A. (2019). The Cell Wall of *Streptococcus pneumoniae*. Microbiol Spectr 7(3).

- Cleverley RM, Rutter ZJ, Rismondo J, Corona F, Tsui HT, Alatawi FA, Daniel RA, Halbedel S, **Massidda O**, Winkler ME, Lewis RJ. The cell cycle regulator GpsB functions as cytosolic adaptor for multiple cell wall enzymes. (2019). Nat Commun, 10:261.

- Zheng JJ, Perez AJ, Tsui HT, **Massidda O**, Winkler ME. (2017) Absence of the KhpA and KhpB (JAG/EloR) RNA-binding proteins suppresses the requirement for PBP2b by overproduction of FtsA in *Streptococcus pneumoniae* D39. Mol Microbiol, 106:793-814.

- Rued BE, Mura A, Tsui HCT, Doubravová L, Branny P, **Massidda O**, Winkler ME. (2017) Suppression of Δ*gpsB* Mutations by phpP Protein Phosphatase Mutations or by Loss of stkP-Mediate Protein Phosphorylation in *Streptococcus pneumoniae* D39. Mol Microbiol, 103:931-957. (Highlighted in "The GpsB files: the truth is out there" (https://onlinelibrary.wiley.com/doi/full/10.1111/mmi.13612) by R. Lewis; Mol Microbiol, 103:913-918).

- Mura A, Fadda D, Perez AJ, Danforth ML, Musu D, Rico AI, Krupka M, Denapaite D, Tsui HT, Winkler ME, Branny P, Vicente M, Margolin W, **Massidda O**. (2016) Roles of the essential protein FtsA in cell growth and division in *Streptococcus pneumoniae*. J Bacteriol. Nov 21. pii: JB.00608-16.

- Whalen MB, **O Massidda**. (2015). *Helicobacter pylori*: enemy, commensal or, sometimes, friend? J Infect Dev Ctries. 9: 674-8.

- Holečková N, Doubravová L*, **Massidda O***, Molle V, Buriánková K, Benada O, Kofroňová O, Ulrych A, Branny P. (2014). LocZ is a new cell division protein involved in proper septum placement in *Streptococcus pneumoniae*. MBio 6:e01700-14. *co-correspondent author. (Recommended on F1000prime by W Margolin - 9th January, 2015).

- **Massidda, O,** Nováková, L, and W Vollmer. (2013). From models to pathogens: How much have we learned about *Streptococcus pneumoniae* cell division. Env. Microbiol.15: 3133-57.

- Canullo L, Penarrocha D, Micarelli C, **Massidda O**, Bazzoli M. (2013). Hard tissue response to argon plasma cleaning/sterilisation of customised titanium abutments versus 5-second steam cleaning: results of a 2-year post-loading follow-up from an explanatory randomised controlled trial in periodontally healthy patients. Eur J Oral Implantol 6: 251-60.

- Palmieri C, Mingoia, M, **Massidda O**, Giovanetti E, Varaldo PE (2012). Streptococcus pneumoniae transposon Tn1545/Tn6003 changes to Tn6002 due to spontaneous excision in circular form of the erm(B)- and aphA3-containing macrolide-aminoglycoside-streptothricin (MAS) element. Antimicrob. Agents Chemother. 56:5994–5997.

- Beilharz, K, Nováková, L, Fadda, D, Branny, P, **Massidda, O***, Veening, JW*. (2012). Control of cell division in Streptococcus pneumoniae by the conserved Ser/Thr protein kinase StkP. Proc. Natl. Acad. Sci. U.S.A. 109: E905–E913.*co-last corresponding author.

- Firinu, D, **Massidda O**, Lorrai MM, Serusi L, Peralta M, Barca MP, Serra P, Manconi PE. (2011). Successful treatment of chronic mucocutaneous candidiasis caused by azole-resistant *Candida albicans* with posaconazole. Clin. Dev. Immunol. 2011283239.

- Keseru JS, Szabó I, Gál Z, **Massidda O**, Mingoia M, Kaszanyitzky E, Jánosi S, Hulvely J, Csorba A, Buzás, K, *et al.* (2011). Identification of β-lactamases in human and bovine isolates of *Staphylococcus aureus* strains having borderline resistance to penicillinase-resistant penicillins (PRPs) with proteomic methods. Vet. Microbiol. 147:96–102.

- Maggi S, **Massidda O**, Luzi G, Fadda D, Paolozzi L, Ghelardini, P. (2008). Division protein interaction web: identification of a phylogenetically conserved common interactome between *Streptococcus pneumoniae* and *Escherichia coli*. Microbiology (SGM) 154:3042–3052.

- Le Gouëllec A, Roux L Fadda D, **Massidda O**, Vernet T, Zapun A. (2008). Roles of pneumococcal DivIB in cell division. J. Bacteriol. 190:4501–4511.

- Fadda D, Santona A, D'Ulisse V, Ghelardini P, Ennas MG, Whalen MB, **Massidda O.** (2007). *Streptococcus pneumoniae* DivIVA: localization and interactions in a MinCD-free context. J. Bacteriol. 189:1288–1298. Highlighted in How DivIVA Controls Morphology During Cell Division in *S. pneumoniae*. Microbe vol 2, n. 3, (https://iris.unitn.it/retrieve/handle/11572/187531/157696/Fadda%20et%20al_Journal%20Highlight.pdf) & Guest Commentary J Bacteriol, 89:1185-8, 2007 (https://jb.asm.org/content/189/4/1185) by Vicente & García-Ovalle.

- Vicente M, Hodgson J, **Massidda O**, Tonjum T, Henriques-Normark B, Ron EZ. (2006). The fallacies of hope: will we discover new antibiotics to combat pathogenic bacteria in time? FEMS Microbiol. Rev. 30: 841–852.

- **Massidda O**, Mingoia, M Fadda, D, Whalen MB, Montanari MP, Varaldo PE. (2006). Analysis of the beta-lactamase plasmid of borderline methicillin-susceptible *Staphylococcus aureus*: focus on *bla* complex genes and cadmium resistance determinants *cadD* and *cadX*. Plasmid 55:114–127.

- Smith AM, Feldman C, **Massidda O**, McCarthy K, Ndiweni D, Klugman KP. (2005). Altered PBP 2A and its role in the development of penicillin, cefotaxime, and ceftriaxone resistance in a clinical isolate of *Streptococcus pneumoniae*. Antimicrob. Agents Chemother. 49:2002–2007.

- Lara B, Rico AI, Petruzzelli S, Santona A, Dumas J, Biton J, Vicente M, Mingorance J, **Massidda O**. (2005). Cell division in cocci: localization and properties of the *Streptococcus pneumoniae* FtsA protein. Mol. Microbiol. 55:699–711.

- Fadda D, Pischedda C, Caldara F, Whalen MB, Anderluzzi D, Domenici E, **Massidda O**. (2003). Characterization of *divIVA* and other genes located in the chromosomal region downstream of the dcw cluster in *Streptococcus pneumoniae*. J. Bacteriol. 185:6209–6214.

- Carettoni D, Gómez-Puertas P, Yim, L, Mingorance J, **Massidda O**, Vicente M, Valencia A, Domenici E, Anderluzzi D. (2003). Phage-display and correlated mutations identify an essential region of subdomain 1C involved in homodimerization of *Escherichia coli* FtsA. Proteins 50:192–206.

- **Massidda O**, Anderluzzi D, Friedli L, Feger G (1998). Unconventional organization of the division and cell wall gene cluster of *Streptococcus pneumoniae*. Microbiology (Reading, Engl.) 144:3069–3078.

- **Massidda O**, Dardenne O, Whalen MB, Zorzi W, Coyette J, Shockman GD, Daneo-Moore, L. (1998). The PBP5 synthesis repressor (psr) gene of *Enterococcus hirae* ATCC 9790 is substantially longer than previously reported. FEMS Microbiol. Lett. 166:355–360.

- **Massidda O**, Kariyama R, Daneo-Moore L, Shockman GD. (1996). Evidence that the PBP 5 synthesis repressor (psr) of *Enterococcus hirae* is also involved in the regulation of cell wall composition and other cell wall-related properties. J. Bacteriol. 178 5272–5278.

- **Massidda O**, Montanari MP, Mingoia M, Varaldo PE. (1996). Borderline methicillin-susceptible *Staphylococcus aureus* strains have more in common than reduced susceptibility to penicillinase-resistant penicillins. Antimicrob. Agents Chemother. 40:2769–2774.

- Montanari MP, **Massidda O**, Mingoia M, Varaldo PE. (1996). Borderline susceptibility to methicillin in *Staphylococcus aureus*: a new mechanism of resistance? Microb. Drug Resist. 2:257–260.

- Daneo-Moore L, **Massidda O**, Kariyama R, Shockman GD. (1996). Penicillin resistance and autolysis in enterococci. Microb. Drug Resist. 2:159–161.

- Shockman GD, Daneo-Moore L, Kariyama R, **Massidda O**. (1996). Bacterial walls, peptidoglycan hydrolases, autolysins, and autolysis. Microb. Drug Resist. 2: 95–98.

- Marzocchi B, Magi B, Bini L, Cellesi C, Rossolini A, **Massidda O**, Pallini V. (1995). Two-dimensional gel electrophoresis and immunoblotting of human serum albumin modified by reaction with penicillins. Electrophoresis 16: 851–853.

- Valentini S, Coratza G, Rossolini GM, **Massidda O**, and Satta G. (1994). *In-vitro* evaluation of cefpodoxime. J. Antimicrob. Chemother. 33:495–508.

- **Massidda O**, Montanari MP, Mingoia M, Varaldo PE. (1994). Cloning and expression of the penicillinase from a borderline methicillin-susceptible *Staphylococcus aureus* strain in *Escherichia coli*. FEMS Microbiol. Lett. 119: 263–269.

- Segatore B, **Massidda O**, Satta G, Setacci D, Amicosante G. (1993). High specificity of cphA-encoded metallo-beta-lactamase from *Aeromonas hydrophila* AE036 for carbapenems and its contribution to beta-lactam resistance. Antimicrob. Agents Chemother. 37:1324–1328.

- **Massidda O**, Montanari MP, Varaldo PE. (1992). Evidence for a methicillin-hydrolysing beta-lactamase in *Staphylococcus aureus* strains with borderline susceptibility to this drug. FEMS Microbiol. Lett. 71: 223–227.

- Satta G, **Massidda O,** D'Andrea L. (1991). The mechanism of staphylococci resistance to methicillin: a critical analysis of dominant opinions. J Chemother 3 Suppl 1: 144–148.

- **Massidda O**, Rossolini GM, Satta G. (1991). The *Aeromonas hydrophila cphA* gene: molecular heterogeneity among class B metallo-beta-lactamases. J. Bacteriol. 173: 4611–4617.
- Kariyama R, **Massidda O**, Daneo-Moore L, Shockman GD. (1990). Properties of cell wall-associated DD-carboxypeptidase of *Enterococcus hirae* (*Streptococcus faecium*) ATCC 9790 extracted with alkali. J. Bacteriol. 172: 3718–3724.

Book chapters

- Vollmer W, **O Massidda O**, Tomasz A. The Cell Wall of *Streptococcus pneumoniae*. In "Gram-Positive Pathogens" (Fischetti *et al.* eds) ASM Publication, January 2021.

- Traduzione del capitolo Enterobatteri (pp. 619-653) del saggio "Sherris Medical Microbiology Sixth Edition" in "Sherris Microbiologia Medica, VI ed." – EMSI, 2017.

- **Massidda**. **O,** Daneo-Moore L. 1988. Development of resistance to penicillin G in *Streptococcus mutans* GS-5. In "Antibiotic inhibition of Bacterial Cell Surface Assembly and Function", (P. Actor *et al.* eds.) ASM Publication, chapt. 42.

- Daneo-Moore L, Said I, Fletcher H, **Massidda O**, Petaluma F. 1988. Penicillin tolerance *Enterococcus hirae* ATCC 9790. In "Antibiotic Inhibition of Bacterial Cell Surface Assembly and Function", (P. Actor *et al.* eds.) ASM Publication, chapt. 66.

Abstract

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New nucleotide sequences deposited in GenBank/EMBL:

- accession number X57102
- accession number U42211
- accession number U58049
- accession number U58139
- accession number AF068901
- accession number AF068902
- accession number AF068903
- accession number AF068904
- accession number AY917098