

# Curriculum vitae

Prof. Alessandro Silvani, MD PhD  
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## Bibliometric indexes

SCOPUS: publications = 87; citations = 1439; h-index = 22. Author identifier: 7005417173.

Google Scholar: publications = 92; citations = 2039; h-index = 27, i-10 index = 51.

## Position

from 2014 to present: **Associate professor of Physiology**

from 2005 to 2014: Researcher and assistant professor of physiology

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## Education

2000: MD, University of Bologna, Italy, cum laude.

2004: PhD in Applied Physiology and Pathophysiology, University of Bologna, Italy.

## Scientific courses

2002: Winter School "*Dynamic aspects of brain function: methodologies, concepts, models*", Federation of European Neuroscience Societies (FENS), Kitzbühel, Austria.

2003: Seventh Course of the International School of Neural Networks "E.R. Caianiello": "*Computational neuroscience: cortical dynamics*", "Ettore Majorana" Foundation, Erice, Italy.

2017: Course on "*Role and competence of principal investigators in applications for the ethical authorization to perform experiments on laboratory animals*" (translated), Istituto Superiore di Sanità (*National Institute of Health*), Rome, Italy.

## Awards

2002: Poster Prize of the European Sleep Research Society (ESRS).

2004: "Igino Fagioli" Prize of the Italian Sleep Research Society (SIRS), for the best oral communication.

2005: "Igino Fagioli" Prize of the Italian Sleep Research Society (SIRS), for the best PhD dissertation.

2006: ESRS-Weinmann Young Investigator Mobility Award of the European Sleep Research Society.

2017: Teaching prize for best information provider, best ability provider, best learning facilitator, School of Medicine and Surgery, University of Bologna, Italy

## Grants

2001: Young researcher grant, University of Bologna, Italy (PI), project title (translated): "*Effects of brain activation on the blood-brain barrier permeability to glucose*".

2001: PRIN Grant, Italian Ministry of University and Research, code 054935\_006 (participant), project title (translated): "*Neural and metabolic processes characterizing sleep and wakefulness*".

2002: FIRB Grant, Italian Ministry of University and Research, code RBAU01KCNZ (participant), project title (translated): "*Effects of brain activation on the blood-brain barrier permeability to glucose*".

2004: PRIN Grant, Italian Ministry of University and Research, code 050080\_001 (participant), project title (translated): “*Sleep and cardiovascular regulation in hypertensive rats*”.

2004: Research Grant, European Sleep Research Society - Sanofi Aventis (PI), project title: “*Sleep in hypertension: attaching sleep pathophysiology to the genome*”.

2009: PRIN Grant, Italian Ministry of University and Research, code SPTHRK\_001 (participant), project title (translated): “*Sleep-related and circadian derangements of arterial pressure in animal models of diet-induced obesity*”.

2010: Grant of the Cassa di Risparmio di Bologna Bank Foundation, Italy (participant), project title (translated): “*Role of hypothalamic neurogenesis in the development of diet induced obesity and its sleep and cardiovascular comorbidities*”.

2013: International Short Visit Grant, Swiss National Science Foundation (PI), project title: “*Genetic and pharmacological targeting of hypothalamic pathways controlling muscle tone: towards rodent models of periodic limb movements in sleep*”.

2013: FARB line 2 Grant, University of Bologna, Italy (participant), project title: “*Warm up to wake up: a pivotal role of the hypothalamic arousal system*”.

2015: Grant of the Fondazione del Monte di Bologna e Ravenna Bank Foundation, Italy (participant), project title (translated): “*Clinical and experimental investigation of the pathophysiology of autonomic dysfunction in adult-onset autosomal dominant leukodystrophy (ADLD)*”.

2017: AlmaDea Grant, University of Bologna, Italy (PI), project title (translated): “*Innovative orexin receptor agonists for the therapy of narcolepsy*”.

2018: Italian Association of Patients with Narcolepsy and Hypersomnia (AIN) grant (PI), project title (translated): “*Development of innovative nanoparticle-based approaches for the therapy of narcolepsy type 1*”.

2021: Carisbo bank foundation grant (PI), project title (translated): “*Translational medical research for the validation of a mouse model of Morvan’s syndrome associated with anti-CASPR2 antibodies*”.

2022: Banca del Monte di Bologna e Ravenna bank foundation grant (PI), project title (translated): “*LOOKING-GLASS: Development of an integrated system of wearable sensors for continuous monitoring of physical activity, sleep, and heart rate in older subjects*”.

2022: Carisbo bank foundation grant (PI), project title (translated): “*LOOKING-GLASS BOLOGNA: Development of an integrated system of wearable sensors for continuous monitoring of physical activity, sleep, and heart rate in older subjects in the Bologna city area*”.

2022: Grant to fund a PhD bursary (3 years, University of Bologna) co-financed by the Italian PNRR program and by Prodigys Technology SrL; project title (translated): “*CROSSROADS: Development of a system to integrate information from distributed and heterogeneous sensors for frail and chronically ill subjects*” (co-tutor).

2022: Italian NRRP Grant (Extended partnership grant); project title: *Age-IT (A novel public-private alliance to generate socioeconomic, biomedical and technological solutions for an inclusive Italian ageing society)* (Task leader, 2 tasks).

2022: Italian NRRP Grant (innovative technologies and paths in healthcare) “*DARE (Digital lifelong prevention)*” (participant).

### **Scientist in charge of ethical committee applications**

2018: Project title (translated): “*Pilot study of blood-brain transport and in-vivo activity in mice of a novel orexinergic drug for the therapy of narcolepsy type 1*” (aut. n° 271/2018-PR, April 9, 2018).

2019: Project title (translated): “*Development and validation of a mouse model of Morvan’s syndrome associated with anti-CASPR2 antibodies*” (aut. n° 380/2019-PR, May 20, 2019).

2019: Project title (translated): “*Detailed characterization of in-vivo activity in mice (Mus musculus) of novel orexinergic drugs for the therapy of narcolepsy type 1*” (aut. n° 667/2019-PR, September 9, 2019).

## Patents

2022: Italian patent application n. 102022000013894, filed on June 30, 2022, with title (translated) “Artificial protein and its applications”; percentage of inventive contribution: 40%.

## Peer review

Served as a peer reviewer for the following (35) journals: American Journal of Physiology, Autonomic Neuroscience, Behavioral Brain Research, Biological Psychology, BMC Neuroscience, Brain Pathology, Cephalalgia, Chronobiology International, Clinical Autonomic Research, Clinical and Experimental Pharmacology and Physiology, Clinical Neurophysiology; EBioMedicine, European Journal of Preventive Cardiology, Frontiers in Physiology, Frontiers in Neural Circuits, Frontiers in Neurology, Frontiers in Neuroscience, Frontiers in Psychiatry, Fundamental and Clinical Pharmacology, Headache, IEEE Transactions on Biomedical Engineering, International Journal of Psychophysiology, Journal of Applied Physiology, Journal of Clinical Sleep Medicine, Journal of Physiology, Journal of Sleep Research, Neurobiology of Disease, Neuroscience, Physiological Genomics, PLOS ONE, Psychoneuroendocrinology, Respiratory Physiology and Neurobiology, Scientific Reports, Sleep, Sleep Medicine Reviews.

2011-2018: Review Editor for Frontiers in Physiology, section of Integrative Physiology

From 2017: Member of the Editorial Board (Academic Editor) for PLOS ONE

2018-2020: Review Editor for Frontiers in Neuroscience, section Sleep and Circadian Rhythms

2018: Listed among “Top reviewers for 2017” for the journal Sleep by the Sleep research Society

From 2019: Associate Editor for Frontiers in Physiology, section of Integrative Physiology

2020: Editor in charge of the research topic “The integrative physiology of metabolic down-states”, Frontiers in Physiology, Frontiers in Neuroscience and Frontiers in Neurology

From 2020: Associate Editor for Frontiers in Neuroscience, section Sleep and Circadian Rhythms

2021: Listed among “Top reviewers for 2020” for the journal Sleep by the Sleep research Society

2021: review of symposium proposals on basic research, WorldSleep 2022 meeting, Rome, March 11-16 2022.

2013: Research program “Futuro in Ricerca 2013”, Italian Ministry of University and Research

2014: Research program “Émergence: Nouvelle thématique au renouvellement scientifique de l’Université de Toulouse”, France

2016: Research Program “Preludium”, Polish National Science Center (Narodowe Centrum Nauki – NCN),

2016: VQR 2011-2014 Research Assessment Exercise, Italian National Agency for the Assessment of University and Research (ANVUR).

2019: Research Grant Program, the Restless Legs Foundation ([www.rls.org](http://www.rls.org))

2020: Research program “FISR2020 Covid19 Research”, Italian Ministry of University and Research

2021: Swiss National Science Foundation and the National Natural Science Foundation of China (NSFC) joint call for joint research projects, Switzerland.

2022: Call for research proposals, Israel Science Foundation (ISF), Israel.

2022: Call for research proposals, Marsden Fund Council, New Zealand.

2018: 1 PhD thesis in Neuroscience, University of Parma, Italy.

## Activity in scientific societies

Membership, past: International Society for Cerebral Blood Flow and Metabolism (ISCBFM); Italian Society for Sleep Research (SIRS); Italian Society of the Study of the Autonomic Nervous System (AINV); American Physiological Society (APS); International Society of Autonomic Neuroscience (ISAN).

Membership, present: Italian Association for Sleep Medicine (AIMS); Italian Physiological Society (SIF); European Sleep Research Society (ESRS), European Restless Legs Study Group (EURLSSG).

Service:

2008-2013: member of the board of the Italian Sleep Research Society (SIRS).

2010-2013: secretary of the Italian Sleep Research Society (SIRS).

In 2013, contributed to the fusion of the Italian Sleep Research Society and the Italian Association of Sleep Medicine (AIMS).

2012-2015: Member of the Education Committee of the European Federation of Autonomic Societies (EFAS)

2016: Member of the Evaluation Committee for awarding the “Igino Fagioli” prize of the Italian Association of Sleep Medicine (AIMS).

From 2018: member of the board of the Italian Association for Sleep Medicine (AIMS).

From 2018: member of the Scientific Committee of the Italian Association for Sleep Medicine (AIMS).

2020-2022: chair of the Outreach Committee of the Italian Association for Sleep Medicine (AIMS).

2021-2022: member of the Teaching Committee of the Italian Association for Sleep Medicine (AIMS).

From 2022: chair of the Scientific Committee of the Italian Association for Sleep Medicine (AIMS).

From 2022: member of the Scientific Committee of the European Sleep Research Society (ESRS).

From 2022: co-chair of the Scientific Committee of the European Sleep Research Society (ESRS).

Member of the organizing or scientific committee of scientific meetings:

- 57th meeting of the Italian Physiological Society (SIF), Ravenna, Italy, September 25-27, 2006.

- 14th meeting of the Italian Sleep Research Society (SIRS), Bologna, Italy, November 14-15, 2009.

- 17th meeting of the Italian Sleep Research Society (SIRS), Bologna, Italy, March 17-18, 2012.

- 16th Meeting of the European Federation of Autonomic Societies (EFAS), Malaga (Spain), October 9-11, 2014.

- 9th Meeting of the International Society of Autonomic Neuroscience (ISAN), Stresa, Italy, September 26-29, 2015.

- 26th Meeting of the Italian Association of Sleep Medicine (AIMS), Bologna, Italy, September 12-13, 2016.

- FEPS2019 joint meeting of the Federation of European Physiological Societies (FEPS) and the Italian Physiological Society (SIF), Bologna, Italy, September 10-13, 2019.

- 29th Meeting of the Italian Association of Sleep Medicine (AIMS), Genova, Italy, September 13-15, 2019.

- 30th Meeting of the Italian Association of Sleep Medicine (AIMS), Web Conference, October 25-27, 2020.

- First Meeting on Research in Medicine and Surgery, Degree in Medicine and Surgery of the University of Bologna, Ravenna Campus, Italy, and Ravenna city hospital, October 15, 2021.

- 31st Meeting of the Italian Association of Sleep Medicine (AIMS), Rome, March 11-12, 2022.

- 15th International RBD (REM sleep behavior disorder) Study Group meeting, Ravenna, March 17-19, 2022.

- 32nd Meeting of the Italian Association of Sleep Medicine (AIMS), Rimini, September 15-17, 2022.

Chair of the organizing committee of scientific meetings:

- SIF YRP2021 Annual Meeting of Young Researchers in Physiology, Italian Physiological Society (SIF), Bertinoro, Italy, July 29-31, 2021.

- SIF YRP2022 Annual Meeting of Young Researchers in Physiology, Italian Physiological Society (SIF), Bertinoro, Italy, June 13-15, 2022.

- SIF YRP2023 Annual Meeting of Young Researchers in Physiology, Italian Physiological Society (SIF), Bertinoro, Italy, June 21-23, 2023.

### Participation in scientific working groups

2018-2022: member of the task force on animal models of the Restless Legs Syndrome (RLS) of the International RLS Study Group (IRLSSG), with co-coordinator role from 2018 to 2020.

2022: World Sleep Forum - 6<sup>th</sup> Think Tank 2022 on Hypersomnolence and Excessive Daytime Sleepiness (EDS)

### **Invited lectures and talks**

2002: Department of Human and General Physiology, **Bologna, Italy**, seminar title (translated): “*Dynamics of cerebral perfusion parameters during sleep in newborn lambs*”.

2002: Cyclotron Research Centre, University of **Liege, Belgium**, seminar title: “*Spontaneous fluctuations in cerebral blood flow during sleep and wakefulness in newborn lambs*”.

2002: Seventh meeting of the Italian Sleep Research Society (SIRS), **Padova, Italy**, symposium talk, title (translated): “*Dynamics of cerebral perfusion parameters during sleep in newborn lambs*”.

2002: Twelfth meeting of the Italian Association of Sleep Medicine (AIMS), **Perugia, Italy**, symposium title (translated): “*Control of heart rhythm during sleep after acoustic stimulation*”.

2003: Ritchie Centre for Baby Health Research, Monash University, **Melbourne, Australia**, seminar title: “*Sleep-related changes in the regulation of cerebral blood flow in newborn lambs*”.

2003: Eight meeting of the Italian Sleep Research Society (SIRS), **Pisa, Italy**, symposium talk, title (translated): “*Regulation of brain glucose availability during active sleep*”.

2004: Ninth meeting of the Italian Sleep Research Society (SIRS), **Naples, Italy**, symposium talk, title (translated): “*Phasic events and discontinuities in the regulation of heart rhythm during sleep*”.

2006: Sixteenth meeting of the Italian Association of Sleep Medicine (AIMS), **Milan, Italy**, symposium talk, title (translated): “*Sleep changes the central integration of cardiovascular control*”.

2006: Second Institute of Human Physiology, University of **Milan, Italy**, lecture title (translated): “*Sleep changes the central integration of cardiovascular control*”.

2007: Department of Neurological Sciences, University of **Bologna, Italy**, seminar title (translated): “*Sleep changes the central integration of cardiovascular control*”.

2007: Fifth World Congress of the World Federation of Sleep Research and Sleep Medicine Societies (WFSRS), **Cairns, Australia**, symposium talk, title: “*Control of heart rhythm during sleep in physiology and cardiovascular disease*”.

2009: Academy of Sciences of the University of **Bologna, Italy**, conference title (translated): “*Sleep and the integration of cardiovascular control*”.

2009: Nineteenth meeting of the Italian Association of Sleep Medicine (AIMS), **Bologna, Italy**, symposium talk, title (translated): “*Sleep and cardiovascular functional genomics in animal models of human diseases*”.

2010: Department of Neurological Sciences, University of **Bologna, Italy**, seminar title (translated): *Sleep and cardiovascular functional genomics in mouse models of human diseases*”.

2010: Fifteenth meeting of the Italian Sleep Research Society (SIRS), **Rome, Italy**, symposium talk, title (translated): “*Present and future of basic sleep research*”.

2011: INSERM U628, University Claude Bernard, **Lyon, France**, seminar title: “*Sleep-dependent cardiovascular control in mouse models of obesity and narcolepsy*”.

2011: Twenty-first meeting of the Italian Association of Sleep Medicine (AIMS), **Pavia, Italy**, symposium talk, title (translated): “*Cardiovascular control during sleep in mouse models of narcolepsy*”.

2012: Third meeting of the European Narcolepsy Network (Eu-NN) and European Narcolepsy Day, **Bologna, Italy**, lecture title: “*Cardiovascular function in experimental and human narcolepsy*”.

2012: Twenty-second meeting of the Italian Association of Sleep Medicine (AIMS), **Parma, Italy**, symposium talk, title (translated): “*Sleep and autonomic functions: an experimental genetic approach to integrative pathophysiology*”.

2012: Sleep and Epilepsy center, Neurocenter of Southern Switzerland, **Lugano, Switzerland**, seminar title: “*Sleep and the integration of cardiovascular control*”.

2013: DSI European Telemetry User Group Meeting, **Berlin, Germany**, lecture title: “*Telemetry and cardiorespiratory phenotyping during sleep and wakefulness in mice*”.

2013: Institute of Molecular Medicine, University of **Lisbon, Portugal**, seminar title: “*Central autonomic control of cardiovascular function during sleep*”.

2013: Astrid Lingren Childrens’ Hospital, Karolinska Institutet, **Stockholm, Sweden**, seminar title: “*Autonomic manifestations in pediatric narcolepsy: open questions*”.

2013: Molecular Sleep Laboratory, Glostrup University Hospital, Glostrup, **Copenhagen, Denmark**, seminar title: “*Central control of cardiorespiratory function during sleep*”.

2013: Twenty-third meeting of the Italian Association of Sleep Medicine (AIMS), **Rome, Italy**, symposium talk, title (translated): “*Cardiovascular control during sleep in histamine-deficient knock-out mice*”.

2014: Sleep and Epilepsy center, Neurocenter of Southern Switzerland, **Lugano, Switzerland**, seminar title: “*The orexin-hypocretin system in physiology and disease*”.

2014: Fifth meeting of the European Narcolepsy Network (Eu-NN) and European Narcolepsy Day, **Copenhagen, Denmark**, lecture title: “*Sleep and cardiovascular studies in narcoleptic mice*”.

2014: INSERM U628, University Claude Bernard, **Lyon, France**, seminar title: “*Sleep and cardiorespiratory control in histamine-deficient mice*”.

2015: Université de Picardie Jules Verne, **Amiens, France**, seminar title: “*Central autonomic control of cardiovascular function during sleep*”

2015: Meeting of the Italian Association of Patients with Narcolepsy or Hypersomnia (AIN), **Bologna, Italy**, seminar title (translated); “*Animal models in narcolepsy research*”.

2015: ISAN2015 Meeting of the International Society of Autonomic Neuroscience (ISAN), **Stresa, Italy**, symposium talk, title: “*Orexin deficiency alters cardiovascular control during sleep: of mice and men*”.

2015: Twenty-fifth meeting of the Italian Association of Sleep Medicine (AIMS), **Cagliari, Italy**, symposium talk, title (translated): “*Analysis of muscle tone during REM sleep in human subjects, rats, and mice: toward translational models of RSWA e RBD*”.

2015: Scientific meeting entitled (translation) “*Diagnosis and multidisciplinary treatment of narcolepsy*”, IRCCS Bologna Institute of Neurological Sciences, **Bologna, Italy**, seminar title (translated): “*Animal models of narcolepsy*”.

2016: Twenty-sixth meeting of the Italian Association of Sleep Medicine (AIMS), **Bologna, Italy**, symposium talk, title (translated): “*Arterial pressure and molecular clocks: a physiological perspective on the cardiovascular risk associated with sleep disorders*”.

2016: Twenty-third congress of the European Sleep Research Society (ESRS2016), **Bologna, Italy**, round table talk, title: “*Central neural mechanisms of cardiovascular control during sleep: of mice and men*”.

2017: EFAS2017 Meeting of the European Federation of Autonomic Societies (EFAS), **Innsbruck, Austria**, lecture title: “*Narcolepsy: translational evidence*”.

2017: Hospital Clinic of **Barcelona, Spain**, seminar title: “*Mouse polysomnography for translational research on neurological disorders*”.

2017: Meeting of the Italian Association of Patients with Narcolepsy or Hypersomnia (AIN), **Bologna, Italy**, seminar title (translated): “*Validation of innovative approaches to the therapy of narcolepsy*”

2017: Twenty-seventh meeting of the Italian Association of Sleep Medicine (AIMS), **Bolzano, Italy**, symposium talk, title (translated): “*Narcolepsy with cataplexy, beyond orexins: a role for histamine transmission*”.

2017: Thirty-fourth meeting of the Italian Society for the study of Arterial Hypertension (SIIA), **Milan, Italy**, symposium talk, title (translated): “*Sleep deprivation and alterations of circadian rhythms*”.

2017: Sleep and Epilepsy center, Neurocenter of Southern Switzerland, **Lugano, Switzerland**, seminar title (translated): “*Physiology of the wake-sleep cycle*”.

2017: Scientific meeting entitled (translation) “*Diagnosis and multidisciplinary treatment of narcolepsy*”, IRCCS Bologna Institute of Neurological Sciences, **Bologna, Italy**, seminar title (translated): “*Animal models for novel therapies*”.

2018: Meeting of the Italian Association of Patients with Narcolepsy or Hypersomnia (AIN), **Bologna, Italy**, seminar title (translated): “*The search for novel therapies of narcolepsy based on etiology: an update*”

2018: Seventh International Symposium on Narcolepsy, **Beverly (MA), USA**: talk entitled: “*The link between narcolepsy and autonomic dysfunction: a translational perspective*”.

2018: 24th Congress of the European Sleep Research Society (ESRS2018), **Basel, Switzerland**: symposium talk: “*Autonomic background of multisystem oscillations: from humans to model organisms*”.

2018: Twenty-eighth meeting of the Italian Association of Sleep Medicine (AIMS), **Taormina, Italy**, symposium talk, title (translated): “*Chronobiology of sleep disorders: insights from basic research*”.

2018: Forty-ninth meeting of the Italian Neurological Society (SIN), **Rome, Italy**, symposium talk, title (translated): “*Physiological bases of the interaction between the sympathetic and cardiovascular systems*”.

2018: Scientific meeting entitled (translation) “*Diagnosis and multidisciplinary treatment of narcolepsy*”, IRCCS Bologna Institute of Neurological Sciences, **Bologna, Italy**, seminar title (translated): “*Novel therapeutic developments*”.

2019: FEPS2019, joint meeting of the Federation of European Physiological Societies (FEPS) and the Italian Physiological Society (SIF), **Bologna, Italy**, symposium talk, title: “*The hypocretin/orexin neurons as part of the central autonomic network: implications for cardiovascular control during wakefulness and sleep*”.

2019: Fiftieth meeting of the Italian Neurological Society (SIN), **Bologna, Italy**, symposium talk, title (translated): “*Circadian physiology*”.

2020: Thirtieth meeting of the Italian Association of Sleep Medicine (AIMS), **Web Conference**, symposium talk, title (translated): “*The histaminergic pathway in sleep medicine*”.

2020: Thirtieth meeting of the Italian Association of Sleep Medicine (AIMS), **Web Conference**, symposium talk, title (translated): “*Sleep and the seven pillars of ageing*”.

2020: Le Congrès du Sommeil 2020, meeting of the French Society for Sleep Medicine and Sleep Research (SFRMS), **Web Conference**, symposium talk, title (translated): “*Autonomic nervous system pathophysiology and dysregulation in sleep disorders: insights from animal models*”.

2020: Scientific meeting entitled (translation) “*Diagnosis and multidisciplinary treatment of narcolepsy*”, **Web Conference**, seminar title (translated): “*Animal models in narcolepsy research*”.

2021: SLEEP2021 meeting, **Web Conference**, symposium talk, title “*Brain control of movement from NREM to REM sleep: a translational perspective*”.

2021: 71<sup>st</sup> National Meeting of the Italian Society of Physiology (SIF), **Web Conference**, symposium talk, title “*Recent advances in cardiovascular and motor control during sleep: a translational perspective*”.

2021: Scientific meeting entitled (translation) “*Biomarkers for the diagnosis and therapy of central nervous system hypersomnias*”, Department of Biomedical and Neuromotor Sciences, University of Bologna, **Bologna, Italy**, seminar title (translated): “*Biomarkers*”.

2022: 31st meeting of the Italian Association of Sleep Medicine (AIMS), **Rome, Italy**, symposium talk, title “*Update on experimental data in narcolepsy*”.

2022: WorldSleep2022 Meeting of the World Sleep Society, **Rome, Italy**, symposium talk, title “*Cardiovascular function and dysfunction during sleep: a translational perspective*”.

2022: SSP/SSTS-SSSSC Joint Annual Conference 2022, Swiss Society for Sleep Research, Sleep Medicine and Chronobiology, **Luzern, Switzerland**, symposium talk, title “*Construct and face validity for animal model of RLS*”.

2022: 32nd meeting of the Italian Association of Sleep Medicine (AIMS), **Rimini, Italy**, symposium talk (translated): “*Orexin receptors: from physiology to clinics*”.

2022: 26th Congress of the European Sleep Research Society (ESRS2020), **Athens, Greece**: symposium talk: “*How can animal models accelerate RLS research?*”.

2022: 14<sup>th</sup> meeting of the European Narcolepsy Network (EU-NN), Bologna, symposium talk: “*A year in review – basic research*”.

### **Chair, scientific sessions**

2011: Sixteenth Annual Meeting of the Italian Sleep Research Society (SIRS), **l’Aquila, Italy**, session title “*Oral communications IP*” (translated).

2014: Fifth meeting of the European Narcolepsy Network (Eu-NN) and European Narcolepsy Day, **Copenhagen, Denmark**, session title “*Autonomic function, sleep regulation and narcolepsy*”.

2014: Sixteenth Meeting of the European Federation of Autonomic Societies (EFAS), **Malaga, Spain**, session title “*Sleep and the autonomic nervous system*”.

2014: Twenty-fourth Meeting of the Italian Association of Sleep Medicine (AIMS); **Pisa, Italy**, session title “*Oral communications*” (translated).

2016: Twenty-third Congress of the European Sleep Research Society (ESRS2016), **Bologna, Italy**, session title: “*Cardiovascular control during sleep: from basic research to clinical implications across the lifespan*”.

2017: Twenty-seventh Meeting of the Italian Association of Sleep Medicine (AIMS); **Bolzano, Italy**, session title “*Oral communications IP*” (translated).

2019: Twenty-ninth Meeting of the Italian Association of Sleep Medicine (AIMS); **Genova, Italy**, session titles “*Oral communications I*” and “*Sleep and Neurodegeneration*” (translated).

2020: 25th Congress of the European Sleep Research Society (ESRS2020), **Web Conference**, symposium title: “*Hypocretins/orexins and cardiovascular disease risk: narcolepsy type 1 and beyond*”.

2020: Virtual meeting of the European Restless Legs Syndrome Study Group (EURLSSG), **Web Conference**, session title: “*Anima models*”.

2021: 71<sup>st</sup> National Meeting of the Italian Society of Physiology (SIF), **Web Conference**, symposium title “*Sleep as a phenomenon of the integral organism: recent advances on an old theme*”.

2022: WorldSleep2022 Meeting of the World Sleep Society, **Rome**, symposium: “*Sleep disorders and cardiovascular dysfunction: beyond sleep-disordered breathing*”.

2022: WorldSleep2022 Meeting of the World Sleep Society, **Rome**, oral communication session “*Basic sleep research*”.

2022: 15th International RBD Study Group meeting, Ravenna, session on “*Basic Science*”.

2022: 32nd meeting of the Italian Association of Sleep Medicine (AIMS), **Rimini, Italy**, oral communications section of the neuroscience track.

### **Teacher in scientific courses and schools**

2012: Course title (translated) “*Application and limits of the study of heart rate variability*”, Italian Society of the Study of the Autonomic Nervous System (AINV), **Bologna, Italy**, lecture title (translated): “*Anatomic and physiological bases of heart rate variability*”.

2012: European Federation of Autonomic Societies (EFAS) School 2012, **Lisbon, Portugal**, lectures (2) entitled: “*Primer on cardiovascular control*” e “*Primer on sleep physiology*”.



2013: Seventeenth Sleep Medicine Course, Italian Association of Sleep Medicine (AIMS), **Bertinoro, Italy**, lecture title (translated): “*Cardiovascular autonomic control during sleep*”.

2014: European Federation of Autonomic Societies (EFAS) School 2014, **Malaga, Spain**, lecture title: “*Central autonomic control of cardiovascular function during sleep*”.

2014: Scientific meeting entitled (translation) “*Diagnosis and multidisciplinary treatment of narcolepsy*”, IRCCS Bologna Institute of Neurological Sciences, **Bologna, Italy**, tutor of workshop 1 on cardiovascular pathophysiology.

2015: Nineteenth Sleep Medicine Course, Italian Association of Sleep Medicine (AIMS), **Bertinoro, Italy**, lecture title (translated): “*Physiology of sleep and circadian rhythms*”.

2016: Twenty-seventh course entitled (translation) “*Ataxias in clinical rehabilitation*”, **Riccione, Italy**, lecture title (translated): “*Functional anatomy of balance and movement*”.

2017: Seventh Advanced Course entitled (translation) “*Up to date in respiratory disorders during sleep*”, Italian Association of Hospital Pneumologists (AIPO), **Forlì, Italy**, lecture title (translated): “*The regulation of ventilation during REM sleep and non-REM sleep*”.

2018: Twenty-second Sleep Medicine Course, Italian Association of Sleep Medicine (AIMS), **Bertinoro, Italy**, 3 lectures entitled (translation): “*Physiology and pathophysiology of cardiovascular control during sleep*”, “*Potential and limitations of noninvasive techniques for the assessment of cardiovascular control during sleep: a physiological perspective*”; “*DORAs (Dual Acting Orexin Receptor Antagonists) and new melatonin receptor agonists*”.

2018: Organization of the advanced course entitled (translation): “*Management of sleep disorders in patients with cardiovascular diseases*” within the Twenty-second Sleep Medicine Course, Italian Association of Sleep Medicine (AIMS), **Bertinoro, Italy**,

2019: Twenty-third Sleep Medicine Course, Italian Association of Sleep Medicine (AIMS), **Bertinoro, Italy**, 3 lectures entitled (translation): “*Regulation of circadian rhythms*”, “*Physiology of integrated cardiorespiratory control during sleep*”; “*Pathophysiology of chemoreflex responses to hypoxia mediated by carotid bodies in patients with sleep-disordered breathing*”.

2019: Organization of the advanced course entitled (translation): “*Management of sleep-related breathing disorders in patients with cardiovascular diseases*” within the Twenty-third Sleep Medicine Course, Italian Association of Sleep Medicine (AIMS), **Bertinoro, Italy**.

2019: Sleep Medicine Summer School, **Lugano, Switzerland**: member of the scientific committee and lecture on “*Sleep as a phenomenon of the integral organism*”.

2019: Course entitled “*Hypersomnias of central origin*” (translated), lecture entitled “*Narcolepsy, sleep fragmentation, and cardiovascular risk: the role of orexins*” (translated), University of **Parma, Italy**.

2020: Seminar on “*Animal models in sleep research*” (translated), University of **Cagliari, Italy**.

2021: Focus Course on “*Excessive Daytime Sleepiness (EDS)*” (translated), lecture entitled “*Physiological bases*” (translated), Italian Association of Sleep Medicine (AIMS), online webinar.

2021: Course on “*Insomnia between sleep medicine and psychiatry*” (translated), lecture entitled “*Sleep physiology*” (translated), Italian Association of Sleep Medicine (AIMS), online webinar.

2021: Course on “*Insomnia in childhood and adolescence*” (translated), lecture entitled “*Sleep functions and control mechanisms during development*” (translated), Italian Association of Sleep Medicine (AIMS), online webinar.

2021: Course on “*Sleep and Dementia*” (translated), Neurocenter of Southern Switzerland, Lugano, Switzerland, lecture entitled “*Anatomy and physiology of the glymphatic system*” (translated), online webinar.

2021: Course on “*Sleep disorders during childhood and adolescence*” (translated), lecture entitled “*Sleep regulatory mechanisms*” (translated), Italian Association of Sleep Medicine (AIMS), online webinar.

2022: Fourth Sleep Science Winter School, European Sleep Foundation, lecture entitled “*Animal models of RLS/PLMS*” (online webinar).

2022: Focus Course on “*Excessive Daytime Sleepiness (EDS)*” (translated), lecture entitled “*Physiological bases*” (translated), Italian Association of Sleep Medicine (AIMS), online webinar.

2022: Web Course “*All you need is sleep -insomnia web talk*”, lecture entitled (translated): “*Insomnia: comorbidity and impact on cardiovascular and mental health*”

From 2017: Member of the International Faculty of the Academy of Sleep and Consciousness ASC, University of Southern Switzerland and University of Bern, Switzerland.

2021-2022: Member of the Teaching Committee of the Sleep Medicine Course, Italian Association of Sleep Medicine (AIMS), Bertinoro, Italy.

### **Visiting scientist**

2001: Institut für Physiologie und Pathophysiologie, University of **Heidelberg, Germany** (c/o Prof. Wolfgang Kuschinsky).

2002: Cyclotron Research Centre, University of **Liege, Belgium** (c/o Prof. Pierre Maquet).

2003: Ritchie Centre for Baby Health Research, Monash University, **Melbourne, Australia** (c/o Prof. Adrian M. Walker).

2007: INSERM U652 Physiologie et Pharmacologie vasculaire et rénale, Medical School René Descartes, **Paris, France** (c/o Prof. Jean-Luc Elghozi).

2011 and 2014: INSERM U628 Physiologie intégrée du système d'éveil, University Claude Bernard, **Lyon, France** (c/o Dr. Karine Spiegel and Dr. Jian-Sheng Lin).

2013: Astrid Lingren Childrens' Hospital, Karolinska Institutet, **Stockholm, Sweden** (c/o Prof. Hugo Lagercrantz and Dr. Gary Cohen)

2014: Neurocenter of Southern Switzerland, **Lugano, Switzerland** (c/o Dr. Mauro Manconi)

2015: PériTox, Périnatalité et Risques Toxiques, UMR-I 01 Unité mixte INERIS, UFR de Médecine, University of Picardie Jules Verne, **Amiens, France** (c/o Prof. Véronique Bach)

### **International activities at the University of Bologna, Italy**

2011: Associate Fellow of the Institute of Advanced Studies (ISA) in association with the Visiting Fellowship of Prof. R Dampney (Dept. of Physiology, University of Sidney, Australia).

2013-2015: in charge of ERASMUS student exchanges with the University of Lisbon, Portugal.

2016-2021: Scientific Manager of the Framework Cooperation Agreement between the Department of Biomedical and Neuromotor Sciences of the University of Bologna and the Williams College, Williamstown, MA, USA.

2016-2021: Scientific Manager of the Framework Cooperation Agreement between the Department of Biomedical and Neuromotor Sciences of the University of Bologna and the Neurocenter of Southern Switzerland, Lugano, Switzerland.

2017: Scientific Project Head of the First Specific Agreement between the Department of Biomedical and Neuromotor Sciences of the University of Bologna and the Williams College, Williamstown, MA, USA.

2017-2021: Scientific Manager of the Second Specific Agreement between the Department of Biomedical and Neuromotor Sciences of the University of Bologna and the Williams College, Williamstown, MA, USA.

2017-2020: Scientific Project Head, Agreement between the Department of Biomedical and Neuromotor Sciences of the University of Bologna and the Institut d'Investigacions Biomèdiques August Pi i Sunyer, Barcelona, Spain.

2018-2020: project manager, project entitled (translated) “*Sleep, hibernation and metabolism: international cooperation for innovative teaching activities*” in collaboration between the Department of Biomedical and Neuromotor Sciences of the University of Bologna and the Williams College, Williamstown, MA, USA.

2019: Associate Fellow of the Institute of Advanced Studies (ISA) in association with the Visiting Fellowship of Prof. SJ Swoap (Williams College, Williamstown, MA, USA).

2021-2022: tutor of the study period abroad of the student Ms. Caterina Crisoliti, Master Degree in Medical Biotechnology, to perform research at the Helmholtz Zentrum München – Deutsches Forschungszentrum für Gesundheit und Umwelt, Munich (Germany), project “*Alterations of lipid droplets in a Drosophila model of mitochondrial membrane protein associated neurodegeneration*” (German supervisor: prof. A. Iuso).

From 2022: person in charge of the Erasmus+ exchange agreement between the Degree course in Medicine and Surgery of the University of Bologna, Ravenna Campus, and the University of Barcelona, Spain.

## **Publications**

### Research papers and reviews

- 1) Effects of acoustic stimulation on cardiovascular regulation during sleep. Silvani A, Bojic T, Cianci T, Franzini C, Lodi CA, Predieri S, Zoccoli G, Lenzi P. **Sleep** 2003;26:201-5.
- 2) Brain capillary perfusion in the spontaneously hypertensive rat during the wake-sleep cycle. Silvani A, Bojic T, Cianci T, Franzini C, Lenzi P, Lucchi ML, Zoccoli G. **Exp Brain Res** 2004;154:44-9.
- 3) Sleep-related changes in the regulation of cerebral blood flow in newborn lambs. Silvani A, Bojic T, Franzini C, Lenzi P, Walker AM, Grant DA, Wild J, Zoccoli G. **Sleep** 2004;27:36-41.
- 4) Sleep-dependent changes in the coupling between heart period and arterial pressure in newborn lambs. Silvani A, Asti V, Bojic T, Ferrari V, Franzini C, Lenzi P, Grant DA, Walker AM, Zoccoli G. **Pediatr Res** 2005;57:108-14.
- 5) Sleep-related brain activation does not increase the permeability of the blood-brain barrier to glucose. Silvani A, Asti V, Berteotti C, Bojic T, Cianci T, Ferrari V, Franzini C, Lenzi P, Zoccoli G. **J Cereb Blood Flow Metab** 2005;25:990-7.
- 6) Sleep-dependent changes in cerebral oxygen consumption in newborn lambs. Silvani A, Asti V, Berteotti C, Ferrari V, Franzini C, Lenzi P, Wild J, Grant DA, Walker AM, Zoccoli G. **J Sleep Res** 2006;15:206-11.
- 7) Central and baroreflex control of heart period during the wake-sleep cycle in spontaneously hypertensive rats. Berteotti C, Asti V, Ferrari V, Franzini C, Lenzi P, Zoccoli G, Silvani A. **Am J Physiol Regul Integr Comp Physiol** 2007;293:R293-8.
- 8) Surges of arterial pressure during rapid-eye-movement sleep in spontaneously hypertensive rats. Berteotti C, Franzini C, Lenzi P, Zoccoli G, Silvani A. **Sleep** 2008;31:111-7.
- 9) The baroreflex contribution to spontaneous heart rhythm assessed with a mathematical model in rats. Berteotti C, Franzini C, Lenzi P, Magosso E, Ursino M, Zoccoli G, Silvani A. **Auton Neurosci** 2008;138:24–30.
- 10) Sleep-dependent changes in the coupling between heart period and blood pressure in human subjects. Silvani A, Grimaldi D, Vandi S, Barletta G, Vetrugno R, Provini F, Pierangeli G, Berteotti C, Montagna P, Zoccoli G, Cortelli P. **Am J Physiol** 2008;294:R1686-92.
- 11) Physiological sleep-dependent changes in arterial blood pressure: central autonomic commands and baroreflex control. Silvani A. **Clin Exp Pharmacol Physiol** 2008;35:987-94.
- 12) Sleep modulates hypertension in leptin-deficient obese mice. Silvani A, Bastianini S, Berteotti C, Franzini C, Lenzi P, Lo Martire V, Zoccoli G. **Hypertension** 2009;53:251-5.
- 13) Dysregulation of heart rhythm during sleep in leptin-deficient obese mice. Silvani A, Bastianini S, Berteotti C, Franzini C, Lenzi P, Lo Martire V, Zoccoli G. **Sleep**, 2010;33:355-61.
- 14) Central and baroreflex control of heart period during the wake-sleep cycle in consomic rats with different genetic susceptibility to hypertension. Silvani A, Bastianini S, Berteotti C, Franzini C, Lenzi P, Lo Martire V, Zoccoli G. **Clin Exp Pharmacol Physiol** 2010;37:322-7.

- 15) Sleep-related changes in blood pressure in hypocretin-deficient narcoleptic mice. Bastianini S\*, [Silvani A\\*](#), Berteotti C, Elghozi JL, Franzini C, Lenzi P, Lo Martire V, Zoccoli G. (\*, *these authors contributed equally to this work*). **Sleep**, 2011;34:213-8.
- 16) Mathematical modeling of cardiovascular coupling: central autonomic commands and baroreflex control. [Silvani A](#), Magosso E, Bastianini S, Lenzi P, Ursino M. **Auton Neurosci** 2011;162:66-71.
- 17) High-amplitude theta wave bursts during REM sleep and cataplexy in hypocretin-deficient narcoleptic mice. Bastianini S\*, [Silvani A\\*](#), Berteotti C, Lo Martire V, Zoccoli G. (\*, *these authors contributed equally to this work*) **J Sleep Res**, 2012;21:185-18.
- 18) Mice show circadian rhythms of blood pressure during each wake-sleep state. Bastianini S\*, [Silvani A\\*](#), Berteotti C, Lo Martire V, Zoccoli G. (\*, *these authors contributed equally to this work*) **Chronobiol Int**, 2012;29:82-86.
- 19) Control of cardiovascular variability during undisturbed wake-sleep behavior in hypocretin-deficient mice. [Silvani A](#), Bastianini S, Berteotti C, Lo Martire V, Zoccoli G. **Am J Physiol Regul Integr Comp Physiol** 2012;302:R958-64.
- 20) Effects of ambient temperature on sleep and cardiovascular regulation in mice: the role of hypocretin neurons. Lo Martire V\*, [Silvani A\\*](#), Bastianini S, Berteotti C, Zoccoli G. (\*, *these authors contributed equally to this work*). **PLoS ONE**, 2012;7:e47032
- 21) Cardiovascular variability as a function of the wake-sleep behavior in narcolepsy with cataplexy. [Silvani A\\*](#), Grimaldi D\*, Barletta G, Bastianini S, Vandi S, Pierangeli G, Plazzi G, Cortelli P. (\*, *these authors contributed equally to this work*) **J Sleep Res**, 2013;22:178-84.
- 22) Central control of cardiovascular function during sleep. [Silvani A](#), Dampney RAL. **Am J Physiol Heart Circ Physiol** 2013;305:H1683-92.
- 23) Sleep and cardiovascular phenotype in middle-aged hypocretin-deficient narcoleptic mice. [Silvani A](#), Bastianini S, Berteotti C, Cenacchi G, Leone O, Lo Martire V, Papa V, Zoccoli, G. **J Sleep Res**, 2014; 23: 98-106.
- 24) Orexin/hypocretin system and autonomic control: new insights and clinical correlations. Grimaldi D\*, [Silvani A\\*](#), Benarroch E, Cortelli P. (\*, *these authors contributed equally to this work*). **Neurology**, 2014; 82: 271-278.
- 25) A critical role of hypocretin deficiency in pregnancy. Bastianini S, Berteotti C, Lo Martire V, [Silvani A](#), Zoccoli, G. **J Sleep Res**, 2014; 23: 186-188.
- 26) Multiple sleep alterations in mice lacking cannabinoid type 1 receptors. [Silvani A\\*](#), Berteotti C\*, Bastianini S, Lo Martire V, Mazza R, Pagotto U, Quarta C, Zoccoli G. (\*, *these authors contributed equally to this work*) **PLoS ONE**, 2014; 9: e89432.
- 27) Cardiorespiratory anomalies in mice lacking CB1 cannabinoid receptors. [Silvani A\\*](#), Berteotti C\*, Bastianini S, Cohen G, Lo Martire V, Mazza R, Pagotto U, Quarta C, Zoccoli G. (\*, *these authors contributed equally to this work*). **PLoS ONE**, 2014; 9: e100536.
- 28) The low frequency power of heart rate variability is neither a measure of cardiac sympathetic tone nor of baroreflex sensitivity. Martelli D\*, [Silvani A\\*](#), McAllen RM, May CN, Ramchandra R. (\*, *these authors contributed equally to this work*). **Am J Physiol Heart Circ Physiol** 2014;307:H1005-H1012.
- 29) SCOPRISM: a new algorithm for automatic sleep scoring in mice. Bastianini S, Berteotti C, Gabrielli A, Del Vecchio F, Amici R, Alexandre C, Scammell TE, Gazea M, Kimura M, Lo Martire V, [Silvani A](#), Zoccoli G. **J Neurosci Meth**, 2014; 235:277-284.
- 30) Sleep and bodily functions: the physiological interplay between body homeostasis and sleep homeostasis. Amici R, Bastianini S, Berteotti C, Cerri M, Del Vecchio F, Lo Martire V, Luppi M, Perez E, [Silvani A](#), Zamboni G, Zoccoli G. **Arch Ital Biol**, 2014; 152:66-78.
- 31) Bidirectional interactions between the baroreceptor reflex and arousal: an update. [Silvani A](#), Calandra-Buonaura G, Benarroch EE, Dampney RAL, Cortelli P. **Sleep Med**, 2015;16:210-216.

- 32) Histamine transmission modulates the phenotype of murine narcolepsy caused by orexin neuron deficiency. Bastianini S\*, [Silvani A\\*](#), Berteotti C; Lo Martire V; Cohen G, Ohtsu H, Lin J-S, Zoccoli G. (\*, *these authors contributed equally to this work*). **PLoS ONE**, 2015;10:e0140520.
- 33) Physiological time structure of the tibialis anterior motor activity during sleep in mice, rats, and humans. [Silvani A](#), Lo Martire V, Salvadè A, Bastianini S, Ferri R, Berteotti C, Baracchi F, Pace M, Bassetti CL, Zoccoli G, Manconi M. **J Sleep Res**, 2015;24:695-701.
- 34) Recent developments of automatic scoring of rodent sleep. Bastianini S, Berteotti C, Gabrielli A, Lo Martire V, [Silvani A](#), Zoccoli G. **Arch Ital Biol**, 2015;153:58-66.
- 35) High amplitude theta wave bursts: a novel electroencephalographic feature of rem sleep and cataplexy. Lo Martire V, Bastianini S, Berteotti C, [Silvani A](#), Zoccoli G. **Arch Ital Biol**, 2015;153:77-86.
- 36) Brain-heart interactions: physiology and clinical implications. [Silvani A](#), Calandra-Buonaura G, Dampney RAL, Cortelli P. **Philos Trans Royal Soc A**, 2016;374:20150181.
- 37) High-amplitude theta wave bursts characterizing narcoleptic mice and patients are also produced by histamine deficiency in mice. Bastianini S, Lo Martire V, Berteotti C, [Silvani A](#), Ohtsu H, Lin, J-S, Zoccoli G. **J Sleep Res**, 2016;25:591-595.
- 38) Accurate discrimination of the wake-sleep states of mice using non-invasive whole-body plethysmography. Bastianini S, Alvente S, Berteotti C, Lo Martire V, [Silvani A](#), Swoap SJ, Valli A, Zoccoli G, Cohen G. **Sci Rep**, 2017;7:41698. doi: 10.1038/srep41698.
- 39) Physiological mechanisms mediating the coupling between heart period and arterial pressure in response to postural changes in humans. [Silvani A](#), Calandra-Buonaura G, Johnson BD, van Helmond N, Barletta G, Cecere AG, Joyner MJ, and Cortelli P. **Front Physiol**, 2017;8:163. doi: 10.3389/fphys.2017.00163.
- 40) Orexins and the cardiovascular events of awakening. [Silvani A](#). **Temperature**, 2017; 4: 128-140. doi: 10.1080/23328940.2017.1295128.
- 41) Sequence analysis of leg movements during sleep with different intervals (<10 s, 10-90 s, and >90 s) in restless legs syndrome. Ferri R, Rundo F, [Silvani A](#), Zucconi M, Aricò D, Bruni O, Cosentino II, Ferini-Strambi L, Manconi M. **J Sleep Res**, 2017; 26: 436-443.
- 42) CDKL5 deficiency entails sleep apneas in mice. Lo Martire V, Alvente S, Bastianini S, Berteotti C, [Silvani A](#), Viggiano R, Ciani E, Zoccoli G. **J Sleep Res**, 2017;26:495-497.
- 43) Short-interval leg movements during sleep entail greater cardiac activation than PLMS in RLS patients. Ferri R, Rundo F, [Silvani A](#), Zucconi M, Aricò D, Bruni O, Lanuzza B, Ferini-Strambi L, Manconi M. **J Sleep Res**, 2017;26:602-605.
- 44) Muscle activity during sleep in human subjects, rats, and mice: towards translational models of REM sleep without atonia. [Silvani A](#), Ferri R, Lo Martire V, Bastianini S, Berteotti C, Salvadè A, Plazzi G, Zucconi M, Ferini-Strambi L, Bassetti CL, Manconi M, Zoccoli G. **Sleep**, 2017;40:doi: 10.1093/sleep/zsx029.
- 45) REM sleep EEG instability in REM sleep behavior disorder and clonazepam effects. Ferri R, Rundo F, [Silvani A](#), Zucconi M, Bruni O, Ferini-Strambi L, Plazzi G, Manconi M. **Sleep**, 2017;40:doi: 10.1093/sleep/zsx080.
- 46) Modulation of sympathetic vasoconstriction is critical for the effects of sleep on arterial pressure in mice. Lo Martire V\*, [Silvani A\\*](#), Alvente S, Bastianini S, Berteotti C, Valli A, Zoccoli G. **J Physiol**, 2018;596:591-608. (\*, *these authors contributed equally to this work*)
- 47) Mice overexpressing lamin B1 in oligodendrocytes recapitulate the age-dependent motor signs, but not the early autonomic cardiovascular dysfunction of autosomal-dominant leukodystrophy (ADLD). Lo Martire V, Alvente S, Bastianini S, Berteotti C, Bombardi C, Calandra-Buonaura G, Capellari S, Cohen G, Cortelli P, Gasparini L, Padiath QS, Valli A, Zoccoli G, [Silvani A](#). **Exp Neurol**, 2018;301(Pt A):1-12.

- 48) The link between narcolepsy and autonomic cardiovascular dysfunction: a translational perspective. Berteotti C, Silvani A. **Clin Auton Res**, 2018;28:545-555.
- 49) Long-term cardiovascular re-programming by short-term perinatal exposure to nicotine's main metabolite cotinine. Bastianini S, Lo Martire V, Silvani A, Zoccoli G, Berteotti C, Lagercrantz H, Arner A, Cohen G. **Acta Paediatr**, 2018; 107(4): 638-646. doi: 10.1111/apa.14181.
- 50) Data-driven approaches to define the upper limit of the inter-movement interval of periodic leg movements during sleep. Ferri R\*, Silvani A\*, Rundo F, Zucconi M, Aricò D, Bruni O, Ferini-Strambi O, Manconi M. **Sleep**, 2018; 43(1). doi: 10.1093/sleep/zsy008. (\*, these authors contributed equally to this work)
- 51) Is adenosine action common ground for NREM sleep and torpor? Silvani A, Cerri M, Zoccoli G, Swoap SJ. **Physiology**, 2018; 33(3): 182-196.
- 52) Dynamic coupling between the central and autonomic nervous systems during sleep: a review. De Zambotti M, Trinder J, Silvani A, Colrain I, Baker FC. **Neurosci Biobehav Rev**, 2018;90:84-103.
- 53) Clinical implications of basic research; the role of orexin neurons in the central autonomic network. Bastianini S, Silvani A. **Clin and Translational Neuroscience**, 2018;July-December:1-11. DOI 10.1177/2514183X18789327
- 54) Changes in blood glucose as a function of body temperature in laboratory mice: implications for daily torpor. Lo Martire V, Valli A, Bingaman M, Zoccoli G, Silvani A, Swoap S. **Am J Physiol Endocr Metab**, 2018;315:E662-E670.
- 55) Sleep and tibialis anterior muscle activity in mice with mild hypoxia and iron deficiency: implications for the restless legs syndrome. Lo Martire V, Alvente S, Bastianini S, Berteotti C, Valli A, Manconi M, Zoccoli G, Silvani A. **Front Physiol**, 2018;9:1818. doi: 10.3389/fphys.2018.01818.
- 56) Post-sigh apneas in mice: systematic review and data-driven definition. Bastianini S, Alvente S, Berteotti C, Bosi M, Lo Martire V, Silvani A, Valli A, Zoccoli G. **J Sleep Res**, 2019 Dec;28(6):e12845. doi: 10.1111/jsr.12845.
- 57) Sleep disorders, nocturnal blood pressure, and cardiovascular risk: a translational perspective. Silvani A. **Auton Neurosci**, 2019;218:31-42.
- 58) Cardiovascular autonomic dysfunction, altered sleep architecture, and muscle overactivity during nocturnal sleep in pediatric patients with narcolepsy type 1. Vandi S, Rodolfi S, Pizza F, Moresco M, Antelmi E, Ferri R, Mignot E, Plazzi G, Silvani A. **Sleep**, 2019;Jul 29. pii: zsz169. doi: 10.1093/sleep/zsz169.
- 59) Peculiar lifespan changes of periodic leg movements during sleep in restless legs syndrome. Ferri R, Del Rosso LM, Silvani A, Cosentino FII, Picchietti DL, Mogavero P, Manconi M, Bruni O. **J Sleep Res**, 2020 Jun;29(3):e12896. doi: 10.1111/jsr.12896.
- 60) The physiological signature of daily torpor is not orexin-dependent. Lo Martire V, Berteotti C, Bastianini S, Alvente S, Valli A, Cerri M, Amici R, Silvani A, Swoap SJ, Zoccoli G. **J Comp Physiol B**, 2020 Jul;190(4):493-507. doi: 10.1007/s00360-020-01281-6.
- 61) Effect of ambient temperature on sleep breathing phenotype in mice: the role of orexins. Berteotti C, Lo Martire V, Alvente S, Bastianini S, Matteoli G, Silvani A, Zoccoli G. **J Exp Biol**, 2020 Jun 30;223(Pt 13):jeb219485. doi: 10.1242/jeb.219485.
- 62) Treating sleep disorders to improve blood pressure control and cardiovascular prevention: a dream come true? - a narrative review. Maiolino G, Bisogni V, Silvani A, Pengo MF, Lombardi C, Parati G. **J Thor Dis** 2020;12 (Suppl 2): S225-S234. doi: 10.21037/jtd-cus-2020-014.
- 63) Combining information on nocturnal REM sleep latency and atonia to facilitate diagnosis of pediatric narcolepsy type 1. Silvani A\*, Vandi S\*, Pizza F, Antelmi E, Ferri R, Plazzi G. **Sleep** 2020 Oct 9;zsaa203. doi: 10.1093/sleep/zsaa203. (\*, these authors contributed equally to this work)
- 64) Consensus guidelines on rodent models of restless legs syndrome. Salminen AV\*, Silvani A\*, Allen RP, Clemens S, Garcia-Borreguero D, Ghorayeb I, Ferré S, Li Y, Ondo W, Picchietti DL, Rye D, Siegel JM, Winkelmann JW, Manconi M, on behalf of the International Restless Legs Syndrome Study Group (IRLSSG). **Mov Disord** 2021;36:558-569. (\*, these authors contributed equally to this work)

- 65) Cardiovascular disorders in narcolepsy: review of associations and determinants. Jennum PJ, Plazzi G, [Silvani A](#), Surkin LA, Dauvilliers Y. **Sleep Med Rev** 2021 Jan 23;58:101440. doi: 10.1016/j.smrv.2021.101440.
- 66) Tibialis anterior electromyographic bursts during sleep in histamine-deficient mice. Berteotti C, Lo Martire V, Alvente S, Bastianini S, Matteoli G, Ohtsu H, Lin, J-S, [Silvani A](#), Zoccoli G. **J Sleep Res** 2021;30:e13255. doi: 10.1111/jsr.13255.
- 67) Autonomic mechanisms of blood pressure alterations during sleep in orexin/hypocretin-deficient narcoleptic mice. Alvente S, Berteotti C, Bastianini S, Lo Martire V, Matteoli G, [Silvani A](#), Zoccoli G. **Sleep** 2021;44(7):zsab022.doi: 10.1093/sleep/zsab022.
- 68) An Internet of Medical Things system to increase continuous positive airway pressure usage in patients with sleep disordered breathing. Croatti A, Montagna S, Lombardi C, Parati G, Pengo MF, [Silvani A](#). **SN Computer Science** 2021;2:117. doi: 10.1007/s42979-021-00522-x.
- 69) Heart rate changes characterizing the different types of movements during sleep in children, adolescents and adults with restless legs syndrome. Ferri R, Silvani A, Mogavero MP, Rundo F, Bruni O, Picchiotti DL, Del Rosso LM. **J Sleep Res**, 2021 May 6;e13379. doi: 10.1111/jsr.13379.
- 70) Effects of insomnia and restless legs syndrome on sleep arterial blood pressure: a systematic review and meta-analysis. Maiolino G, Bisogni V, Soranna D, Pengo MF, Pucci G, Vettor R, Fava C, Colussi GL, Bilo G, Lombardi C, Parati G, Rossi GP, Silvani A, on behalf of the sleep disorders working group of the Italian Society of Hypertension. **Sleep Med Rev**, 2021 Apr 30;59:101497. doi: 10.1016/j.smrv.2021.101497.
- 71) Orexin-hypocretin and histamine cross-talk on hypothalamic neuron counts in mice. Berteotti C, Lo Martire V, Alvente S, Bastianini S, Bombardi C, Matteoli G, Ohtsu H, Lin J-S, [Silvani A](#), Zoccoli G. **Front Neurosci**, 2021 May 20;15:660518. doi: 10.3389/fnins.2021.660518.
- 72) Focus on the complex interconnection between cancer, narcolepsy and other neurodegenerative diseases: a possible case of orexin-dependent inverse comorbidity. Mogavero MP\*, [Silvani A\\*](#), Del Rosso LM, Salemi M, Ferri R. (\*: joint first authors). **Cancers**, 2021 May 26;13(11):2612. doi: 10.3390/cancers13112612.
- 73) Obstructive sleep apneas naturally occur in mice during REM sleep and are highly prevalent in a mouse model of Down syndrome. Bartolucci ML, Berteotti C, Alvente A, Bastianini S, Guidi S, Lo Martire V, Matteoli G, [Silvani A](#), Stagni F, Bosi M, Alessandri-Bonetti G, Bartesaghi R, Zoccoli G. **Neurobiol Dis**, 2021 Nov;159:105508. doi: 10.1016/j.nbd.2021.105508.
- 74) Pre-sleep arousal and sleep quality during the COVID-19 lockdown in Italy. Gorgoni M, Scarpelli S, Mangiaruga A, Alfonsi V, Bonsignore MR, Fanfulla F, Ferini-Strambi L, Nobili L, Plazzi G, De Gennaro L, Arnaldi D, Bonanni E, Bonetti GA, Castronovo C, Maestri M, Garbarino S, Guarneri B, Manni R, Palagini L, Puligheddu M, Ferri R, [Silvani A](#), Vicini C. **Sleep Med** 2021 Oct 16;88:46-57. doi: 10.1016/j.sleep.2021.10.006.
- 75) Early-life nicotine or cotinine exposure produces long-lasting sleep alterations and downregulation of hippocampal corticosteroid receptors in adult mice. Bastianini S, Lo Martire V, Alvente S, Berteotti C, Matteoli G, Rullo L, Stamatakos S, [Silvani A](#), Candeletti S, Romualdi P, Cohen G, Zoccoli G. **Sci Rep** 2021 Dec 13;11(1):23897. doi: 10.1038/s41598-021-03468-5.
- 76) Pilot study of the effects of chronic intracerebroventricular in-fusion of human anti-IgLON5 disease antibodies in mice. Alvente S, Matteoli G, Molina-Porcel L, Landa J, Alba M, Bastianini S, Berteotti C, Graus F, Lo Martire V, Sabater L, Zoccoli G and [Silvani A](#). **Cells** 2022 Mar 17;11(6):1024. doi: 10.3390/cells11061024
- 77) Consensus guidelines on the construct validity of rodent models of restless legs syndrome. Salminen AV, Clemens S, Garcia-Borreguero D, Ghorayeb I, Li Y, Manconi M, Ondo W, Rye D, Siegel JM, [Silvani A](#), Winkelman JW, Allen R, and Ferre S. **Dis Mod Mech**, 2022 Aug 1;15(8):dmm049615.
- 78) Pervasive and diffuse muscle activity during REM sleep and non-REM sleep characterizes multiple system atrophy in comparison to Parkinson's disease. [Silvani A\\*](#), Baldelli L\*, Giannini G, Guaraldi P, Sambati L, Cecere A, Mignani F, Cortelli P, Calandra-Buonaura G, Provini F. (\*: joint first authors). **J Sleep Res**, 2022 Aug 31;e13721.

### Editorials

- 1) Exploration of autonomic activity in narcolepsy: the riddle remains unsolved. Silvani A. **Clin Neurophysiol**, 2019;130:406-407. doi: 10.1016/j.clinph.2018.12.004.
- 2) Autonomic nervous system dysfunction in narcolepsy type 1: time to move forward to the next level? Silvani A. **Clin Auton Res**, 2020 Dec;30(6):501-502. doi: 10.1007/s10286-020-00742-w.
- 3) Editorial: The integrative physiology of metabolic downstates. Silvani A. **Front Physiol**, 2021 Sep 13;12:758972. doi: 10.3389/fphys.2021.758972

### Letters and commentaries

- 1) Treating hypertension by targeting orexin receptors: potential effects on the sleep-related blood pressure dipping profile. Silvani A, Bastianini S, Berteotti C, Lo Martire V, Zoccoli, G. **J Physiol**, 2013;591:6115-6.
- 2) Reply to letter to the editor: Does low-frequency power of heart rate variability correlate with cardiac sympathetic tone in normal sheep? Martelli D\*, Silvani A\*, McAllen RM, May CN, Ramchandra R. (\*, *these authors contributed equally to this work*). **Am J Physiol** 2014;308:H148-H149.
- 3) Commentary: Coordinated infra-slow neural and cardiac oscillations mark fragility and offline periods in mammalian sleep. Manconi M, Silvani A, Ferri R. **Front Physiol** 2017;8:847.
- 4) Letter to the editor: The iron-deficient rat as a model of Restless Legs Syndrome: was anything lost in translation? Silvani A, Manconi M, Ferri R. **Mov Disord**, 2018;33:181.

### Book chapters

- 1) Reflex cardiovascular control in sleep. Silvani A, Lenzi P. In: **The physiologic nature of sleep** (Parmeggiani PL and Velluti R, editors), Imperial College Press, 2005. ISBN 1-86094-557-0. Pages 323-349.
- 2) The hypothalamus and its functions. Zoccoli G, Amici R, Silvani A. In: **Narcolepsy: pathophysiology, diagnosis, and treatment** (Baumann CR, Bassetti CL, Scammell TE, editors), Springer, 2011. ISBN 978-1-4419-8390-9. Pages 191-203.
- 3) Sleep and the peripheral vascular system. Zoccoli G, Silvani A, Franzini C. In: **Encyclopedia of sleep** (Kushida C et al., editors), Elsevier, 2013. ISBN 9780123786104. Pages 563-567. Republished by the Editor in: Reference Module in Neuroscience and Biobehavioral Psychology, Elsevier, 2017. ISBN 9780128093245. Updated second edition accepted for publication on November 16, 2021.
- 4) An overview of sleep physiology and sleep regulation. Berteotti C, Cerri M, Luppi M, Silvani A, Amici R. In: **Drug treatment of sleep disorders** (Guglietta A, editor), Springer, 2015. ISBN 978-3-319-11514-6. Pages 3-23.
- 5) The hypothalamus. Silvani A, Zoccoli G. In: **The Sage Encyclopedia of Abnormal and Clinical Psychology** (Wenzel A, editor), Sage, 2017. ISBN 9781483365831. Pages 1733-1735.
- 6) The sympathetic nervous system. Silvani A, Zoccoli G. In: **The Sage Encyclopedia of Abnormal and Clinical Psychology** (Wenzel A, editor), Sage, 2017. ISBN 9781483365831. Pages 3460-3463.
- 7) The parasympathetic nervous system. Silvani A, Zoccoli G. In: **The Sage Encyclopedia of Abnormal and Clinical Psychology** (Wenzel A, editor), Sage, 2017. ISBN 9781483365831. Pages 2468-2470.
- 8) Night, darkness, sleep, and cardiovascular activity. Silvani A. In: **Brain and Heart Dynamics** (Govoni S, Politi P, Vanoli E, editors), Springer, 2019. ISBN 978-3-319-90305-7. Pages 1-14.
- 9) Brain-heart interaction: cardiovascular reflexes. Silvani A. In: **Autonomic Nervous System and Sleep** (Chokroverty S and Cortelli P, editors), Springer. ), Springer, 2021. ISBN 978-3-319-90305-7, doi 10.1007/978-3-030-62263-3\_6, pages 51-62.

### Abstracts



First author or co-author of more than **120** abstracts presented at scientific meetings and published on conference proceedings or scientific journal supplements.

Scientific translations:

Italian translation of 23 chapters from University textbooks of physiology in English (Physiology: an integrated approach, Silverthorn DU; Ganong Review of Medical Physiology; Boron Medical Physiology)

## **Summary of teaching and supervision activity**

University of Bologna, Italy

Since 2002, in different years, responsibility of University teaching courses of Physiology, Applied Cardiovascular Physiology, Sleep Physiology, Neurophysiology, Chronobiology, and Experimental Scientific Methodology for students in Bioengineering, Medical Biotechnology, Physiotherapy, Radiology, Laboratory Biology, and Medicine and Surgery, for residents in Neurology and Psychiatry, and in master courses in Sleep Medicine, Sleep Dentistry, and Physical Therapy.

Member of the scientific committees of the Master Courses in Sleep Medicine (from 2018) and Sleep Dentistry (from 2019).

Supervision of 27 bachelor and master theses in Physiology (in 8 cases, shared supervision) and of 1 PhD thesis in Applied Physiology and Pathophysiology.

Contribution to training of 10 PhD students.

Supervision of 8 post-doctoral research fellowships.

Neurocenter of Southern Switzerland, Lugano, Switzerland

2016-17: visiting professorship of Neurophysiology

University of Southern Switzerland, Lugano, Switzerland, and University of Bern, Switzerland

2017-18: member of the operational committee for postgraduate advanced courses on sleep, consciousness, and related disorders

2019: supervisor of CAS (certificate of advanced studies), Academy of Sleep and Consciousness, title «Central sleep apnea and stroke », student Dr. Katja Pavšič.

## **Summary of management and administration activity**

University of Bologna, Italy

2015-2018: member of the executive committee of the Department of Biomedical and Neuromotor Sciences

2015-2018: member of the executive committee of the School of Medicine and Surgery

From 2020: vice-coordinator, Degree in Medicine and Surgery, Ravenna Campus

From 2020: chair of the quality assurance committee, Degree in Medicine and Surgery, Ravenna Campus

2021: member of the quality assurance committee, Master Degree in Medical Biotechnology

From 2022: vice-chair of the joint committee for student transfer processes, degree courses in Medicine and Surgery of Bologna, the Ravenna Campus, and the Forlì Campus.