

# Curriculum Vitae et Studiorum

## Federico Del Gallo, Ph.D.

### **PERSONAL DETAILS**

Nationality: Italian

Date of birth: January 26<sup>th</sup>, 1986

Gender: Male

### **CONTACT INFORMATION**

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### **SPOKEN LANGUAGES**

- **Italian:** Mother tongue
- **English:** Good
- **French:** Beginner

### **ACADEMIC POSITIONS**

- **October 2018 - present:** Post-doc position at Department of Neuroscience, Biomedicine and Movement Sciences, University of Verona, Italy.
- **August 2018 - September 2018:** Visiting scientist at the Mediterranean Institute of Neurobiology(INMED), INSERM U901, Marseille, France.
- **October 2016 - October 2018:** Post-doc position at Department of Surgery, Dentistry, Pediatrics and Gynecology, University of Verona, Italy.
- **June 2017 - July 2017:** Visiting scientist at the Mediterranean Institute of Neurobiology (INMED), INSERM U901, Marseille, France.
- **October 2015 - September 2016:** Post-doc position at Department of Neuroscience, Biomedicine and Movement Sciences, University of Verona, Italy.
- **May 2015 - September 2015:** Scholarship holder at the Department of Neurological and Movement Sciences, University of Verona, Italy.
- **January 2009 - January 2010:** Research Assistant at Department of Health Sciences, University of Milan, Italy.
- **September 2009 - September 2010:** Research Assistant at the Department of General Psychology University of Padua, Italy.

### **EDUCATION**

- **February 2014:** **Ph.D in Physiology** at the Department of Health Sciences, University of Milan, Italy. [Thesis: “*Sleep and Neurodegenerative Disorders in Animal Models*”];

- **January 2011:** Admitted to the Ph.D. program in Physiology at University of Milan with a full fellowship, under mentoring of Prof. Imeri L., MD;
- **October 2010:** Master's degree summa cum laude in Experimental Psychology and Cognitive Science at University of Padua, Italy. [Thesis: "*Prion Protein and Sleep: an experimental study in transgenic mouse*"];
- **September 2008:** Bachelor's degree summa cum laude in Cognitive Psychology and Psychobiology at University of Padua, Italy. [Thesis: "*Are chicks logical? Transitive inference in domestic chicks (Gallus Gallus)*"].

## **COURSES AND SCHOOLS**

- **October 2017:** Admitted to the 1<sup>st</sup> Sleep Science School "Neural Network in Sleep", European Sleep Science Research Society (ESRS), Frejus, France.
- **October 2016:** Workshop on "Deep electrode recordings on head-restrained rodents" at INMED, INSERM, Marseille, France.
- **May 2016:** Course on the 3R's application on animal research.
- **April 2016:** Training course on general topics concerning health and safety in workplaces.
- **March 2016:** Course on the management of the Laboratory Safety, University of Verona, Italy.
- **November 2014:** Course on animal testing and care at the Interdepartmental Centre of Experimental Research, University of Verona, Italy.
- **September 2014:** Health and Prevention Service course at University of Verona: "Role of collective protection devices in medical and biological laboratory".
- **March 2013:** Basics and applications of histological and immunofluorescent staining on cells.
- **May 2011:** course on science journalism organized by the National Union of Scientific Medical Information (UNAMSI);
- **November 2010:** Opening course on animal testing at "Mario Negri" Institute for Pharmacological Research (IRFMN), Milan.

## **TECHNICAL SKILLS AND COMPETENCES**

### Laboratory Animal Handling

- Extensive background on rodents (mice and rats) and birds (domestic chicks);

### Drugs Administration on Rodents

- Intraperitoneal (IP) injections;
- Intravenous (IV) injections;
- Subcutaneous (SC) injections;
- Intra-cerebral-ventricular (ICV) injections;
- Oral administration (Gavage).

### Rodents Behavioral Assessment

- Behavioral assessment of spatial and recognition memory (e.g. Morris watermaze test, Radial Arm Maze, Novel Object Recognition, Novel Object Location, Fear Conditioning, Passive Avoidance Task);
- Behavioral assessment of anxiety (e.g. Elevated-Plus Maze, Open-Field test);
- Behavioral assessment of gait and motor coordination (Catwalk and RotaRod tasks);
- Sleep deprivation schedules (e.g. gentle handling method for total sleep deprivation and flower-pot technique for REM sleep deprivation).

### Surgical Procedures on Rodents

- Stereotaxic surgery for chronic implant of electrodes and transducers for acquiring physiological parameters, such as cortical EEG, ECG, EMG and brain temperature;

- Stereotaxic surgery for local field potentials (LFP) recordings;
- Stereotaxic surgery for chronic implant of cannulas for intra-cerebral-ventricular (ICV) injections;
- Surgery for telemetry implant (*via* wireless probes).

#### Mathematical and Statistical Methods of Electrophysiological Signal Analysis

- EEG, EMG and ECG spectral analyses;
- Detection of epileptic (or epileptic-like) activity;

#### Analyses of Sleep Behavior

- Behavioral and electrophysiological characterization of sleep-wake cycle;
- assessment of sleep architecture (number of bouts, duration and transitions);
- sleep spindles analyses.

#### Ex-vivo Analyses

- Histological assessments of neuronal circuits (animal perfusion, brain tissue preparation and sectioning, immunohistochemistry and immunofluorescence, etc.);
- Confocal microscopy;
- hippocampus dissection.

#### Other Skills

- Rodents transcardiac perfusion;
- Rodents blood sampling;
- Rodents cerebrospinal fluid sampling;
- Assessing of reproductive status/stage on female rodents.

#### Statistical Skills

- Good knowledge of parametric and non-parametric tests commonly used in biomedical research (univariate and multivariate ANOVA, Mixed-model ANOVA, Student t-test, Chi-squared, correlations etc.).

#### Computer Skills

- *Operating systems*: Windows and Macintosh OS, and relative MS Office (Word, Excel, PowerPoint) and iWork (Pages, Numbers, Keynote) suites.
- *Statistical software*: SPSS; R; SigmaPlot; GraphPad Prism; MATLAB.
- *Software for electrophysiological recordings and analyses*: MATLAB; Neuroscore (DSI®); ICELUS; Dataquest A.R.T. TM System; TWin Grass Technology; Sirenia Pinnacle Technology; Origin.
- *Software for animal behavior assessment*: Noldus software suites, including Ethovision XT 12, Observer XT, Catwalk.
- *Software for microscopy*: MBF bioscience Stereo Investigator®; Leica LAS AF.
- *Graphics and Video-editing software*: Adobe Photoshop; Adobe After Effects; Corel Draw; Adobe Illustrator.
- *References management software*: Reference Manager; Endnote; Paperpile.

#### AWARDS:

- **October 2015**: IBRO-PERC, the Brain Prize and FENS stipend for taking part to “The Brain Conferences - The Neurobiology of Sleep and Circadian Rhythm”, Copenhagen, Denmark.

#### RESEARCH INTERESTS

- Study of sleep and its phases, in particular REM sleep and associated brain waves.
- Study of electrophysiological correlates of animal behavior in both normal and pathological (Alzheimer’s disease, Epilepsy and Parkinson’s disease) conditions.

- Study of neural-immune and sleep interactions.
- Study of sleep-wake cycle alterations in animal models of neurodegenerative disorders, such as Fatal Familial Insomnia (FFI), Creutzfeldt-Jakob disease (CJD), Alzheimer disease (AD).

### **MEMBERSHIP**

- **2013 - present:** Italian Association of Sleep Medicine (AIMS);
- **2014 - present:** Italian Society of Neuroscience (SINS);
- **2016 - present:** European Sleep Research Society (ESRS).

### **REFERING**

- Plos One

### **PEER-REVIEWED PUBLICATIONS**

1. **Del Gallo F\***, Tesoriero C\*, Bentivoglio M. Sleep and brain infections. *Brain Res Bull.* **2019** Feb; 145:59-74. doi: 10.3389/fphar.2018.01061. \*These authors contributed equally.
2. Azeez IA, **Del Gallo F**, Cristina L, Bentivoglio M. Daily fluctuation of orexin neuron activity and wiring: the challenge of “chronoconnectivity”. *Front Pharmacol.* **2018** Sep 25; 9:1061. doi:10.3389/fphar.2018.01061.
3. Royo J, Villain N, Champeval D, **Del Gallo F**, Bertini G, Aujard F, Pifferi F. Effects of n-3 polyunsaturated fatty acid supplementation on cognitive functions, electrocortical activity and neurogenesis in a non-human primate, the grey mouse lemur (*Microcebus murinus*). *Behav Brain Res.* **2018** Jul; 347:394-407. doi: 10.1016/j.bbr.2018.02.029.
4. Laperchia C, Imperatore R, Azeez IA, **Del Gallo F**, Bertini G, Grassi-Zucconi G, Cristina L, Bentivoglio M. The excitatory/inhibitory input to orexin/hypocretin neuron soma undergoes day/night reorganization. *Brain Struct Funct.* **2017** Nov; 222(8):3847-3859. doi: 10.1007/s00429-017-1466-3.
5. Chiesa R, Restelli E, Comerio L, **Del Gallo F**, Imeri L. Transgenic mice recapitulate the phenotypic heterogeneity of genetic prion diseases without developing prion infectivity: role of intracellular PrP retention in neurotoxicity. *Prion* **2017** Mar 3; 10(2):93-102. doi: 10.1080/19336896.2016.1139276
6. **Del Gallo F\***, Bouybouyne I\*, Mantovani S\*, Bertani I, Restelli E, Comerio L, Tapella L, Baracchi F, Fernández-Borges N, Mangieri M, Bisighini C, Beznoussenko G., Paladini A, Balducci C, Micotti E, Forloni G, Castilla J, Fiordaliso F, Tagliavini F, Imeri L, Chiesa R. Transgenic fatal familial insomnia mice indicate prion infectivity-independent mechanisms of pathogenesis and phenotypic expression of disease. *PLoS Pathog.* **2015** 11(4), e1004796. doi: 10.1371/journal.ppat.1004796. \*These authors contributed equally
7. **Del Gallo F**, Opp MR, Imeri L. The reciprocal link between sleep and immune response. *Arch Ital Biol* **2014**; 152(2-3),93-102. doi: 10.12871/000298292014234.

### **Under Revision**

Salmi M, **Del Gallo F**, Minlebaev M, Corby-Pellegrino S, Perron P, Pons-Bennaceur P, Pauly V, Aniksztajn L, Lenck-Santini PP, Epsztain J, Khazipov R, Burnashev N, Bertini G, Szepetowski P. Impaired vocal communication, sleep-related discharges and transient alteration of slow-wave sleep in mice lacking the epilepsy and speech-related GluN2A subunit of NMDA receptors. *Epilepsia*.

## In Preparation

**Del Gallo F**, Bianchi S, Bertani I, Messa M, Colombo L, Balducci C, Salmona M, Imeri L, Chiesa R. Sleep inhibition induced by amyloid- $\beta$  oligomers is mediated by the cellular prion protein.

## CONFERENCE PRESENTATIONS

### Oral Communications

1. **Del Gallo F**. Epilepsy and sleep: insights from rodent models of epileptic encephalopathies. National Institute of Neuroscience (INN) Open Neuroscience Forum. July 20<sup>th</sup>, 2018.
2. **Del Gallo F**, Murana E, Andrioli A, Bentivoglio M, Bertini G. Sleep deprivation reduces epileptiform events in a putative model of epileptic encephalopathies. 1<sup>st</sup> ESRS Sleep Science School on Neural Network in Sleep, October 2016, Frejus, France.
3. **Del Gallo F**. Toward an animal model of Fatal Familial Insomnia. *23<sup>th</sup> National Congress of the Italian Association of Sleep Medicine (AIMS)*. Roma, November 13<sup>rd</sup>, 2013.
4. **Del Gallo F**. Sleep-wake cycle alterations in transgenic mice carrying the murine homolog of the mutation linked to fatal familial insomnia. *17<sup>th</sup> Annual Meeting of the Italian Sleep Research Society (SIRS)*. Bologna, March 17<sup>th</sup>, 2012.

### Poster Presentations

1. Tesoriero C, Azeez IA, Corghi F, Del Gallo F, Bertini G, Bentivoglio M. Daily fluctuation of Glia. Italian Society of Anatomy and Histology (SIAI). Parma, September 20<sup>th</sup>-22<sup>nd</sup>, 2018.
2. **Del Gallo F**, Murana E, Andrioli A, Bentivoglio M, Bertini G. Sleep deprivation reduces epileptiform events in a putative model of epileptic encephalopathies. 1<sup>st</sup> ESRS Sleep Science School on Neural Network in Sleep, October 2016, Frejus, France.
3. Laperchia C, Imperatore R, Azeez IA, Bertini G, Del Gallo F, Grassi-Zucconi G, Cristina L, Bentivoglio M. The timing of behavioral states: oscillation of the excitatory/inhibitory input to the orexinergic neurons and ageing-related changes. *26<sup>th</sup> National Convention of the Italian Group Study of Neuromorphology (G.I.S.N.)*. Verona, November 24<sup>th</sup>-25<sup>th</sup>, 2016.
4. **Del Gallo F**, Murana E, Andrioli A, Fabene PF, Bentivoglio M, Bertini G. The A/J JAX mouse as a model of epileptic encephalopathies. *3<sup>rd</sup> DESIRE EU Project Meeting*, Marseilles, October 11<sup>th</sup>-13<sup>th</sup>, 2016.
5. **Del Gallo F**, Andrioli A, Fabene PF, Bentivoglio M, Bertini G. Spike-wave discharge and sleep-wake cycle alterations in a mouse model of epileptic encephalopathies. *23<sup>rd</sup> Congress of the European Sleep Research Society (ESRS)*. *Journal of Sleep Research*, 2016. 25 - Suppl.1 (5-376); P167.
6. **Del Gallo F**, Fabene PF, Andrioli A, Bentivoglio M and Bertini G. The A/J JAX mice as a rodent model for epileptic encephalopathies. *10<sup>th</sup> FENS Forum of Neuroscience*, Copenhagen July 2<sup>nd</sup>-6<sup>th</sup>, 2016.

7. Salvetti B, **Del Gallo F**, Trillingsgaard Venø M, Kjems J, Bertini G, Henshall D, Fabene PF. MicroRNA profiling in the hippocampus of mice during pilocarpine-induced epileptogenesis and epilepsy. *10<sup>th</sup> FENS Forum of Neuroscience*, Copenaghen July 2<sup>nd</sup>-6<sup>th</sup>, 2016.
8. **Del Gallo F**, Bouybayoune I, Mantovani S, Forloni G, Fiordaliso F, Tagliavini F, Chiesa R, Imeri L. Transgenic mice carrying the mouse homolog of the Prion Protein mutation associated with Fatal Familial Insomnia (FFI) develop severe sleep abnormalities. *The Neurobiology of Sleep and Circadian Rhythm*, Copenaghen October 11<sup>th</sup>-14<sup>th</sup>, 2015.
9. Wu MA, Tobaldini E, Bianchi S, Del Gallo F, Bouybayoune I, Mantovani S, Bertani I, Chiesa R, Montano N, Imeri L. Neurovegetative control is altered in transgenic mice expressing the prion protein mutation associated with fatal familial insomnia. *9<sup>th</sup> Meeting of the International Society for Autonomic Neuroscience (ISAN 2015) in conjunction with Federation of European Autonomic Societies (EFAS), American Autonomic Society (AAS), Japan Society of Neurovegetative Research (JSNR)*, September 26th - 29th, 2015 Stresa (Italy). *Autonomic Neuroscience: Basic and Clinical* 192 (2015) 56–141. doi:10.1016/j.autneu.2015.07.169.
10. Imeri L, Del Gallo F, Bouybayoune I, Mantovani S, Forloni G, Fiordaliso F, Tagliavini F and Chiesa R; Transgenic mice carrying the mouse homolog of the Prion Protein mutation associated with Fatal Familial Insomnia (FFI) develop severe sleep abnormalities. *29<sup>th</sup> Annual Meeting of the Associated Professional Sleep Societies, LLC*, June 1-6, 2015 Seattle (WA) USA. Abstract Supplement of *Journal of Sleep and Sleep Disorders Research*, volume 38, 2015.
11. Bouybayoune I, Mantovani S, Del Gallo F, Bertani I, Tapella L, Comerio L, Restelli E, Bianchi S, Fernández-Borges N, Mangieri M, Bisighini C, Beznusenko GV, Paladini A, Balducci C, Micotti E, Forloni G, Castilla J, Fiordaliso F, Tagliavini F, Imeri L, Chiesa R. Transgenic Fatal Familial Insomnia mice indicate prion-independent mechanisms of pathogenesis and phenotypic expression of disease. *10<sup>th</sup> Congress of PRION*, May 27-30, 2014 Trieste (Italy).
12. **Del Gallo F**, Mantovani S, Chiesa R, Imeri L. Transgenic mice carrying the murine homolog of the mutation linked to Fatal Familial Insomnia show sleep-wake cycle alterations. *23<sup>th</sup> National Congress of the Italian Association of Sleep Medicine (AIMS)*. Roma, 13 November 2013.
13. **Del Gallo F**, Chiesa R, Salmona M, Imeri L. Sleep-wake cycle alterations following administration of  $\beta$ -amyloid oligomers in mice. *Abstracts book of 18<sup>th</sup> annual meeting of the Italian Sleep Research Society (SIRS)*. Roma, 16 March 2013:2.
14. **Del Gallo F**, Mantovani S, Chiesa R, Imeri L. Sleep-wake cycle alterations in transgenic mice carrying the murine homolog of the mutation linked to fatal familial insomnia. *21<sup>th</sup> Congress of the European Sleep Research Society (ESRS)*. *Journal of Sleep Research*, 2012. 21 - Suppl.1 (1-371); P380.
15. **Del Gallo F**, Mantovani S, Chiesa R, Imeri L. A mouse model of fatal familial insomnia (FFI): REM sleep reduction in transgenic mice; *Abstracts book of 6<sup>th</sup> annual meeting of Young Researchers in Physiology (YRP)*. 30 March – 1 June 2012, Sestri Levante (Italy).
16. **Del Gallo F**, Baracchi F, Mantovani S, Chiesa R, Imeri L. Alterations of sleep-wake cycle in transgenic mice carrying the murine homolog linked to Fatal Familial Insomnia. *Abstracts book of 17<sup>th</sup> annual meeting of the Italian Sleep Research Society (SIRS)*. Bologna, 17-18 March 2012:6.

17. **Del Gallo F**, Baracchi F, Mantovani S, Chiesa R, Imeri L. Prion protein and REM sleep regulation: an experimental study in a transgenic mouse model. *Abstracts book of 5th annual meeting of Young Researchers in Physiology (YRP)*. Sestri Levante, 8-10 June 2011.
18. **Del Gallo F**, Baracchi F, Mantovani S, Chiesa R, Imeri L. Alterations in the expression of prion protein induce loss of REM sleep and of its compensation after sleep deprivation. *Abstracts book of 16th annual meeting of the Italian Sleep Research Society (SIRS)*. L'Aquila, 27-28 May 2011: 30.
19. Baracchi F, Ferrari L, Rabello Casali K, Mantovani S, Tobaldini E, Del Gallo F, Chiesa R, Montano N, Imeri L. Disregulation of prion protein expression alters REM sleep homeostasis in aged mice. *20th Congress of the European Sleep Research Society (ESRS)*. *Journal of Sleep Research*, 2010. Suppl.2 (1-378); P382.
20. Ferrari L, Baracchi F, Casali K, Mantovani S, Tobaldini E, Del Gallo F, Chiesa R, Montano N, Imeri L. Role of prion protein in the homeostasis of REM sleep. *Abstracts book of 14th annual meeting of the Italian Sleep Research Society (SIRS)*. Bologna, 14-15 November 2009: 30.
21. **Del Gallo F**, Daisley J, Vallortigara, Regolin L. Laterality and Transitive Inference Performance in the Domestic Chicks (*Gallus gallus domesticus*); *I Workshop on Cognition and Evolution – COGEVO*. Rovereto (Italy), 12-13 June 2009.

### **TEACHING EXPERIENCE AND STUDENTS SUPERVISION**

- I have been teaching assistant (May 2018) for classes in Anatomy of Dentistry Dental Prosthetics course at University of Verona (Prof. Paolo F. Fabene).
- I have co-supervised bachelor/master and Ph.D. students for their internship and/or thesis.

Verona, April 10<sup>th</sup>, 2019

