

## Curriculum Vitae

### PERSONAL INFORMATION

Giovanna Paolone

📍 Dipartimento di Diagnostica e Sanità Pubblica, Sezione di Farmacologia  
P.le Scuro 10, 37134 Verona (VR)

☎ +39 045 802 7224 (office)

✉ giovanna.paolone@univr.it

### POSITION

Assistant Professor (ricercatore a tempo determinato)

### WORK EXPERIENCE

---

June 2018  
to present Assistant Professor (ricercatore a tempo determinato)  
Department of Diagnostic and Public Health,  
University of Verona, Verona, Italy

September 2017 –  
May 2018 Research Scientist (Dr. Mario Buffelli)  
Department of Neurosciences, Biomedicine and Movement Sciences,  
Section of Physiology and Psychology,  
University of Verona, Verona, Italy

November 2015 –  
August 2017 Research scientist (Dr. Michele Simonato)  
Department of Medical Sciences, Section of Pharmacology  
University of Ferrara, Ferrara, Italy

April –  
October 2015 Marie Curie Industry-Academia Partnerships and Pathways (FP7 MC-IAPP)  
NsGene, Providence, RI, USA

October 2013 –  
March 2015 Research scientist (Dr. Michele Morari)  
Department of Medical Sciences, Section of Pharmacology  
University of Ferrara, Ferrara, Italy

May –  
September 2013 Researcher  
Institute of Genetics and Biophysics "A. Buzzati Traverso" National Research  
Council, Naples (Italy)

December 2010 –  
April 2013 Assistant Research Scientist (Dr. Martin Sarter)  
University of Michigan, Ann Arbor, United States.

May 2008 –  
November 2010 Post Doctoral Fellow (Dr. Martin Sarter and Dr. Theresa Lee)  
University of Michigan, Ann Arbor (United States)

January 2006 –  
April 2008 Post Doctoral Fellow (Dr. Jane Stewart)  
Center for Studies in Behavioral Neurobiology, Concordia University, Montreal

(Canada)

February 2003 – May 2003

Research Associated (Dr. Jane Stewart)  
Center for Studies in Behavioral Neurobiology, Concordia University, Montreal  
(Canada)

## EDUCATION AND TRAINING

---

November 2001 –  
December 2005

PhD in Pharmacology  
Sapienza, University of Rome, Rome (Italy)

October 1997 – July 2001

Honors in Laurea (a 5-years university degree) Experimental  
Psychology  
Sapienza, University of Rome, Rome (Italy)

## PERSONAL SKILLS

---

Mother tongue(s)

Italian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C2	C2	C2

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2: Proficient user  
Common European Framework of Reference for Languages

AD HOC EDITORIAL  
COSULTING (Journal)

Psychopharmacology  
Neurobiology of Disease

REVIEWER FOR GRANT  
AGENCIES

The EU Framework for Research and Innovation

QUALIFICATION

National scientific qualification to function as an assistant professor in Italian universities in the area of Biopsychology, Psychometrics and General Psychology (*Abilitazione Scientifica Nazionale*, 2012, settore *conconsuale11/E1*; *SSD: M-PSI 01, 02, 03; seconda fascia*)  
<http://abilitazione.miur.it/public/pubblicarisultati.php>

Marie Skłodowska Curie Ambassador

AWARDS

Travel Bursary to attend the Biennial European Behavioral Pharmacology Society Meeting (Barcelona, Spain, 2005; Tübingen, Germany, 2007)  
Italian Society of Pharmacology (SIF): Fellowship to support foreign research

activity (2003 and 2006)

Paid part-time positions based on excellence at “Sapienza” University of Rome (Teaching and Library assistant 2000; 2001)

#### TEACHING EXPERIENCE

Undergraduate Research Opportunity Program,

- University of Michigan 2010-2013 -

*Ad-hoc lecturer:* Mechanisms of Attention in physiological and altered conditions, Neurobiology of Addiction, and Circadian Physiology

- University of Michigan 2010-2013 -

#### AFFILIATION SCIENTIFIC SOCIETIES

Society for Neuroscience

Società Italiana di Farmacologia

Società Italiana di Neuroscienze

European Behavioral Pharmacology Society

FIE - Federazione Italiana Epilessia

The International College of Neuropsychopharmacology

#### MAIN NATIONAL AND INTERNATIONAL SCIENTIFIC COLLABORATION

*NsGene, Inc.*, Providence, RI, USA – Brain Repair Device –

Dept of Neuroscience, *Université de Montreal*, Montreal, QC, Canada

Department of Pharmacology, *University of Ferrara*, FE, Italy

Department of Neurosciences, Biomedicine and Movement Sciences

*University of Verona*, VE, Italy

#### ARTICLES IN REFEREED JOURNALS

1. Paolone G, Burdino R, Badiani A. (2003) Dissociation in the modulatory effects of environmental novelty on the locomotor, analgesic, and eating response to acute and repeated morphine in the rat. *Psychopharmacology* 166:146-155.
2. Antonilli L, Suriano C, Paolone G, Badiani A, Nencini P. (2003) Repeated exposures to heroin and/or cadmium alter the rate of formation of morphine glucuronides in the rat. *J Pharmacol Exp Ther* 307: 651-660.
3. Paolone G, Paolopoli M, Marrone MC, Nencini P, Badiani A. (2004) Environmental modulation of the interoceptive effects of amphetamine in the rat. *Behav Brain Res* 152:149-155.
4. Scaccianoce S, Del Bianco P, Paolone G, Caprioli D, Modafferi AM, Nencini P, Badiani A. (2006) Social isolation selectively reduces hippocampal brain-derived neurotrophic factor without altering plasma corticosterone. *Behav Brain Res* 168:323-5.
5. Botreau F, Paolone G, Stewart J. (2006) d-Cycloserine facilitates extinction of a cocaine-induced conditioned place preference. *Behav Brain Res* 172:173-8.
6. Caprioli D, Paolone G, Celentano M, Testa A, Nencini P, Badiani A. (2007) Environmental modulation of cocaine self-administration in the

rat. *Psychopharmacology* 192:397-406.

7. Paolone G, Conversi D, Caprioli D, Del Bianco PD, Nencini P, Cabib S, Badiani A. (2007) Modulatory effect of environmental context and drug history on heroin-induced psychomotor activity and fos protein expression in the rat brain. *Neuropsychopharmacology* 32:2611-23.
8. Caprioli D, Celentano M, Paolone G, Badiani A. (2007) Modeling the role of environment in addiction. *Prog Neuropsychopharmacol Biol Psychiatry* 31:1639-53.
9. Caprioli D, Celentano M, Paolone G, Lucantonio F, Bari A, Nencini P, Badiani A. (2008) Opposite environmental regulation of heroin and amphetamine self-administration in the rat. *Psychopharmacology* 198:395-404.
10. Paolone G, Botreau F, Stewart J. (2009) The facilitative effects of D-Cycloserine on extinction of a cocaine-induced conditioned place preference can be long lasting and resistant to reinstatement. *Psychopharmacology* 202:403-409.
11. Sarter M & Paolone G. (2011) Deficits in attentional control: cholinergic mechanisms and circuits-based treatment approaches. *Behavioral Neurosci.* Dec; 125(6):825-35.
12. Paolone G, Lee TM, Sarter M. (2012) Time to pay attention: attentional performance time-stamped prefrontal cholinergic activation, diurnality and performance. *J. Neurosci.* Aug 2012, 32(35): 12115-12128.
13. Paolone G, Angelakos CC, Meyer PJ, Robinson TE, Sarter M. Cholinergic control over attention in rats prone to attribute incentive salience to reward cues. *J. Neurosci.* May 2013, 33(19): 8321-8335.
14. Paolone G\*, Mallory C, Koshy Cherian A, Sarter M. Monitoring cholinergic activity during attentional performance in mice heterozygous for the choline transporter: a model of cholinergic capacity limits. *Neuropharmacology*, Aug 2013, 16; 75C:274-285.
15. Kucinski A, Paolone G, Bradshaw M, Albin RL, Sarter M. Modeling fall propensity in Parkinson's disease: deficits in the attentional control of complex movements in rats with cortical-cholinergic and striatal-dopaminergic deafferentation. *J. Neurosci.* October 2013, 33(42): 16522-39.
16. Grupe M, Paolone G, Jensen AA, Sandager-Nielsen K, Sarter M, Grunnet M. Selective potentiation of  $(\alpha 4)_3(\beta 2)_2$  nicotinic acetylcholine receptors augments amplitudes of prefrontal nicotine-evoked glutamatergic transients in rats. *Biochem Pharmacol* 2013 Nov; 86(10):

1487-96.

17. Cristino L\*, Luongo L\*, Squillace M\*, Paolone G, Piccinin S, Zianni E, Imperatore R, Iannotta M, Longo F, Errico F, Vescovi AL, Morari M, Maione S, Gardoni F, Nisticò R<sup>@</sup>, Usiello A<sup>@</sup>. d-Aspartate oxidase, influences glutamatergic system homeostasis in mammalian brain. *Neurobiol Aging* 2015 Feb; (15): 1-13.
18. Paolone G, Brugnoli A, Arcuri A, Mercatelli D and Morari M. Eltoprazine prevents ledodopa-induced dyskinesias by reducing striatal glutamate and direct pathway activity. *Mov Disord.* Nov 2015, 30 (13): 1728-38.
19. Sacchi S\*, De Novellis V\*, Paolone G\*, Nuzzo T, Iannotta M, Belardo C, Squillace M, Bolognesi P, Rosini E, Motta Z, Frassinetti M, Bertolino A, Pollegioni L, Morari M, Maione A, Errico F, Usiello A. Olanzapine but not clozapine increases glutamate release in the pre-frontal cortex of freely moving mice by inhibiting D-aspartate oxidase activity. *Scientific Report*; Apr 2017 10;7:46288.
20. Paolone G, Falcicchia C, Verlengia G, Barbieri M, Binaschi A, Paliotto F, Paradiso B, Soukupova M, Zucchini S, Simonato M. A refined technique for microinjections in the rodent brain. *J Vis Exp.* Jan 2018 24;131.
21. Falcicchia C. Paolone G, Emerich DF, Lovisari F, Bell W, Fradet T, Wahlberg LU, Simonato M. Seizure-Suppressant and Neuroprotective Effects of Encapsulated BDNF-Producing Cells in a Rat Model of Temporal Lobe Epilepsy. *Molecular Therapy – Methods and Clinical Development.* Mol Ther Methods Clin Dev. 2018 Mar 9;9:211-224.
22. Paolone G, Falcicchia C, Lovisari F, Kokaia M, Bell W, Fradet T, Wahlberg LU, Emerich DF, Simonato M. Long-term, targeted delivery of GDNF from encapsulated cells is neuroprotective and reduces seizures in the pilocarpine model of epilepsy. (*Under revision*).
23. Paolone G, Gritton H, Yan J, Bostowick J, Hoogerwerf W, Sarter M, Lee TM. Daily performance of a sustained attention task during light phase desynchronizes circadian oscillators in nocturnal rats (*in prep*).
24. Gritton H\*, Paolone G\*, Yan J, Sarter M. Lee TM. Timed, sustained, attention-demanding performance during the light phase alters proinflammatory cytokines circadian rhythms and sleep architecture in rats (*in prep*).
25. Pedrazzoli M, Losurdo M, Paolone G, Avesani A, Coco S, Buffelli M (2018). Glucocorticoids deeply affect spine plasticity and inflammation in an animal model of Alzheimer Disease (*in prep*).

## BOOK CHAPTER

Paolone G, Howe WM, Gopalakrishnan M, Decker MW, Sarter M. (2010) Regulation and function of the tonic component of cortical acetylcholine release. In Y. Michotte, Westerink, B., & S. Sarre (Eds.), *Monitoring Molecules in Neuroscience*. Printer TBD, Brussels.

Sarter M, Parikh V, Howe MW, Gritton H, Paolone G, Lee TM. (2010) Multiple time scales and variable spaces: synaptic neurotransmission *in vivo*. In Y. Michotte, Westerink, B., & S. Sarre (Eds.), *Monitoring Molecules in Neuroscience*. Printer TBD, Brussels.

Sarter M, Paolone G, Mabrouk OS, Kennedy RT. (2012) Sampling from injured tissue as a blessing in disguise: tonic changes in cholinergic neurotransmission using microdialysis. *International Society for Monitoring Molecules in Neuroscience*. London, UK.

Falcicchia C, Paolone G, Simonato M. (2017) Cell Therapy for Epilepsy in *Cell Therapy: Current Status and Future Directions*. Springer (Pages 85-97).

## INVITED TALK

*Environmental modulation of psychomotor, subjective, and reinforcing effects of addictive drugs.* - Douglas Hospital Research Center, Neuroscience Division, **McGill University**; Montreal, Dec. 2006

*Conditioning and self-administration of psychostimulants and opiate drugs. Evidences on Neurodegeneration, Plasticity and Repair.* - **Neurofortis, Lund University**; Lund, Sept. 2007

*Conditioning, self administration and extinction of psychostimulants and opiate drugs.* - Department of Psychology, **University of Michigan**; Ann Arbor, MI, Oct. 2007

*Prior daily practice on a sustained attention task synchronizes the increase of prefrontal ACh release and desynchronizes peripheral oscillators.* Department of Psychology, **Michigan State University**, Lansing, MI, August. 2010.

*Staying cognitively engaged during the wrong time of the day: cognitive cholinergic induction of diurnality and reorganization of multiple circadian rhythms.* - Department of Psychology, **University of Michigan**; Ann Arbor, MI, April 2012

*Prefrontal cholinergic neurotransmission under attentional and pharmacological manipulation in CHT +/+ and CHT +/-.*  
CHT summit - Department of Psychology, **University of Michigan**; Ann Arbor, MI, May 2012

*Highly demanding cognitive task and optical stimulation of cholinergic system:*

*old and new approaches to explore mechanisms of attention in rats and mice.* - Institute of Genetics and Biophysics “A. Buzzati-Traverso” **CNR; Naples, Italy**, March 2013.

*Taxing the prefrontal cholinergic neurotransmission: an animal model of poor top-down cognitive control of attention and reorganization of multiple circadian rhythms.* Department of Psychology, **University of Trieste, Italy**, June 2014.

*Long-term delivery of GDNF by encapsulated cells for the treatment of epilepsy.* **Marie Skłodowska Curie Action final presentation** in “Epilepsy research in the EU: state of the art and opportunities for the future” – FP7 MC-IAPP – Ferrara, October 28, 2015.

*Reward, Cognition and GDNF: where we are and where we would like to go.* **Italian Institute of Neuroscience**, Section of Verona.– Open neuroscience forum. Verona, Italy, November 17, 2017.

*Reward, Cognition, and Encapsulated cell Therapy with GDNF: “state of the art” and future directions.* Department of Diagnostic and Public Health, **University of Verona, Italy**. May 24th, 2018

#### RESEARCH PRESENTATION

Paolone G, Badiani A (2001) Environmental novelty enhances the locomotor activating but not the analgesic effects of morphine. *Pharmacological Research*, 43 (suppl A):156

Paolone G, Burdino R, Badiani A (2001) Environmental novelty differentially modulates the locomotor activating versus the analgesic effects of acute and repeated morphine. *Society for Neuroscience*. Abstract 26

Paolone G, Palopoli M, Nencini P, Badiani A (2003) Environmental modulation of amphetamine discrimination in the rat. *Behavioural Pharmacology*, 14 (suppl 1): S58

Paolone G, Palopoli M, Nencini P, Badiani A (2003) Environmental novelty facilitates amphetamine discrimination in the rat. *Society for Neuroscience*. Abstract 643.15

Stewart J, Sorge RE, Leri F, Paolone G (2003) The opioid agonist-antagonist, buprenorphine, preferentially suppresses cocaine self-administration over heroin in rats trained to self-administer both drugs. *Society for Neuroscience*. Abstract 109.

Leri F, Tremblay A, Sorge RE, Paolone G, Goddard B, Stewart J (2003) Effects of methadone maintenance on cocaine-motivated behaviour. *Society for Neuroscience*. Abstract 109.16

Sorge RE, Jenkins PA, Paolone G, Stewart J (2003) Effects of amount of exposure to cocaine self-administration and time since termination of drug taking on relapse to drug seeking assessed in extinction and follow acute foot-shock stress. *Society for Neuroscience*. Abstract 421.

Antonilli L, Paolone G, Badiani A, Nencini P (2003) Repeated exposures to heroin and/or cadmium alter the rate of morphine glucuronides in the rat. *Society for Neuroscience*. Abstract 645.6

G. Paolone, D. Caprioli, M. Palopoli, P. Nencini and A. Badiani (2004) Environmental modulation of the interoceptive effects of cocaine and morphine. *Behavioural Pharmacology*, (volume 15, num 5&6).

Paolone G, Caprioli D, Celentano M, Badiani A (2006) Environmental modulation of cocaine self-administration. *Society for Neuroscience*. Abstract 590.2

Caprioli D, Celentano M, Paolone G, Testa A, Badiani A (2006) Environmental modulation of heroin self-administration. *Society for Neuroscience*. Abstract 590.3

Paolone G, Hood S, Stewart J (2007) Effect of inter-trial-interval and duration of exposure on the facilitation of extinction of a cocaine-induced conditioned place preference by d-cycloserine. *Society for Neuroscience*. Abstract 638.2.

Paolone G, Benatar A, Stewart J (2007) The facilitative effects of D-Cycloserine on extinction of a cocaine-induced Conditioned Place Preference can be long lasting and resistant to reinstatement: effects of extinction variables. *Canadian Association for Neuroscience*.

Paolone G, Benatar A, Stewart J (2007) The facilitative effects of D-Cycloserine on extinction of a cocaine-induced Conditioned Place Preference can be long lasting and resistant to reinstatement: effects of extinction variables. *Canadian College of Neuropsychopharmacology*.

Paolone G, Hood S, Stewart J (2007) The facilitative effects of D-Cycloserine on extinction of a cocaine-induced Conditioned Place Preference and Fos Protein Expression in the Pre-Frontal Cortex. *European Behavioral Pharmacology Society*.

Paolone G, Ismail N, Pfaus J, Badiani A, Stewart J. (2008) An established preference for a conditioned stimulus associated with either sucrose or copulation in male rats subsequently shifts to a preference for a conditioned stimulus paired with cocaine self-administration. *Society for Neuroscience*. Abstract 687.

Paolone G, Ji J, Williams S, Howe WM, Ward J, Decker MW, Parikh V, Sarter M. (2009) Effects of the selective alpha 7 nAChR agonist ABT-107 on

prefrontal glutamatergic and cholinergic activity and attentional performance. *Society for Neuroscience*. Abstract 227.

Lee TM, Paolone G, Gritton H, Yan J, Hoogerwerf W, Sarter M. (2010) Timed, sustained, attention-demanding performance reorganizes or dampens multiple circadian rhythms. *Society for Research in Biological Rhythms*.

Paolone G, Howe WM, Decker MW, Gopalarishnan, Sarter M. (2010) Multiple modes of cholinergic neurotransmission - Multiple functions. *Society for Neuroscience*. Abstract 703.

Lee TM, Paolone G, Howe WM, Sarter M. (2010) Staying cognitively engaged during the wrong time of the day: cognitive-cholinergic induction and maintenance of diurnality in rats. *Society for Neuroscience*. Abstract 98.

Gritton H, Howe WM, Hetrick VL, Paolone G, Berke JD, Sarter M. (2010) Optogenetically-evoked cortical cholinergic transients in mice expressing channelrhodopsin-2 (ChR2) in cholinergic neurons. *Society for Neuroscience*. Abstract 304.

Yan J, Paolone G, Bostowick J, Hoogerwerf W, Sarter M, Lee TM. (2010) Daily performance of a sustained attention task during light phase desynchronizes circadian oscillators in nocturnal rats. *Society for Neuroscience*. Abstract 499.

Sarter M, Howe WM, Paolone G. (2011). Real-time biosensing of glutamatergic and cholinergic neurotransmission in vivo: implications for psychopharmacology. *Summer meeting of the British Association for Psychopharmacology*. *J. of Psychopharmacology*. Aug 2011, 25(8): A6-A6.

Angelakos CC, Paolone G, Meyer PJ, Robinson TE, Sarter M. (2011) Sign-versus goal trackers, top down control of attention, and underlying cholinergic mechanisms. *Society for Neuroscience*. Abstract 197.

Paolone G, Spuz CA, Brisco S, Bradshaw M, Albin RL, Sarter M. (2011) Deficits in attentional control of balance, mobility, and complex movements in a rat model of early state, multisystem Parkinson disease. *Society for Neuroscience*. Abstract 244.

Paolone G, Lamy D, Sarter M, Lee TM. (2011) Cognitive performance-associated increases in cholinergic neurotransmission also serve as a circadian signal to sustain performance-induced diurnal activity pattern. *Society for Neuroscience*. Abstract 610.

Paolone G, Angelakos CC, Meyer PJ, Robinson TE, Sarter M. (2011) Poor and Unstable Sustained Attentional Performance in Sign-Trackers: An Animal Model of Poor Top Down Cognitive Control of Attention. American College of Neuropsychopharmacology Annual Meeting, December 4-8, HI.

Sarter M, Howe MW, Paolone G. (2011) Real time biosensing of glutamatergic and cholinergic neurotransmission in vivo: implications for psychopharmacology. In: Journal of Psychopharmacology. Vol. 25.

Paolone G, Mabrouk OS, Kennedy RT, Sarter M. (2012) High temporal resolution microdialysis reveals cholinergic spikes preceding upshifts in attentional performance. *Society for Neuroscience 2012 - Abstract selected for nanosymposium*

Mallory C, Paolone G, Cherian Koshy A, Blakely RD, Sarter M. (2012) Paying attention with a compromised cholinergic system: attenuated activation of cholinergic neurotransmission in attentional task-performing CHT<sup>±</sup> mice. *Society for Neuroscience 2012*

Grupe M, Paolone G, Jensen AA, Nielsen KS, Christensen JK, Grunnet M, Sarter M. (2012). Positive allosteric modulation of  $\alpha 4\beta 2^*$  nicotinic acetylcholine receptors augments the amplitudes of prefrontal nicotine-evoked glutamatergic transients. *Society for Neuroscience*.

Kucinsky A, Paolone G, Peterson CC, Ronan EA, Albin RL, Sarter M. (2012). Deficits in the attentional control of posture and complex movements in a rat model of early state, multisystem Parkinson's disease. *Society for Neuroscience*.

Paolone G, Arcuri A, Brugnoli A, and Morari M (2014). Eltoprazine attenuates L-DOPA induced dyskinesia along with GABA and Glutamate release in rat substantia nigra. *Federation of European Neuroscience Societies; Milan, Italy*.

Paolone G, Tornoe J, Bell W, Fradet T, Emerich DF, Wahlberg LU (2015). Encapsulated cell therapy for Parkinson's disease: long-term, stable and efficacious targeting of the nigrostriatal dopaminergic system with GDNF. *Gordon Research Conference, Catecholamines*. Sunday River, ME, USA.

Falcicchia C, Paolone G, Emerich DF, Bell W, Fradet T, Wahlberg LU, Simonato M (2016). Seizures-suppressant effect of encapsulated BDNF-producing cells in a rat model of temporal lobe epilepsy. *Federation of European Neuroscience Societies; Copenhagen, Denmark*.

Paolone G, Emerich DF, Bell W, Fradet T, Simonato M, Wahlberg LU (2016). Encapsulated cell therapy for epilepsy: long-term, stable and efficacious targeting of the hippocampus with GDNF. *Gordon Research Conference, Mechanisms of Epilepsy & Neural Synchronization; Girona, Spain*.

Pedrazzoli M, Losurdo M, Paolone G, Avesani A, Coco S, Buffelli M (2018). Glucocorticoids deeply affect spine plasticity and inflammation in an animal model of Alzheimer Disease. *Federation of European Neuroscience Societies; Berlin, Germany*.

## Curriculum Vitae