**NAME:** Giuseppina Leo

**PLACE AND DATE OF BIRTH**: Lecce (Italy) 18/03/1973
**HIGH SCHOOL:** High school: Scientific Lyceum Diploma date (year): 1992
**UNIVERSITY**: University of Modena, Degree: Biology
Degree date (year): 1998 Degree thesis title: Deficit nell'apprendimento spaziale, neurodegenerazione e gliosi durante l'invecchiamento in topi mutanti mancanti della subuntà b dei recettori nicotinici

**POST DOCTORAL TRAINING**
-Annual training for profession of biologist State exam, Department of Biomedical Science, University of Modena and Reggio Emilia, from 1998 to 1999.
-Research Fellow, Department of Biomedical Science, University of Modena and Reggio Emilia, from 1999 to 2000. Study of the analgesics effects of the ligands for nicotinic receptors in rodents.
-Phd in Epatogastric and endocrinometabolic scienc, Department of Biomedical Science, University of Modena and Reggio Emilia, from 2001 to 2004. Study of obesity development and leptin resistance in rats fed with hypercaloric diets
-Contract by Department of Biomedical Science, University of Reggio Emilia and Modena, from 2004 to 2005. Receptor-receptor interaction and Parkinson disease
-Graduated Thecnician, Department of Biomedical Science, University of Reggio Emilia and Modena, from 2005 to today.

**RESEARCH FIELDS**
Physiological and pathological aspects of protein-protein interaction in central nervous system. Physiological and pathological aspects of communication in cellular and molecular networks of central nervous system, with particular regards to Parkinson disease, Alzheimer disease and epilepsy, exosome based cell-cell communication.

**PERSONAL SKILLS AND COMPETENCES**
Mother tongue: Italian
Other language: English
**Technical skills and competences:**
Animal care and surgery
- animal treatment
- dissection of cerebral areas and minor peripheral microsurgery
-stereotaxic neurosurgery and intracerebral microdialysis
- blood sampling
- intracardiac perfusion
Behavioral Animal Competences:
-test of learning and memory
-test of locomotor activity
-test of pain threshold recognition
Hystological staining: Nissl, Feulgen, Fluoro-Jade
Immunohistochemistry and optical and confocal microscopy
Preparation and analysis of RNA: In Situ Hybridization
Radioligand binding assay and autoradiography
Circular dichroism
**Computer skills and competences:**

Good knowledge of :
- Microsoft Windows and Office package;
- Leica Confocal Software (LCS) for controlling Leica inverted microscopy;
- SPSS and Graphpad Prism software for statistical data analysis;
- Adobe Reader;
- Adobe Photoshop;
- CDPRO for circular dichroism spectra analysis
-Sk 300 and image j for analysis of images

**Publications**


1. Ferrari R, Frassoldati A., **Leo G**,Torri C, Zini I, Agnati LF, Zoli M Changes in nicotinic acetylcholine receptor subunit mRNA and nicotinic binding in spontaneusly hypertensive stroke prone rats. Neuroscience letters1999; 000: 1-4.
2. Torri C, Pedrazzi P, **Leo G**, Muller E, Cocchi D, Agnati LF, Zoli M. Diet induced changes in hypothalamic pro-opio-melanocortin mRNA in the rat hypothalamus. Peptides 2002;23(6):1063-8.
3. Ballmaier M, Zoli M, **Leo G**, Agnati LF, Spano PF. Preferential Alterations in the mesolimbic dopamine pathway of heterozygous reeler mice: an emerging animal-based model of schizophrnia. European Journal of Neuroscience 2002; 15: 1197-1205.
4. Zanardi A, **Leo G**, Biagini G, Zoli M. Nicotine and neurodegeneration in ageing. Toxicol Lett. 2002;127(1-3):207-15.
5. Benelli A, Bertolini A, Zoli M, **Leo G**, Filaferro M, Saltini S, Genedani S. Pharmacological manipulation of brain galaninergic System and sexual behavior in male mice. Psychopharmacology 2002; 160:325-330.
6. Torsello A, Scibona B, **Leo G**, Bresciani E, Avallone R, Bulgarelli I, Luoni M, Zoli M, Rindi G, Cocchi D, Locatelli V. Ontogeny and tissue-specific regulation of ghrelin mRNA expression suggest that ghrelin is primarily involved in the control of extraendocrine functions in the rat. Neuroendocrinology 2003 ;77(2):91-9
7. Agnati LF., Franzen O., Ferré S., **Leo G**., Franco R., Fuxe K. Possibile role of intramembrane receptor-receptor interactions in memory and learning via formation of long-lived heteromeric complexes: focus on motor learning in the basal ganglia. J Neural Transm 2003;65:195-222.
8. Fuxe K, Agnati LF, Jacobsen K, Hillion J, Canals BS, Torvinen M, Tinner-Staines B, Staines W, Rosin D, Terasmaa A, Popoli P, **Leo G**, Vergoni V, Lluis C, Ciruela F, Franco R, Ferre S. Report heteromerization in adenosine A2 receptor signaling: Relevance for striatal function and Parkinson's disease. Neurology 2003; 61 (11 Suppl 6):S19-23.
9. Agnati LF., Ferré S., **Leo G**., Lluis C., Canela EI., Franco R., Fuxe K.On the Molecular Basis of the Receptor Mosaic Hypothesis of the Engram. J. Mol. Cell. Neurobiol., 2004, 24:501-516.
10. Agnati LF, **Leo G**., Vergoni A.V., Martínez E., Hockemeyer J., Lluis C., Franco R., Fuxe K., Ferré S. Neuroprotective Effect of L-DOPA Co-administered with the Adenosine $A_{2A}$ Receptor Agonist CGS 21680 in an Animal Model of Parkinson's Disease. BRBull 2004, 64: 155-164**.**
11. Liu FL., Fuxe K., Belluardo N**., Leo G**., Agnati LF., Aguirre JA. Acute intermittent nicotine treatment produces a reduction in the total number of FGF-2 immunoreactive astroglial cells in the substantia nigra of the rat: a stereological analysis. Neuroscience Letters 2004, 355:181-184
12. LF Agnati, AV Vergoni, **G Leo**, S Genedani, R Franco, A Bertolini and K Fuxe. Energy gradients for VT-signal migration in the CNS. Studies on melanocortin receptors, mitocondrial uncoupling proteins and food intake. Journal of Endocrinological Investigations, 2004;27 Suppl(6):23-34.

13. Genedani S., Guidolin D., **Leo G**., Filaferro M., Torvinen M., Woods A.S., Fuxe K., Ferrè S., Agnati L.F. Computer assisted analysis of Caveolin-1 involvement in the iternalisation process of adenosine A2A-dopamine D2 Receptor hetero-dimers. J Mol Neurosci. 2005;26(2-3):177-84.

14. Agnati LF., Santarossa L., Genedani S., Canela E.I., **Leo G**., Franco R., Woods A., Lluis C., Ferrè S., Fuxe K. On the nested hierarchical organization of CNS: basic characteristics of neuronal molecular networks. In: Computational Neuroscience: cortical dynamycs, Lecture Notes in Computer Sciences, Erdi P., Esposito A., Marinaro M., Scarpetta S., (Eds.), Springer, Berlin Heidelberg New York , pp. 24-54, 2004

15. Fuxe K, Rivera A, Jacobsen KX, Hoistad M, **Leo G**, Horvath TL, Staines W, De la Calle A, Agnati LF. Dynamics of volume transmission in the brain. Focus on catecholamine and opioid peptide communication and the role of uncoupling protein 2. J Neural Transm. 2005 Jan;112(1):65-76

16. Agnati LF., Genedani S., Lenzi PL., **Leo G**., Ferré S., Fuxe K. Energy gradients for the homeostatic control of brain ECF composition and for VT signal migration: introduction of the tide hypothesis. J Neural Transm. 2005;112(1):45-63

17. Agnati LF, Fuxe K., Torvinen M., Watson, Franco R**., Leo G**., D Guidolin
New methods to evaluate co-localization of fluorophores in immunocytochemical prepartions as exemplified by a study on A2A and D2 receptors in CHO cells. J Histochem Cytochem. 2005; 53(8):941-53.

18 Aguirre JA, Kehr J, Yoshitake T, Liu FL, Rivera A, Fernandez-Espinola S, Andbjer B, **Leo G,** Medhurst AD, Agnati LF, Fuxe K. Protection but maintained dysfunction of nigral dopaminergic nerve cell bodies and striatal dopaminergic terminals in MPTP-lesioned mice after acute treatment with the mGluR5 antagonist MPEP. Brain Res. 2005;1033(2):216-20

19 Genedani S, Guidolin D, **Leo G**, Filaferro M, Torvinen M, Woods AS, Fuxe K, Ferré S, Agnati LF. Computer-assisted image analysis of caveolin-1 involvement in the internalization process of adenosine A2A-dopamine D2 receptor heterodimers. J Mol Neurosci. 2005;26(2-3):177-84.

20 Agnati LF, **Leo G**, Zanardi A, Genedani S, Rivera A, Fuxe K, Guidolin D Volume transmission and wiring transmission from cellular to molecular networks: history and perspectives. Acta Physiol (Oxf). 2006;187(1-2):329-44.

21 Agnati LF, Ferré S, Genedani S, **Leo G**, Guidolin D, Filaferro M, Carriba P, Casadó V, Lluis C, Franco R, Woods AS, Fuxe K. Allosteric modulation of dopamine D2 receptors by homocysteine. J Proteome Res. 2006;5(11):3077-83

22 Agnati LF, Genedani S, **Leo G**, Forni A, Woods AS, Filaferro M, Franco R, Fuxe K. Abeta peptides as one of the crucial volume transmission signals in the trophic units and their interactions with homocysteine. Physiological implications and relevance for Alzheimer's disease. J Neural Transm. 2007;114(1):21-31

23 Fuxe K, Canals M, Torvinen M, Marcellino D, Terasmaa A, Genedani S, **Leo G**, Guidolin D, Diaz-Cabiale Z, Rivera A, Lundstrom L, Langel U, Narvaez J, Tanganelli S, Lluis C, Ferré S, Woods A, Franco R, Agnati LF. Intramembrane receptor-receptor interactions: a novel principle in molecular medicine. J Neural Transm. 2007;114(1):49-75.

24 Agnati LF, Guidolin D, **Leo G,** Fuxe K. A boolean network modelling of receptor mosaics relevance of topology and cooperativity. J Neural Transm. 2007; 114(1):77-92.

25 Fuxe K, Dahlström A, Höistad M, Marcellino D, Jansson A, Rivera A, Diaz-Cabiale Z, Jacobsen K, Tinner-Staines B, Hagman B, **Leo G**, Staines W, Guidolin D, Kehr J, Genedani S, Belluardo N, Agnati LF. From the Golgi-Cajal mapping to the transmitter-based characterization of the neuronal networks leading to two modes of brain communication: wiring and volume transmission. Brain Res Rev. 2007; 55(1):17-54.

26 Agnati LF, Genedani S, **Leo G**, Rivera A, Guidolin D, Fuxe K. One century of progress in neuroscience founded on Golgi and Cajal's outstanding experimental and theoretical contributions. Brain Res Rev. 2007; 55(1):167-89.

28 Agnati LF, **Leo G**, Genedani S, Guidolin D, Andreoli N, Fuxe K. Possible relevance of receptor-receptor interactions between viral- and host-coded receptors for viral-induced disease. ScientificWorldJournal. 2007; 7:1073-81.

29 **Leo G**, Genedani S, Filaferro M, Carone C, Andreoli N, Astancolle S, Davalli P, Fuxe K, Agnati LF. Hyper-homocysteinemia alters amyloid peptide-clusterin interactions and neuroglial network morphology and function in the caudate after intrastriatal injection of amyloid peptides. Curr Alzheimer Res. 2007; 4(3):305-13.

30 Agnati LF, Guidolin D, **Leo G**, Genedani S, Arhem P, Forni A, Andreoli N, Fuxe K.Role of cooperativity in protein folding and protein mosaic assemblage relevance for protein conformational diseases. Curr Protein Pept Sci. 2007; 8(5):460-70.

31 Agnati LF, **Leo G**, Genedani S, Andreoli N, Marcellino D, Woods A, Piron L, Guidolin D, Fuxe K.Structural plasticity in G-protein coupled receptors as demonstrated by the allosteric actions of homocysteine and computer-assisted analysis of disordered domains. Brain Res Rev. 2008; 58(2):459-74.

32 Aguirre JA, **Leo G**, Cueto R, Andbjer B, Naylor A, Medhurst AD, Agnati LF, Fuxe K. The novel cyclooxygenase-2 inhibitor GW637185X protects against l-methyl-4-phenyl-1,2,3,6-tetrahydropyridine toxicity. Neuroreport. 2008; 19(6):657-60.

33 Agnati LF, **Leo G**, Genedani S, Piron L, Rivera A, Guidolin D, Fuxe K. Common key-signals in learning and neurodegeneration: focus on excito-amino acids, beta-amyloid peptides and alpha-synuclein. J Neural Transm. 2009; 116(8):953-74

34 Agnati LF, Guidolin D, **Leo G**, Carone C, Genedani S, Fuxe K. Receptor-receptor interactions: A novel concept in brain integration. Prog Neurobiol. 2010; 90(2):157-75.

35 Genedani S, Agnati LF, **Leo G**, Buzzega D, Maccari F, Carone C, Andreoli N, Filaferro M, Volpi N. beta-Amyloid fibrillation and/or hyperhomocysteinemia modify striatal patterns of hyaluronic acid and dermatan sulfate: Possible role in the pathogenesis of Alzheimer's disease. Curr Alzheimer Res. 2010; 7(2):150-7.

36 Agnati LF, Guidolin D, Baluska F, **Leo G**, Barlow PW, Carone C, Genedani S. A new hypothesis of pathogenesis based on the divorce between mitochondria and their host cells: possible relevance for the Alzheimer's disease. Curr Alzheimer Res. 2010; 7(4):307-22.

37 Fuxe K, Marcellino D, **Leo G**, Agnati LF. Molecular integration via allosteric interactions in receptor heteromers. A working hypothesis. Curr Opin Pharmacol. 2010 Feb;10(1):14-22

38 Baldelli E*, **Leo G***, Andreoli N, Fuxe K, Biagini G, Agnati LF. Homocysteine potentiates seizures and cell loss induced by pilocarpine treatment. Neuromolecular Med. 2010;12(3):248-59.

39 Agnati Lf, Guidolin D, **Leo G**, Guescini M, Pizzi M, Stocchi V, Spano Pf, Ghidoni R, Ciruela F, Genedani S, Fuxe K. Possible new targets for GPCR Modulation: allosteric interactions, plasma membrane domains, intercellular transfer and epigenetic mechanisms. Journal of Receptors and Signal Transduction, 2011; Vol. 31, P. 315-331

40 Agnati LF, Barlow PW, Baluška F, Tonin P, Guescini M, **Leo G**, Fuxe K. A new theoretical approach to the functional meaning of sleep and dreaming in humans based on the maintenance of 'predictive psychic homeostasis'. Commun Integr Biol. 2011 Nov 1;4(6):640-54.

41 Fuxe K, Borroto-Escuela DO, Romero-Fernandez W, Ciruela F, Manger P, **Leo G**, Díaz-Cabiale Z, Agnati LF. On the role of volume transmission and receptor-receptor interactions in social behaviour: focus on central catecholamine and oxytocin neurons. Brain Res. 2012 Oct 2;1476:119-31.

42 Guescini M, **Leo G**, Genedani S, Carone C, Pederzoli F, Ciruela F, Guidolin D, Stocchi V, Mantuano M, Borroto-Escuela DO, Fuxe K, Agnati LF. Microvesicle and tunneling nanotube mediated intercellular transfer of g-protein coupled receptors in cell cultures. Exp Cell Res. 2012 Mar 10;318(5):603-13.

43 Agnati LF, Guidolin D, Maura G, Marcoli M, **Leo G**, Carone C, De Caro R, Genedani S, Borroto-Escuela DO, Fuxe K. Information handling by the brain: proposal of a new "paradigm" involving the roamer type of volume transmission and the tunneling nanotube type of wiring transmission. J Neural Transm (Vienna). 2014 Dec;121(12):1431-49.

44 Carone C, Genedani S, **Leo G**, Filaferro M, Fuxe K, Agnati LF. In vitro effects of cocaine on tunneling nanotube formation and extracellular vesicle release in glioblastoma cell cultures. J Mol Neurosci. 2015 Jan;55(1):42-50.

45 **Leo G**, Guescini M, Genedani S, Stocchi V, Carone C, Filaferro M, Sisti D, Marcoli M, Maura G, Cortelli P, Guidolin D, Fuxe K, Agnati LF. Acute isoproterenol induces anxiety-like behavior in rats and increases plasma content of extracellular vesicles. Physiol Behav. 2015 Apr 1;142:79-84.

46 Ganassi M, Mateju D, Bigi I, Mediani L, Poser I, Lee HO, Seguin SJ, Morelli FF, Vinet J, **Leo G,** Pansarasa O, Cereda C, Poletti A, Alberti S, Carra S.A. Surveillance Function of the HSPB8-BAG3-HSP70 Chaperone Complex Ensures Stress Granule Integrity and Dynamism. Mol Cell. 2016 Sep 1;63(5):796-810.

47 Giordano C, Costa AM, Lucchi C, **Leo G**, Brunel L, Fehrentz JA, Martinez J, Torsello A, Biagini G.Progressive Seizure Aggravation in the Repeated 6-Hz Corneal Stimulation Model Is Accompanied by Marked Increase in Hippocampal p-ERK1/2 Immunoreactivity in Neurons. Front Cell Neurosci. 2016 Dec 16;10:281. doi: 10.3389/fncel.2016.00281. eCollection 2016.

48 Lucchi C, Costa AM, Giordano C, Curia G, Piat M, **Leo G,** Vinet J, Brunel L, Fehrentz JA, Martinez J, Torsello A, Biagini G. Involvement of PPARγ in the Anticonvulsant Activity of EP-80317, a Ghrelin Receptor Antagonist.Front Pharmacol. 2017 Sep 22;8:676. doi: 10.3389/fphar.2017.00676. eCollection 2017.

49 Agnati LF, Marcoli M, **Leo G,** Maura G, Guidolin D. Homeostasis and the concept of 'interstitial fluids hierarchy': Relevance of cerebrospinal fluid sodium concentrations and brain temperature control (Review). Int J Mol Med. 2017 Mar;39(3):487-497. doi: 10.3892/ijmm.2017.2874. Epub 2017 Feb 3. Review.

50 Vinet J, Costa AM, Salinas-Navarro M, **Leo G**, Moons L, Arckens L, Biagini G. A Hydroxypyrone-Based Inhibitor of Metalloproteinase-12 Displays Neuroprotective Properties in Both Status Epilepticus and Optic Nerve Crush Animal Models. Int J Mol Sci. 2018 Jul 25;19(8). pii: E2178. doi: 10.3390/ijms19082178.

51 Citti C, Palazzoli F, Licata M, Vilella A, **Leo G,** Zoli M, Vandelli MA, Forni F, Pacchetti B, Cannazza G. Untargeted rat brain metabolomics after oral administration of a single high dose of cannabidiol.J Pharm Biomed Anal. 2018 Aug 11;161:1-11.

52 Venturini A, Passalacqua M, Pelassa S, Pastorino F, Tedesco M, Cortese K, Gagliani MC, **Leo G**, Maura G, Guidolin D, Agnati LF, Marcoli M, Cervetto C. Exosomes From Astrocyte Processes: Signaling to Neurons. Front Pharmacol. 2019 Dec 2;10:1452. doi: 10.3389/fphar.2019.01452.

53. Mediani L, Antoniani F, Galli V, Vinet J, Carrà AD, Bigi I, Tripathy V, Tiago T, Cimino M, Leo G, Amen T, Kaganovich D, Cereda C, Pansarasa O, Mandrioli J, Tripathi P, Troost D, Aronica E, Buchner J, Goswami A, Sterneckert J, Alberti S, Carra S. Hsp90-mediated regulation of DYRK3 couples stress granule disassembly and growth via mTORC1 signaling. EMBO Rep. 2021 May 5;22(5):e51740. doi: 10.15252/embr.202051740

54. Martina Corsi, Alessandro Paghi, Stefano Mariani, Giulia Golinelli, Aline Debrassi, Gabriella Egri, Giuseppina Leo, Eleonora Vandini, Antonietta Vilella, Lars Dähne, Daniela Giuliani, Giuseppe

Barillaro. Bioresorbable Nanostructured Chemical Sensor for Monitoring of pH Level In Vivo. Adv Sci (Weinh) . 2022 May 26;e2202062. doi: 10.1002/advs.202202062. Online ahead of print.