

CURRICULUM VITAE (CV)

Name: Lorenzo Corsi
Date and Place of Birth: April 20, 1969 Carpi (MODENA) Italy
Citizenship: Italian
Education: 1994 Bachelor degree in Pharmacy, University of Modena, Italy
1995 Board Examination, University of Modena, Italy
1998 Master in Neuroscience Georgetown University School of Medicine, Washington D.C. USA
2003 PhD in Pharmacology and Toxicology University of Padova Italy.
2005 PhD in Natural Medicine Université Européenne Jean Monnet AISBL Bruxelles Belgium.
2008 Training in Social health and non conventional medicine University of Bologna.

Academic career and roles:

- 1994-1995: Internship in Pharmacology, Dept. of Pharmaceutical Science, University of Modena, Italy In this period the research of Dr. Corsi have been addressed to the characterisation of benzodiazepine-like compounds activity on vegetal and human matrix. Dr. Corsi learns purification and analytic techniques such as HPLC analysis. In addition he has improved his skill in radioreceptor binding techniques on Gabaergic system.
- 1995-1996: Instructor in Pharmacology, Dept. of Pharmaceutical Science, University of Modena, Italy.
During this period Dr. Corsi performed his research on peripheral benzodiazepine receptor (PBR). In particular the studies were addressed on expression of PBR and its putative endogenous ligands in cancer such as hepatocellular carcinoma (HCC). The studies have been carried out using radioreceptor binding techniques on subcellular preparation (mitochondria, nuclei) of samples coming from human hepatic resection.
- Jun. 96-Feb03: Postdoctoral fellowship, Dept. of Physiology, Dept. of Physiology and Biophysics, Georgetown University Medical School Washington. DC. During this period Dr. Corsi improved his scientific background learning Patch-clamp techniques on neuronal primary culture, neuronal slices and transfected cells carrying cDNA for either Gaba or Glutamate receptor systems. To record neuronal current it has been used piezoelectric translator for fast application of drugs (single channel recording), and Y tubing for the whole cell recording. In addition during this period Dr. Corsi has performed several experiments on cellular cytotoxicity involving different enzymatic pathway such as Calmoduline kinase. The apoptotic and necrotic cells were measured using fluorimetric assay. Moreover Dr. Corsi has take lecture and seminar on

neurobiology and neuropathology. He gave seminar on his research to the members and colleagues of the department.

- Feb.99-set2008: Research Assistant Professor, Dept. of Biomedical Sciences Sect. Pharmacology, University of Modena, Italy. In this period Dr. Corsi addressed his research on the biochemical mechanism of degenerative diseases such cancer and neurodegeneration. He is head of a team who is in charge to uncover the molecular relationship between the intracellular protein PBR/TSPO and cell proliferation. During this period the research focused on the subcellular distribution of the receptor and the respective contribution in cell proliferation using biochemical and molecular biology techniques. In addition some researches have been addressed on the role play by reactive oxygen species on PBR expression and the possible correlation with degeneration. He gave lessons in pharmacology in Pharmacy, CTF and Biotechnology. He gave seminars regarding specific topic at the University of Modena and Reggio Emilia.
- 2008 High formation course in Health Sociology and Complementary Medicine
- Sep. 2008: Researcher and Aggregate Professor at Dept. of Biomedical Sciences/Life Sciences, sect. of Pharmacology University of Modena and Reggio Emilia

Main research field activity

The main research is related to the implication of specific metabolic pathways in degenerative diseases. In particular research is focused on the role of an intracellular protein called peripheral benzodiazepine receptors (PBR), or translocator protein (TSPO).

TSPO is involved in many functions such as mitochondrial respiration, translocation of cholesterol from cytoplasm o mitochondria, cell proliferation and apoptosis. The PBR function was first identified in steroidogenesis: TSPO binds cholesterol and mediates its transport into mitochondria and this increase pregnenolone production and steroidigenesis. This function is important especially in brain neurosteroids synthesis. In this context, a correlation has been observed between TSPO expression, steroid biosynthesis and oligodendrocytes differentiation suggesting a role of the TSPO in neurologic development and differentiation processes. Various reports have therefore suggested that stimulation of neurosteroids synthesis, combined with promotion of neuronal cell survival via regulation of apoptosis, participate to support the survival of nerves affected by neurodegenerative diseases. The main objective of the research is to find out a relation between the intracellular protein TSPO and the event controlling cell growth, intracellular red-ox balance and apoptosis. In this view it become possible to improve the knowledge on its functional activity in both physiology and pathology with particular focus on the relationship between hormones and cellular red/ox. In such new concept to “intend” cancer it would be possible to generate a diagnostic and prognostic system able to detect tumors in the early stage of the disease and possibly to develop new drugs and therapies. The experiment will be performed *in vitro* using different techniques such as Western blot, radioimmunoassay, ELISA, radioligand binding assay, RT-PCR, immunocytochemistry, flow cytometry, cell transfection and gene knock out.

Different parameters such as morphology, adhesion, proliferation, differentiation, cellular metabolism, plasma membrane integrity, cell death (apoptosis) will be evaluated on different cell lines after treatment with specific and novel natural ligands.

Others research activity

- Nanotoxicology
- Activity Natural derived compounds on neurodegenerative disease
- Effect of new glutamatergic antagonist on cancer cell proliferation/death
- Study of the molecular mechanism of stress ulcer: prospects of new therapy
- Effect of DHEA treatment on hepatic encephalopathy

- Effects of E.M fields on cell fate

Teaching activity

2005/06 Pharmacology Dept. Pharmaceutical Sciences
2006/07 Toxicology Dept. Pharmaceutical Sciences
2007/08 Toxicology Dept. Pharmaceutical Sciences
2008/09 Toxicology Dept. Pharmaceutical Sciences
2010/11 Toxicology Dept. Pharmaceutical Sciences

Funding ID

1998-1999	Bursary from "Enrico ed Enrica Sovena Foundation". Principal Investigator
2001-2002	Grant "Young Researcher Project" entitled: Electrophysiological characterisation of peripheral benzodiazepine receptor (PBR). Principal Investigator
2003-04	Grant by "Cassa di Rsparmio Foundation" entitled: Molecular characterization of peripheral benzodiazepine receptor (PBR) on cell proliferation. Principal Investigator
2005-2007	Advanced Scientific Formation Bursary by Department of Biomedical Sciences Sect. Pharmacology, University of Modena e Reggio Emilia supported by an Italian grant (COFIN 2005) Apoptotic processes in cellular differentiation and degeneration. Co-Investigator
2007-2008	Advanced Scientific Formation Bursary by Department of Biomedical Sciences Sect. Pharmacology, University of Modena e Reggio Emilia entitled: Cellular degeneration linked to inflammatory processes: role of peripheral benzodiazepine receptor. Principal Investigator.
2007-2008	Project Philippe Morris
2011	Project on Fe-Heme from "M. Baraldi Research Foundation"

Publications:

1. Avallone, R., P. Zanoli, **L. Corsi**, G. Cannazza and M. Baraldi. Benzodiazepine-like compounds and GABA in flower heads of *Matricaria Chamomilla*. *Phytoterapy Res.*, 10: 177-179, (1996) ISSN: 0951-418X.
2. Zeneroli M.L., I. Venturini, R. Avallone, **L. Corsi**, F. Farina, G. Ardizzzone, M. Centenaro, A. Arrigo, M. Baraldi. Hepatic encephalopathy in patients submitted to liver transplantation precipitated by benzodiazepines present in transfused blood. *Transplantation*, 62: 764-767, (1996) ISSN: 0041-1337.
3. Zeneroli, R. Pellicci, I. Venturini, G. Ardizzzone, A. Arrigo, **L. Corsi**, R. Avallone, M. Baraldi. Peripheral benzodiazepine receptors in hepatocellular carcinoma. *European I.H.P.B.A.*

Congress HAMBURG (1997), Editors C.E. Broelsch - J.R. Izbicki -C. Bloechle - K.A Gawad, pp. 101-105, (Monduzzi editore).

4. Ghose S., B. Wroblewska, **L. Corsi**, D. R. Grayson, A.L. De Blas, S. Vicini, Joseph H. Neale Naag stimulates mGlu3 to regulate expression of the GABA A $\alpha 6$ subunit in cerebellar granule cells. *J. Neurochem.* **69** (6): 2326-2335. (1997) ISSN 0022-3042.
5. Wang W.J. Zhu, **L. Corsi**, S. Ikonovic, S. Vicini, and D.R. Grayson. Chronic dizolcipine (MK 801) reversibly delays Gaba_A receptor maturation in cerebellar granule neurons in vitro. *J. Neurochem.*, **71** (2): 693-704 (1998) ISSN 0022-3042.
6. Avallone R., I Venturini, M.L. Zeneroli, **L. Corsi**, P. Schreier, C. Ferrarese, M. Kleinschnitz, C. Baraldi, N. Pecora, M. Frigo, and M. Baraldi. Endogenous benzodiazepine-like compounds and Diazepam Binding Inhibitor in serum of Liver cirrhosis patients with and without encephalopathy. *GUT* **42**: 860-867 (1998) ISSN: 0017-5749.
7. Li J.H., Y.H. Wang, B.B. Wolfe, K.E. Krueger, **L. Corsi**, G. Stocca, and S. Vicini. Developmental changes in localization of NMDA receptor subunits in primary cultures of cortical neurons. *Europ.J.Neuroscience*, **10** (5): 1704-1715 (1998) ISSN 0953-816X.
8. **Corsi L.**, J.H. Li, K. E. Krueger, Y.H. Wang¹, B.B. Wolfe and S. Vicini. Upregulation of NR2B subunit of NMDA receptors in cerebellar granule neurons by CaM kinase inhibitor KN93. *J.Neurochem.* **70**: 1898-1906 (1998) ISSN 0022-3042.
9. Venturini I., **L. Corsi**, M.L. Zeneroli, R. Avallone C. Ferrarese, N. Pecora, M. Frigo, F. Farina, R. Pellicci, G. Ardizzone, A. Arrigo and M. Baraldi. Up-Regulation of peripheral benzodiazepine receptor system in hepatocellular carcinoma. *Life Sciences*, **63** (14): 1269-1280 (1998) ISSN: 0024-3205.
10. Zeneroli M.L., I. Venturini, **L. Corsi**, R. Avallone, P. Schreier, M. Kleinschnitz and M. Baraldi. Benzodiazepine-like compounds in plasma of patients with fulminant hepatic failure. *Scan. J. Gastroenterol.* **33**: 310-313 (1998) ISSN 0036-5521.
11. Venturini I., M.L. Zeneroli, **L. Corsi**, R. Avallone, F. Farina, C. Ferrarese, N. Pecora, M. Frigo, and M. Baraldi. Diazepam binding inhibitor and total cholesterol plasma levels in cirrhosis and hepatocellular carcinoma. *Regulatory Peptides*. **74**: 31-34 (1998) ISSN: 0167-0115.
12. Zhu W.J., J.F. Wang, **L.Corsi** and S. Vicini. Lanthanum - mediated modification of GABA_A receptor deactivation, desensitization and inhibitory synaptic currents. *J. Physiol.* **511.3**: 647-661(1998) ISSN: 0022-3751.
13. I.Venturini, H. Alho, I.Podkletnova, M. Peltto-Huikko, **L.Corsi**, E. Rybnikova, R. Pellicci, M. Baraldi and M.L. Zeneroli. Increased expression of peripheral benzodiazepine receptors and diazepam binding inhibitor in human tumors sited in the liver. *Life Sciences* **65** (21): 2223-2231 (1999) ISSN: 0024-3205.
14. M Baraldi, R. Avallone, **L. Corsi**, I. Venturini, C. Baraldi, M.L. Zeneroli. Endogenous benzodiazepines. *Thèrapie* **55**: 143-146 (2000) ISSN 0040-5957.

15. M Baraldi, R. Avallone, **L. Corsi**, P. Zanolì, C. Baraldi, M.L. Zeneroli. Le benzodiazepine naturali *Le benzodiazepine dalla molecola alla pratica clinica* Springer-Verlag Italia srl (2000).
16. I. Venturini, **L. Corsi**, R. Avallone, F. Farina, G. Bedogni, C. Baraldi, M. Baraldi and M.L. Zeneroli. Ammonia and endogenous benzodiazepine-like compounds in the pathogenesis of hepatic encephalopathy. *Scan. J. Gastroenterol.* **36** (4): 423-5 (2001) ISSN 0036-5521.
17. R. Avallone, **L. Corsi**, M.L. Zeneroli and M. Baraldi. Presence of benzodiazepine-like compounds in food and their implication in the nutrition of cirrhotic patients *Innovative Food Sciences and Emerging Technology.* **2/3**: 193-198 (2001) ISSN: 1466-8564.
18. Subramanian J; Corsi L; Vicini S; Whiting, P.J. and Neale JH Rybozyme-mediated reduction of the GABAA $\alpha 1$ subunit. *Mol. Brain Res.* **92**: 149-156 (2001) ISSN: 0169-328X.
19. **L. Corsi**, R. Avallone, F. Cosenza, F. Farina, C. Baraldi, and M. Baraldi. Antiproliferative effects of *Ceratonia siliqua* L. on mouse hepatocellular carcinoma cell line *Fitoterapia* **73**, 674-684 (2002)) ISSN: 0367-326X.
20. **L.Corsi**, , R. Avallone, F. Cosenza, E. Geminiani, I. Venturini, M. Baraldi Peripheral benzodiazepine receptors in potatoes (*Solanum tuberosum*) *Biochem. Biophys. Res. Comm.* **313**, 1:62-66 (2004) ISSN: 0006-291X.
21. **L.Corsi**, E. Geminiani, R. Avallone and M. Baraldi. Nuclear location dependent role of peripheral benzodiazepine receptor (PBR) in hepatic tumoral cell lines proliferation *Life Sci.* **76**, 2523-33 (2005) ISSN: 0024-3205.
22. Zeneroli ML., Avallone R., **Corsi L.**, Venturini I., Baraldi C., Baraldi M., Management of hepatic encephalopathy: role of rifaximin. *Chemotherapy* **51** supp. 1 90-5 (2005) ISSN: 0009-3157.
23. Venturini I, Ferrieri A, Farina F, Cosenza F, Avallone R, **Corsi L**, Baraldi M, Zeneroli ML. Evaluation of rifaximin, placebo and lactulose in reducing the levels of benzodiazepine-like compounds in patients with liver cirrhosis: a pilot study. *Drugs Exp Clin Res.***31**(4):161-8 (2005) ISSN: 0378-6501.
24. Cortelli P, Avallone R, Baraldi M, Zeneroli ML, Mandrioli J, **Corsi L**, Riva R, Tinuper P, Lugaresi E, Baruzzi A, Montagna P. Endozepines in recurrent stupor. *Sleep Med Rev.* **9**,477-87 (2005) ISSN: 1087-0792.
25. **Corsi L**. Geminiani E. Baraldi M. Peripheral benzodiazepine receptor (PBR) new insight in cell proliferation and cell differentiation review. *Curr.Clin.Pharmacol.* **3**, 38-45 (2008) ISSN: 1574-8847.
26. Zanolì P, Zavatti M, Geminiani E, **Corsi L**, Baraldi M. The phytoestrogen ferutinin affects female sexual behavior modulating ER α expression in the hypothalamus. *Behav Brain Res.* **16**;199(2): 283-7 (2009). ISSN: 0166-4328.
27. Baraldi M, Avallone R, **Corsi L**, Venturini I, Baraldi C, Zeneroli ML. Natural endogenous ligands for benzodiazepine receptors in hepatic encephalopathy. *Metab Brain Dis.* **24**(1):81-93 (2009). ISSN: 0885-7490.

28. Zavatti M, **Corsi L**, Zanolì P, Baraldi M. Anti-ulcer activity of IAC, a novel free-radical scavenger, in rats. *J Pharm Pharmacol*. 61(3):395-7 (2009). ISSN: 0022-3573.
29. **Corsi L**. Effects of the Novel Non-Peptidyl Low Molecular Weight Radical Scavenger IAC in Different Models of Inflammation: A New Perspective in Anti-Inflammatory Therapy. *Curr. Med. Chem*. 17 (32): 3918-3924 (2010).
30. **L. Corsi**, M. Zavatti, E. Geminiani, P. Zanolì, M. Baraldi. Anti-inflammatory activity of the non-peptidyl low molecular weight radical scavenger IAC in carrageenan-induced edema in rats. *J Pharm Pharmacol* DOI: 10.1111/j.2042-7158.2010.01233.x (2011).
31. Bramini, Gian Luca Sighinolfi, Roberta Salvatori, Fabio Pasquali, Federico Capitani, Victor Puentes, Eudald Casals, Nick Schaivon, **Lorenzo Corsi** and Antonietta M Gatti. A new strategy to assess the in-vitro toxicity of nanoparticles. *Particle and Fibre Toxicology*. (2013) submitted.
32. Di Viesti V. Rovinazzi Chiappelli C. Ferrarini F. and Corsi L. Cytotoxic effect of hemin in colonic epithelial cell line: involvement of 18 kDa translocator protein (TSPO). *Life Sciences* (2013) submitted.