

## CURRICULUM VITAE – Pasquina Marzola, PhD

### PERSONAL DATA

Work address: Dipartimento di Informatica  
Università di Verona  
Strada Le Grazie,15 - 37134 Verona (Italy)  
tel. + 39-45-8027614  
e-mail: pasquina.marzola@univr.it

### EDUCATION

- Degree in Physics with full honours (110/110 cum laude) from the University of Perugia, April 1986. Discussed the thesis "Accomplishing a low-resolution NMR spectrometer and applications to systems of biological interest "
- Obtained higher degree in Chemistry (equivalent to PhD) at the Scuola Normale Superiore of Pisa with full honours (70/70 cum laude), July 1992. Discussed the thesis "Protein dynamics in water restricted environments".

**ACADEMIC POSITION:** Researcher in Applied Physics (FIS/07) at the Faculty of Medicine of the University of Verona, from 1/11/2002.

Associate Professor in Experimental Physics (FIS/01) at the Faculty of Sciences of the University of Verona, from 1/1/2011.

### SCIENTIFIC ACTIVITIES

*Since June 1996*, conducts research activity at the Laboratory of Magnetic Resonance Imaging (MRI), University of Verona. The scientific activity of Dr. Pasquina Marzola focuses on development and optimization of innovative MRI methods in preclinical research. In this scientific field she has published about 100 papers in international peer-reviewed scientific journals.

Major scientific accomplishments of Dr. Pasquina Marzola in the field of Oncology are:

1) Demonstration that MRI, and specifically Dynamic-Contrast-Enhanced MRI, can detect noninvasively the early effect of antiangiogenesis drugs. The study was carried out in collaboration with Sugen Inc, San Francisco CA, and Pharmacia, Milano Italy. Two drugs were investigated, SU6668 and SU11248. The last drug is now in clinical use under the tradename Sunitinib. Dr. Pasquina Marzola and coauthors demonstrated the specific effect of these drugs on the inhibition of angiogenesis in experimental tumors, while at that time, only the effect on tumor volume reduction had been demonstrated. Publications: Marzola et al., Clinical Cancer Research, 10:739 (2004); Marzola et al., Clinical Cancer Research, 11:5827 (2005).

2) Multimodal Imaging approach to the investigation of the relationship between perfusion and metabolism in tumors using respectively Dynamic-Contrast-Enhanced MRI and FDG PET. Dr. Pasquina Marzola and coauthors mapped in vivo the vascular supply and glucose metabolism in syngeneic experimental models of carcinoma and mesenchymal tumor. They found that in both tumor histotypes, regions with high vascular perfusion exhibited a significantly lower FDG uptake, so providing in vivo evidence of vascular/metabolic reciprocity. Publications: Galìè et al., Neoplasia 9:900 (2007); Farace et al., EJNMMI 36:616 (2009).

3) More recently, in the field of magnetic thermotherapy, she has contributed to the demonstration of the efficacy of magnetic thermotherapy performed with magnetosomes extracted from magnetotactic bacteria. Publications: Orlando T, et al., Contrast Media & Mol Imaging. 2016 Mar;11(2):139-45. Mannucci S, et al., PLoS One. 2014; Tambalo et al., Submitted to Nanoscale.

**From July 1991 to May 1996:** Senior Researcher in the Department of Imaging, Pre-clinical Research, Bracco Spa, Milano. Responsible for preclinical research programmes on contrast agents for magnetic resonance Tomography

**September 1989-January 1990.** Research activity in the Laboratory of Fluorescence Dynamics, Physics Department, University of Illinois (Urbana, IL USA), under the supervision of Prof. E. Gratton. Focuses on time resolved fluorescence of proteins contained in reverse micelles.

**March 1988 to June 1991.** As part of the PhD course at the Scuola Normale Superiore, conducts research in the Department of Chemistry at the University of Pisa, under the supervision of Prof. C.A. Veracini. Focuses on the characterization of the dynamics and structural properties of protein inserted in inverse micelles. The characterization is performed with ESR and time-resolved fluorescence spectroscopy.

**1985-1986.** Research activity in the Molecular Biophysics Lab, Department of Physics, University of Perugia,. She is involved in the realization of a low-resolution NMR spectrometer and the application of magnetic resonance techniques (NMR and ESR) in the biophysical and biomedical field.

•

#### INTERNATIONAL COLLABORATIONS

- 1) Prof. Jose Dominguez-Vera, Departamento de Química Inorgánica, Universidad de Granada, Spain. Magnetic nanoparticles (see Valero et al., J Am Chem Soc, 2011).
- 2) Prof. Sabine Van Huffel, Department of Electrical Engineering, SCD-SISTA, Katholieke Universiteit Leuven. Quantitative analysis of proton localized spectra (see Mosconi et al., J Lipid Res. 2011; Mosconi, et al, NMR in Biomedicine, 27:431-43, 2014,).
- 3) Dr. Claudio Vinegoni, Center for System Biology, Massachusetts General Hospital, Harvard Medical School, Boston, United States. K-space sampling schemes applied to optical microscopy (see Vinegoni et al., Biomedical Optics Express, 2013).
- 4) Prof. Fernando Palacio, instituto de Ciencia de Materiales de Aragón, CSIC - Universidad de Zaragoza, Spain. Magnetic nanoparticles.
- 5) Dr. Stefano Pluchino, Department of Clinical Neurosciences, Cambridge Center for Brain Repair, Cambridge UK. Functional Imaging in experimental model of multiple sclerosis.
- 6) Nicolau Beckman, Novartis Institutes for BioMedical Research, Analytical Sciences & Imaging, Basel, Switzerland.

#### TEACHING and ACADEMIC COMMITMENTS (last 3 years)

##### **Academic year 2013-2014**

Teaching APPLIED PHYSICS, Degree course in Biomedical Laboratory Techniques (University of Verona).

Teaching APPLIED PHYSICS, Degree course in cardio-circulatory physiopathology and cardiovascular perfusion techniques (University of Verona).

Teaching PHYSICS I, Degree Course in Computer Sciences (University of Verona).

Teaching PHYSICS I, Degree Course in Biotechnology (University of Verona).

Teaching PHYSICS AND TECHNIQUES OF BIOMEDICAL IMAGING, Master's Degree in Bioinformatics and Biomedical Technologies (University of Verona).

##### **Academic Year 2015-2016**

Teaching APPLIED PHYSICS, Degree course in Biomedical Laboratory Techniques (University of Verona).

Teaching APPLIED PHYSICS, Degree course in cardio-circulatory physiopathology and cardiovascular perfusion techniques (University of Verona).

Teaching PHYSICS I, Degree Course in Computer Sciences (University of Verona).

Teaching APPLIED PHYSICS, Degree Course in Medicine (University of Verona).

#### **Academic Year 2016-2017**

Teaching FISICA I, Degree Course in Computer Science (University of Verona)

Teaching APPLIED PHYSICS, Degree Course in Medicine (University of Verona).

Teaching APPLIED PHYSICS, Degree course in physiotherapy (University of Verona).

#### **Anno Accademico 2017-2018**

Teaching FISICA I, Degree Course in Computer Science (University of Verona)

Teaching APPLIED PHYSICS, Degree Course in Medicine (University of Verona).

Teaching APPLIED PHYSICS, Degree course in physiotherapy (University of Verona).

#### **4) Co-supervisor of thesis**

*Academic year 2001-2002* Co-supervisor of the thesis: "Definition and development of a methodology for studies of functional magnetic resonance imaging in laboratory animals". Thesis submitted by Alessandra Adami for the Degree in Physics, Università di Bologna.

*Academic year 2003-2004* Co-supervisor of the thesis: "Development of software for the extraction of Arterial Input Function from MRI data" Thesis submitted by Sara Zumiani for the Degree in Computer Science, Università di Verona.

*Academic year 2004-2005* Co-supervisor of the thesis "Design and development of a system to manage MRI data" Thesis submitted by Eugenio Ambrosi for the Degree in Computer science, Università di Verona.

*Academic year 2005-2006* Co-supervisor of the thesis "Measurement of relaxation time T1 in nuclear magnetic resonance: comparison between imaging and spectroscopic techniques " presented by Stefano Pasetto for the Degree in Physics, Università di Trento.

Co-supervisor of the thesis "Determination of mass and functional cardiac parameters by MRI" presented by Cristina Foss for the Degree in Physics, Università di Trento.

#### **5) Tutorship in PhD Thesis:**

a) PhD Student Alessandro Daducci, PhD thesis: "Advanced image-processing techniques in magnetic resonance imaging for the investigation of brain pathologies and tumour angiogenesis" University of Verona, 2010.

b) PdD Student Elisa Mosconi, PhD thesis: "Acquisition and Analysis of MRS Spectra in Animal Models" University of Verona 2011

c) PhD student Giamaica Conti, PhD thesis: "Experimental Studies aimed to assess the usefulness of nanoparticles as diagnostic and theranostic agents". Dottorato in "Nanotecnologie e Nanomateriali per applicazioni Biomediche".

d) PhD student Alice Busato. PhD Thesis: "MRI biomarkers of disease evolution and efficacy of stem cell therapy in the SOD1(G93A) experimental model of Amyotrophic Lateral Sclerosis"

e) PhD student Pietro Bontempi. PhD Thesis: "Advanced magnetic resonance imaging techniques in brain diseases"

f) PhD Student Silvia Fiorini. PhD Thesis: "Tecniche avanzate di neuroimaging in risonanza magnetica nello studio delle alterazioni cerebrali in processi patologici e fisiologici"

6) Previously member of the Committee (Collegio dei docenti) for PhD in **Nanotechnologies and Nanomaterials for biomedical applications**, currently member of the Committee (Collegio dei docenti) for PhD in **Nanosciences and Advanced Technologies**.

#### **GRANTS (selected, last 10 years)**

Financing of 25,000 Euro obtained from Italian Multiple Sclerosis Foundation (FISM, call 2007) as scientific responsible for the pilot project "Functional Imaging of neuronal plasticity in the study in an experimental model of Multiple Sclerosis".

Financing of 19,000 Euro obtained from the University of Verona, Joint Projects 2007, for the project entitled " Interfaccia web-based ai dati di Tomografia a Risonanza Magnetica Bruker ParaVision®" in collaboration with Bruker s.r.l., Milan.

Financing of 23,000 Euro + VAT obtained from Nerviano Medical Sciences for the project entitled "Search for spectroscopic and/or imaging markers for the characterisation of the efficacy of innovative therapies in experimental models of glioma. "

PRIN (Bando 2007) Financing of 38,571 euro for the project: "Homing and Fate of pancreatic islets and mesenchymal stem cells transplanted in rat studied in vivo using magnetic resonance Tomography and Optical Imaging".

Financing of 25,000 Euro + VAT obtained from Siena Biotech for the project entitled: "Evaluation of efficacy of Siena Biotech experimental drug in human glioma model by optical and magnetic resonance imaging".

Financing of 30,300 Euro + VAT obtained from Chiesi Pharmaceuticals for the project "Characterisation of experimental models of pulmonary diseases by optical and magnetic resonance imaging"

Financing of 50,000 Euro obtained from Italian Multiple Sclerosis Foundation (FISM) as scientific responsible for the project "*Imaging funzionale nello studio della plasticità neuronale in un modello sperimentale di sclerosi multipla su ratto*" Call 2011.

Financing of 106,000 Euro from Italian Ministry of Research, MIUR, for the project: "Rete integrata per la Nanomedicina" RBAP114AMK-RI.NA.ME.

Internal collaborator in the project: "Magnetosomes as nanotechnology platform for thermotherapy of tumour", funded by AIRC-Italian Association for Cancer Research with 450,000 Euro. Prof. Andrea Sbarbati, Principal Investigator.

Financing of 27,600 Euro obtained from the University of Verona, Joint Projects 2015, for the project entitled "Tumor metabolism and response to therapies using innovative MRI techniques" in collaboration with Nerviano MS.

Financing of 13,600 Euro obtained from University of Verona Joint Project 2017 for the project " DCE-MRI PER DISCRIMINARE I LINFONODI NORMALI DA QUELLI METASTATICI IN UN MODELLO SPERIMENTALE" in collaboration with Centro per Protonterapia-Trento

#### **Activity as referee**

Served as referee for the following international journals:

- Journal of Colloid and Interface Science
- Contrast Media and Molecular Imaging
- Brain Research Bull
- Pharmaceutical Research
- European Journal of Cancer
- British Journal of Pharmacology
- European Journal of Radiology
- European Journal of Nuclear Medicine and Molecular Imaging
- MAGMA (Magnetic Resonance Materials in Physics, Medicine and Biology)
- Journal of Neuroscience Methods.
- PlosOne
- Nanomedicine
- World Scientific Journal (section Radiology)
- BioMed Research International

- Journal of Nanoparticles Research
- Dalton Transactions
- Biomaterials
- Artificial Intelligence in Medicine.
- Neuroscience.
- ACS Chemical Neuroscience
- ACS Nano

Served as referee of scientific projects for:

Università di Milano, Dutch Cancer Society, Israel Science Foundation, ANR- Agence Nationale de la Recherche.

**H-NUMBER: 27(ISI)**

## PUBLICATIONS LIST

### *Publications in international journals with Impact Factor*

- 1) F.M.Mazzolai, F.A.Lewis, P.Marzola; Zener and Snoek-Koester effects in the Pd/Pt/H system; J. de Physique Coll. 48 (1987) C8-269-274.
- 2) S.Cannistraro, G.Giugliarelli, P.Marzola, F.Sacchetti; Amorphous-polycrystalline transition in frozen aqueous solutions of  $65\text{Cu}^{2+}$  doped sodium hydroxide probed by ESR spectroscopy; Solid State Comm. 68 (1988) 369-373.
- 3) B.Coluzzi, C.Costa, P.Marzola, F.M.Mazzolai; Elastic constants of a Pd<sub>85</sub>Pt<sub>15</sub> single crystal containing hydrogen; J.Phys.: Condens.Matter 1 (1989) 6335-6342.
- 4) P.Marzola, C.Pinzi, C.A.Veracini; Spin labeling study of human serum albumin in reverse micelles; Langmuir 7 (1991) 238-242.
- 5) G.D.Reinhart, P.Marzola, D.M.Jameson, E. Gratton; A method for on-line background subtraction in frequency domain fluorometry; J. Fluorescence 1 (1991) 153-162.
- 6) P.Marzola, E.Gratton; Hydration and protein dynamics: frequency domain fluorescence spectroscopy on proteins in reverse micelles; J. Phys. Chem. 95 (1991) 9488-9495.
- 7) P.Marzola, C.Forte, C.Pinzi, C.A.Veracini; Activity and conformational changes of  $\alpha$ -chymotrypsin in reverse micelles studied by spin labeling; FEBS Lett. 289 (1991) 29-32.
- 8) P.Marzola, S.Cannistraro; Hydration and protein dynamics: an ESR and ST-ESR spin labelling study of human serum albumin; Appl.Magn.Reson. 3 (1992) 1045-1060.
- 9) F.M.Cavagna, P.Marzola, M.Dapra', F.Maggioni, E.Vicinanza, P.M.Castelli, C.deHaen, C.Luchinat, C.B.Higgins; Binding of Gd-BOPTA/Dimeg to proteins extravasated into interstitial space enhances conspicuity of reperfused infarcts; Investigative Radiology 29 (1994) S50-53.
- 10) P.Marzola, F.Maggioni, E.Vicinanza, M.Dapra', F.M.Cavagna; Evaluation of the Hepatocyte-specific Contrast Agent Gadobenate Dimeglumine for MR Imaging of Acute Hepatitis in a Rat Model, Journal of Magnetic Resonance Imaging (1997) 7: 147-152.
- 11) A. Sbarbati, U. Guerrini, P. Marzola, R. Asperio, F. Osculati, Chemical Shift Imaging at 4.7 tesla of brown adipose tissue, Journal of Lipid Research 38 (1997) 343-347.

- 12) I. Bertini, C. Luchinat, G. Parigi, G. Quacquarelli, P. Marzola, F. Cavagna, Off-Resonance Experiments and Contrast Agents to Improve Magnetic resonance Imaging, *Magnetic Resonance in Medicine* 39 (1998) 124-131.
- 13) P. Marzola, A. Da Pra, A. Sbarbati, F. Osculati, A PC-based workstation for processing and analysis of MRI data, *Magnetic Resonance Materials in Physics, Biology and Medicine* 7 (1998) 16-20.
- 14) E. Lunati, P. Cofrancesco, M. Villa, P. Marzola, F. Osculati, Evolution Strategy Optimization for Selective Pulses in NMR, *Journal of Magnetic Resonance* 134, (1998).223-235.
- 15) A. Sbarbati, E. Mocchegiani, P. Marzola, A. Tibaldi, R. Manucci, E. Nicolato, F. Osculati, Effect of dietary supplementation with zinc sulphate on aging process: a study using high field intensity MRI and chemical shift imaging, *Biomedicine & Pharmacotherapy* , 52:454-8 (1998)
- 16) A. Sbarbati, P. Marzola, A. Simonati, E. Nicolato, F. Osculati, High Field-Magnetic Resonance Imaging of the Developing Human Brain from the 10<sup>th</sup> to the 16<sup>th</sup> Week of Gestational Age, *Acta Anatomica*, 163:39-46 (1998).
- 17) R. Asperio, P. Marzola, E. Zibellini, W. Villa, A. Sbarbati, F. Osculati, F. Addis, Use of Magnetic Resonance Imaging at 4.7 tesla for the diagnosis of a spinal cord tumor in a cat, *Veterinary Radiology & Ultrasound* 40, 267-270 (1999).
- 18) P. Marzola, E. Mocchegiani, E. Nicolato, A. Tibaldi, A. Sbarbati, F. Osculati, Chemical Shift Imaging at 4.7 Tesla of Thymus in Young and Old Mice, *Journal of Magnetic Resonance Imaging*, 10:97-101 (1999).
- 19) E. Lunati, P. Marzola, E. Nicolato, M. Fedrigo, A. Sbarbati, M. Villa, F. Osculati, In vivo Quantitative Lipidic Map of Brown Adipose Tissue by Chemical Shift Imaging at 4.7 T, *Journal of Lipid Research*, 40:1395-1400 (1999).
- 20) E. Lunati, P. Cofrancesco, M. Villa, P. Marzola, A. Sbarbati, Evolution Strategy Optimization for Adiabatic Pulses in MRI, *Journal of Magnetic Resonance*, 138:48-53 (1999).
- 21) P. Marzola, E. Nicolato, E. Di Modugno, P. Cristofori, A. Lanzoni, C. H. Ladel, A. Sbarbati, Comparison between MRI, microbiology and histology in evaluation of antibiotics in a murine model of thigh infection, *Magnetic Resonance Materials in Physics, Biology and Medicine* 9 (1999) 21-28.
- 22) R. Asperio, P. Marzola, A. Sbarbati, F. Osculati, F. Addis, Comparison of results of scanning electron microscopy and magnetic resonance imaging before and after administration of a radiographic contrast agent in the tendon of the deep digital flexor muscle obtained from horse cadavers, *American Journal of Veterinary Research*, 61:321-325 (2000).
- 23) E. Lunati, P. Marzola, E. Nicolato, A. Sbarbati , *In vivo* quantitative hydro-lipidic map of perirenal adipose tissue by chemical shift imaging at 4.7 Tesla, *Int. J. Obesity*, 25 :457-61 (2001).
- 24) A. Sbarbati, A. Reggiani, E. Lunati, R. Arban, E. Nicolato, P. Marzola, R.M. Asperio, P. Bernardi and F. Osculati, Regional cerebral blood volume mapping after ischemic lesions, *NeuroImage*, 12:418-424 (2000).
- 25) F.de Pasquale, G. Sebastiani, E. Egger, L. Guidoni. A.M. Luciani, P. Marzola, R. Manfredi, M. Pacilio, A. Piermattei, V. Viti, P. Barone, Bayesian estimation of relaxation times T1 in MR images of irradiated Fricke-agarose gels, *Magnetic Resonance Imaging* 18(2000)721-731.
- 26) A. Fenzi, M. Bortolazzi, P. Marzola, R. Colombari, In vivo investigation of content and space distribution of hepatic iron overload in rat livers using T2 maps: a study performed at high intensity field and short-echo time, *Journal of Magnetic Resonance Imaging* 13 (2001) 392-396.

- 27) R.M: Asperio, E. Nicolato, P.Marzola, P. Farace, E. Lunati, A. Sbarbati, F. Osculati, Delayed muscle injuries in arterial insufficiency: a contrast-enhanced MRI and 31P Spectroscopy study in rats, *Radiology*, 220 (2) 413-419 (2001).
- 28) A. Reggiani, C. Pietra, R. Arban, P. Marzola, U. Guerrini, L. Ziviani, A. Boicelli, A. Sbarbati, F. Osculati, The neuroprotective activity of the glycine receptor antagonist GV150526: an in vivo study by magnetic resonance imaging, *European J Pharmacology* 419 (2-3):147-53 (2001).
- 29) E. Lunati, P. Farace, E. Nicolato, C. Righetti, P. Marzola, A. Sbarbati, F. Osculati, Polyunsaturated fatty acids mapping by (1)H MR-chemical shift imaging. *Magn Reson Med.* 46 :879-83. (2001).
- 30) A. Sbarbati, A. Reggiani, E. Nicolato, R. Arban, P. Bernardi, E. Lunati, P. Marzola, R.M. Asperio, F. Osculati, Correlation MRI/ultrastructure in cerebral ischemic lesions: application to the interpretation of cortical layered areas. *Magnetic resonance imaging.* 20:479-86 (2002).
- 31) A. Sbarbati, L. Calderan, E. Nicolato, P.Marzola, E Lunati, D. Benati, P. Bernardi, F. Osculati, Magnetic Resonance Imaging of the rat Harderian Gland, *J. Anat.* 201:231-8 (2002).
- 32) P. F. Fabene, P.Marzola, A. Sbarbati, M. Bentivoglio, Magnetic Resonance Imaging of changes elicited by status epilepticus in the rat brain: diffusion-weighted and T2-weighted images, regional blood volume maps, and direct correlation with tissue and cell damage, *NeuroImage* 18:375-389 (2003).
- 33) A. Sbarbati, P.Marzola, E. Nicolato, P. Farace, R.M. Asperio, E. Lunati, P. F. Fabene, D. Marzoni, M. Castellucci, M. C. Caporossi, F. Osculati, Dynamic MRI Reveals that the magnitude of the Ischemia-Related Enhancement in skeletal muscle is age dependent, *Mag Reson Med.* 49:386-90 (2003).
- 34) P.Marzola, P. Farace, L. Calderan, C. Crescimanno, E. Lunati, E. Nicolato, D. Benati, A. Degrassi, A. Terron, J. Klapwijk, E. Pesenti, A. Sbarbati, In vivo mapping of fractional plasma volume (fpv) and endothelial transfer coefficient (Kps) in solid tumors using a macroscopic contrast agent, *International J Cancer*, 104:462-8 (2003).
- 35) A.Fenzi, M. Bortolazzi, P.Marzola, Comparison between signal-to-noise ratio, liver-to-muscle ratio, and 1/T2 for the non invasive assessment of liver iron content by MRI, *J Magnetic Resonance Imaging*, 17:589-582 (2003).
- 36) E. Peira, P. Marzola, V. Podio, S. Aime, A. Sbarbati, M.R. Gasco, In vitro and in vivo Study of Solid Lipid Nanoparticles loaded with Superparamagnetic Iron Oxide, *J Drug Targeting*, 11:19-24 (2003).
- 37) P.Marzola, F. Osculati, A. Sbarbati, High Field MRI in Preclinical Research, *European J Radiology*, 48:165-70 (2003).
- 38) P.Marzola, A. Degrassi, L. Calderan, C. Crescimanno, E. Nicolato, A. Giusti, E. Pesenti, A. Terron, A. Sbarbati, T. Abrams, L. Murray, F. Osculati, *In Vivo* Assessment of Anti-angiogenic Activity of SU6668 in an Experimental Colon Carcinoma, *Clinical Cancer Research*, 10:739-750 (2004).
- 39) P.Marzola, A. Sbarbati, Magnetic Resonance Imaging in Animal Models of Pathologies, *Methods in Enzymology*, 386:177-200 (2004).

- 40) M. Galiè, M. D'Onofrio, L. Calderan, E. Nicolato, A. Amici, C. Crescimanno, P. Marzola, A. Sbarbati, In vivo mapping of spontaneous mammary tumors in transgenic mice using MRI and Ultrasonography, *J Magnetic Resonance Imaging*, 19:570-9 (2004).
- 41) L. Calderan, P.F. Fabene, E. Nicolato, P. Marzola, A. Sbarbati, F. Osculati, Regional cerebral blood volume (rCBV) and trasversal relaxation time (T2)mapping of the rat limbic system during pre-puberal and adult age. *Neuroscience Letters* 364:141-4 (2004).
- 42) A. Sbarbati, F. Pizzini, P.F. Fabene, E. Nicolato, P. Marzola, L. Calderan , A. Simonati, L. Longo, F. Osculati, A. Beltramello. Cerebral cortex three-dimensional profiling in human fetuses by magnetic resonance imaging. *J Anat.* 204:465-74 (2004).
- 43) P. Marzola, A. Degrassi, L. Calderan, P. Farace, E. Nicolato, C. Crescimanno, M. Sandri, A. Giusti, E. Pesenti, A. Terron, A. Sbarbati, F. Osculati. Early antiangiogenic activity of SU11248 evaluated in vivo by dynamic contrast-enhanced magnetic resonance imaging in an experimental model of coloncarcinoma. *Clin Cancer Res.* 11(16):5827-32 (2005).
- 44) M. Galie, C. Sorrentino, M. Montani, L. Micossi, E. Di Carlo, T. D'Antuono, L. Calderan, P. Marzola, D. Benati, F. Merigo, F. Orlando, A. Smorlesi, C. Marchini, A. Amici, A. Sbarbati. Mammary carcinoma provides highly tumourigenic and invasive reactive stromal cells. *Carcinogenesis.* (2005)
- 45) P. Marzola, S. Ramponi, E. Nicolato, E. Lovati, M. Sandri, L. Calderan, C. Crescimanno, F. Merigo, A. Sbarbati, A. Grotti, S. Vultaggio, F. Cavagna, V. Lo Russo, F. Osculati. Effect of tamoxifen in an experimental model of breast tumor studied by dynamic contrast-enhanced magnetic resonance imaging and different contrast agents. *Invest Radiol.* 40(7):421-9 (2005)
- 46) P. Marzola, A. Lanzoni, E. Nicolato, V. Di Modugno, P. Cristofori, F. Osculati, A. Sbarbati, (1)H MRI of pneumococcal pneumonia in a murine model. *J Magn Reson Imaging.* 22(1):170-4 (2005).
- 47) M. Galie, M. D'Onofrio, M. Montani, A. Amici, L. Calderan, P. Marzola, D. Benati, F. Merigo, C. Marchini, A. Sbarbati. Tumor vessel compression hinders perfusion of ultrasonographic contrast agents. *Neoplasia.* 7(5):528-36 (2005)
- 48) L. Calderan, C. Chiamulera, P. Marzola, P.F. Fabene, G.F. Fumagalli, A. Sbarbati. Sub-chronic nicotine-induced changes in regional cerebral blood volume and transversal relaxation time patterns in the rat: a magnetic resonance study. *Neurosci Lett.* 377:195-9 (2005).
- 49) P.F. Fabene, R. Weiczner, P. Marzola, E. Nicolato, L. Calderan, A. Andrioli, E. Farkas , Z. Sule, A. Mihaly, Sbarbati A. Structural and functional MRI following 4-aminopyridine-induced seizures: A comparative imaging and anatomical study. *Neurobiol Dis.* 21:80-9 (2006).
- 50) A. Sbarbati, I. Cavallini, P. Marzola, E. Nicolato, F. Osculati, Contrast-enhanced MRI of brown adipose tissue after pharmacological stimulation, *Magnetic Resonance in Medicine.* 55:715-8 (2006).
- 51) L. Calderan, P. Marzola, Nicolato E., C. Milanese, A. Giordano, S. Cinti, A. Sbarbati, *In vivo* phenotyping of the *ob/ob* mouse by MRI and <sup>1</sup>H-MRS, *Obesity Research* 14:405-414 (2006).
- 52) I. Cavallini, M. A. Marino, C. Tonello, P. Marzola, E. Nicolato, P. F. Fabene, L. Calderan, P. Bernardi, R.M. Asperio, E. Nisoli, A. Sbarbati, The Hydrolipidic Ratio in Age-related Maturation of Adipose Tissue, *Biomedicine and Pharmacotherapy* 60:139-43 (2006).
- 53) M. Neri, C. Maderna, C. Cavazzin, V. Deidda-Vigoriti, L.S.Politi, G. Scotti, P. Marzola, A. Sbarbati, A.L. Vescovi, A. Gritti, Efficient In Vitro Labeling Of Human Neural Precursor Cells With



Superparamagnetic Iron Oxide Particles: Relevance For In Vivo Cell Tracking. *Stem Cells*, 26:505-16 (2008).

54) M. Galiè, P. Farace, C. Nanni, A. Spinelli, E. Nicolato, F. Boschi, P. Magnani, S. Trespidi, V. Ambrosini, S. Fanti, F. Merigo, F. Osculati, P. Marzola, A. Sbarbati. Epithelial and mesenchymal tumor histotypes exhibit a complementary pattern of vascular perfusion and glucose metabolism, *Neoplasia*, 9: 900-908 (2007).

55) M. Funicello, M. Novelli, M. Ragni, T. Vottari, C. Cocuzza, J. Soriano-Lopez, C. Chiellini, F. Boschi, P. Marzola, P. Masiello, P. Saftig, F. Santini, R. St-Jacques, S. Desmarais, N. Morin, J. Mancini, M.D. Percival, A. Pinchera, M. Maffei. Cathepsin K null mice show reduced adiposity during the rapid accumulation of fat stores. *PLoS ONE*. 2007 Aug 1;2(1):e683.

56) P.F. Fabene, F. Merigo, M. Galie, D. Benati, P. Bernardi, P. Farace, E. Nicolato, P. Marzola, A. Sbarbati, Pilocarpine-induced status epilepticus in rats involves ischemic and excitotoxic mechanisms. *PLoS ONE*. 2007 Oct 31;2(10):e1105.

57) M. Galiè, G. Kostantinidou, D. Peroni, I. Scambi, C. Marchini, V. Lisi, M. Krampera, P. Magnani, F. Merigo, M. Montani, F. Boschi, P. Marzola, R. Orrù, P. Farace, A. Sbarbati, A. Amici, Mesenchymal Stem Cells Share Molecular Signature with Mesenchymal Tumor Cells and Favour tumor growth in Syngeneic Mice, *Oncogene*, 27:2542-51 (2008).

58) F. Boschi, P. Marzola., M. Sandri, E. Nicolato, M. Galiè, S. Fiorini, F. Merigo, V. Lorusso, L. Chaabane, A. Sbarbati, Tumor microvasculature observed using different contrast agents: a comparison between Gd-DTPA-Albumin and B-22956/1 in an experimental model of mammary carcinoma, *Magnetic Resonance Materials in Physics, Biology and Medicine*, 21:169-176 (2008).

59) F. Boschi, E. Nicolato, D. Benati, P. Marzola, A. Sbarbati., Drug targeting of airway surface liquid: a pharmacological MRI approach, *Biomedicine and Pharmacotherapy*, 62:410-19 (2008).

60) U. Castellani, M. Cristani., C. Combi, V. Murino, A. Sbarbati, P. Marzola., Visual MRI: Merging Information Visualization and non-parametric clustering techniques for MRI data set analysis, *Artificial Intelligence in Medicine*, 44:183-189 (2008).

61) Masotti A, Pitta A, Ortaggi G, Corti M, Innocenti C, Lascialfari A, Marinone M, Marzola P, Daducci A, Sbarbati A, Micotti E, Orsini F, Poletti G, Sangregorio C., Synthesis and characterization of polyethylenimine-based iron oxide composites as novel contrast agents for MRI. *Magnetic Resonance Materials in Physics Biology and Medicine*.22:77-87 (2009).

62) Fabene PF, Navarro Mora G, Martinello M, Rossi B, Merigo F, Ottoboni L, Bach S, Angiari S, Benati D, Chakir A, Zanetti L, Schio F, Osculati A, Marzola P, Nicolato E, Homeister JW, Xia L, Lowe JB, McEver RP, Osculati F, Sbarbati A, Butcher EC, Constantin G. A role for leukocyte-endothelial adhesion mechanisms in epilepsy. *Nat Med.*;14:1377-83 (2008).

63) Farace P, D'Ambrosio D, Merigo F, Galiè M, Nanni C, Spinelli A, Fanti S, Degrassi A, Sbarbati A, Rubello D, Marzola P. Cancer-associated stroma affects FDG uptake in experimental carcinomas. Implications for FDG-PET delineation of radiotherapy target. *Eur J Nucl Med Mol Imaging*. 36:616-23 (2009).

64) Farace P, Galiè M, Merigo F, Daducci A, Calderan L, Nicolato E, Degrassi A, Pesenti E, Sbarbati A, Marzola P. Inhibition of tyrosine kinase receptors by SU6668 promotes abnormal stromal development at the periphery of carcinomas. *Br J Cancer*. 100:1575-80 (2009)

65) Castellani U, Cristiani M, Daducci A, Farace P, Marzola P, Murino V, Sbarbati A. DCE-MRI data analysis for cancer area classification. *Methods Inf Med.*;48:248-53 (2009).

- 66) Galiè M, Farace P, Merigo F, Fiorini S, Tambalo S, Nicolato E, Sbarbati A, Marzola P. Washout of small molecular contrast agent in carcinoma-derived experimental tumors. *Microvasc Res.*78(3):370-8 (2009).
- 67) Marzola P, Longoni B, Szilagy E, Merigo F, Nicolato E, Fiorini S, Paoli GT, Benati D, Mosca F, Sbarbati A. In vivo visualization of transplanted pancreatic islets by MRI: comparison between in vivo, histological and electron microscopy findings. *Contrast Media Mol Imaging.* 4:135-42 (2009).
- 68) Tambalo S, Daducci A, Fiorini S, Boschi F, Mariani M, Marinone M, Sbarbati A, Marzola P. Experimental protocol for activation-induced manganese-enhanced MRI (AIM-MRI) based on quantitative determination of Mn content in rat brain by fast T1 mapping. *Magn Reson Med.* 62:1080-4 (2009).
- 69) Conti G., Tambalo S, Villetti G., Catinella S., Carnini C., Bassani F., Sonato N., Sbarbati A., Marzola P, Evaluation of lung inflammation induced by intratracheal administration of LPS in mice: comparison between MRI and Histology, *Magnetic Resonance Materials in Physics Biology and Medicine*, 23:93-101 (2010)
- 70) Longoni B., Szilagy E., Quaranta P., Paoli G., Tripodi S., Urbani S., Mazzanti B., Rossi B., Fanci R., Demontis GC, Marzola P., Saccardi R., Cintonino M., Mosca F., Mesenchymal Stem Cells prevent acute rejection and prolong graft function in pancreatic islet transplantation, *Diabetes Technology & Therapeutics*, 12: 435-46 (2010).
- 71) Norwood BA, Bumanglag AV, Osculati F, Sbarbati A, Marzola P, Nicolato E, Fabene PF, Sloviter RS., Classic hippocampal sclerosis and hippocampal-onset epilepsy produced by a single "cryptic" episode of focal hippocampal excitation in awake rats. *J Comp Neurol.* 15;518:3381-407. (2010).
- 72) Mosconi E, Fontanella M, Sima D, Van Huffel S, Fiorini S, Sbarbati A, Marzola P, Investigation of adipose tissues in Zucker rats using in vivo and ex vivo Magnetic Resonance Spectroscopy, *J Lipid Res.*;52(2):330-6 (2011).
- 73) Valero E., Tambalo S, Marzola P., Ortega-Munoz M., Lopez-Jaramillo FJ, Santoyo-Gonzalez F, de Dios Lopez J., Delgado J.J., Calvino J.J., Cuesta R, . Domínguez-Vera J.M., Galvez N., Magnetic Nanoparticles-Templated Assembly of Protein Subunits: a new platform for carbohydrate-based MRI nanoprobes, *J Am Chem Soc*; 133(13): 4889-95 (2011).
- 74) Giarola M, Rossi B, Mosconi E, Fontanella M, Marzola P, Scambi I, Sbarbati A, Mariotto G. Fast and minimally invasive determination of the unsaturation index of white fat depots by micro-Raman spectroscopy. *Lipids* ;46(7):659-67 (2011).
- 75) Farace P, Tambalo S, Fiorini S, Merigo F, Daducci A, Nicolato E, Conti G, Degrassi A, Sbarbati A, Marzola P. Early versus late GD-DTPA MRI enhancement in experimental glioblastomas. *J Magn Reson Imaging* ;33(3):550-6 (2011).
- 76) Spinelli AE, Kuo C, Rice BW, Calandrino R, Marzola P, Sbarbati A, Boschi F. Multispectral Cerenkov luminescence tomography for small animal optical imaging. *Opt Express* ;19(13):12605-18 (2011).
- 77) Farace P, Merigo F, Fiorini S, Nicolato E, Tambalo S, Daducci A, Degrassi A, Sbarbati A, Rubello D, Marzola P. DCE-MRI using small-molecular and albumin-binding contrast agents in experimental carcinomas with different stromal content. *Eur J Radiol.*;78(1):52-9 (2011).
- 78) Farace P, Conti G, Merigo F, Tambalo S, Marzola P, Sbarbati A, Quarta C, D'Ambrosio D, Chondrogiannis S, Nanni C, Rubello D. Potential role of combined FDG PET/CT & contrast

enhancement MRI in a rectal carcinoma model with nodal metastases characterized by a poor FDG-avidity. *Eur J Radiol.*;81(4):658-62 (2012).

79) Passuello T, Pedroni M, Piccinelli F, Polizzi S, Marzola P, Tambalo S, Conti G, Benati D, Vetrone F, Bettinelli M, Speghini A. PEG-capped, lanthanide doped GdF(3) nanoparticles: luminescent and T(2) contrast agents for optical and MRI multimodal imaging. *Nanoscale*;4(24):7682-9 (2012)

80) Conti G, Minicozzi A, Merigo F, Marzola P, Osculati F, Cordiano C, Sbarbati A. Morphogenetic events in the perinodal connective tissue in a metastatic cancer model. *Biomed Pharmacother*;67(1):1-6. (2013)

81) Minicozzi A, Mosconi E, Cordiano C, Rubello D, Marzola P, Ferretti A, Maffione AM, Sboarina A, Bencivenga M, Boschi F, Conti G, Sbarbati A. Proton magnetic resonance spectroscopy: ex vivo study to investigate its prognostic role in colorectal cancer. *Biomed Pharmacother*;67(7):593-7 (2013).

82) Cecchini MP, Parnigotto M, Merigo F, Marzola P, Daducci A, Tambalo S, Boschi F, Colombo L, Sbarbati A. 3D Printing of Rat Salivary Glands: The Submandibular-Sublingual Complex. *Anat Histol Embryol*. 2013 Jul 4. doi: 10.1111/ahe.12074. [Epub ahead of print] PubMed PMID: 23822094.

83) Mosconi E, Minicozzi A, Marzola P, Cordiano C, Sbarbati A. (1) H-MR spectroscopy characterization of the adipose tissue associated with colorectal tumor. *J Magn Reson Imaging*. 2013 May 30. doi: 10.1002/jmri.24177. [Epub ahead of print] PubMed PMID: 23723058.

84) Vinegoni C, Lee S, Feruglio PF, Marzola P, Nahrendorf M, Weissleder R. Sequential average segmented microscopy for high signal-to-noise ratio motion-artifact-free in vivo heart imaging. *Biomed Opt Express*. ;4(10):2095-106 (2013).

85) Mosconi E, Sima DM, Osorio Garcia MI, Fontanella M, Fiorini S, Van Huffel S, Marzola P. Different quantification algorithms may lead to different results: a comparison using proton MRS lipid signals. *NMR Biomed*. ;27(4):431-43 (2014).

86) Daducci A, Tambalo S, Fiorini S, Osculati F, Teti M, Fabene PF, Corsi M, Bifone A, Sbarbati A, Marzola P, Manganese-enhanced magnetic resonance imaging investigation of the Interferon- $\alpha$  model of depression in rats, *Magnetic Resonance Imaging, Magn Reson Imaging*. 2014;32(5):529-34.

87) Amendola V, Scaramuzza S, Litti L, Meneghetti M, Zuccolotto G, Rosato A, Nicolato E, Marzola P, Fracasso G, Pinto M, Colombatti M, Magneto-Plasmonic Au-Fe Alloy Nanoparticles Designed for Multimodal SERS-MRI-CT Imaging, *Small ( Small*. 2014 ;10(12):2476-86).

88) Quaranta P, Antonini S, Spiga S, Mazzanti B, Curcio M, Mulas G, Diana M, Marzola P, Mosca F, Longoni B. Co-transplantation of endothelial progenitor cells and pancreatic islets to induce long-lasting normoglycemia in streptozotocin-treated diabetic rats. *PLoS One*.;9(4):e94783.

89) Valero E, Fiorini S, Tambalo S, Busquier H, Callejas-Fernández J, Marzola P, Gálvez N, Domínguez-Vera JM. In vivo long-term magnetic resonance imaging activity of ferritin-based magnetic nanoparticles versus a standard contrast agent. *J Med Chem*. 2014;57(13):5686-92.

90) Mannucci S, Ghin L, Conti G, Tambalo S, Lascialfari A, Orlando T, Benati D, Bernardi P, Betterle N, Bassi R, Marzola P, Sbarbati A. Magnetic nanoparticles from *Magnetospirillum gryphiswaldense* increase the efficacy of thermotherapy in a model of colon carcinoma. *PLoS One*. 2014;9(10):e108959.

- 91) Ritelli R, Ngalani Ngaleu R, Bontempi P, Dandrea M, Nicolato E, Boschi F, Fiorini S, Calderan L, Scarpa A, Marzola P. Pancreatic cancer growth using magnetic resonance and bioluminescence imaging. *Magn Reson Imaging*. 2015; 33(5):592-9.
- 92) Tambalo S, Peruzzotti-Jametti L, Rigolio R, Fiorini S, Bontempi P, Mallucci G, Balzarotti B, Marmiroli P, Sbarbati A, Cavaletti G, Pluchino S, Marzola P. Functional Magnetic Resonance Imaging of Rats with Experimental Autoimmune Encephalomyelitis Reveals Brain Cortex Remodeling. *J Neurosci*. 2015; 35(27):10088-100.
- 93) Orlando T, Mannucci S, Fantechi E, Conti G, Tambalo S, Busato A, Innocenti C, Ghin L, Bassi R, Arosio P, Orsini F, Sangregorio C, Corti M, Casula MF, Marzola P, Lascialfari A, Sbarbati A. Characterization of magnetic nanoparticles from *Magnetospirillum Gryphiswaldense* as potential theranostics tools. *Contrast Media Mol Imaging*. 2016;11(2):139-45.
- 94) Busato A, Bonafede R, Bontempi P, Scambi I, Schiaffino L, Benati D, Malatesta M, Sbarbati A, Marzola P, Mariotti R. Magnetic resonance imaging of ultrasmall superparamagnetic iron oxide-labeled exosomes from stem cells: a new method to obtain labeled exosomes. *Int J Nanomedicine*. 2016;11:2481-90.
- 95) Marzola P, Boschi F, Moneta F, Sbarbati A, Zancanaro C. Preclinical In vivo Imaging for Fat Tissue Identification, Quantification, and Functional Characterization. *Front Pharmacol*. 2016;7:336.
- 96) Marzola P, Boschi F, Moneta F, Sbarbati A, Zancanaro C. Preclinical In vivo Imaging for Fat Tissue Identification, Quantification, and Functional Characterization. *Front Pharmacol*. 2016;7:336.
- 97) Busato A, Fumene Feruglio P, Parnigotto PP, Marzola P, Sbarbati A. In vivo imaging techniques: a new era for histochemical analysis. *Eur J Histochem*. 2016 ;60:2725.
- 98) Mannucci S, Calderan L, Quaranta P, Antonini S, Mosca F, Longoni B, Marzola P, Boschi F. Quantum dots labelling allows detection of the homing of mesenchymal stem cells administered as immunomodulatory therapy in an experimental model of pancreatic islets transplantation. *J Anat*. 2017;230:381-388.
- 99) Ringhieri P, Mannucci S, Conti G, Nicolato E, Fracasso G, Marzola P, Morelli G, Accardo A. Liposomes derivatized with multimeric copies of KCCYSL peptide as targeting agents for HER-2-overexpressing tumor cells. *Int J Nanomedicine*. 2017;12:501-514.
- 100) Bontempi P, Busato A, Bonafede R, Schiaffino L, Scambi I, Sbarbati A, Mariotti R, Marzola P. MRI reveals therapeutical efficacy of stem cells: An experimental study on the SOD1(G93A) animal model. *Magn Reson Med*. 2017 Mar 31. doi: 10.1002/mrm.26685.
- 101) Busato A, Bonafede R, Bontempi P, Scambi I, Schiaffino L, Benati D, Malatesta M, Sbarbati A, Marzola P, Mariotti R. Labeling and Magnetic Resonance Imaging of Exosomes Isolated from Adipose Stem Cells. *Curr Protoc Cell Biol*. 2017 Jun 19;75:3.44.1-3.44.15.
- 102) Polymer-coated superparamagnetic iron oxide nanoparticles as T2 contrast agent for MRI and their uptake in liver, Ali LMA, Marzola P, Nicolato E, Fiorini S, Heras Guillamón M, Piñol R, ... *Future Science OA*, 2017 FSO235

### ***Publications in international journals without Impact Factor***

- 1) P. Marzola, L.Longo, S.Cannistraro, R.Palumbo, G.Capriano, G.Gobbi; Water proton relaxation effects of paramagnetic complexes in solution and in tissues: 1H-NMR spin echo and EPR studies; in

"Physics in Environmental and Biomedical Research", S.Onori and E.Tabet eds., World Sci.Publ.Co. (1986) 277-282.

2) P.Marzola and S.Cannistraro; Influence of paramagnetic ions bound to human serum albumin on water <sup>1</sup>H-NMR relaxation times; *Physiol.Chem.Phys.Med.NMR* 18 (1986) 263-273.

3) P.Marzola and S.Cannistraro; Gd<sup>3+</sup>-TPPS: a potential paramagnetic contrast agent in NMR imaging; *Physiol.Chem.Phys.Med.NMR* 19 (1987) 279-282.

4) C.A.Veracini and P.Marzola; NMR studies of liquid crystals: the thermotropics: in "Physics of Liquid Crystals", I.C.Khoo and F.Simoni eds., Gordon & Breach (1992) 471-485.

5) E. Nicolato, P. Farace, RM Asperio, P. Marzola, E. Lunati, A. Sbarbati, F. Osculati, Dynamic contrast-enhanced magnetic resonance imaging of the sarcopenic muscle, *BMC Med Imaging*. 2002 Jun 5;2(1):2.

6) C. Combi., P. Marzola, V. Murino, A. Sbarbati, M. Zampieri., Towards Information Visualization and Clustering Techniques for MRI Data Sets, in AIME 2005, Silvia Miksch, Jim Hunter and Elpida T. Keravnou Ed.(2005)

7) P. Marzola, F. Boschi, A. Sbarbati., Innovation in contrast agents for magnetic resonance imaging, *Current Medical Imaging*, 2:291-298 (2006).

8) N. Faccioli, P. Marzola, F. Boschi, A. Sbarbati, M. D'Onofrio, R. Pozzi Mucelli., Pathological animal models in the experimental evaluation of tumour microvasculature with magnetic resonance imaging. *Radiol Med (Torino)*, 112(3):319-28. (2007).

### ***Publications in national journals***

1) R.Lamanna, P.Marzola, S.Cannistraro; Multifrequency low resolution <sup>1</sup>H-NMR spectrometer for liquid samples, *Rapporto interno dell'Universita' di Perugia, DFUPG* 9-88 (1988).

2) E. Franchi , P. Marzola, A. Sbarbati, Tecniche di Tomografia a Risonanza Magnetica Nucleare nell'Imaging della angiogenesi e della vascularizzazione dei tumori, *Rivista Italiana di Biologia e Medicina*, 20: 81-86 (2000) .

3) A. Sbarbati, P.F. Fabene, P. Marzola, F. Boschi, Preclinical Neuroimaging: an overview, *Rivista di Neuroradiologia* 18:16-20 (2005).

### ***Patents***

- 1) Dominguez Vera J. M., Galvez Rodriguez N., Fernandez Lopez B., Valero Romero E., Boschi F., Calderan L., Marzola P., Calvino Gamez J.J., Hungria Hernandez A. B., Cuesta Martos R., Nanoestructuras multifuncionales como agentes de diagnosis trimodal MRI-OI-SPECT, P200931146, OEPM Madrid.

### ***Communications in Meetings***

#### **Selected oral contributions/invited lectures**

1c) P.Marzola, C.Forte, C.Pinzi, C.A.Veracini; Spin labeling investigation of proteins in reverse micelles; VI International Symposium on Magnetic Resonance in Colloid and Interface Science, Firenze, 22-26 Giugno 1992.

2c) F.M. Cavagna, F. Maggioni, P.M. Castelli, E. Vicinanza, P. Marzola, M. Daprà, E. Felder, Binding of Gd-BOPTA/Dimeg to extravasated serum proteins enhances conspicuity of brain tumors

in rats; International Society for Magnetic Resonance in Medicine, second scientific meeting and exhibition, San Francisco 6-12 Agosto 1994

3c) F.M. Cavagna, F. Maggioni, P.M. Castelli, P. Marzola, M. Daprà, D. Lanens, C. de Haen, Contrast Enhanced Magnetization Transfer MRI of rat brain tumors with Gd-BOPTA/Dimeg and Gd-DTPA/Dimeg; International Society for Magnetic Resonance in Medicine and European Society of Magnetic Resonance in Medicine and Biology (Joint Meeting), Nizza 19-25 Agosto 1995

4c) P. Marzola, A. Da Pra', C. Zancanaro, A. Sbarbati, A Low Cost Workstation for the MRI Laboratory: Applications to Time Domain Processing and to Parametric Imaging, XXVIII Congresso Nazionale Risonanze Magnetiche, Vallugola di Gabicce Mare (PS), 8-11 Ottobre 1997.

5c) P. Marzola, A. Sbarbati, F. Osculati, Non-invasive evaluation of drug efficacy by in vivo MRI: experimental models of ischemic and infectious pathologies, Franco-Italian Conference on Magnetic Resonance, La Londe Les Maures (Francia) 2-5 Maggio (2000).

6c) P. Marzola, L. Calderan, P. Farace, C. Crescimanno, E. Nicolato, A. Sbarbati, Probing Tumor Angiogenesis by contrast enhanced MRI, XXXI Congresso Nazionale Risonanze Magnetiche, Parma, 19-22 Settembre 2001.

7c) P. Marzola, A. Sbarbati, F. Osculati, Efficacy of antiangiogenesis drugs studied in vivo by dynamic contrast enhanced MRI and different contrast agents, XXXV National Congress on Magnetic Resonance, Monte Porzio Catone (Roma) 31 Agosto-3 Settembre 2005 (invited speaker).

8c) P. Marzola, B. Longoni, E. Nicolato, E. Szilagyi, D. Benati, F. Merigo, F. Mosca, A. Sbarbati, Homing and fate of pancreatic islets after transplantation in rats monitored in vivo by MRI, 22nd Annual Meeting of ESMRMB, Basilea, 15-18 Settembre 2005

9c) P. Marzola, In vivo tracking of stem cells by MRI, Workshop on Stem Cells: Basic Science and Clinical Applications, Pisa 28 Settembre 2005 (invited speaker)

10c) A. Fenzi, D. Ventura, S. Fiorini, F. Merigo, P. Marzola, MRI investigation of liver and myocardium iron overload induced by iron-rich feeding in rats, 23rd Annual Meeting of ESMRMB, Varsavia 21-23 Settembre 2006.

11c) P. Marzola, F. Boschi, E. Nicolato, P. Farace, C. Nanni, A. Spinelli, S. Trespidi, V. Ambrosini, S. Fanti, M. Galiè, A. Sbarbati, F. Osculati, Correlation between tumor angiogenesis and glucose metabolism: a DCE-MRI and PET study, 23rd Annual Meeting of ESMRMB, Varsavia 21-23 Settembre 2006.

12c) S. Tambalo, S. Fiorini, A. Daducci, F. Boschi, E. Nicolato, P. Marzola, Quantitative determination of Mn content in rat brain by fast T1 mapping, Joint Annual Meeting ISMRM-ESMRMB, Berlino 19-25 Maggio 2007.

13c) G. Conti, S. Tambalo, G. Villetti, S. Catinella, C. Carnini, F. Bassani, N. Sonato, A. Sbarbati, P. Marzola, Evaluation of lung inflammation induced by intratracheal administration of LPS in rats, 26th Annual Scientific Meeting of ESMRMB, Antalya, Turchia, 1-3 ottobre 2009. **Second Prize, Young Investigators Award ESMRMB.**

14c) P. Marzola, PET/MRI and Optical Imaging in oncologic animal models, Risonanza Magnetica in Medicina, dalla ricerca tecnologica avanzata alla pratica clinica, Milano 4-5 Febbraio 2010 (invited speaker).

15c) Tambalo S, Daducci A, Fiorini S, Boschi F, Mariani M, Marinone M, Sbarbati A, Marzola P, Experimental protocol for activation-induced manganese-enhanced MRI (AIM-MRI) based on quantitative determination of Mn content in rat brain by fast T(1) mapping ISMRM Italian Chapter, Annual Meeting, Napoli 19-20 Aprile 2012.

16c) Marzola P, Agenti di Contrasto al lavoro: DCE-MRI nello studio della vascolarizzazione tumorale e dell'efficacia di agenti terapeutici, NMR in Molecular Medicine: from test tube to animal, Colletterto Giacosa, 19 Maggio 2012, invited speaker.

17c) Tambalo S, Fiorini S, Rigolio R, Sbarbati A, Pluchino S, Marmiroli P, Cavaletti G., Marzola P, Functional magnetic resonance imaging reveals brain cortex remodeling in a rat model of chronic multiple sclerosis, ISMRM Italian Chapter, Annual Meeting, Perugia 24-25 Ottobre 2013.

18c) Marzola P, Magnetic Nanoparticle as contrast agents for MRI, Nanomedicine School 2013, Trieste 10-11 Settembre 2013, invited speaker.

19c) Mannucci S, Ghin L, Conti G, Tambalo S, Bernardi P, Benati D, Bassi R, Marzola P, Sbarbati A, Magnetosomes extracted from *Magnetospirillum gryphiswaldense* as magnetic thermotherapy agents, 30th Annual Scientific Meeting ESMRMB, Toulouse 3-5 October 2013.

20c) Tambalo S, Fiorini S, Rigolio R, Bontempi P, Sbarbati A, Cavaletti G, Marmiroli P, Pluchino S, Marzola P, Functional Magnetic Resonance Imaging reveals brain cortex remodeling in a rat model of chronic multiple sclerosis, Joint Annual Meeting ISMRM-ESMRMB, Milan 10-16 May (2014)

21c) Mannucci S., Tambalo S., Orlando T., Fantechi E., Ghin L., Bassi R., Lascialfari A., Sangregorio C., Sbarbati A., Marzola P., Magnetosomes extracted from *Magnetospirillum gryphiswaldense* as theranostic agents in experimental model of glioblastoma. SIF Trento Settembre 2017

22c) Marzola P, Magnetic nanoparticles produced by magnetotactic bacteria: biosynthesis, properties and applications, Workshop: Advanced inorganic materials green and unconventional synthesis approaches (Padova, 8.9.2017)

### **Selected posters**

1c) P. Marzola, L.Longo, S.Cannistraro, R.Palumbo, G.Capriano, G.Gobbi; Water proton relaxation effects of paramagnetic complexes in solution and in tissues: <sup>1</sup>H-NMR spin echo and EPR studies; Physics in Environmental and Biomedical Research, Roma, 26-29 Novembre 1985.

2c) P. Marzola, L.Longo, S.Cannistraro; Studio del rilassamento protonico indotto da ioni paramagnetici in sistemi biologici mediante spettroscopia ESR e <sup>1</sup>H-NMR; I Congresso Nazionale di Fisica della Materia, Genova, 24-27 Giugno 1986.

3c) P.Marzola, R.Lamanna, G.Cardaci, S.Cannistraro; Gd<sup>3+</sup>-TPPS: a potential contrast agent in NMR imaging; Societa' Italiana di Biofisica Pura ed Applicata-VII Congresso Nazionale, Viareggio (LU) 2-5 Novembre 1987.

4c) P.Marzola, C.Pinzino, C.A.Veracini; Human serum albumin in reverse micelles studied by ESR, 3rd Chianti Workshop on Magnetic Resonance, San Miniato (PI), 28 Maggio-2 Giugno 1989.

5c) P.Marzola, R.Ambrosetti, C.A.Veracini; Micellar solubilization of biopolymers in organic solvents: a spin labeling investigation of  $\alpha$ -chymotrypsin in isoctane-AOT reverse micelles; The Industrial Application of Natural, Modified and Artificial Enzymes, Pisa, 23-29 Settembre 1990.

6c) D. Catalano, A. Lenzi, P. Marzola, C.A. Veracini; Fluorescent probes in micellar nematic lyotropics studied by <sup>2</sup>H-NMR and fluorescence depolarization spectroscopy; Congresso Nazionale di Risonanze Magnetiche, Pisa, 22-24 Ottobre 1990.

7c) P. Marzola, R. Ambrosetti, C. Pinzino, C.A. Veracini; Micellar solubilization of biopolymers in organic solvents: a spin labeling investigation of  $\alpha$ -chymotrypsin in isooctane-AOT reverse micelles; Congresso Nazionale di Risonanze Magnetiche, Pisa, 22-24 Ottobre 1990.

8c) F.M. Cavagna, P. Marzola, P.M. Castelli, C. de Haen, M.F. Wendland, M. Saeed, C.B. Higgins, Binding to proteins enhances interstitial relaxivity of Gd-BOPTA/Dimeg in reperfused infarcts; data; 11<sup>th</sup> Annual Meeting European Society for Magnetic Resonance in Medicine and Biology, Vienna 20-24 Aprile 1994.

9c) M. Daprà, P. Marzola, L. Imperatori, D. Lanens, F.M. Cavagna, Comparison of myocardial enhancement in rats during bolus transit of Gd-BOPTA/Dimeg and Gd-DTPA/Dimeg; International Society for Magnetic Resonance in Medicine, fourth scientific meeting and exhibition, New York 27 Aprile, 3 Maggio 1996.

10c) U. Guerrini, P. Marzola, R. Asperio, M. Fedrigo, A. Sbarbati, F. Osculati; Chemical Shift Imaging (CSI) at 4.7 Tesla of brown adipose tissue; XXVII Congresso Nazionale Risonanze Magnetiche, Rimini 3-5 Ottobre 1996.

11c) P. Marzola, U. Guerrini, M. Fedrigo, A. Sbarbati, F. Osculati; Magnetic Resonance Imaging at 4.7 T of the developing human brain; XXVII Congresso Nazionale Risonanze Magnetiche, Rimini 3-5 Ottobre 1996.

12c) P. Marzola, A. Da Pra, A. Sbarbati, C. Zancanaro, F. Osculati, A PC-based workstation for processing and analysis of MRI data; 14<sup>th</sup> Annual Meeting European Society for Magnetic Resonance in Medicine and Biology, Bruxelles, 18-21 Settembre 1997.

13c) A. Sbarbati, P. Marzola, C. Crescimanno, E. Nicolato, C. Zancanaro, F. Osculati, High-Field MRI of the Fetal Brain, 51 Congresso della Societa' Italiana di Anatomia, Torino 28 Settembre-2 Ottobre 1997.

14c) P. Marzola, E. Nicolato, E. Di Modugno, P. Cristofori, A. Lanzoni, A. Sbarbati, Correlation between MRI and microbiological method to evaluate the efficacy of antibiotics in a murine model of thigh infection caused by Staphylococcus aureus, 15<sup>th</sup> Annual Meeting European Society for Magnetic Resonance in Medicine and Biology, Ginevra 17-20 Settembre 1998. **(Poster Award, ESMRMB)**.

15c) M. Villa, E. Lunati, P. Marzola, E. Nicolato, A. Sbarbati, In-vivo quantitative hydrolipidic maps of adipose tissue by chemical shift imaging at 4.7 T, 7<sup>th</sup> Meeting of the International Society for Magnetic Resonance in Medicine, Philadelphia Maggio 1999.

16c) F. De Pasquale, G. Sebastiani, P. Marzola, F. d'Errico, E. Egger, L. Guidoni, A.M. Luciani, M. Pacilio, P. Barone, V. Viti, MR images of Fricke-Agarose Dosimeters irradiated with proton beams, 1<sup>st</sup> International Workshop on Radiotherapy Gel Dosimetry, Lexington, Kentucky, USA, 21-23 Luglio 1999.

17c) P. Marzola, E. Nicolato, A. Sbarbati, L. Piccoli, E. Di Modugno, P. Cristofori, A. Lanzoni, 1H MRI investigation of pneumococcal pneumonia in a murine model, 17<sup>th</sup> Annual Meeting European Society for Magnetic Resonance in Medicine and Biology, Parigi 14-17 Settembre 2000.

18c) L. Calderan, E. Nicolato, P. Marzola, A. Sbarbati, F. Osculati, Plasticity of the rat olfactory bulb during postnatal development: a parametric MRI study, 19<sup>th</sup> Annual Meeting European Society for Magnetic Resonance in Medicine and Biology, Cannes 22-25 Agosto 2002

19c) P. Marzola, A. Degrassi, L. Calderan, C. Crescimanno, E. Nicolato, J. Klapwijk, A. Terron, A. Sbarbati, Antiangiogenic effect of SU6668 in experimental coloncarcinoma evaluated in vivo by albumin-Gd-DTPA enhanced MRI, 19<sup>th</sup> Annual Meeting European Society for Magnetic Resonance in Medicine and Biology, Cannes 22-25 Agosto 2002.



20c) A. Adami, P. Fantazzini, G. Garavaglia, E. Nicolato, J. Tommasi, L. Calderan, P. Marzola, In vivo and ex vivo characterization of an USPIO (Sinerem) and applications to fMRI in rat, 20<sup>th</sup> Annual Meeting European Society for Magnetic Resonance in Medicine and Biology, Rotterdam 18-21 Settembre 2003.

21c) L. Calderan, F. Boschi, P. Marzola, A. Sbarbati, Fluorescent nanoparticles kinetic, in vivo study of biodistribution, Nanotoxicology 2007 San Servolo, Venezia 19-21 Aprile 2007.

22c) L. Calderan, F. Boschi, P. Marzola, A. Sbarbati, In vivo study of near-infrared fluorescent nanoparticles biodistribution, Second International Conference of the 'European Society for Molecular Imaging' Napoli, 14-15 Giugno 2007.

23c) M. Galiè, P. Farace, C. Nanni, A. Spinelli, E. Nicolato, F. Boschi, S. Trespidi, V. Ambrosini, S. Fanti, F. Merigo, P. Magnani, F. Osculati, A. Sbarbati, P. Marzola, Epithelial and mesenchymal tumor histotypes exhibit a complementary pattern of vascular perfusion and glucose metabolism, Second International Conference of the 'European Society for Molecular Imaging' Napoli, 14-15 Giugno 2007.

24c) P. Tunici, C. Giordano, M. Salerno, M. Rossi, L. Calderan, P. Marzola, E. Nicolato, F. Boschi, A. Sbarbati, G. Gaviraghi, A. Bakker, Bioluminescence imaging in brain tumour – a powerful tool in drug discovery, Twelfth Annual Meeting of the Society for Neuro-Oncology Dallas (Texas) November 15 –18, 2007

25 c) A. Spinelli, C. Kuo, BW Rice, R. Calandrino, P. Marzola, A. Sbarbati, F. Boschi, Small animal optical multispectral Cerenkov tomography (Conference Paper) IEEE Nuclear Science Symposium and Medical Imaging Conference, NSS/MIC 2011; Valencia; Spain; 23-29 October 2011

26c) Balzi M, Faraoni P, Chiariello M, Mosconi E, Nicolato E, Rossi M, D, Baldi G, Mazzantini F, Ravagli C, Marzola P, Investigation of the biodistribution of magnetic nanoparticles in normal mice and in mice bearing HNSCC subcutaneous tumors, Nanotech ITALY2013, Venezia 27-29 Novembre (2013).

27c) Marzola P, Ghin L, Tambalo S, Conti G, Mannucci S, Busato A, Fantechi E, Innocenti C, Sangregorio C, Lascialfari A, Orlando T, Bassi R, Sbarbati A, Magnetic Nanoparticles extracted from magnetotactic bacteria as contrast agents for MRI, Joint Annual Meeting ISMRM-ESMRMB, Milan 10-16 May (2014)

28c) Tambalo S, Daducci A, Mosconi E, Fiorini S, Sonato N, Baliotti M, Fattoretti P, Sbarbati A, Marzola P, Investigation of normal brain aging in rodent experimental model by DTI, Volumetry and localized proton spectroscopy, Joint Annual Meeting ISMRM-ESMRMB, Milan 10-16 May (2014).

Verona, November 2016