

## Curriculum Vitae

### Personal data

Name: Rocca Maria Assunta

Date of birth: 3/8/1971

Place of birth: Lecco, Italy

Address (home): Via Giovanni XXIII, 23853 Dolzago (LC), Italy

Address (work): Neuroimaging Research Unit, Institute of Experimental Neurology, Department of Neurology, Scientific Institute Ospedale San Raffaele, Via Olgettina 60, 20132 Milan, Italy

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Researcher unique identifiers:

[https://scholar.google.it/citations?hl=it&user=m2EqEcIAAAAJ&is\\_public\\_preview=1&view\\_op=list\\_work](https://scholar.google.it/citations?hl=it&user=m2EqEcIAAAAJ&is_public_preview=1&view_op=list_work)

URL for web site: <http://www.hsr.it/research/organization/divisions-centers/division-of-neuroscience/maria-a-rocca/>

<http://www.univr.it/view.asp?id=10247>

### EDUCATION

1990: High school, Liceo Scientifico A. Volta, Lecco, Italy.

1996: Master Degree in Medicine and Surgery. Facoltà di Medicina e Chirurgia Università degli Studi di Milano. Dissertation on "Effetto dell'utilizzo di differenti macchine di risonanza magnetica sulla misurazione del volume lesionale nella sclerosi multipla: implicazioni per i clinical trials", Defendants: Prof. G. Comi, Dr. M. Filippi (cum laude).

1996: MD Italian Board - Università degli Studi di Milano.

2002: Registrar in Neurology, Scuola di Specializzazione in Neurologia, Università Vita-Salute, Ospedale San Raffaele. Dissertation on "Valutazione tramite risonanza magnetica funzionale e spettroscopia del protone 'whole brain' del ruolo della plasticità corticale in pazienti con sindromi del SNC clinicamente isolate suggestive di sclerosi multipla", Defendants: Prof. G. Comi, Dr. M. Filippi (cum laude).

### CURRENT POSITION

2008-Present: Group Leader, Neuroimaging of CNS White Matter, Division of Neuroscience, Scientific Institute Ospedale San Raffaele, Milan, Italy.

### PREVIOUS POSITIONS

1994-96: Fellow, IV Clinica Neurologica, Scientific Institute San Raffaele, Università degli Studi of Milan (Supervisors: Prof. N. Canal, Prof. G. Comi).

1997-1998: Research fellow, Neuroimaging Research Unit and Department of Neurology, Scientific Institute Ospedale San Raffaele (Supervisors: Prof. Comi and Dr. Filippi).

1997-2002: Resident Student, at the University of Milan.

01/2003-12/2005: Research Assistant in Neurology, Neuroimaging Research Unit and Department of Neurology, Scientific Institute Ospedale San Raffaele, Milan, Italy.

01/2006-12/2008: Senior Research Assistant in Neurology, Neuroimaging Research Unit and Department of Neurology, Scientific Institute Ospedale San Raffaele, Milan, Italy.

**Maternity leave: from 03/05/2005 to 30/11/2005.**

### FELLOSHIPS

1999 (February) - 2000 (February): Visiting research fellowship, Dept. of Neuroradiology, Klinikum Grosshadern, Munich (Germany). Main topic: functional MRI (Supervisor: Prof. Tarek Yousry).

### AWARDS

1997: "De Visart Grant for research on Multiple Sclerosis" - University of Milan - 1997.

1998: "Gianfranco Battaglia Grant", University of Milan, 1998.

2000: Award for the best oral presentation at the 10th Meeting of ENS, Jerusalem, 2000.

2001: Young investigator award from Charcot Foundation, Venice, 2001.

2002: Young investigator award at ECTRIMS, Baltimore, 2002.

2008: Ricercatissimi regione Lombardia award, 2008.

2010: Best abstract of the 20<sup>th</sup> ENS meeting, Berlin, 2010.

2013: "Award Rita Levi Montalcini" – AISM/FISM Rome, May 2013.

2016: "Corrado Pedroni grant" – Varenna.

2016: “Investigator award”, 2nd congress of the European Academy of Neurology, Copenhagen.

### **SOCIETY MEMBERSHIP**

Italian Society of Neurology, European Academy of Neurology, International Society for Magnetic Resonance in Medicine (ISMRM).

### **INTERNATIONAL COMMITTEE MEMBERSHIP AND OTHER ROLES IN INTERNATIONAL SOCIETIES**

2005-Present: Member, Neuroimaging Study Group SIN

2008-Present Member, Steering Committee MAGNIMS (European Network for Magnetic Resonance in Multiple Sclerosis)

2010-Present: Member, Multiple Sclerosis Study Group SIN

2010-Present: Member, International Pediatric Multiple Sclerosis Study Group

2010-2014: Member, Annual Meeting Program Committee (AMPC) ISMRM

2012-Present: Associate Faculty Member F1000 prime (Neurological disorders)

2013-Present: MRI scientific board EMISEP

2013-present: Member Steering Committee of “Italian Neuroimaging Network Initiative (INNI)”

2014-Present: Member, European Academy of Neurology (EAN), & EAN Neuroimaging Subcommittee

2014-Present Member, Steering Committee INNI (Italian Neuroimaging Network Initiative)

2015: 2015 RIMS Annual Conference Local Scientific Committee

2015-Present: Coordinator Neuroimaging Study Group SIN

2016-Present: Member of Social & Behavioural Science Research Scientific Committee FISM (Italian Multiple Sclerosis Foundation)

2017: member of the COHORTS jury of the mid-term evaluation of the French Agence Nationale de la Recherche

### **ACADEMIC ACTIVITY**

2008-Present: Non-Tenured Professor, Bachelor’s degree in Physiotherapy, Faculty of Medicine, Vita-Salute San Raffaele University, Milan.

2009-Present: Non-Tenured Professor of Clinical Neurology, Residency Course, Faculty of Medicine, Vita-Salute San Raffaele University, Milan.

2012-2013: Non-Tenured professor, II level Master on “Cerebrovascular disease”, Clinica Neurologica di Monza (director: Prof. Ferrarese), Università Milano-Bicocca.

2012-Present: Non-Tenured Professor of Clinical Neurology for the Master Degree in Medicine and Surgery, Vita-Salute San Raffaele University, Milan.

03/02/2014: Qualification Associate Professor of Neurology.

2016-2017: Visiting Professor, University of Oslo, Faculty of Medicine.

2016-Present: member of the board of the International PhD Course in Molecular Medicine, Neuroscience and Experimental Neurology section, Vita-Salute San Raffaele University, Milan.

28/03/2017: Qualification Full Professor of Neurology.

### Supervision of degree/resident students:

- Roberta Messina. Quantificazione con risonanza magnetica ad alto campo dello spessore corticale e della sua topografia in pazienti emicranici con e senza aura. Università Vita-Salute San Raffaele, Corso di Laurea Specialistica in Medicina e Chirurgia, Milan, 2010-2011.
- Martina Absinta. Functional and structural correlates of cognitive dysfunction in pediatric MS patients. Università Vita-Salute San Raffaele, Scuola di Specializzazione in Neurologia, Milan, 2011-2012.
- Maria Elisa Morelli. Regional hippocampal involvement in pediatric multiple sclerosis: a radial mapping study. Università Vita-Salute San Raffaele, Corso di Laurea Specialistica in Medicina e Chirurgia, Milan, 2012-2013.
- Francesco Mele. MRI functional and structural abnormalities of large scale networks in multiple sclerosis: a graph-theory study. Corso di Laurea Specialistica in Medicina e Chirurgia, Università Vita-Salute San Raffaele, Milan, 2013-2014.
- Giacomo Boffa. Regional hippocampal involvement in multiple sclerosis assessed with MR technology: findings in the main clinical phenotypes and correlation with cognitive impairment. Corso di Laurea Specialistica in Medicina e Chirurgia, Università Vita-Salute San Raffaele, Milan, 2013-2014.
- Ermelinda De Meo. Structural and functional MRI correlates of cognitive impairment in pediatric multiple sclerosis patients. Corso di Laurea Specialistica in Medicina e Chirurgia, Università Vita-Salute San Raffaele, Milan, 2013-2014.
- Annalisa Colombi. Longitudinal assessment of large scale brain functional networks in patients with multiple sclerosis: correlations with cognitive impairment and locomotor disability. Corso di Laurea Specialistica in Medicina e Chirurgia, Milan, 2014-2015.
- Paolo Preziosa. Effects of fingolimod and natalizumab on demyelination, remyelination and neurodegeneration in patients with relapsing-remitting multiple sclerosis: a two year, clinical/MRI,

comparative study, Scuola di Specializzazione in Neurologia, Università Vita-Salute San Raffaele, Milan, 2015-2016.

- Fiammetta Pirro. Structural and functional MRI predictors of disability and cognitive impairment accrual in patients with multiple sclerosis. Corso di Laurea Specialistica in Medicina e Chirurgia, Università Vita-Salute San Raffaele, Milan, 2015-2016.
- Paola Del Sette. Cognitive reserve, cognitive functions and brain damage in multiple sclerosis: a two-year longitudinal study. Corso di Laurea Magistrale in Psicologia, Università Vita-Salute San Raffaele, Milan, 2015-2016.
- Filippo Savoldi. Intra- and inter-network abnormalities in neuromyelitis optica using resting state functional MRI. Degree Course in International MD Program. Facoltà di Medicina e Chirurgia, Università Vita-Salute San Raffaele, Milan, 2015-2016.
- Mattia Rosso. Cross-sectional OCT study of ON and NON-ON MS eyes: effect of gender and smoking exposure. Degree Course in International MD Program. Facoltà di Medicina e Chirurgia, Università Vita-Salute San Raffaele, Milan, 2015-2016.

#### Supervision of PhD students:

- Antonia Ceccarelli. Functional and structural MRI and neuropsychological evaluation in primary progressive multiple sclerosis patients. Università Vita-Salute San Raffaele, Dottorato di Ricerca in Medicina Molecolare, Sezione di Neurologia, Milano, aa 2008-2009.
- Gianna Riccitelli. Functional and structural MRI to investigate cognition in multiple sclerosis. Università Vita-Salute San Raffaele, Dottorato di Ricerca in Neurologia Sperimentale, Milano, aa 2010-2011.

#### Opponent of PhD Thesis:

- Gro Owren Nygaard. Cognition, disease activity and MRI changes in early multiple sclerosis. University of Oslo, Faculty of Medicine, 27 January 2016.

### **RESEARCH GRANTS**

#### Principal Investigator

2003. Project FISM 2003/R/48 “Applicazione di nuove tecniche di RM per l'approfondimento della comprensione della fisiopatologia della sclerosi multipla primariamente progressiva” Duration: 2 years.

2008 Project Ministero della Salute GR08-1138784 “Applicazione della risonanza magnetica funzionale e strutturale ad alto campo per la definizione dei substrati fisiopatologici della fatica nella sclerosi multipla e degli effetti dei farmaci utilizzati per tale sintomo” Duration: 3 years.

2009. Project Minister of Health GR09-1529671 “Definition of magnetic resonance imaging (MRI) biomarkers of cognitive impairment in multiple sclerosis patients with different disease phenotypes, from childhood to adulthood: application and integration of structural and functional MR-based techniques.” Duration: 3 years.

2012. Project FISM 2012/R/15 “Effect of action observation therapy on rehabilitation of motor deficits of the dominant right upper limb in patients with MS: an exploratory study with structural and functional MRI” Duration: 2 years.

2014. Project Minister of Health RF-2011-02350374 “Effects of action observation therapy on rehabilitation of motor deficits of the dominant right upper limb in patients with MS: a study with structural and functional MRI” Duration: 3 years.

2015. Project FISM 2014/PMS/6 “Assessment of cervical cord atrophy as a tool for monitoring disease evolution and for predicting long-term disability in patients with multiple sclerosis. Duration: 1 year.

2016. Project FISM 2016/R/23 “Mapping functional and structural MRI correlates of clinical disability and cognitive impairment in pediatric MS patients.” Duration: 1 year.

#### Co-Investigator

1997. Project AISM 97/R/35 “Ottimizzazione di sequenze FLAIR per la valutazione del carico lesionale di RM in pazienti con sclerosi multipla: implicazioni per trial clinici” Duration: 1 year. P.I. M. Filippi.

2000. Project FISM 2000/R/37 “Correlati di diffusion tensor imaging della disabilità fisica e del deficit cognitivo nella sclerosi multipla” Duration: 2 years. P.I. M. Filippi.

2002. Project FISM 2002/R/28 “Applicazione della risonanza magnetica funzionale per la definizione dei fattori limitanti l'accumulo di disabilità irreversibile nella sclerosi multipla” Duration: 2 years. P.I. M. Filippi.

2004. Project FISM 2004/R/7 “Studio con RM funzionale del ruolo dei neuroni del sistema "mirror" nel limitare i deficit clinici secondari al danno cerebrale diffuso nei pazienti con SM a ricadute e remissioni” Duration: 1 year. P.I. M. Filippi.

2005. Project FISM 2005/R/12 “Studio con RM funzionale del ruolo dell'attivazione del midollo spinale nel limitare i deficit clinici secondari al danno tissutale nei pazienti affetti da SM” Duration: 1 year. P.I. M. Filippi.

2007. Project Fondazione Mariani R-07-62 “Application of modern, magnetic resonance based techniques, to elucidate the pathophysiology of childhood multiple sclerosis” Duration: 2 years. P.I. M. Filippi.

2008. Project FISM 2008/R/13 “Correlati funzionali e strutturali dell'attività del network cognitivo in pazienti con SM e diversi fenotipi di malattia” Duration: 2 years. P.I. M. Filippi.
2008. Project Ministero della Salute RF-IEM-2008-1166498 "Evaluation of prognostic factors for coma awakening through combined RMI, fMRI, fNIRS (Near Infrared Reflectance Spectroscopy) and polysomnographic techniques". Duration: 3 years. P.I. Sandra Strazzer.
2010. Project FISM 2010/R/18 “Definizione delle misure RM predittive dell'accumulo di disabilità e compromissione cognitiva a lungo termine in pazienti con SM a esordio con ricadute della malattia: studio longitudinale a 13 anni” Duration: 1 year. P.I. M. Filippi.
2011. Project FISM 2011/R/19 “Definizione della rete di connettività strutturale e funzionale nella sclerosi multipla tramite l'applicazione dell'approccio "graph theory". Duration: 1 year. P.I. M. Filippi.
2012. Project FISM 2012/R/8 “Regional mapping of hippocampal structure and function in multiple sclerosis: correlations with disease clinical phenotypes and cognitive impairment” Duration: 1 year. P.I. M. Filippi.
2013. Project FISM 013/S/1 “The Italian Neuroimaging Network Initiative (INNI) to optimize the use of advanced MRI techniques in patients with MS” Duration: 2 years. P.I. M. Filippi.
2014. Project FISM 2014/R/7 “Longitudinal assessment of large-scale brain functional networks (connectome) in patients with multiple sclerosis. Duration 1 year. P.I. M. Filippi.
2015. Project National MS Society (USA). Progressive MS Alliance. “SPINE. Spinal cord imaging to Identify Novel biomarkers of disease Evolution and treatment monitoring in progressive MS”. Planning Grant. Duration: 1 year. P.I. M. Filippi.
2015. Project National MS Society (USA). Progressive MS Alliance. “Cognitive rehabilitation and exercise for people with progressive MS: a multicenter, multidisciplinary study”. Planning Grant. Duration: 1 year. P.I. A. Feinstein.
2016. Project FISM 2016/R/19. “A translational platform for the development of MRI methods to assess myelin architecture.” Duration: 1 year. P.I. E. Pagani.

#### **NATIONAL AND INTERNATIONAL COLLABORATIONS**

As Group Leader of the Neuroimaging of CNS White Matter of the Scientific Institute Ospedale San Raffaele, she has established several national and international collaborations on specific projects and/or leading to exchange educational fellowships.

##### National Collaborations

- University of Bari – Prof. M. Trojano, I. Simone (field: MS)
- University of Florence – Prof. M.P. Amato (field: MS)
- University of Naples – Prof. G. Tedeschi, Dott. A. Gallo (field: MS)
- University of Siena – Prof. N. De Stefano (field: MS)
- Spedali Civili, Brescia – Drs. R. Capra, F. Mattioli (field: MS)
- MS Center, Gallarate – Dr. A. Ghezzi, Dr. M. Zaffaroni (field: MS)
- IRCCS Eugenio Medea, Bosisio Parini, Lecco – Dr. S. Strazzer, Dr. A. Turconi, Prof. N. Bresolin (field: pediatric neurology)
- IRCCS Auxologico Milano – Dr. S. Bianchi-Marzoli (field: neuroophthalmology)

##### International collaborations

- MAGNIMS network (field: MS)
- VU University Medical Centre, Amsterdam, The Netherlands – Proff. F. Barkhof, J.J. Geurts, Dr. H. Vrenken (field: MS)
- Hospital Vall d'Hebron, Barcelona, Spain – Proff. X. Montalban, A. Rovira (field: MS)
- University Hospital, Kantonsspital, Basel, Switzerland – Prof. L. Kappos (field: MS)
- Medical University Graz, Graz, Austria – Proff. F. Fazekas, C. Enzinger (field: MS)
- Institute of Neurology, University College London, London, UK – Proff. D.H. Miller, A.J. Thompson, T. Yousry, Dr. O. Ciccarelli (field: MS)
- University of Oxford, UK – Prof. J. Palace (field: MS and LHON)
- University of Belgrade – Prof. V.S. Kostic, Drs. S. Mesaros (field: MS and white matter diseases)
- The Hospital for Sick Children, Toronto, Ontario – Prof. B. Banwell (field: pediatric MS)
- University of Leicester – Prof. M.A. Horsfield (field: MS)
- Kessler Foundation Research Center, West Orange, NJ, USA – Drs. J. DeLuca, J. Sumowski (field: MS)
- Neurocenter of Southern Switzerland, Ospedale Regionale di Lugano, Lugano, Switzerland – Dr. Gobbi (Field: MS)
- Columbia University, NJ, USA – Dr. V. Leavitt (field: MS)

#### **IMPORTANT POSITIONS IN CONGRESSES**

- Invited lectures: 253,
- Chairman in several National and International congresses,

- Scientific secretariat of: Advanced Course on Magnetic Resonance Techniques in Multiple Sclerosis (Milan, 1997-2016),
- Scientific director of: Advanced Course on Magnetic Resonance Techniques in Multiple Sclerosis (Milan, 2017),
- Organizer of several Teaching Courses e Workshops in national and international congresses: ECTRIMS/ACTRIMS, ENS, ISMRM, RIMS,
- Member of the Scientific Committee of the courses organized by the SIN Neuroimaging Study Group,
- Member of the 2015 RIMS Annual Conference Local Scientific Committee,
- Abstract reviewer for ISMRM, SIN, ENS, EAN, RIMS, ECTRIMS.
- Presentations at scientific meetings: 405.

**REVIEWER FOR:** Academic Radiology, American Journal of Neuroradiology, Annals of Neurology, Archives of Neurology, BMC Neurology, BMC Research Notes, Brain, Brain and Cognition, Brain Connectivity, Brain Imaging and Behavior, Brain Topography, Clinical Neuroradiology, Cephalalgia, Cerebral Cortex, CNS Drugs, Computer Methods and Programs in Biomedicine, Cortex, Disability and Rehabilitation, ENeuro, European Journal of Neurology, Experimental Biology and Medicine, Expert Opinion On Medical Diagnostics, Functional Neurology, Headache, Human Brain Mapping, Journal of Magnetic Resonance Imaging, Journal of Neuroimaging, Journal of Neurological Science, Journal of Neurology, Journal of Neurology Neurosurgery and Psychiatry, Journal of Pediatric Neuroradiology, Magnetic Resonance Materials in Physics Biology and Medicine, Lancet Neurology, Magnetic Resonance in Medicine, Multiple Sclerosis Journal, **Nature Review Neurology**, Neurobiology of Aging, Neurodegenerative Disease Management, NeuroImage, NeuroImage Clin, Neurological Sciences, Neurology, Neuropharmacology, Neuroradiology, Neuroreport, Neuroscience Letters, PlosOne, Scientific Reports Nature, The Journal of Headache and Pain.

**PROJECT REVIEWER FOR:**

Division Earth and Life Sciences, Wellcome Trust, Austrian Science Fundation, Netherlands Organisation for Health Research and Development (ZonMw), ARSEP, English MS Society, Fondazione Italiana Sclerosi Multipla, Dutch MS Research Foundation, Swiss MS Society, Multiple Sclerosis Research Australia, Medical Research Council.

**PUBLICATIONS (Impact factor: 1785.863; scopus H-index: 57):**

Papers published in indexed journals: 369

Papers published in non-indexed journals: 7

Book chapters: 53

Abstracts published in international journals: 795

Abstracts published in non-indexed journals: 161

**EDITORIAL ACTIVITY**

Editorial Board Frontiers: from 2015

Guest Editor of Frontiers Research Topic. Plasticity in Multiple Sclerosis: from molecular to system level, from adaptation to maladaptation (2015)

Guest Editor for Supplementum of Acta Neurologica Scandinavica. Exploring cognitive impairment and cerebral connectivity in multiple sclerosis (2016)

Associated Editor Frontier Neurology (subspecialty: Applied Neuroimaging): January 2017