

## ALLEGATO B

### UNIVERSITÀ DEGLI STUDI DI MILANO

selezione pubblica per n. 1 posto/i di Ricercatore a tempo determinato in tenure track (RTT)  
per il settore concorsuale 05/E1 - Biochimica Generale ,  
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## Sara Grassi CURRICULUM VITAE

(N.B. IL CURRICULUM NON DEVE ECCEDERE LE 30 PAGINE E DEVE CONTENERE GLI ELEMENTI CHE IL CANDIDATO RITIENE UTILI AI FINI DELLA VALUTAZIONE.

LE VOCI INSERITE NEL FACSIMILE SONO A TITOLO PURAMENTE ESEMPLIFICATIVO E POSSONO ESSERE SOSTITUITE, MODIFICATE O INTEGRATE)

### PERSONAL DATA (DO NOT INCLUDE YOUR PERSONAL ADDRESS AND LANDLINE OR MOBILE PHONE NUMBER)

SURNAME	GRASSI
NAME	SARA
DATE OF BIRTH	18/09/1989

### QUALIFICATIONS

#### DEGREE

**02/10/2013 - Master degree in Medical biotechnology and molecular medicine, Università degli Studi di Milano, Milano (Italy)**

Thesis title: "Regulation of ovarian cancer cell adhesion by membrane gangliosides" - Supervisor: Prof. Alessandro Prinetti, Department of Medical Biotechnology and Translational Medicine, Università degli Studi di Milano, Segrate (MI) (Italy)

**15/07/2011 - Bachelor degree in Medical Biotechnology, Università degli Studi di Milano, Milano (Italy)**

Thesis title: "Protocolli per la determinazione di profili serologici tramite chip array accoppiata a spettrometria di massa MALDI" - Supervisor: Prof. Cecilia Gelfi, Department of Science and Biomedical Technologies - Università degli Studi di Milano, Segrate (MI) (Italy)

### DOCTORAL DEGREE OR EQUIVALENT QUALIFICATION EARNED IN ITALY OR ABROAD / MEDICAL SPECIALISATION DIPLOMA OR EQUIVALENT QUALIFICATION, FOR THE RELEVANT SECTORS, EARNED IN ITALY OR ABROAD

**07/03/2017 - PhD in Biochemical Sciences, Università degli Studi di Milano, Milano (Italy)**

Thesis title: "Identification of the antigen recognized by rHlgM22, a remyelination promoting human monoclonal antibody" - Supervisor: Prof. Alessandro Prinetti, Department of Medical Biotechnology and Translational Medicine, Università degli Studi di Milano, Segrate (MI) (Italy)

## RESEARCH CONTRACTS, RESEARCH FELLOWSHIP CONTRACTS, POSTDOCTORAL SCHOLARSHIPS OR SIMILAR CONTRACTS

**01/02/2107 - 01/02/2019 Post Doctoral fellowship (type B)**

Department of Medical Biotechnology and Translational Medicine - Università degli Studi di Milano

**01/03/2019 - 30/10/2021 Post Doctoral fellowship (type A)**

Department of Medical Biotechnology and Translational Medicine - Università degli Studi di Milano

**01/11/2021 - ongoing (will end on 1/11/2024) Research associate (Type A)**

Department of Medical Biotechnology and Translational Medicine - Università degli Studi di Milano

## TEACHING ACTIVITIES AT ITALIAN OR FOREIGN UNIVERSITIES

### Teaching activity

A.Y. 2022/2023

“Biochemistry” course for 2<sup>nd</sup> year students of the Medicine and Surgery degree programme, Università degli Studi di Milano (Lessons: 40 hours, 3 ECTS)

A.Y. 2023/2024

“Biochemistry” course for 2<sup>nd</sup> year students of the Medicine and Surgery degree programme, Università degli Studi di Milano (Lessons: 40 hours, 3 ECTS)

### Activity as Thesis advisor

1) Cabitta Livia, Identification of the antigen recognized by rHlgM22, a remyelination-promoting human monoclonal antibody, Master degree Thesis in “Medical Biotechnology and Molecular Medicine”, Università degli Studi di Milano. Thesis coordinator: Alessandro Prinetti; thesis advisor: Sara Grassi; academic year: 2014/2015

2) Carrettoni Matteo, Characterization of the antigen recognized by rHlgM22, a remyelination-promoting human antibody, Master degree Thesis in “Medical Biotechnology and Molecular Medicine”, Università degli Studi di Milano. Thesis coordinator: Alessandro Prinetti; thesis advisor: Sara Grassi; academic year: 2015/2016

3) Ivan Del Console, Cambiamenti del metabolismo sfingolipidico in cellule del lineage oligodendrocitario associati a meccanismi di riparo della mielina, Master degree Thesis in “Biology Applied to Biomedical Research”, Università degli Studi di Milano. Thesis coordinator: Andrea Mosca; thesis advisors: Alessandro Prinetti, Sara Grassi; academic year: 2021/2022

4) Andrea Marchesini, The role of the chemokine fractalkine in the process of myelin repair, Master degree Thesis in “Medical Biotechnology and Molecular Medicine”, Università degli Studi di Milano. Thesis coordinator: Alessandro Prinetti; thesis advisor: Sara Grassi; academic year: 2022-2023

5) Gloria Cappelletti, Ruolo della fractalchina nel meccanismo di riparo della mielina, Master degree Thesis in “Biology Applied to Biomedical Research”, Università degli Studi di Milano. Thesis coordinator: Cristina Tringali; thesis advisors: Alessandro Prinetti, Sara Grassi; academic year: 2022-2023

6) Melina Rezapour, Effects of GM3 species on TLR4 activation during myogenic differentiation, Master degree Thesis in “Medical Biotechnology and Molecular Medicine”, Università degli Studi di Milano. Thesis coordinator: Sara Grassi; academic year: 2023-2024

### Others

Tutor for the project “Alternanza scuola-lavoro”, Department of Medical Biotechnology and Translational Medicine, Università degli Studi di Milano, academic years: 2016-2017; 2017-2018; 2018-2019

## ATTESTED TRAINING OR RESEARCH ACTIVITIES AT QUALIFIED ITALIAN OR FOREIGN INSTITUTIONS

### RESEARCH ACTIVITY

*11/2021-present - Assistant Professor*

*Department of Medical Biotechnology and Translational Medicine - Università degli Studi di Milano, Segrate (MI) (Italy)*

In the past two years I have been working on three main research projects. The first is focused on exploring the role of sphingolipids in myelin repair mediated by the chemokine fractalkine. Fractalkine (FKN) is able to promote remyelination acting both on OPC and microglia, enhancing the proliferation and the differentiation of the former. Analysis of the sphingolipid content of oligodendrocyte precursors (OPC), differentiating oligodendrocytes (OL) and BV2 microglial cells treated with FKN revealed that while the treatment does not affect the phospholipid content, sphingolipid composition is altered. In particular, total levels of ceramide are significantly reduced in all cells treated with FKN. Moreover, acid sphingomyelinase activity in these cells after treatment with FKN is also altered supporting the notion that FKN signaling might be mediated by alterations of lipid-dependent membrane organization and/or signalling in different glial cells present in the lesion niche.

The second project I've been working on is a collaboration with the group of Dr. Davide Lecca (Università degli Studi di Milano) and its aim is to analyse the role of membrane sphingolipids in the regulation of GPR17, a crucial receptor for oligodendrocyte differentiation. To do so, I have been analysing the sphingolipid composition of oligodendrocyte precursors and differentiating OL following the genetic silencing of GPR17. The analysis is currently ongoing.

The third project I've been working on is a collaboration with Dr. Clara De Palma and Dr. Laura Morelli (Università degli Studi di Milano). This project is focused on understanding the mechanism by which different GM3 species can modulate myoblasts' differentiation into myotubes establishing whether a different activation of TLR4 occurs and whether this can impact myoblasts' metabolism. To do so, I've been analysing the effects of different GM3 species on the sphingolipid composition of myoblasts of the C2C12 cell line following treatment with GM3 in presence or absence of a TLR4 activator. Preliminary data indicates that treatment with GM3 alters sphingolipid and cholesterol content in these cells, increasing the ganglioside content and decreasing the cholesterol content suggesting a role for GM3 in the regulation of myoblast's metabolism.

*02/2017-11/2021 - Post Doctoral fellow*

*Department of Medical Biotechnology and Translational Medicine - Università degli Studi di Milano, Segrate (MI) (Italy)*

During the period as Post Doc in the labs of Prof. Alessandro Prinetti I have been working on two main research projects. The first, in collaboration with Acorda Therapeutics, is focused on the identification of other lipid antigens recognized by rHlgM22 and on the characterization of the signaling mechanism underlying the biological activity of this remyelination promoting antibody. To do so, I have been working on the analysis of the biological effect of rHlgM22 on glial cells (prepared from rat brain), analyzing the lipid pattern, the lipid distribution along sucrose gradient fractions, the enzymatic activity of acid sphingomyelinase and the production and release of sphingosine-1-phosphate. The analysis of the activity of acid sphingomyelinase and of the production and release of sphingosine-1-phosphate has led to a publication in the *Neurochemical Research* journal in 2019, in which we have shown how rHlgM22 indirectly influences the proliferation of astrocytes in mixed glial cell cultures, by affecting the ceramide/sphingosine 1-phosphate balance. Even though the specific cell population directly targeted by rHlgM22 remains to be identified, this study unveiled another aspect of the complexity of rHlgM22-induced remyelinating effect. The analysis of the effect of rHlgM22 on the lipid pattern of glial cells has given results consistent with the hypothesis that the binding of rHlgM22 on the surface of oligodendrocytes could elicit biological responses mediated by alterations of lipid-dependent membrane organization and/or signaling. In fact, in oligodendrocytes and their precursors, but also in microglia we observed an increase in gangliosides levels following treatment with the antibody. Lipid and protein distribution along sucrose gradient fractions after treatment with the antibody is currently ongoing. The second project I've been working on is a

Telethon project (Telethon Grant number: GGP16277) in collaboration with the group of Dr. Patrizia Guarneri of the Institute of Biomedicine and Molecular Immunology, CNR, Palermo. The project is aimed to assess the interactions between CLN8 and different lipids (including sulfatide, ceramide and galactosylceramide) to define the role of lipids in the modulation of CLN8 function and in the regulation of its interaction with VAPA.

*01/2014-02/2017 - Phd Student in Biochemical Sciences*

*Department of Medical Biotechnology and Translational Medicine - Università degli Studi di Milano, Segrate (MI) (Italy)*

During the PhD my research activity, under the supervision of Prof. Alessandro Prinetti, was focused on several projects. The main activity was related to a project in collaboration with Acorda Therapeutics under a research agreement between the Università degli Studi di Milano and Acorda (principal investigator: Alessandro Prinetti). This project was focused on the identification of the molecular targets of rHIgM22, a remyelination promoting antibody which binds oligodendrocyte and myelin, and promotes remyelination in models of chronic demyelination. For this reason it is being developed as a treatment for multiple sclerosis and is now in clinical trial. During the PhD my research activity on this project was focused on the characterization of the lipid antigens recognized by rHIgM22 and it led to the identification of sulfatide as one of the possible targets of this antibody. Moreover, the experiments performed at the Juntendo University of Tokyo allowed us to define a possible role of the membrane microenvironment in the binding of rHIgM22 to its target. During the PhD I also performed research activity in collaboration with the group of Dr. Luigi Zecca of the Institute of Biomedical Technologies, CNR, Milano, working on a project aimed to characterize the lipid composition of neuromelanin organelles, autolysosomes that accumulate undegraded proteins and lipids in aging human brain and are likely involved in Parkinson's disease.

*02/03/2015-15/04/2015 - Clinical Observership*

*Juntendo University, Tokyo (Japan)*

During the PhD I spent a few months at the Juntendo University of Tokyo, Japan, working on a project, in collaboration with Acorda Therapeutics and professor Kazuhisa Iwabuchi, aimed to identify the molecular targets of rHIgM22, a remyelination promoting monoclonal human antibody. The activity involved the analysis of antibody specificity and affinity toward different antigens using Surface plasmon resonance (SPR) experiments.

*10/2013-12/2013- Graduated student*

*Department of Medical Biotechnology and Translational Medicine - Università degli Studi di Milano, Segrate (MI) (Italy)*

Between the graduation and the beginning of the PhD, I spent a few months in the same labs where I did the internship for the Master degree. The research activity was focused on the analysis of the role of membrane gangliosides in the regulation of motility and adhesion in human ovarian cancer cells. In particular, it was aimed to further characterize a glycosphingolipids/caveolin 1/integrin  $\alpha 5B1$  complex and the signaling mechanism underlying its biological activity in the A2780 ovarian cancer cell line.

*11/2012-09/2013 - Master degree student*

*Department of Medical Biotechnology and Translational Medicine - Università degli Studi di Milano, Segrate (MI) (Italy)*

During the internship I worked in the laboratories of Prof. Alessandro Prinetti. The project I followed was focused on the analysis of the role of membrane gangliosides in the regulation of motility and adhesion in human ovarian cancer cells. The activity involved the analysis of the protein and lipid components of a multimolecular complex composed by glycosphingolipids/caveolin 1/integrin  $\alpha 5B1$  involved in the regulation of adhesion and motility in human ovarian cancer cells. Moreover, the signaling pathways underlying the activity of this complex was also analyzed.

*03/2011-07/2011 - Bachelor degree student*

*Department of Science and Biomedical Technologies - Università degli Studi di Milano, Segrate (MI) (Italy)*

During the internship for the bachelor degree in Medical Biotechnology, I worked in the laboratories of Prof. Cecilia Gelfi on a research project aimed to set up a protocol for serum profiling using chip array technology associated with MALDI mass spectrometry. The activity involved the separation of human serum through HPLC, followed by analysis of the fractions collected through MALDI mass spectrometry using the LUCID chip array technology and the identification of the proteins present in the different fractions.

### **COURSES**

- Online course AiFOS (Associazione Formatori della Sicurezza sul Lavoro). Title: “Formazione generale dei lavoratori” (2014)
- Course “Basic of scientific writing course” - 9th FENS Forum of Neuroscience (Milan, Italy; 5-9 July 2014)
- Course “Biological and chemical risk prevention in laboratories” (Milan, 5 February 2016)
- Introductory course on Animal experimentation (IRCCS-Institute of Pharmacological Research “M.Negri”, Milan, 19-21 June 2018)
- Introductory course “Everything you wanted to know about glial cells” (Max Delbrueck Communication Center for Molecular Medicine (MDC.C) Berlin-Buch, Berlin, Germany)
- Introductory course on Animal experimentation - Modules: basic theory; rodents (Università degli Studi di Milano, Milan, 26-27 February 2019)
- Online course AiFOS (Associazione Formatori della Sicurezza sul Lavoro). Title: Corso di aggiornamento “Covid-19 e lavoro: cosa conoscere” per Lavoratore e Preposto (5 May 2020)
- Course on Animal experimentation - Modules: basic theory; rodents; lagomorphs; fishes and amphibians; large animals (Università degli Studi di Milano, Milan, 14-18 September 2020)

### **PROJECT ACTIVITY**

*2022-present* “Role of sphingolipids in fractalkine mediated myelin repair” Project aimed to elucidate the role of sphingolipids in the mechanism underlying the myelin repair effect of the chemokine fractalkine (CX3CL1) in oligodendrocyte precursor cells and in microglia.

*2022-present* “Effects of GM3 species on TLR4 activation during myogenic differentiation” Project in collaboration with Dr. Clara De Palma (Dep. Medical Biotechnology and Translational Medicine, Università degli Studi di Milano) and Dr. Laura Morelli (Dep. Medical Biotechnology and Translational Medicine, Università degli Studi di Milano). The project is focused on understanding the mechanism by which different GM3 species can modulate myoblasts' differentiation into myotubes establishing whether a different activation of TLR4 occurs and whether this can impact myoblasts' metabolism.

*2022-present* “Role of sphingolipids in the regulation of the GPR17 receptor” Project in collaboration with the group of Dr. Davide Lecca (Dep. Pharmacological Sciences, Università degli Studi di Milano) with the aim of analyzing the role of membrane sphingolipids in the regulation of GPR17, a crucial receptor for oligodendrocyte differentiation.

*2017-present* “Targeting lipids in CLN8-associated NCL diseases: structural and functional interaction of CLN8 with vesicle-associated membrane protein-associated protein A (VAPA), and genotype-phenotype correlations.” Telethon project (Telethon grant number: GGP16277) in collaboration with the group of Dr. Patrizia Guarneri of the Institute of Biomedicine and Molecular Immunology, CNR, Palermo. Project aimed to define the role of lipids in the modulation of CLN8 function and in the regulation of its interaction with VAPA.

*2016-2018* “Characterization of neuromelanin organelles” Project in collaboration with the group of Dr. Luigi Zecca of the Institute of Biomedical Technologies, CNR, Milano. Analysis aimed to characterize the lipid and protein composition of neuromelanin organelles.

2016- present “Identification of the antigens recognized by rHlgM22 and characterization of its molecular mechanisms” Project in collaboration with Acorda Therapeutics, under a Research Agreement between Università degli Studi di Milano and Acorda Therapeutics, Inc., with Professor Alessandro Prinetti as principal investigator. The project is focused on the identification of the molecular targets of rHlgM22, a remyelination promoting antibody, and on the characterization of its signaling mechanism.

2014-2016 “Identification of the molecular target of rHlgM22” Project in collaboration with Acorda Therapeutics, under a Research Agreement between Università degli Studi di Milano and Acorda Therapeutics, Inc., with Professor Alessandro Prinetti as principal investigator. The project is focused on the identification of the molecular targets of rHlgM22, a remyelination promoting antibody.

2012-2014 “Role of gangliosides in the modulation of motility and adhesion in human ovarian cancer cells” Project aimed to identify the role of membrane gangliosides, in particular GM3, in the control of motility and adhesion in ovarian cancer cells of the A2780 cell line, wild type or over expressing an enzyme involved in the synthesis of complex membrane glycolipids, GM3 synthase.

## RESEARCH GRANTS

### **PSR (Piano di Sostegno alla Ricerca, Linea 2 - Dotazione annuale per attività istituzionali, Azione A) grant 2021**

Project title: Effects of GM3 species on TLR4 activation during myogenic differentiation

Role: Team member

Amount: 25000 euro

Funding body: Università degli Studi di Milano

### **AWAITING EVALUATION**

#### **My First Seed Grant 2023**

Project title: Investigating new potential targets to improve myelination in Niemann-Pick type C disease

Amount: 50000 euro

Role: PI

Funding body: Università degli Studi di Milano

## SPEAKING AT NATIONAL AND INTERNATIONAL CONFERENCES AND CONVENTIONS

- Gordon Research Conference (GRC) on Glycolipid and Sphingolipid Biology (Galveston, TX, USA; 18-23 February 2024) - Discussion Leader for the session “Sphingolipids and diseases”
- ISN-ESN 2023 Meeting (Porto, Portugal; 8-11 August 2023) - Poster presentation - Title: “Role of sphingolipids in fractalkine mediated myelin repair”
- 14th Sphingolipid Club (Pozzilli, Isernia, Italy; 7-11 September 2022) - Oral presentation (selected from abstracts) Title “Sphingolipid-dependent membrane organization and signaling in myelin repair”
- ISN-APSN 2022 Meeting (Honolulu, Hawaii, USA; 28 August - 1 September 2022) - Poster presentation - Title “Sphingolipid-dependent membrane organization and signaling in myelin repair”
- Women in Neuroscience Symposium (12-15 August 2022, online) - Oral presentation (invited) - Title “Sphingolipid-dependent membrane organization and signaling in myelin repair”
- ESN Mini-Conference “Molecular basis for synaptic function highlighting disease mechanisms” (Paris, France; 9 July 2022) - Oral presentation (invited) Title: “Lipid rafts in neurodegeneration and neuroprotection”

- Gordon Research Conference (GRC) on Glycolipid and Sphingolipid Biology (Renaissance Tuscany Il Ciocco in Lucca (Barga), Lucca, Italy; 27 March - 1 April 2022) - Oral presentation (invited) - Title “Sphingolipids Orchestrating the Cross-Talk Between Different Cell Populations in the Repair of Damaged Myelin”
- Gordon Research Seminar (GRS) on Glycolipid and Sphingolipid Biology (Renaissance Tuscany Il Ciocco in Lucca (Barga), Lucca, Italy; 26-27 March 2022) - Poster presentation - Title: “Effects of the remyelination-promoting antibody rHlgM22 on glycosphingolipid metabolism in primary cultured glial cells.”
- ASN Virtual meeting 2021 (Online meeting; 27 June-1 July 2021) Oral presentation (selected from abstract) and poster presentation - Title: “Sphingolipid-dependent membrane organization and signaling orchestrating myelin repair”
- 4th BIOMETRA Dept. Workshop (Milan, Italy; 23 September 2019) - Poster presentation - Title: “Effects the remyelination-promoting antibody rHlgM22 on sphingolipid metabolism in primary cultured glial cells”
- 24th ESN biennial meeting - 7th Conference on Molecular Mechanisms of Regulation in the Nervous System (Milan, Italy; 1-4 September 2019 - Poster presentation - Title: “Effects the remyelination-promoting antibody rHlgM22 on sphingolipid metabolism in primary cultured glial cells”
- 25th International Symposium on Glycoconjugates (Milan, Italy; 25-31 August 2019) - Oral presentation, selected from abstracts - Title: “Effects of the remyelination-promoting antibody rHlgM22 on glycosphingolipid metabolism in primary cultured glial cells”
- ISN-ASN Meeting 2019 (Montreal, Canada; 4-8 August 2019) - Poster presentation - Title: “Effects the remyelination-promoting antibody rHlgM22 on sphingolipid metabolism in primary cultured glial cells”
- 2019 ISN Advanced School (Esterel Resort, Montreal, Canada; 31 July - 4 August 2019) - Poster presentation - Title: “Effects the remyelination-promoting antibody rHlgM22 on sphingolipid metabolism in primary cultured glial cells”

Participation to the school was on a competitive basis. A total of 40 students were selected for the school. The selection to the school also granted a travel award for the ISN-ASN meeting 2019.

- 3rd BIOMETRA Dept. Workshop (Milan, Italy; 8 September 2018) - Poster presentation - Title: “Role of rHlgM22, a remyelination-promoting antibody, in the regulation of acid sphingomyelinase activity in glial cells”
- 2nd ISN-JNC Flagship School (Alpbach, Austria; 9-16 September 2018) - Poster presentation - Title: “Role of rHlgM22, a remyelination-promoting antibody, in the regulation of acid sphingomyelinase activity in glial cells”

Participation to the school was on a competitive basis. A total of 30 students were selected for the school. The selection to the school also granted a travel award.

- Poster presentation at the 11th FENS Forum of Neuroscience (Berlin, Germany; 7-11 July 2018) - Poster presentation - Title: “Role of rHlgM22, a remyelination-promoting antibody, in the regulation of acid sphingomyelinase activity in glial cells”
- 4nd Meeting of young biochemists of Milan and hinterland (Gargnano-Brescia, Italy; 15-17 April 2018) - Oral presentation - Title: “Role of rHlgM22, a remyelination-promoting antibody, in the regulation of acid sphingomyelinase activity in glial cells”

- Gordon Research Conference on Glycolipid and Sphingolipid Biology (Galveston, TX, USA; 11-16 February 2018) - Poster presentation - Title: "Role of rHlgM22, a remyelination-promoting antibody, in the regulation of acid sphingomyelinase activity in mixed glial cells"
- 1st International Conference on the Glycobiology of Nervous System (Seoul, South Korea; 2-5 September 2017) - Poster presentation - Title: "Identification of the antigen recognized by rHlgM22, a remyelination-promoting human monoclonal antibody"
- 24th International Symposium On Glycoconjugates (ICC Jeju, South Korea; 27 August-1 September 2017) - Poster presentation - Title: "Identification of the antigen recognized by rHlgM22, a remyelination-promoting human monoclonal antibody"
- 2017 ISN-ESN Meeting (Paris, France; 20-24 August 2017) - Oral presentation, ESN Young Members' Symposia - Title: "Role of rHlgM22, a remyelination-promoting antibody, in the regulation of acid sphingomyelinase activity in mixed glial cells"
- 3rd Meeting of young biochemists of Milan and hinterland (Gargnano-Brescia, Italy; 25-27 June 2017) - Poster presentation - Title: "Role of rHlgM22, a remyelination-promoting antibody, in the regulation of acid sphingomyelinase activity in mixed glial cells"
- 2nd Meeting of the SIB Membrane group (Catania, Italy; 12 June 2017) - Oral presentation, invited speaker - Title: "Surface plasmon resonance as a tool for the analysis of biomolecular interactions"
- Neuronest Meeting (Milan, Italy; 8 March 2017) - Poster presentation - Title: "Identification of the antigen recognized by rHlgM22, a remyelination-promoting human monoclonal antibody"
- 2nd BIOMETRA Dept. Workshop (Milan, Italy; 26 September 2016) - Oral presentation - Title: "Identification of the antigen recognized by rHlgM22, a remyelination-promoting human monoclonal antibody"
- 3rd International Conference on the Molecular Medicine of Sphingolipids (French Lick, Indiana; 18-23 September 2016) - Poster presentation - Title: "Identification of the antigen recognized by rHlgM22, a remyelination-promoting human monoclonal antibody"
- 10th FENS Forum of Neuroscience (Copenhagen, Denmark; 2-6 July 2016) - Poster presentation - Title: "Identification of the antigen recognized by rHlgM22, a remyelination-promoting human monoclonal antibody"

Winner of ESN travel award for this meeting.

- 28th National meeting of PhD students in Biochemical Sciences (Brallo di Pregola - Pavia - Italy; 6-9 June 2016) - Oral presentation - Title: "Identification of the antigen recognized by rHlgM22, a remyelination-promoting human monoclonal antibody"
- 2nd Meeting of young biochemists of Milan and hinterland (Gargnano-Brescia, Italy; 20-22 March 2016) - Oral presentation - Title: "Identification of the antigen recognized by rHlgM22, a remyelination-promoting human monoclonal antibody"
- ESN Conference "Molecular Mechanisms of Regulation in the Nervous System" (Tartu, Estonia; 14-17 June 2015) - Poster presentation - "Identification of the antigen recognized by rHlgM22, a remyelination-promoting human monoclonal antibody"

Winner of COST association travel award for this meeting.

- 27th National meeting of PhD students in Biochemical Sciences (Brallo di Pregola - Pavia - Italy; 8-12 June 2015) - Poster presentation - "Identification of the antigen recognized by rHlgM22, a remyelination-promoting human monoclonal antibody"

- 26th National meeting of PhD students in Biochemical Sciences (Brallo di Pregola - Pavia - Italy; 9-13 June 2014) - Poster presentation - "Identification of the antigen recognized by rHlgM22, a remyelination-promoting human monoclonal antibody"

## SEMINARS AND MEETING ORGANIZATION

- ❖ ISN YSSC Lounge Symposia, ISN ESN 2023 Meeting (Porto, Portugal; 8-11 August 2023) - Organizing committee and Chair for the following symposia
  - 1) "Speed CV review!" (Reviewers: Natalia Nalivaeva, Pavel Andjus)
  - 2) "It's not just about papers: promotion of regional scientific events as a career booster" (Speakers: Juana Pasquini, Laura Trebucq, Felipe Ribeiro)
  - 3) "Diversity and equity in brain science" (Roundtable moderata da ISN-YSSC)
  - 4) "Promoting a transparent dialogue between neuroscientist and society" (Speakers: Kirk Leech, Magda João Castelhana-Carlos, Silvina L Diaz, Jordi Lopez Tremoleda)
  - 5) "A Career in Industry or Academia: The Big Debate" (Speakers: Illana Gozes, Dimitra Mangoura)
  - 6) "Sharing career experience" (Speakers: Mychael Lourenco, Sara Xapelli, Anastassia Voronova, Itsuki Ajioka)
- ❖ 6th BIOMETRA Department Workshop, September 20, 2022, Milan, Italy - Organizing committee and Programme committee
- ❖ ISN YSSC Workshop "Climbing the ladder - the steps and key aspects of scientific careers", ISN-APSN 2022 Meeting (28 august - 1 september 2022, Honolulu, Hawaii, USA) - Organizing committee and Chair
- ❖ ESN YSSC Workshop "The first publication: Experiences, expectations and guidelines", May 24, 2022, online - Organizing committee and Programme committee
- ❖ 24th ESN Biennial Meeting and 8th Conference on "Molecular and Cellular Mechanisms of Regulation in the Nervous System", May 22-25, 2022, Saint Petersburg, Russia - Programme committee (Secretary)
- ❖ 5th BIOMETRA Department Workshop, September 27, 2021, Milan, Italy - Organizing committee and Programme committee
- ❖ 1st ESN Virtual Conference "Future perspectives for European neurochemistry -a young scientists conference", May 24-25, 2021 - Organizing and Programme committee
- ❖ BioMeTra Seminars, Department of Medical Biotechnology and Translational Medicine, Università degli Studi di Milano, 2020-2021 - Scientific committee
- ❖ BioMeTra Seminars, Department of Medical Biotechnology and Translational Medicine, Università degli Studi di Milano, 2019-2020 - Scientific committee

## NATIONAL AND INTERNATIONAL AWARDS AND SCHOLARSHIPS

- 2019 - ISN Advanced School award for the 2019 ISN Advanced School, which took place at Esterel Resort, Montreal, Canada
- 2018 - ISN-JNC Flagship School award for the 2nd ISN-JNC Flagship School, which took place in Alpbach, Austria
- 2017 - ESN Young Members' Symposia award for the ISN-ESN Meeting, which took place in Paris, France
- 2016 - ESN travel grant award for the 10th FENS Forum of Neuroscience, which took place in Copenhagen, Denmark
- 2015 - COST association Travel award for ESN Conference "Molecular Mechanisms of Regulation in the Nervous System", which took place in Tartu, Estonia
- 2014-2017 - Scholarship funded by MIUR (Ministry of University and Research, Italy) for the PhD in Biochemical Sciences, at the Department of Medical Biotechnology and Translational Medicine, Università degli Studi di Milano

## QUALIFICATIONS UNDER ART.24, PARAGRAPH 3.a AND 3.b, OF LAW No.240/2010 OF 30 DECEMBER 2010

1/11/2021 - 1/11/2024 Research contract type A  
Department of Medical Biotechnology and Translational Medicine - Università degli Studi di Milano

## OTHER

### ACTIVITY IN SCIENTIFIC SOCIETIES

- ❖ FENS member since 2014
- ❖ European Society for Neurochemistry member since 2014
  - 2019-2023 ESN Young Scientists Steering Committee (ESN-YSSC) member
  - 2021-2023 ESN-YSSC chair
  - 2021-2023 ESN Council member
  - 2023-ongoing ESN representative in ALBA Network
- ❖ International Society for Neurochemistry member since 2015
  - 2021-ongoing ISN YSSC Co-chair
  - ESN representative in the ISN YSSC since September 2021
  - 2023-ongoing Task Force 3 “Developing strategies for reaching underrepresented neurochemistry communities”
- ❖ Sphingolipid Club member since 2020
  - 2020-2023 Sphingolipid Club Youth Board Coordinator

### ACTIVITY AS STUDENTS REPRESENTATIVE

- ❖ Representative of the PhD students of the Department of Medical Biotechnology and Translational Medicine of the Università degli Studi di Milano (October 2014 - December 2016)
- ❖ Representative of the PhD students of the Biochemical Sciences PhD course, Università degli Studi di Milano (January 2014-December 2016)

## DISSEMINATION ACTIVITY

### Third mission for Università degli Studi di Milano

- ❖ Centenary celebration of the University of Milan, Organizing Committee for activities sponsored by the departments of the Health and Medicine area, 2023-ongoing
- ❖ MeetMeTonight, “Viaggio al centro della cellula”, September 29-30, 2017
- ❖ MeetMeTonight “Viaggio al centro della cellula”, September 30, 2016
- ❖ MeetMeTonight “Viaggio al centro della cellula”, September 25-26, 2015
- ❖ MeetMeTonight, “Tutta colpa della Biochimica”, September 26-27, 2014
- ❖ Activities in primary schools in Milano and neighbouring municipalities to describe with a lay language the principle of biochemistry, 2014-present

### Other dissemination activity

- ❖ Management of European Society for Neurochemistry (ESN) social media (Facebook, Twitter), 2019-present

## SCIENTIFIC PRODUCTION

### SCIENTIFIC PUBLICATIONS

(For each publication, specify the following: authors' names, full title, publisher, date and place of publication, ISBN/ISSN/DOI or equivalent code)

#### PUBLICATIONS

18 publications in peer-reviewed journals, 7 as first author, 1 as last author.  
h-index: 10

1) Sonnino, S., Aureli, M., Grassi, S., Mauri, L., Prioni, S., and Prinetti, A. (2014) Lipid rafts in neurodegeneration and neuroprotection, *Mol Neurobiol* 50(1), 130-148. doi:10.1007/s12035-013-8614-4

2) Aureli, M.\*, Grassi, S.\*, Prioni, S., Sonnino, S., Prinetti, A. (2015) Lipid membrane domains in the brain, *Biochimica et Biophysica Acta* 1851(8),1006-16. doi: 10.1016/j.bbali.2015.02.001 (\*these Authors equally contributed to the manuscript)

3) Grassi, S., Prioni, S., Cabitta, L., Aureli, M., Sonnino, S., Prinetti, A. (2016) The role of 3-O-sulfogalactosylceramide, sulfatide, in the lateral organization of myelin membrane, *Neurochem Res* 41(1-2), 130-43. doi: 10.1007/s11064-015-1747-2.

4) Aureli, M., Grassi, S., Sonnino, S., Prinetti, A. (2016) Isolation and analysis of detergent-resistant membrane fractions, *Methods Mol Biol.* 2016 1376, 107-31. doi: 10.1007/978-1-4939-3170-5\_10.

5) Sonnino, S., Grassi, S., Prioni, S., Ciampa, M.G., Chiricozzi, E., Prinetti, A. (2016) Lipid Rafts and Neurological Diseases, *eLS* 1-8. doi: 10.1002/9780470015902.a0023405

6) Sonnino, S., Chiricozzi, E., Grassi, S., Mauri, L., Prioni, S., Prinetti, A. (2018) Gangliosides in Membrane Organization, *Prog Mol Biol Transl Sci* 156, 83-120. doi: 10.1016/bs.pmbts.2017.12.007

7) Zucca, F.A., Vanna, R., Cupaioli, F.A., Bellei, C., De Palma, A., Di Silvestre, D., Mauri, P., Grassi, S., Prinetti, A., Casella, L., Sulzer, D., Zecca, L. (2018) Neuromelanin organelles are specialized autolysosomes that accumulate undegraded proteins and lipids in aging human brain and are likely involved in Parkinson's disease, *NPJ Parkinsons Dis* 4:17. doi: 10.1038/s41531-018-0050-8. eCollection 2018.

8) Aureli, M., Samarani, M., Loberto, N., Chiricozzi, E., Mauri, L., Grassi, S., Schiumarini, D., Prinetti, A., Sonnino, S. (2018) Neuronal membrane dynamics as fine regulator of sphingolipid composition, *Glycoconj J* 35(4), 397-402. doi: 10.1007/s10719-018-9841-8

9) Grassi, S., Chiricozzi, E., Mauri, L., Sonnino, S., Prinetti, A. (2019) Sphingolipids and neuronal degeneration in lysosomal storage disorders, *J Neurochem* 148(5), 600-611. doi: 10.1111/jnc.14540

10) Grassi, S., Giussani, P., Prioni, S., Button, D., Cao, J., Hakimi, I., Sarmiere, P., Srinivas, M., Cabitta, L., Sonnino, S., Prinetti, A. (2019) Human remyelination promoting antibody stimulates astrocytes proliferation through modulation of the sphingolipid rheostat in primary rat mixed glial cultures, *Neurochem Res* 44(6), 1460-1474. doi: 10.1007/s11064-018-2701-x

11) Grassi, S., Mauri, L., Prioni, S., Cabitta, L., Sonnino, S., Prinetti, A., Giussani, P. (2019) Sphingosine 1-Phosphate Receptors and Metabolic Enzymes as Druggable Targets for Brain Diseases, *Front Pharmacol*, 10:807. doi: 10.3389/fphar.2019.00807

12) Roig-Puiggros, S., Vigouroux, R.J., Beckman, D., Bocai, N.I., Chiou, B., Davimes, J., Gomez, G., Grassi, S., Hoque, A., Karikari, T.K., Kiffer, F., Lopez, M., Lunghi, G., Mazenganya, P., Meier, S., Olguín-Albuérne, M., Oliveira, M.M., Paraíso-Luna, J., Pradhan, J., Radiske, A., Ramos-Hryb, A.B., Ribeiro, M.C., Schellino, R., Selles, M.C., Singh, S., Theotokis, P., Chédotal, A. (2020) Construction

and reconstruction of brain circuits: normal and pathological axon guidance, *J Neurochem* 153(1), 10-32. doi: 10.1111/jnc.14900

13) Grassi, S., Giussani, P., Mauri, L., Prioni, S., Sonnino, S., Prinetti, A., (2020) Lipid rafts and neurodegeneration: structural and functional roles in physiologic aging and neurodegenerative diseases, *J Lipid Res* 61(5), 636-654. doi: 10.1194/jlr.TR119000427

14) Grassi, S., Giussani, P., Mauri, L., Prioni, S., Prinetti, A. (2021) Isolation and Analysis of Lipid Rafts from Neural Cells and Tissues, *Methods Mol Biol* 2187, 1-25. doi: 10.1007/978-1-0716-0814-2\_1.

15) D'Aprile, C., Prioni, S., Mauri, L., Prinetti, A., Grassi, S., (2021) Lipid rafts as platforms for sphingosine 1-phosphate metabolism and signalling, *Cell Signal* 80,109929. doi: 10.1016/j.cellsig.2021.109929

16) Bertani, V., Prioni, S., Di Lecce, R., Gazza, F., Ragionieri, L., Merialdi, G., Bonilauri, P., Jagannathan, V., Grassi, S., Cabitta, L., Paoli, A., Morrone, A., Sonnino, S., Drögemüller, C., Cantoni, A.M. (2021) A pathogenic HEXA missense variant in wild boars with Tay-Sachs disease, *Mol Genet Metab* S1096-7192(21)00702-2. doi: 10.1016/j.ymgme.2021.05.001

17) Blumrich, EM., Grassi, S. (2021) *Journal of Molecular Neuroscience (JOMN)—Special Issue European Society for Neurochemistry (ESN) First Virtual Conference, May 2021. J Mol Neurosci* 72, 1429-1432 (2022). <https://doi.org/10.1007/s12031-022-02034-6>

18) Grassi, S., Cabitta, L., Prioni, S., Mauri, L., Ciampa, M.G., Yokoyama, N., Iwabuchi, K., Zorina, Y., Prinetti, A. (2023) Identification of the Lipid Antigens Recognized by rHlgM22, a Remyelination-Promoting Antibody. *Neurochem Res.* 48(6):1783-1797. doi: 10.1007/s11064-023-03859-2

## CONGRESS PROCEEDINGS

1) Xie, X., Prioni, S., Grassi, S., Cao, T., Kabayama, K., Inokuchi, J., Sonnino, S., Prinetti, A. (2015) Ganglioside-dependent membrane organization controlling the adhesion and motility of human ovarian cancer cells, *Glycoconj J* 32,173-342. doi:10.1007/s10719-015-9596-4

2) Grassi, S., Prioni, S., Zorina, Y., Cabitta, L., Sonnino, S., Prinetti, A. (2015) Identification of the antigen recognized by rHlgM22, a remyelination-promoting human monoclonal antibody, *SpringerPlus* 2015 4 (Suppl 1), P15. doi: 10.1186/2193-1801-4-S1-P15

3) Cabitta, L., Grassi, S., Prioni, S., Zorina, Y., Sonnino, S., Prinetti, A. (2017) Identification of the antigen recognized by rHlgM22, a remyelination-promoting human monoclonal antibody, *Journal of Neurochemistry* 142 (Suppl. 1), 165-259. doi: 10.1111/jnc.14094

4) Grassi, S., Prioni, S., Zorina, Y., Cabitta, L., Sonnino, S., Prinetti, A. (2017) Role of rHlgM22, a remyelination-promoting antibody, in the regulation of acid sphingomyelinase activity in mixed glial cells, *J Neurochem* 142 (Suppl. 1), 165-259. doi: 10.1111/jnc.14094- Young Member Symposia

5) Grassi, S., Prioni, S., Zorina, Y., Cabitta, L., Sonnino, S., Prinetti, A. (2017) Lipid-driven membrane organization and signaling in myelin repair, *Glycoconj J* 34 (Suppl. 1), 1-120. doi: 10.1007/s10719-017-9784-5

6) Grassi, S., Cabitta, L., Prioni, S., Zorina, Y., Mauri, L., Ciampa, M.G., Sonnino, S., Prinetti, A. (2017) Identification of the antigen recognized by rHlgM22, a remyelination-promoting human monoclonal antibody, *Glycoconj J* 34 (Suppl. 1), 1-120. doi: 10.1007/s10719-017-9784-5

7) Cabitta, L., Grassi, S., Prioni, S., Mauri, L., Ciampa, M.G., Zorina, Y., Sonnino, S., Prinetti, A. (2019) Identification of the antigen recognized in vitro by rHlgM22, a remyelination-promoting human monoclonal antibody, *J Neurochem* 150 (Suppl. 1), 73-161. doi: 10.1111/jnc.14776

- 8) Grassi, S., Prioni, S., Cabitta, L., Sonnino, S., Prinetti A. (2019) Effects the remyelination-promoting antibody rHlgM22 on sphingolipid metabolism in primary cultured glial cells, *J Neurochem* 150 (Suppl. 1), 73-161. doi: 10.1111/jnc.14776
- 9) Prioni, S., Cabitta L., Grassi, S., Sonnino, S., Bertani, V., Cantoni, A.M., Corradi, A., Jagannathan, V., Drögemüller, C. (2019) Hexa-associated GM2 gangliosidosis in a family of wildboars, *J Neurochem* 150 (Suppl. 1), 73-161. doi: 10.1111/jnc.14776
- 10) Prinetti, A., Grassi, S., Prioni, S., Button, D., Cao, J., Hakimi, I., Sarmiere, P., Srinivas, M., Cabitta, L., Sonnino, S., Giussani, P. (2019) Human remyelination promoting antibody induces astrocytes proliferation modulating the sphingolipid rheostat in primary rat mixed J *Neurochem* 150 (Suppl. 1), 162-251. doi: 10.1111/jnc.14777
- 11) Cabitta, L., Grassi, S., Prioni, S., Mauri, L., Ciampa, M.G., Zorina, Y., Sonnino, S., Prinetti, A. (2019) Identification of the antigen recognized in vitro by rHlgM22, a remyelination-promoting human monoclonal antibody, *Glycoconj J* 36, 267-397. doi: 10.1007/s10719-019-09880-4
- 12) Grassi, S., Prioni, S., Cabitta, L., Sonnino, S., Prinetti A. (2019) Effects the remyelination-promoting antibody rHlgM22 on glycosphingolipid metabolism in primary cultured glial cells, *Glycoconj J* 36, 267-397. doi: 10.1007/s10719-019-09880-4
- 13) Itoh, K., Tsukimoto, J., Tsuji, D., Horii, Y., Iniwa, T., Fukushi, Y., Ando, H., Simona, P., Cabitta, L., Grassi, S., Prinetti, A., Sonnino S. (2019) Molecular pathogenesis and innovative therapy for lysosomalneuraminidase 1 (neu1) deficiencies (sialidosis and galactosialidosis), *Glycoconj J* 36, 267-397. doi: 10.1007/s10719-019-09880-4
- 14) Prioni, S., Cabitta L., Grassi, S., Bertani, V., Cantoni, A.M., Corradi, A., Jagannathan, V., Drögemüller, C., Sonnino, S (2019) GM2 gangliosidosis in a family of wild boars, *Glycoconj J* 36, 267-397. doi: 10.1007/s10719-019-09880-4
- 15) Cuenca- Bermejo, L., Prioni, S., Grassi, S., González-Cuello, A. M., Fernández-Villalba, E., Trinidad Herrero, M., Prinetti, A. (2022) Differential brain lipid composition in the Octodon degus, a matter of age and sex, *Young Members Symposia. J Neurochem*, 162: 41-52. <https://doi.org/10.1111/jnc.15672>
- 16) Grassi, G., Prioni, S., D'Aprile, C., Cabitta, C., Mauri, L., Prinetti, A. (2022) Sphingolipid-dependent membrane organization and signaling orchestrating myelin repair, *Poster Sessions Monday/Tuesday. J Neurochem*, 162: 57-110. <https://doi.org/10.1111/jnc.15674>
- 17) D'Aprile, C., Grassi, S., Prioni, S., Mauri, L., Prinetti, A. (2022) A remyelination-promoting antibody modulates sphingolipid metabolism in microglial cell, *Poster Sessions Monday/Tuesday. J Neurochem*, 162: 57-110. <https://doi.org/10.1111/jnc.15674>
- 18) Grassi, S., Prioni, S., Marchesini, A., Cappelletti, G., Prinetti, A. (2023) Role of sphingolipids in fractalkine mediated myelin repair, *Journal of Neurochemistry Volume 166: ISN-ESN 2023 Meeting, Porto, Portugal, 8-11 August 2023*, <https://doi.org/10.1111/jnc.15896>

## EDITING AND REVIEWING

- Review Editor for the Editorial Board Neuroenergetics and Brain Health (specialty section of *Frontiers in Nutrition and Frontiers in Neuroscience*) since September 2023
- Reviewer for *Journal of Neurochemistry* since August 2023
- Member of the editorial board del *Journal of Molecular Neuroscience* since June 2022
- Reviewers for *Frontiers in Cardiovascular Medicine* since January 2022

- Reviewer for The Lancet since December 2020
- Reviewer for Glycoconjugate Journal since February 2021

Data

18/01/2024

Luogo

Segrate