



## **Personal Data**

Name: **Elena Chiricozzi**

Birth: Roma, Italy; June 14<sup>th</sup>, 1981

Citizenship: Italian

Adress: Department of Medical Biotechnology and Translational Medicine, University of Milano, Via Fr.lli Cervi 93, 20090 Segrate (MI) Italia

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## **Education and Training**

*2001-2005*

Bachelor's Degree in Biotechnology, University of Perugia.

108 (out of 110)

Thesis Advisor: Gianfrancesco Goracci, Professor in Biochemistry

Title of Thesis: Use of fluorescent substrates for the assay of phospholipases A<sub>2</sub> (PLA<sub>2</sub>) *in vivo* and *in vitro*

*January-May, 2008*

Fellowship by "Leonardo da Vinci II Programme in Bioinformatic and Nano-Biotechnology (Bio-NANO)" at the Laboratory of Biochemistry and Molecular Biology, University of Salamanca, under the supervision of Professor Juan Pedro Bolaños.

*2005-2008*

Master of Science in Medical Biotechnology, University of Perugia

110 (out of 110) cum laude

Thesis Advisors: Gianfrancesco Goracci, Professor in Biochemistry and Juan Pedro Bolaños, Professor in Biochemistry and Molecular Biology.

Title of Thesis: "Correlation between group IIA secretory phospholipase A<sub>2</sub> (sPLA<sub>2</sub>-IIA) activation and apoptosis in primary neuronal cells: effect of NMDA-receptor activation and oxidative stress".

*July-December, 2011*

Visiting PhD Student at the Institute for Environmental and Gender Specific Medicine, Juntendo University, Graduate School of Medicine, Tokyo, Japan, under the supervision of Professor Kazuhisa Iwabuchi

*June 2012*

Visiting PhD Student at the Department of Experimental Medicine and Biochemical Sciences, University of Perugia, Italy under the supervision of Professor Carla Emiliani

*July-August, 2012*

Visiting PhD Student at the Institute for Environmental and Gender Specific Medicine, Juntendo University, Graduate School of Medicine, Tokyo, Japan, under the supervision of Professor Kazuhisa Iwabuchi

*2010-2013*

Biochemistry PhD student, University of Milan

Center of Excellence on Neurodegenerative Disease, Department of Medical Biotechnology and Translational Medicine, University of Milano, 20090 Segrate, Milano, Italy.

Title of Thesis: Sphingolipids as signaling molecules: their involvement in health and disease.

Thesis Advisor: Professor Sandro Sonnino.

*February 2014*

Visiting PostDoc at the Institute for Environmental and Gender Specific Medicine, Juntendo University, Graduate School of Medicine, Tokyo, Japan, under the supervision of Professor Kazuhisa Iwabuchi

*July 2013-June 2014*

Post Doc

Laboratory of Cellular Adhesion, University of Vita e Salute San Raffael, Milano, Italy

Advisor: Professor Ivan De Curtis

*June-October 2014*

Post Doc

Cancer Gene Therapy Unit, Division of Molecular Oncology, San Raffaele Scientific Institute

Advisor: Professor Vincenzo Russo

*February 2015*

Brain Blood Barrier (BBB) Training

Visiting PostDoc at the Laboratoire de physiopathologie de la barriere hemato-encephalique, Universite d'Artois, Lens, France, under the supervision of Professor Cecchelli Romeo

*April 2016*

Visiting PostDoc at the Research Center of FIDIA-Pharma, Noto, Siracusa, Sicilia

*November-December 2016*

Visiting PostDoc at the NAIST, Nara Institute of Science and Technology, Nara, Japan under the supervision of Professor Hirotada Mori.

*October 2014-December 2016*

PostDoc

Center of Excellence on Neurodegenerative Disease, Department of Medical Biotechnology and Translational Medicine, University of Milano, 20090 Segrate, Milano, Italy.

Advisor: Professor Sandro Sonnino.

**January 2017 - now**

**Researcher**

**Center of Excellence on Neurodegenerative Disease, Department of Medical Biotechnology and Translational Medicine, University of Milano, 20090 Segrate, Milano, Italy.**

### **Fellowship**

1. Fellowship by “Leonardo da Vinci II Programme in Bioinformatic and Nano-Biotechnology (Bio-NANO)” spend at the Laboratory of Biochemistry and Molecular Biology, University of Salamanca, under the supervision of Professor Juan Pedro Bolaños. January-May, 2008
2. Fellowship for Ph. D., Department of Medical Biotechnology and Translational Medicine, University of Milano 2010-2013

### **Awards**

1. Travel Award - 36<sup>th</sup> Federation of European Biochemical Societies (FEBS) Congress “Biochemistry for tomorrow’s medicine” Torino, Italy, 25-30 June 2011 By Società Italiana di Biochimica e Biologia Molecolare (SIB)
2. Travel Award - 10<sup>th</sup> International Society for Neurochemistry (ISN) Summer School “Molecular basis of higher cognitive functions” Delphi, Greece, 24-28 August 2011 by International Society of Neurochemistry (ISN)
3. Travel Award - 23<sup>rd</sup> International Society for Neurochemistry/European Society for Neurochemistry, (ISN/ESN) Biennial Meeting, Atene, Greece, 28 August-1 September 2011 by International Society of Neurochemistry (ISN)
4. Young Scientist Award - 12<sup>th</sup> Young Scientist Program, Costa Ballena, Spain, 1-4 September 2012 by Federation of European Biochemical Societies (FEBS)
5. Travel Award - 22<sup>nd</sup> International Union of Biochemistry and Molecular Biology (IUBMB) and 37<sup>th</sup> Federation of European Biochemical Societies (FEBS) Congress “From Single Molecules to Systems Biology”, Siviglia, Spain, 4-9 September 2012 by Federation of European Biochemical Societies (FEBS)
6. Young Investigator Award - “Porcellati Foundation Young Investigator Lecture” International Society for Neurochemistry/American Society for Neurochemistry (ISN/ASN) Satellite meeting “Unveiling the Significance of Lipid Signaling in Neurodegeneration and Neuroprotection”, Cancun, Mexico, 17-19 April 2013 by Porcellati Foundation
7. Travel Award - 38<sup>th</sup> Federation of European Biochemical Societies (FEBS) Congress “Mechanisms in Biology” St. Petersburg, Russia, 6-11 July 2013 by Federation of European Biochemical Societies (FEBS)
8. Travel Award - XXIII International Symposium on Glycoconjugates GLYCO 23, Spit, Croatia, 15-20 September 2015 by International Glycoconjugate Organisation (IGO)

9. Travel Award - Frontiers in Sialic Acid Research Conference – From Structural Diversity to Functional Glycobiology, Bad Lauterberg, Germany 23-25 April 2016 by “The Cluster of Excellence: From Regenerative Biology to Reconstructive Therapy” REBIRTH Foundation

### **Congress participation**

1. 2° Encuentro Instituto de Neurociencias Castilla Leòn/ Instituto Cajal, Madrid, Spain, Instituto Cajal, CSIN *January 17, 2008* - Attendance
2. International Symposium on Novel Advances in Parkinson's Disease, Salamanca, Spain, Fundaciòn Ramòn Areces, *May 27-28, 2008* - Attendance
3. 18<sup>th</sup> European Society for Neurochemistry Meeting - 4<sup>th</sup> Conference on “Advances in Molecular Mechanisms of Neurological Disorders”, Leipzig, Germany *July 11-14, 2009* - Poster presentation
4. 8<sup>a</sup> Giornata di Studio sulle Cellule Staminali, UNISTEM, Centro per la Ricerca delle Cellule Staminali, Milan, Italy *January 29, 2010* - Attendance
5. Annual meeting of regional section (Liguria-Lombarbia-Piemonte) of Italian Society of Biochemistry, 2010, University of Isumbria, Varese, Italy *May 28, 2010* - Poster Presentation
6. Annual meeting of regional section (Liguria-Lombarbia-Piemonte) of Italian Society of Biochemistry, 2011, University of Novara, Novara, Italy *May 20, 2011* - Poster Presentation
7. 36<sup>th</sup> FEBS Congress “Biochemistry for tomorrow's medicine”, Torino, Italy *June 25-31, 2011* - Poster Presentation
8. 23<sup>rd</sup> ISN/ESN Biannual Meeting, Athens, Greece *August 28- September 1, 2011* - Poster Presentation
9. 84<sup>th</sup> Annual Meeting of the Japanese Biochemical Society, University of Kyoto, Japan *September 21-24, 2011* - Attendance
10. Gordon Research Conference “Glycolipid and Sphingolipid Biology”, Renaissance Tuscany Il Ciocco Resort, Barga, Lucca, Italy *April 22-27, 2012* - Poster Presentation
11. 24<sup>th</sup> Annual meeting of PhD School in Biochemistry of Italian Society of Biochemistry, Brallo di Pretola, Pavia, Italy *June 10-15, 2012* - Oral Presentation
12. Young Scientists Program, Costa Ballena, Spain *September 1-4, 2012* - Poster Presentation
13. 37<sup>th</sup> FEBS Congress, 2012, Seville, Spain *September 4-9, 2012* - Poster Presentation
14. ISN/ASN Satellite meeting Unveiling the Significance of Lipid Signaling in Neurodegeneration and Neuroprotection, Cancun, Mexico *April 17-19, 2013* - Oral Presentation
15. San Raffaele Scientific Retreat, San Raffaele, Milano, Italia, *29-30 Novembre 2013*- Partecipazione
16. I° Incontro dei Giovani Biochimici dell'area Milanese, Palazzo Feltrinelli, Gargnano, Garda, Italia, *10-12 Aprile 2015* – Poster
17. GLYCO 23 – XXIII International Symposium on Glycoconjugates, Split, Croatia, *September 15-20, 2015* - Poster Presentation

18. II° Incontro dei Giovani Biochimici dell'area Milanese, Palazzo Feltrinelli, Gargnano, Garda, Italy 20-22 Marzo 2016 – Poster Presentation
19. II° Incontro dei Giovani Biochimici dell'area Milanese, Palazzo Feltrinelli, Gargnano, Garda, Italy 20-22 Marzo 2016 – Moderator
20. Sialic Acid Research Conference, From Structural Diversity to Functional Glycobiology, Bad Lauterberg, Germania 23-25 Aprile 2016 – Poster Presentation

### **Communications to scientific meetings**

1. **E. Chiricozzi**, S. Fernandez-Fernandez, A. Almeida, J.P. Bolaños, G. Goracci “Group IIA secretory phospholipase A<sub>2</sub> (sPLA<sub>2</sub>-IIA) activation contributes to apoptosis after NMDA-receptor over-activation in primary neurons” 18<sup>th</sup> European Society for Neurochemistry Meeting - 4<sup>th</sup> Conference on “Advances in Molecular Mechanisms of Neurological Disorders”, Leipzig, Germany **PUBLISHED** in a special issue of J.Neurochem 110:20 (2009) Supplement 1 July 2009 (doi: 10.1111/j.1471-4159.2009.06064\_6.x)
2. G. Goracci, V. Nardicchi, M. Ferrini, E. Biagioni-Angeli, **E.Chiricozzi** “Role of low molecular weight phospholipases A<sub>2</sub> in brain functions and dysfunctions” ISN/APSN Joint Meeting Satellite Conference on: Novel Strategies for Intervention in Neurodegenerative Diseases, Academia Sinica, Taipei, Taiwan August 30-September 2, 2009
3. V. Nardicchi, E. Biagioni Angeli, M. Ferrini, **E. Chiricozzi**, G. Goracci “Brain low molecular weight phospholipases A<sub>2</sub> (sPLA<sub>2</sub>): role in neuronal functions and in neurodegenerative diseases” 54<sup>th</sup> National Meeting of the Italian Society of Biochemistry and Molecular Biology (SIB), Catania, Italy, 23-27 September 2009
4. S. Prioni, **E. Chiricozzi**, A. Prinetti, M. Piccinini, B. Buccinà, F.Scandroglio, M. Valsecchi, A. Lomartire, E. Lupito, C. Ramondetti, M.T.Rinaudo, S. Sonnino “Deregulated sphingolipid metabolism in neurodegenerative disorders: acid sphingomyelinase knockout mice, an animal model for NPD-A” Convegno annuale della Sezione Ligure-Lomabardo-Piemontese della Società Italiana di Biochimica e Biologia Molecolare, Università dell'Insubria, Varese, Italy, May 28, 2010
5. S. Fernández Fernández, **E. Chiricozzi**, V. Nardicchi, A. Almeida, G. Goracci, J.P. Bolaños. “La fosfolipasa secretora A<sub>2</sub> (isoforma IIA) interviene decisivamente en la apoptosis neuronal inducida por estimulación de receptores NMDA” XXXIII Congreso de La Sociedad Espanola de Bioquímica y Biología Molecular, SEBBM2010, Cordoba, September 14-17, 2010
6. **E. Chiricozzi**, S. Prioni, V. Chigorno, A. Prinetti, S. Sonnino “Secondary accumulations of gangliosides in sphingolipidosis” Convegno annuale della Sezione Ligure-Lomabardo-Piemontese della Società Italiana di Biochimica e Biologia Molecolare, Università del Piemonte Orientale, Novara, Italy, May 20 2011
7. **E. Chiricozzi**, M. Aureli, N. Loberto, P. Lanteri, V. Chigorno, A. Prinetti and S. Sonnino. “Cell surface glycohydrolase modulation during tumor irradiation” 36<sup>th</sup> FEBS Congress “Biochemistry for

- tomorrow's medicine" Torino, Italy June 25-30, 2011 **PUBLISHED** in a special issue: Erratum. FEBS Journal, 278: 1–3. doi: 10.1111/j.1742-4658.2011.08225.x
8. **E. Chiricozzi**, S. Prioni, V. Chigorno, A. Prinetti and S. Sonnino. "Secondary accumulations of gangliosides in sphingolipidosis" 36<sup>th</sup> FEBS Congress "Biochemistry for tomorrow's medicine" Torino, Italy June 25-30, 2011 **PUBLISHED** in a special issue FEBS Journal, 278: 74–445. doi:10.1111/j.1742-4658.2011.08137.x
  9. **E. Chiricozzi**, S. Prioni, V. Chigorno, A. Prinetti and S. Sonnino. "Secondary accumulations of gangliosides in sphingolipidosis" ISN/ESN 2011 23<sup>rd</sup> Biennial Meeting, held in Athens (Greece), August 28-September 1, 2011 **PUBLISHED** in a special issue of J.Neurochem (2011) 118:210 doi: 10.1111/j.1471-4159.2011.07326.x
  10. **E. Chiricozzi**, L. Mauri, M.G. Ciampa, G. Brasile, H. Nakayama, S. Watanabe, F. Compostella, F. Ronchetta, A. Prinetti, K. Iwabuchi and S. Sonnino. "Photoactivable lactosylceramide derivatives: preparation and use in the comprehension of the role of lactosylceramide-enriched micro domain in neutrophils" (2012) Gordon Conference on Glycolipid and Sphingolipid Biology (Italy) 22-27 April
  11. **E. Chiricozzi** "Lyn-coupled LacCer-enriched lipid rafts in neutrophils: a possible organization" (2012) Oral Presentation 24<sup>th</sup> Annual meeting of PhD School in Biochemistry of Italian Society of Biochemistry, Brallo di Pretola, Pavia, Italy
  12. **E. Chiricozzi**, H. Nakayama, S. Watanabe, L. Mauri, G. Brasile, MG Ciampa, F. Compostella, F. Ronchetti, V. Chigorno, A. Prinetti, S. Sonnino and K. Iwabuchi "Lyn-coupled LacCer-enriched lipid rafts in neutrophils: a possible organization" (2012) YSP 12 and 37<sup>th</sup> FEBS Congress **PUBLISHED** in a special issue of FEBS Journal 279:241-242 doi: 10.1111/j.1742-4658.2010.08705.x
  13. **E. Chiricozzi**, N. Niemir, M. Aureli, A. Magini, N. Loberto, R. Bassi, A. Polchi, A. Prinetti, C. Emiliani, C. Caillaud and S. Sonnino. "Effect of the pharmacological chaperone "Pyrimethamine" on  $\beta$ -Hexosaminidase activity in Sandhoff fibroblasts" ISN/ASN Satellite meeting Unveiling the Significance of Lipid Signaling in Neurodegeneration and Neuroprotection, Cancun, Mexico April 17-19, 2013
  14. S. Prioni, M. Aureli, N. Loberto, R. Bassi, V. Murdica, M. Samarani, **E. Chiricozzi**, E. Chigorno, S. Sonnino, A. Prinetti Glycosphingolipid patterns and glycohydrolases behavior in acid-sphingomyelinase knock-out mice. The 24th Biennial Meeting of the International Society for Neurochemistry and the American Society for Neurochemistry. 20–24 April 2013. Cancun, Mexico. **PUBLISHED** in a special issue of Journal of Neurochemistry DOI: 10.1111/jnc.12186
  15. **E. Chiricozzi**, M. Aureli, N. Loberto, A. Magini, N. Niemir, A. Polchi, R. Bassi, C. Emiliani, C. Caillaud and S. Sonnino. "Pyrimethamine chaperone enhances beta-hexosaminidase activity in Sandhoff fibroblasts without restoring lysosomal GM2 catabolism" 38<sup>th</sup> FEBS Congress **PUBLISHED** in a special issue of FEBS Journal DOI: 10.1111/febs.12340
  16. V. Murdica, M. Aureli, N. Loberto, R. Bassi, M. Samarani, S. Prioni, **E. Chiricozzi**, V. Chigorno, A. Prinetti and S. Sonnino "Glycohydrolases and glycosphingolipids behavior in acid-sphingomyelinase

knock-out mice" 38<sup>th</sup> FEBS Congress **PUBLISHED** in a special issue of FEBS Journal DOI: 10.1111/febs.12340

17. **E. Chiricozzi**, D.Y. Pomè, M.G. Ciampa, L. Mauri, M. Aureli, S. Sonnino "The fate of exogenous ganglioside: how can they reach the brain?" I° Incontro dei Giovani Biochimici dell'area Milanese, Palazzo Feltrinelli, Gargnano, Garda, 10-12 Aprile 2015
18. **E. Chiricozzi**, A. Paniccia, V. Russo and S. Sonnino "LXR $\alpha$ -silencing induces apoptosis by glycosphingolipid-derived ceramide in different tumor type" GLYCO 23 Congress **PUBLISHED** in a special issue of Glycoconjugate Journal 2015 32(5):173-342
19. **E. Chiricozzi**, D.Y. Pomè, L. Mauri, M. Aureli, S. Sonnino "GM1 ganglioside oligosaccharide activates phosphorylation of TRK receptors inducing neuritogenesis in mouse neuroblastoma cells" II° Incontro dei Giovani Biochimici dell'area Milanese, Palazzo Feltrinelli, Gargnano, Garda, Italia 20-22 Marzo 2016
20. **E. Chiricozzi**, D.Y. Pomè, M. Samarani, MG Ciampa, L. Mauri, M. Aureli, S. Sonnino "Neu5AcGgOse4, the GM1 ganglioside oligosaccharide, induces neuritogenesis and activates phosphorylation of TRK receptors in mouse neuroblastoma cells" Sialic Acid Research Conference – From Structural Diversity to Functional Glycobiology, Bad Lauterberg, Germania, 23-25 Aprile 2016

## **Publications**

1. **E. Chiricozzi**, S. Fernandez-Fernandez, A. Almeida, J.P. Bolaños and G. Goracci (2009) Group IIA secretory phospholipase A<sub>2</sub> (sPLA<sub>2</sub>-IIA) activation contributes to apoptosis after NMDA-receptor over-activation in primary neurons. *J Neurochem* 110:19-28 Issue S1, DOI: 10.1111/j.1471-4159.2009.06064\_6.x)
2. **E. Chiricozzi**, S. Fernandez-Fernandez, V. Nardicchi, A. Almeida, J.P. Bolaños, and G. Goracci (2010) Group IIA secretory phospholipase A<sub>2</sub> (GIIA) mediates apoptotic death during NMDA-receptor activation in rat primary cortical neurons. *J Neurochem* 112(6):1574-83. DOI: 10.1111/j.1471-4159.2010.06567.x.
3. **E. Chiricozzi**, M. Aureli, N. Loberto, P. Lanteri, V. Chigorno, A. Prinetti and S. Sonnino (2011) Cell surface glycohydrolase modulation during tumor irradiation. *FEBS Journal Supplement I Erratum*. 278:1–3. DOI: 10.1111/j.1742-4658.2011.08225.x
4. **E. Chiricozzi**, S. Prioni, V. Chigorno, A. Prinetti and S. Sonnino (2011) Secondary accumulations of gangliosides in sphingolipidosis. *FEBS Journal Supplement I* 278: 74–445 DOI: 10.1111/j.1742-4658.2011.08137.x
5. **E. Chiricozzi**, S. Prioni, V. Chigorno, A. Prinetti and S. Sonnino (2011) Secondary accumulations of gangliosides in sphingolipidosis. *J Neurochem* 118:210 Issue S1 DOI: 10.1111/j.1471-4159.2011.07326.x

6. Prinetti, S. Prioni, **E. Chiricozzi**, Edward H. Schuchman, V. Chigorno and S. Sonnino (2011) Secondary alterations of sphingolipid metabolism in lysosomal storage disease. *Neurochem Res* 36(9):1654-68 DOI: 10.1007/s11064-010-0380-3.
7. M. Aureli, R. Bassi, A. Prinetti, **E. Chiricozzi**, B. Pappalardi, V. Chigorno, N. Di Muzio, N. Loberto and S. Sonnino (2012) Ionizing radiation increase the activity of cell surface glycohydrolases and plasma membrane ceramide content. *Glycoconj J* 29(8-9):585-97. DOI: 10.1007/s10719-012-9385-2.
8. **E. Chiricozzi**, H. Nakayama, S. Watanabe, L. Mauri, G. Brasile, MG Ciampa, F. Compostella, F. Ronchetti, V. Chigorno, A. Prinetti, S. Sonnino and K. Iwabuchi (2012) Lyn-coupled LacCer-enriched lipid rafts in neutrophils: a possible organization *FEBS Journal* 279:241-242 DOI: 10.1111/j.1742-4658.2010.08705.x
9. S. Prioni, M. Aureli, N. Loberto, R. Bassi, V. Murdica, M. Samarani, **E. Chiricozzi**, V. Chigorno, S. Sonnino and A. Prinetti (2013) Glycosphingolipid patterns and glycohydrolases behavior in acid-sphingomyelinase knock-out mice. *J Neurochem* 125:194-280, Supplement I DOI: 10.1111/jnc.12186
10. L. Raccosta, R. Fontana, D. Maggioni, C. Laura, E.J. Villablanca, A. Leiva, **E. Chiricozzi**, J.A. Gustafsson, K.R. Steffensen, C. Doglioni, S.G. Feo, L. Mauri, C. Sensi, I. Eberini, A. Prinetti, S. Sonnino, S. Sozzani, J.R. Mora, C. Bordignon, C. Traversari and R. Vincenzo (2013) The Oxysterol-CXCR2 Axis Plays a Key Role in the Recruitment of Tumor Promoting Neutrophils. *J Exp Med* 210(9):1711-28. DOI: 10.1084/jem.20130440.
11. **E. Chiricozzi**, M. Aureli, N. Loberto, A. Magini, N. Niemir, A. Polchi, R. Bassi, C. Emiliani, C. Caillaud and S. Sonnino (2013) Pyrimethamine chaperone enhances  $\beta$ -hexosaminidase activity in Sandhoff fibroblasts without restoring lysosomal GM2 catabolism. *FEBS Journal* 280:3-617 DOI: 10.1111/febs.12340
12. V. Murdica, M. Aureli, N. Loberto, R. Bassi, M. Samarani, S. Prioni, **E. Chiricozzi**, V. Chigorno, A. Prinetti, S. Sonnino (2013) Glycohydrolases and glycosphingolipids behavior in acid-sphingomyelinase knock-out mice. *FEBS Journal* 280:3-617 DOI: 10.1111/febs.12340
13. **E. Chiricozzi**, N. Niemir, M. Aureli, A. Magini, N. Loberto, R. Bassi, A. Polchi, C. Emiliani, C. Caillaud and S. Sonnino (2014) Chaperone therapy for GM2 gangliosidosis: effects of pyrimethamine on  $\beta$ -hexosaminidase activity in Sandhoff fibroblasts. *Mol Neurobiol* 50(1):159-67. DOI: 10.1007/s12035-013-8605-5.
14. **E. Chiricozzi**, M.G. Ciampa, Brasile G., Compostella F., A. Prinetti, Nakayama H., Eyalongo R.C., K. Iwabuchi, S. Sonnino and L. Mauri (2015) Direct interaction, instrumental for signaling processes, between Lactosylceramide and Lyn in the lipid rafts of neutrophile-like cells. *J Lipid Res* 56(1):129-41. DOI: 10.1194/jlr.M055319.
15. **E. Chiricozzi**, A. Paniccia, V. Russo and S. Sonnino (2015) LXR $\alpha$ -silencing induces apoptosis by glycosphingolipid-derived ceramide in different tumor type. *Glycoconj J* 32(5):173-342 DOI: 10.1007/s10719-015-9596-4



16. M. Aureli, M. Samarani, N. Loberto, G. Mancini, V. Murdica, **E. Chiricozzi**, A. Prinetti, R. Bassi and S. Sonnino (2016) Current and Novel Aspects on the Non-lysosomal  $\beta$ -Glucosylceramidase GBA2. *Neurochem Res* 41(1-2):210-20. DOI: 10.1007/s11064-015-1763-2.
17. S. Chiaretti, V. Astro, **E. Chiricozzi** and I. De Curtis (2016) Effects of the scaffold proteins liprin- $\alpha$ 1,  $\beta$ 1 and  $\beta$ 2 on invasion by breast cancer cells. *Biol Cell* 108(3):65-75. DOI: 10.1111/boc.201500063.
18. S. Sonnino, **E. Chiricozzi**, M.G. Ciampa, L. Mauri, A. Prinetti, G. Toffano and M. Aureli (2016) Serum Antibodies to Glycans in Peripheral Neuropathies. *Mol Neurobiol* DOI: 10.1007/s12035-016-9775-8
19. S. Sonnino, S. Grassi, S. Prioni, M.G. Ciampa, **E. Chiricozzi** and A. Prinetti (2016) Lipids rafts and neurological disease In *eLS* John Wiley & Sons, Ltd: Chichester *in press*. DOI: 10.1002/9780470015902.a0023405

### **Hold Seminar**

- *August 16, 2012*  
Invited speaker from Jin-ichi Inokuchi, Professor, Tohoku Pharmaceutical University, Sendai, Miyagi, Japan.  
Topic 1: LacCer with long fatty acid and cell signaling in neutrophil functions.  
Topic 2: Use of Pyrimethamine, a pharmacological chaperon, for the treatment of Sandhoff Disease.
- *November 24, 2016*  
Invited speaker from Hirotada Mori, Professor, NAIST, Nara, Japan.  
The neurotrophic properties of GM1 ganglioside: a new study.

### **Reviewer of Scientific Journals**

- FEBS Letters, 2012-present
- World Journal of Pediatrics, 2014-present
- Molecular Neurobiology 2014-present

### **Membership**

- Italian Society of Biochemistry (SIB), 2010-present
- European Society for Neurochemistry (ESN), 2009-present
- International Society for Neurochemistry (ISN), 2011-present

### **Teaching Experience**

University of Milano:

*School of Medicine, 2010-2013*

- Assistant for Laboratory in Biochemistry in the Course of Methods in Cell and Molecular Biology, Bachelor Degree of Medical Biotechnology
- Seminars in the Course of Bio-informatics, Bachelor Degree of Medical Biotechnology

### *Bachelor's and Master Degree in Medical Biotechnology 2014-now*

- Thesis advisor

### *PhD school of Biochemistry 2016-now*

- Thesis advisor

## **Courses**

- *February 9-23, 2011*  
Bioinformatics course (MOE 2011), University of Milano
- *August 2011*  
Radiochemistry course, Juntendo University, Tokyo
- *October 2014*  
Basic methodologies for the innovation in diagnosis and therapy of multifactorial diseases-MbMM, CNR, Milano, Italy
- *16-20 Febbraio 2015*  
Brain Blood Barrier (BBB) Training, Université Artois, Artois, Francia

## **Research Experience**

### *2004-2009*

*Dep. of Internal Medicine, University of Perugia, Italy (research adviser: Professor Gianfrancesco Goracci) and Department of Biochemistry and Molecular Biology, University of Salamanca, Spain (research adviser: Professor Juan Pedro Bolanos)*

My research experience has been started at the Department of Internal Medicine, University of Perugia during my undergraduated study (2004-2005 Bachelor Degree/2007-2009 Master Degree). I had been carrying out part of this research activity in the Laboratory of Professor Juan Pedro Bolanos, University of Salamanca, Spain.

My research activity has been focused on the study of the functions of phospholipases A<sub>2</sub> in neural cells and their involvement in brain dysfunctions. In particular, I develop an innovative methodology for assaying phospholipase A<sub>2</sub> activity in vitro and in living cells by the use of fluorogenic substrates (Chiricozzi E. et al. *J.Neurochem* 2010).

### *2010-2012*

*Department of Medical Biotechnology and Translational Medicine, University of Milano, Italy (research adviser: Professor Sandro Sonnino)*

During my doctoral research, I had the opportunity to work in different fields of Lipid Biochemistry, with a particular interest for the sphingolipid biochemistry and cellular biology. Thanks to the specific expertise in these fields in the department and with the assistance of Professor Sandro Sonnino as supervisor, I could acquire the scientific knowledge and methodological skills that allow me to be confident with the main chemical, biochemical, and molecular biology and cellular procedures necessary to develop research.

My research activity has focused on three main topics:

- The study of the role of the shingolipids and related glycohydrolases on different sphingolipidosis:

- Lipid Analysis in an animal neurodegeneration model: Niemann-Pick Disease Type A (Prinetti A. et al. 2011 *Neurochem.R*).
  - Effect of treatment with pharmacological chaperone - Pyrimenthamine - on infantile form of Sandhoff disease ( Chiricozzi E. et al. 2013 *Molecular Neurobiology*)
- The involvement of “lipids” in the process of neoplastic transformation:
- Investigation of the cellular mechanisms underlying immune escape mechanisms adopted by human tumors: the role of the oxysterols (Rossastra et al. 2012 *JEM*)
  - Involvement of the cell surface glycohydrolases during ionizing radiations (Aureli M et al. 2012 *Glycoconj J.*)
- Role of very long fatty acid LacCer-enriched microdomains in neutrophils: the role of a specific glycosphingolipid (Lattosilceramide) with unique hydrophobic chain in modulating and allowing the cell signaling capable to produce oxidizing compounds necessary to destroy bacteria, in neutrophils, through the interaction with protein in particular those occurring within lipid rafts (Chiricozzi E. et al 2014 *Journal of Lipid Research*)

2013-2014

*Laboratory of Cellular Adhesion, University of Vita e Salute San Raffaele, Milano, Italy (Research Advisor: Professor Ivan De Curtis)*

Cell migration and invasion require the dynamic coordination of adhesion, actin organization, and membrane traffic at the leading edge of the cell. The major interest of the lab was to analyze the molecular mechanisms coordinating the protrusive activity at the edge of migrating cells and to characterize fundamental cellular mechanisms underlying cell motility events relevant to both physiological and pathological conditions. My research activity was to define the role of Liprin  $\beta$  in this context proposing a possible role as tumor suppression protein for Lip $\beta$ 2 in contrast with the role of onco-protein for Lip $\alpha$ 1/Lip $\beta$ 1 (Chiaretti S. et al 2015 *Biology of the cell*)

June-October 2014

*Cancer Gene Therapy Unit, Division of Molecular Oncology, San Raffaele Scientific Institute (Research Advisor: Professor Vincenzo Russo)*

The main goal of this research is to better define the role of oxysterols/LXR $\alpha$  in promoting tumor survival *in vitro*. In particular, we focus our attention to define a new possible molecular mechanism through which LXR $\alpha$  signaling sustain tumor growth and to identify molecular markers predicting sensitivity to LXR $\alpha$  signaling abrogation.

October 2014-now

*Department of Medical Biotechnology and Translational Medicine, University of Milano, Italy (research adviser: Professor Sandro Sonnino)*

Now my research activity is focus on the neurotrophic and neuroprotective properties of ganglioside GM1 and its derivatives (oligosaccharide portion of GM1 ganglioside) in the nervous system. Several data suggest a specific role of ganglioside GM1 in neuronal differentiation and development, but the molecular mechanisms of these processes are largely unknown. We found that the only GM1 oligosaccharide, rather than the ceramide portion or the total molecule, is directly involved in these processes. GM1 oligosaccharide induced

neuritogenesis in murine neuroblastoma cell line N2a and the neurite elongation was accompanied by an increase of the neurofilament protein expression. Interestingly in these cells, the GM1 oligosaccharide induced a TrkA-MAP kinases pathway activation, known to be involved in neurodifferentiation. From morphological point of view the primary culture of mouse cerebellar neurons incubated with the GM1 oligosaccharide, showed an accelerated state of differentiation, which is accompanied by an increased level of neurodifferentiation markers. Ours results suggest a direct action of the GM1 oligosaccharide in promoting neurodifferentiation processes and in TrkA activation pathway. This means that the specific role exerted by changes of the membrane ganglioside GM1 content, described in the past, is due by a direct interaction between the GM1 oligosaccharide portion and specific proteins, such as TrkA receptor. This evidence leads us to consider both the *trans*- and *cis* -interaction via a head-to-head and side-by-side interaction respectively.

### Collaboration

The research activity described above are implemented in the context of several national and international collaborations that allowed me to obtain a good degree of independence and large capability of discussion and contacts.

- Professor Vincenzo Russo, Cancer Gene Therapy Unit, Division of Molecular Oncology, Department of Oncology, San Raffaele Scientific Institute, Milan, Italy
- Doctor Ivano Eberini, Department of Pharmacological Sciences, University of Milan, Milan, Italy.
- Professor Kazuisha Iwabuchi, Institute for Environmental and Gender Specific Medicine, Juntendo University, Graduate School of Medicine, Tokyo, Japan
- Professor Catherin Caillaud, Institute Cochin, Université Paris Descartes, CNRS, Paris
- Professor Carla Emiliani, Department of Experimental Medicine and Biochemical Sciences, University of Perugia, Italy
- Professor Romeo Cecchelli and Professor Gosselet Fabien, Université Artois, EA 2465, Laboratoire de la Barrière Hémato-Encéphalique (LBHE), F-62300 Lens Cedex, France
- Professor Elena Menegola, Dipartimento di Bioscienze, Università degli Studi di Milano, Milano, Italia
- Professor Gabriella Tedeschi, Dipartimento di Medicina Veterinaria, Università degli Studi di Milano, Milano, Italia
- Professor Hirotada Mori, Nara Institute of Science and Technology, NAIST, Nara, Japan

### International Research Experience

#### *January-August 2008*

Laboratory of Biochemistry and Molecular Biology, University of Salamanca, (Professor Juan Pedro Bolanos)

#### *July-December 2011; July-August 2012; February 2014*

Institute for Environmental and Gender Specific Medicine, Juntendo University, Graduate School of Medicine, Tokyo, Japan (Professor Kazuhisa Iwabuchi)

November-December 2016

Nara Institute of Science and Technology, NAIST, Nara, Japan (Professor Hirotada Mori)

### Technical Skill and Competences

Experience on the following laboratory techniques has been acquired: primary neuronal cultures, cell lines, cell extraction from human blood, cell transfection, human brain blood barrier (hBBB) preparation, flow cytometry, determination of enzyme activities with fluorogenic, radiolabelled and photoactivable substrates, western blotting, tissue and cell lipid analysis, immunocytochemistry, HPLC-MS/MS analysis, molecular biology, expression of recombinant proteins.

### Personal skill and competences

- Mother language: Italian
- Other Languages:
  - English
    - July 8-22, 1995  
*Stafford House, School of English, Canterbury, England*
    - July 4-24, 1998  
*ABC Language Schools, The Old School, Furness Road, Easbourne, England*
    - July 5-23, 1999  
*Summer School, City of Bath College, England*
    - January 2017- now  
*Berlitz Schools, Milano, Italy*
  - Spanish
- Expert in using most Microsoft Office and Macintosh software, Origin Lab, GraphPadPrism, X-calibur, MOE-2011 program. Very good experience in acquisition of bibliography from data bases by Internet.

## **Reference**

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