

## **BIOGRAPHICAL SKETCH**

### **Contact Information**

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### **Education and positions held**

**2015 -**            **The University of Texas at Dallas, USA** – Assistant Professor  
**2014 - 2015**      **California Institute of Technology, CA, USA** - Research Scientist  
Division of Chemistry and Chemical Engineering and Howard Hughes Medical Institute;  
Advisor: Prof. Douglas C. Rees  
**2013 - 2014**      **Aarhus University, Denmark** - Postdoctoral researcher  
Centre for Membrane Pumps in Cells and Disease, and Centre for Structural Biology;  
Advisor: Prof. Poul Nissen  
**2009 - 2013**      **California Institute of Technology, CA, USA** - Postdoctoral researcher  
Division of Chemistry and Chemical Engineering and Howard Hughes Medical Institute;  
Advisor: Prof. Douglas C. Rees  
**2007 - 2009**      **University of Zurich, Switzerland** - Postdoctoral researcher  
Department of Biochemistry; Advisor: Prof. Milan Vašák  
**2003 - 2007**      **University of Zurich, Switzerland** - Ph.D., Bioinorganic chemistry and Biochemistry  
Department of Biochemistry; Advisor: Prof. Milan Vašák  
**1996 - 2002**      **University of Milan, Italy** - M.Sc., Biotechnology,  
Institute of General Physiology and Biochemistry; Advisor: Prof. Vellea F. Sacchi  
**1990 – 1995**      **“J. Monnet” Institute, Italy** - Technical degree in Chemistry

### **Awards, Grants and Honors**

**2011 - 2014**      Marie Curie International Outgoing Fellowship award, European Commission  
**2009 - 2011**      Fellowship for Prospective Researchers, Swiss National Science Foundation, Switzerland  
**2008**              Swiss Chemical Society presentation prize in Medicinal Chemistry, SCS Meeting  
**2007 - 2008**      Research grant award, Commission for the Support of Young Scientists, Switzerland  
**2006, 2008**      Swiss Society of Biochemistry Travel Awards, Switzerland  
**2003**              “Zampese Award” for M.Sc. with honors, CRA Bank, Italy  
**2002**              *Summa cum laude*, University of Milan, Italy

### **Professional Memberships**

**2014 -**            Member of the American Chemical Society  
**2008 -**            Member of the Society of Biological Inorganic Chemistry  
**2008 -**            Member of the Swiss Chemical Society  
**2003 -**            Member of the Swiss Society of Biochemistry

### **Other Professional Experience**

**2011 - 2013**      Co-organizer of Microbiology Seminar series, California Institute of Technology, CA, USA  
**2011 - 2014**      Spokesperson for the SSRL project “Principles of transition metal selectivity in prokaryotic P<sub>1B</sub>-type ATPases revealed by XAS”, Stanford Synchrotron Radiation Lightsource, CA, USA

### **Research projects**

- Metalloneurochemistry of the neuronal Growth Inhibitory Factor (GIF, metallothionein-3)
- Structure and reactivity of metal-thiolate clusters in metallothioneins
- Bioinorganic and radical chemistry of metalloproteins and peptides involved in neurodegenerative disorders
- Principles of transition metal selectivity and transport in transition metal ion pumps (P<sub>1B</sub>-type ATPases)

## **Publications**

1. O. Sitsel, C. Gronberg, H. Autzen, K. Wang, G. Meloni, P. Nissen, P. Gourdon. "Structure and function of Cu(I)- and Zn(II)-ATPases", *Biochemistry*, *in press*, (2015)
2. D. Mattle, L. Zhang, O. Sitsel, L.T. Pedersen, M.R. Monicelli, F. Tadini-Buoninsegni, P. Gourdon, D.C. Rees, P. Nissen, G. Meloni\* "A sulfur-based transport pathway in Cu<sup>+</sup>-ATPases", *EMBO Rep.*, **16**, 728-740 (2015) (\*Corresponding Author).
3. K.T. Wang<sup>o</sup>, O. Sitsel<sup>o</sup>, G. Meloni, H. E. Autzen, M. Andersson, T. Klymchuk, M. Nielsen, D.C. Rees, P. Nissen, P. Gourdon, "Crystal structure and release mechanism of Zn<sup>2+</sup>-transporting P-Type ATPases", *Nature*, **514**, 518-522 (2014) (<sup>o</sup>contributed equally).
4. G. Meloni\*, L. Zhang\*, D.C. Rees\* "A transmembrane Type-2-like Cu(II) site in the P<sub>1B-3</sub>-type ATPase CopB: implications for metal selectivity", *ACS Chemical Biology*, **17**, 116-121 (2014) (\*Corresponding Author).
5. L. Zhang, J.T. Kaiser, G. Meloni, K.Y. Yang, T. Spatzal, S.L. Andrade, O. Einsle, J.B. Howard, D.C. Rees "The 16th Fe in Nitrogenase MoFe-Protein" *Angewandte Chemie International Edition*, **52**, 10529-10532 (2013).
6. D. Mattle, O. Sitsel, H.E. Autzen, G. Meloni, P. Gourdon, P. Nissen, "On allosteric modulation of P-type Cu<sup>+</sup>-ATPases", *Journal of Molecular Biology*, **425**, 2299-2308 (2013).
7. G. Meloni\*, A. Cramer, G. Fritz, P. Davies, D.R. Brown, P.M.H. Kroneck, M. Vašák\*, "The Catalytic Redox Activity of Prion Protein–Cu(II) is Controlled by Metal Exchange with the Zn(II)–thiolate Clusters of Zn<sub>7</sub>Metallothionein-3", *ChemBioChem*, **13**, 1261-1265 (2012) (\*Corresponding Author).
8. Y. Manso, J. Carrasco, G. Comes, G. Meloni, P. Adlard, A. I. Bush, M. Vašák, J. Hidalgo, "Characterization of the role of metallothionein-3 in an animal model of Alzheimer's disease", *Cellular and Molecular Life Sciences*, **69**, 368-3700 (2012).
9. M. Vašák, G. Meloni, "Chemistry and Biology of mammalian metallothioneins", *Journal of Biological Inorganic Chemistry*, **16**, 1067-1078 (2011).
10. G. Meloni\*, M. Vašák\*, "Redox Activity of  $\alpha$ -Synuclein-Cu is Silenced by Metallothionein-3", *Free Radicals Biology & Medicine*, **50**, 1471-1479 (2011) (\*Corresponding Author).
11. J. Durand, G. Meloni, C. Talmard, M. Vašák, P. Faller, "Zinc release of Zn<sub>7</sub>metallothionein-3 induces fibrillar type amyloid- $\beta$  aggregates", *Metallomics*, **1**, 741-744, (2010).
12. G. Meloni\*, M. Vašák\*, "Control of abnormal metal-protein interactions in neurodegenerative disorders by metallothionein-3", *CHIMIA*, **63**, 211-213 (2009) (\*Corresponding Author).
13. G. Meloni<sup>o</sup>, T. Polanski<sup>o</sup>, O. Braun, and M. Vašák, "Effects of Zn<sup>2+</sup>, Ca<sup>2+</sup>, and Mg<sup>2+</sup> on the Structure of Zn<sub>7</sub>Metallothionein-3: Evidence for an Additional Zinc Binding Site", *Biochemistry*, **48**, 5700-5707 (2009) (<sup>o</sup>contributed equally).
14. G. Meloni, V. Sonois, T. Delaine, L. Guilloreau, A. Gillet, J., Teissie, P. Faller, M. Vašák, "Metal swap between Zn<sub>7</sub>metallothionein-3 and amyloid- $\beta$ -Cu protects against amyloid- $\beta$  toxicity", *Nature Chemical Biology*, **4**, 366-372 (2008).
15. G. Meloni, P. Faller, M. Vašák, "Redox silencing of copper in neurodegenerative disorders: Reaction of Zn<sub>7</sub>metallothionein-3 with Cu(II) ions", *Journal of Biological Chemistry*, **282**, 16068-16078 (2007).
16. G. Meloni, K. Zovo, J. Kazantseva, P. Palumaa, M. Vašák, "Organization and assembly of metal-thiolate clusters in epithelium-specific metallothionein-4", *Journal of Biological Chemistry*, **281**, 14588-14595 (2006).
17. G. Meloni, M. Knipp, M. Vašák, "Detection of neuronal growth inhibitory factor (metallothionein-3) in polyacrylamide gels and by Western blot analysis", *Journal of Biochemical and Biophysical Methods*, **29**, 76-81 (2005).
18. M. Knipp<sup>o</sup>, G. Meloni<sup>o</sup>, B. Roschitzki, M. Vašák, "Zn<sub>7</sub>metallothionein-3 and the synaptic vesicle cycle: interaction of metallothionein-3 with the small GTPase Rab3A", *Biochemistry*, **44**, 3159-3165 (2005). (<sup>o</sup>contributed equally).

## **Book Contributions**

19. M. Vašák\*, G. Meloni\* "Zinc Metallothionein-3 (Neuronal growth inhibitory factor)" *Encyclopedia of Metalloproteins*, (Ed. V. Uversky, R. H. Kretsinger, E. A. Permyakov), Springer, New York, USA, pp. 2486-2491, (2013) (\*Corresponding Author).
20. M. Vašák, G. Meloni, "Metallothionein-3, Zinc, and Copper in the Central Nervous System", in *Metal Ions in Life Science Vol. 5, Metallothioneins and Related chelators*, (Ed. A. Sigel, H. Sigel, and R. K. O. Sigel), The Royal Society of Chemistry, Cambridge, UK, pp. 319-351, (2009).
21. M. Vašák\*, G. Meloni\*, "Metallothionein Structure and Reactivity", in *Metallothioneins in Biochemistry and Pathology*, (Ed. P. Zatta), World Scientific Publishing, Singapore, pp. 1-24 (2008) (\*Corresponding Author).