

AL MAGNIFICO RETTORE  
DELL'UNIVERSITA' DEGLI STUDI DI MILANO

COD. ID: 4367

Il sottoscritto chiede di essere ammesso a partecipare alla selezione pubblica, per titoli ed esami, per il conferimento di un assegno di ricerca presso il Dipartimento di Bioscienze, responsabile scientifico il Prof. Andrea Francesco Barbuti.

## Chiara Volani CURRICULUM VITAE

### INFORMAZIONI PERSONALI/PERSONAL DATA

Cognome/Family name:	Volani
Nome/First name:	Chiara
Luogo di nascita/Place of birth:	Trento (Italy)
Data di nascita/Date of birth:	22.12.1989 December 22, 1989
Nazionalità/Nationality:	Italiana Italian
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### OCCUPAZIONE ATTUALE/CURRENT JOB

Incarico/Job	Struttura/Place
Ricercatore/Researcher	Istituto di Biomedicina, EURAC Research, Bolzano, Italia Institute for Biomedicine, EURAC Research, Bolzano, Italy

### ISTRUZIONE E FORMAZIONE/EDUCATION

Titolo/Title	Corso di Studi/Study Course	Università/University	Anno conseguimento titolo/Year
Laurea magistrale/ Master degree	Master in Molecular Medicine	University of Ulm, Germany	2015
Dottorato di ricerca/ PhD	PhD (HOROS, infectious diseases)	Medical University of Innsbruck, Austria	2019

### CERTIFICATI/Certificate

28 Jul-01 Aug/14	GV-SOLAS Certificate of Attendance. 40-hour course on Laboratory Animal Science. Contents were in accordance with the recommendations of the Federal of European Laboratory Animal Science Association (FELASA) on the education of persons working with laboratory animals (category B).
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**LINGUE STRANIERE/FOREIGN LANGUAGES**

Lingua/Language	Livello/Level
Inglese/English	Ottimo/Excellent
Tedesco/German	Intermedio/Good
Spagnolo/Spanish	Buono/Elementary
Danese/Danish	Buono/Elementary

**ATTIVITA' DI FORMAZIONE O DI RICERCA/EDUCATION AND RESEARCH ACTIVITIES**

Nov/18 - ongoing                      Research position at the Institute for Biomedicine, EURAC research, Bolzano in the “Cardiovascular medicine group” under the supervision of Prof. A. Rossini.

Main assignments:

Differentiation of human iPS cells into cardiomyocytes to investigate arrhythmogenic cardiomyopathy with a particular focus on:

- electrophysiological properties of cardiomyocytes;
- characterization of cardiomyocyte metabolism by means of high resolution respirometry to investigate mitochondrial fitness and metabolomics to assess the overall cellular metabolism.

Attività principali:

Differenziamento di cellule iPS umane in cardiomiociti per studiare la cardiomiopatia aritmogena, con un particolare interesse per la:

- caratterizzazione elettrofisiologica dei cardiomiociti;
- caratterizzazione metabolica dei cardiomiociti per mezzo di respirometria ad alta risoluzione, che consente la misurazione della capacità mitocondriale, e metabolomica, che consenta la valutazione del generale metabolismo cellulare.

April/15-Aug/19                      PhD student at the Dept. of Internal Medicine II (Medical University of Innsbruck, Austria) under the supervision of Prof. Dr. G. Weiss. PhD thesis entitled “Regulatory mechanisms between iron homeostasis, mitochondrial function and metabolic pathways”

Main assignments:

Investigation of the effects of iron imbalances on mitochondria and metabolic profiles both *in vivo* (mouse model) and *in vitro* (hepatoma cell lines, primary murine cell lines).

Validation and optimization of techniques of volumetric absorptive micro sampling (VAMS) and their integration into a metabolomic workflow.

Investigation of mitochondrial respiratory capacity of peripheral blood mononuclear cells (PBMCs) to monitor disease course and treatment.

Investigation of the metabolic profiles in specific subgroups (iron deficiency, anemia) of the population study CHRIS (EURAC, Venosta valley) by looking at the targeted metabolome (BIOCRATES p180 kit).

Attività principali:

Investigazione degli effetti derivanti da sbilanciamenti nell'omeostasi del ferro sui mitocondri e sui profili metabolici, valutata sia in modelli animali (*in vivo*) che in modelli cellulari (*in vitro*).

Validazione ed ottimizzazione della tecnica di micro-campionamento (VAMS) e della sua integrazione in procedure di metabolomica.

Investigazione della capacità respiratoria mitocondriale di cellule mononucleate periferiche (PBMCs) per monitorare il decorso e il trattamento di una patologia.

Investigazione dei profili metabolici in sottogruppi specifici (ipoferritinemia, anemia) dello studio di popolazione generale CHRIS (EURAC, Val Venosta), per mezzo dell'analisi di metabolomica “targeted” (kit BIOCRATES p180).

April/14-Jan/15                    Pre-doctoral project as Master Thesis at the Institute of Anesthesiological Pathophysiology and Process Development (University of Ulm, Germany) under the supervision of Prof. Dr. Radermacher  
Master thesis entitled “The role of increased inspiratory O<sub>2</sub> tension in hemorrhagic shock”

Main assignment:

Assessment of mitochondrial respiratory capacity in different organs for the investigation of the hyperoxia treatment in a swine model of hemorrhagic shock.

Attività principale:

Determinazione della capacità respiratoria mitocondriale in vari organi per investigare l'effetto del trattamento di iperossigenazione in un modello suino di shock emorragico.

August/14-March/15                Mini-job at the Department of Clinical and Biological Psychology (University of Ulm, Germany).

Main assignment:

human PBMC isolation.

Attività principale:

Purificazione di cellule periferiche mononucleate (PBMC) da sangue umano.

April/13-Jan/15                    Faculty of Medicine, University of Ulm, Master in Molecular Medicine. The Master course of studies combined the disciplines Biology and Medicine having the objective to clarify the causes of diseases on a molecular basis. The study course included lecture series (project management and funding, clinical trials, basics of scientific working, ethics in science, bioethics, etc.), seminars and practical trainings.

May/11-Oct/11                      Undergraduate project as Bachelor Thesis at the “Laboratory of RNA Biology and Biotechnology”, CIBIO, Trento the under the supervision Prof. M.A. Denti (University of Trento, Italy) and Prof. P. Braghetta (University of Padua, Italy)  
Bachelor thesis entitled “Mechanisms of post-transcriptional regulation of the gene PGRN involved in Fronto Temporal Dementia”

Main assignment:

Investigation of the post-transcriptional regulation of the gene PGRN involved in Fronto Temporal Dementia.

Attività principale:

Investigazione dei meccanismi di regolazione post-trascrizionale del gene PGRN coinvolti nella demenza fronto temporale.

Oct/08-Oct/11                      Interfaculty of Medicine, Veterinary Medicine and Pharmacology: Corso di Laurea in Health Biotechnology.

## **TECNICHE DI LABORATORIO/LABORATORY SKILLS**

General molecular biology techniques

including DNA/RNA extraction, real-time qPCR, Western Blots

Animal care

including mouse and Drosophila models

Cell culture techniques

including human induced pluripotent stem cells and differentiation into cardiomyocytes

High-resolution-respirometry

including mitochondrial respiratory capacity combined with H<sub>2</sub>O<sub>2</sub> production

Liquid-chromatography combined with mass spectrometry (HPLC-MS)

including targeted and untargeted metabolomics

Histology, immunofluorescence, flow cytometry and microscopy

Patch clamp technique

## **COMPUTER SKILLS AND COMPETENCES**

Microsoft Office (Word, Excel and Power Point)

Data analysis with R package

Statistical softwares: SigmaStat, Prism

**CONGRESSI, CONVEGNI E SEMINARI****Posters**

Data/Date	Titolo/Title e Autori/Authors	Sede/Place
Oct 4-5/2019	“Human iPSC-derived cardiomyocytes as a cellular model for studying reduced penetrance in Arrhythmogenic Cardiomyopathy” De Bortoli M, Meraviglia V, Cattelan G, Ermon B, De Musso M, Chiarelli R, Motta BM, <b>Volani C</b> , Pagliaro A, Piazza S, De Sanctis V, Rauhe W, Pramstaller PP, Rossini A	ESC working group on Myocardial and pericardial diseases, A Coruna, Spain
Sept 25-27/ 2017	“Dietary iron loading affects mitochondrial respiratory capacity and the overall metabolism” <b>Volani C</b> , Doerrier C, Egon Demetz E, Haschka D, Paglia G, Lavdas AA, Gnaiger E, Weiss G	9th ÖGMBT Annual Meeting & 8th Life Science Meeting, Innsbruck, Austria
Oct 24-26/ 2016	“Effects of systemic iron perturbations on mitochondrial activity and on cellular metabolism in vivo” <b>Volani C</b> , Demetz E, Doerrier C, Gnaiger E, Paglia G, Weiss G	7th World Congress on Targeting Mitochondria, Berlin, Germany
March 31, Apr 1/2016	“Effects of iron imbalances on mitochondrial activity in vivo” Volani C, Haschka D, Demetz E, Doerrier C, Gnaiger E, Weiss G	Life Science Innsbruck Symposium, Innsbruck, Austria
May 22-23/ 2014	“The monoacylglycerol lipase inhibitor KML29 is therapeutically effective in the SOD1 <sup>G93A</sup> mouse model of amyotrophic lateral sclerosis” Pasquarelli N, Engelskirchen M, Hanselmann J, Volani C, Wiesner D, Weydt P, Ludolph AC, Ferger B and Witting A	European Network for the Cure of ALS (ENCALS), Leuven, Belgium
January/ 2012	“Mechanisms of post-transcriptional regulation of the gene PGRN involved in Frontotemporal Dementia” Volani C, Fontana F, Grasso M, Del Vescovo V, Covello G, Denti MA	University of Padova-Ulm Retreat, Bressanone, Italy

**Talks**

Data/Date	Titolo/Title e Autori/Authors	Sede/Place
Feb 8-11/2018	“Metabolic signatures of high iron overload in a mouse model” Volani C, Doerrier C, Demetz E, Haschka D, Paglia G, Gnaiger E, Weiss G	European Iron Club, Zurich, Switzerland
July 07-13/2016	“Effects of iron imbalances on mitochondrial activity in vivo” <b>Volani C</b> , Demetz E, Doerrier C, Gnaiger E, Weiss G	MitoFit Science Camp, Kuehtai, Austria

**PUBBLICAZIONI/PUBLICATIONS****Libri/Book chapters****[title|book|authors|year]**

- Respirometric Analysis of Mitochondrial Function in Human Blood Cells In: Recent Advances in *Mitochondrial Medicine and Coenzyme Q10*. Sumbalová Z., Garcia L., Veliká B., **Volani C.** and Gnaiger E. **2018**
- Isolation of blood cells for HRR. *Mitochondr Physiol Network*; 21.17(02): 1-15. Sumbalova Z, Hiller E, Chang S, Garcia L, Droscher S, Calabria E, **Volani C**, Krumschnabel G, Gnaiger E. **2016**. Available from:  
[http://www.bioblast.at/images/a/af/MiPNet21.17\\_BloodCellsIsolation.pdf](http://www.bioblast.at/images/a/af/MiPNet21.17_BloodCellsIsolation.pdf)

**Articoli su riviste/Articles****[title|journal|authors|ref|year]**

- Association of mitochondrial iron deficiency and dysfunction with idiopathic restless legs syndrome. *Mov Disord*. Haschka D, **Volani C**, Stefani A, Tymoszuk P, Mitterling T, Holzknecht E, Heidbreder A, Coassin S, Sumbalova Z, Seifert M, Dichtl S, Theurl I, Gnaiger E, Kronenberg F, Frauscher B, Högl B, Weiss G. 34(1):114-123. **2019**
- Metabolic Signature of Dietary Iron Overload in a Mouse Model. *Cells*. **Volani C**, Paglia G, Smarason SV, Pramstaller PP, Demetz E, Pfeifhofer-Obermair C, Weiss G. 7(12). **2018**
- Influence of collection tubes during quantitative targeted metabolomics studies in human blood samples. *Clin Chim Acta*. Paglia G, Del Greco FM, Sigurdsson BB, Rainer J, **Volani C**, Hicks AA, Pramstaller PP, Smarason SV. 486:320-328. **2018**
- Dopamine promotes cellular iron accumulation and oxidative stress responses in macrophages. *Biochem Pharmacol*. Dichtl S, Haschka D, Nairz M, Seifert M, **Volani C**, Lutz O, Weiss G. 148:193-201. **2018**
- Dietary iron loading negatively affects liver mitochondrial function. *Metallomics*. **Volani C**, Doerrier C, Demetz E, Haschka D, Paglia G, Lavdas AA, Gnaiger E, Weiss G. 9(11):1634-1644. **2017**
- Pre-analytic evaluation of volumetric absorptive microsampling and integration in a mass spectrometry-based metabolomics workflow. *Anal Bioanal Chem*. **Volani C**, Caprioli G, Calderisi G, Sigurdsson BB, Rainer J, Gentilini I, Hicks AA, Pramstaller PP, Weiss G, Smarason SV, Paglia G. 409(26):6263-6276. **2017**
- H<sub>2</sub>S during circulatory shock: some unresolved questions. *Nitric Oxide*. McCook O, Radermacher P, **Volani C**, Asfar P, Ignatius A, Kemmler J, Möller P, Szabó C, Whiteman M, Wood ME, Wang R, Georgieff M, Wachter U. 41:48-61. **2014**

**ALTRE INFORMAZIONI/OTHER INFORMATION**

Music is simply part of my life: I have a passion for musicals, theater in general, and I love dancing (I am a “tanguera”!). I like reading, travelling, discovering new places, and cultures, and learning new languages. I am keen on getting to know new people.

Le dichiarazioni rese nel presente curriculum sono da ritenersi rilasciate ai sensi degli artt. 46 e 47 del DPR n. 445/2000.

Il presente curriculum non contiene dati sensibili e dati giudiziari di cui all’art. 4, comma 1, lettere d) ed e) del D.Lgs. 30.6.2003 n. 196.

Luogo e data:  
Bolzano, 10.10.2019

FIRMA: Chiara Volani

*Chiara Volani*