

BIOGRAPHICAL SKETCH

NAME: Tolosano, Emanuela

POSITION TITLE: Full Professor of Biology

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
University of Torino, Italy	B.S.	11/1988	Biology
University of Milano, Italy	PhD	07/1994	Metabolic and Endocrinological Sciences
University of Torino, Italy	Postdoctoral	12/1996	Molecular Genetics

A. Scientific activity

ET significantly contributed to our knowledge of the mechanisms of free heme toxicity and protective role of plasma scavengers haptoglobin and hemopexin in the cardiovascular system (Circulation 2013, Free Radical Biology and Medicine 2017) and in the immune system (Blood 2016). She collaborates with CSL Berhing for the development of drugs for the prevention/treatment of heme damage in hemolytic disorders (sickle cell disease).

Recently, she focused her research on cellular heme trafficking by studying the heme exporter FLVCR1. She identified a mitochondrial isoform of FLVCR1 gene (Journal of Clinical Investigation 2012) and contributed to the clarification of the role of heme export, associated to heme biosynthesis, in the liver (Gastroenterology 2014), intestine (Antioxidants & Redox Signaling 2015), erythroid compartment (Haematologica 2015) and endothelial compartment (Cell Death & Differentiation 2017).

She is actually working on the role of heme in the control of cellular energetic metabolism in tumors and in tumor-associated vessels.

B. Positions and Honors**Positions and Employment**

1995-2000 Post-doctoral research fellow, Department of Genetics, Biology and Biochemistry, Torino, Italy
 2001-2005 Assistant Professor, University of Torino, School of Medicine
 2005-2017 Associate Professor of Biology, University of Torino, School of Medicine
 2017- Full Professor of Biology, University of Torino, School of Medicine

Other Experience and Professional Memberships

1998- Member, ABCD Italian Society of Cellular Biology and Differentiation
 1998- Member, IBIS International Biolron Society
 2000- Member, EIC European Iron Club
 2005- Member, Italian Foundation for Biomedical Research, ONLUS
 2010- Member, American Society for Hematology (ASH)
 2010- Member, European Hematology Association (EHA)
 2011- Swiss National Science Foundation, Switzerland, ad hoc reviewer
 2011- MRC, United Kingdom, ad hoc reviewer
 2016- INSERM, ATIP – Avenir Program, France, ad hoc reviewer
 2016- National Science Center, Poland, ad hoc reviewer
 2000- Reviewer for scientific journals including Blood, Haematologica, Journal of Clinical Investigation, Cardiovascular Research, Anti-Oxidants and Redox Signaling, Circulation, Molecular Medicine, Critical Care, Nature Communications

C. Selected relevant publications

1. Chiabrando D., Marro S., Mercurio S., Giorgi C., Petrillo S., Vinchi F., Fiorito V., Fagoonee S., Camporeale A., Turco E., Merlo G.R., Silengo L., Altruda F., Pinton P., Tolosano E., “The mitochondrial heme exporter FLVCR1b mediates erythroid differentiation”, *Journal of Clinical Investigation* 122(12):4569-79 (2012).
2. Vinchi F., De Franceschi L., Ghigo A., Townes T., Cimino J., Silengo L., Hirsch E., Altruda F., Tolosano E., “Hemopexin Therapy Improves Cardiovascular Function by Preventing Heme-Induced Endothelial Toxicity in Mouse Models of Hemolytic Diseases”, *Circulation* 127(12):1317-29 (2013)
3. Vinchi F., Ingoglia G., Chiabrando D., Mercurio S., Turco E., Silengo L., Altruda F., Tolosano E., “Heme Exporter FLVCR1a Regulates Heme Synthesis and Degradation and Controls Activity of Cytochromes P450”, *Gastroenterology* 146: 1325–1338 (2014)
4. Mercurio S, Petrillo S, Chiabrando D, Bassi ZI, Gays D, Camporeale A, Vacaru A, Miniscalco B, Valperga G, Silengo L, Altruda F, Baron MH, Santoro MM, Tolosano E., “Heme exporter Flvcr1 regulates expansion and differentiation of committed erythroid progenitors by controlling intracellular heme accumulation”, *Haematologica* 100(6):720-9 (2015)
5. Vinchi F., Costa da Silva M., Ingoglia G., Petrillo S., Brinkman N., Zuercher A., Cerwenka A., Tolosano E., Muckenthaler M.U., “Hemopexin therapy reverts heme-induced pro-inflammatory phenotypic switching of macrophages in a mouse model of sickle cell disease”, *Blood* 127(4): 473-486 (2016)
6. Chiabrando D., Castori M., Di Rocco M., Voigt M., Gieβelmann S., Di Capua M., Madeo A., Grammatico P., Hübner C.A., Altruda A., Silengo L., Tolosano E., Kurth I., “MUTATIONS IN THE HEME EXPORTER FLVCR1 CAUSE SENSORY NEURODEGENERATION WITH LOSS OF PAIN PERCEPTION”, *PLOS Genetics* 12(12):e1006461 (2016)
7. Ingoglia G., Sag C.M., Rex N., De Franceschi L., Vinchi F., Cimino J., Petrillo S., Wagner S., Silengo L., Altruda F., Maier L., Hirsch E., Ghigo A. and Tolosano E., “Hemopexin counteracts systolic dysfunction induced by heme-driven oxidative stress”, *Free Radical Biology and Medicine*, 108: 452-464. DOI: 10.1016/j.freeradbiomed.2017.04.003 (2017)
8. Petrillo S., Chiabrando D., Genova T., Fiorito V., Ingoglia G., Vinchi F., Mussano F., Carossa S., Silengo L., Altruda F., Merlo G.R., Munaron L., Tolosano E., “Heme accumulation in endothelial cells impairs angiogenesis by triggering paraptosis”, *Cell Death & Differentiation* 25:573–588 (2018)
9. Bertino F., Firestone K., Bellacchio E., Jackson K.E., Asamoah A., Hersh J., Fiorito V., Destefanis F., Gonser R., Tucker M.E., Altruda F., Tolosano E., Chiabrando D., “Heme and sensory neuropathy: insights from novel mutations in the heme exporter FLVCR1”, *Pain* 160(12):2766-2775 (2019)
10. Petrillo S., Manco M., Altruda F., Fagoonee S., Tolosano E., “Liver Sinusoidal Endothelial Cells at the crossroad of Iron overload and Liver Fibrosis”, *Antioxid. Redox Signal.* 2020 Jul 21, doi: 10.1089/ars.2020.8168 (2020).

Complete List of Published Work at:

<https://pubmed.ncbi.nlm.nih.gov/?term=tolosano+e&sort=pubdate>

D. Additional Information

Recent International Meeting/Workshops (as Invited Speaker)

- 3rd Jena HHDP (Heme and Heme Degradation Products) Symposium, May 25-26, 2016, Jena, Germany
- 23rd Congress of European Hematology Association (EHA), June 14-17, 2018, Stockholm, Sweden
- 30th Jena HHDP (Heme and Heme Degradation Products) Workshop, November 16, 2018, Jena, Germany
- 8th Congress of the International Biolron Society, Heidelberg 5-10 May 2019
- 61st ASH Annual Meeting & Exposition, Orlando, FL, December 7-10, 2019

Ongoing Research Support

1. Title of contract: Diagnosi e terapia del cancro al colon-retto: un approccio innovativo basato sul metabolismo del ferro-eme
2018-2021
Financing: 45000 Euro

From: Fondazione CRT

Principal Investigator: Emanuela Tolosano

2. Title of contract: EV-ER - Vescicole extracellulari ed insufficienza d'organo
2018-2022

Financing: 390000 Euro

From: Regione Piemonte - PIATTAFORMA TECNOLOGICA "SALUTE E BENESSERE"

Co-Principal Investigator: Emanuela Tolosano

3. Title of contract: Exploiting heme-driven metabolic rewiring in tumor cell and tumor endothelial cell to control lung cancer progression
2021-2026

From: AIRC

Financing: 468000 Euro

Principal Investigator: Emanuela Tolosano

Torino, January 21, 2021

