

**CURRICULUM VITAE**

**Prof.ssa FIORELLA ALTRUDA**

**Full Professor of Molecular Genetics**

**Molecular Biotechnology Center**

**Department of Molecular Biotechnology and Health Sciences**

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Name: **Fiorella Altruda**

-Born in Turin, the 12th of August 1952

- Ph D in Biology , University of Turin, July 1975

-Full Professor of Molecular Genetics

**ACADEMIC APPOINTMENTS**

From 1987 to 1994: Associate Professor in Genetics

1994-at present: Full Professor in Molecular Genetics, University of Torino, School of Medicine

From 2005: President of the School of Biotechnology, University of Turin

From 2010: Coordinator of the European Master Program in BioHealth Computing for the University of Torino

From 2002 Scientific member of the Consorzio Interuniversitario Biotecnologie (CIB) and member of the Executive Board from 2014

Director of the Center for in vivo functional Genomics, University of Turin, supported by Telethon

From 2009-2015: University coordinator of the Polo di Innovazione- Biotecnologie (BioPmed), Regione Piemonte

From 2012: Member of the Director Board of the University Federico II, Naples

From 2013: Director of the Molecular Biotechnology Center, University of Torino

From 2013: in charge of the organization of the Cell Factory, University of Torino

From 2012: member of the Scientific Board of CentroScienza Foundation and from 2014 member of the Executive Board

From 2015: President of the Bioindustry Park S.p.A. Colleretto Giacosa (Torino)

From 2015: Member of the Senate of the University of Torino

### **PAST RELEVANT RESEARCH EXPERIENCE IN FOREIGN INSTITUTION**

|                             |   |
|-----------------------------|---|
| November 1976-December 1977 | Postdoctoral fellow- Dept. of Molecular Biophysics and Biochemistry, Yale University, USA |
| January-April 1981          | Visiting fellow- Dept. of Animal Embryology, University of Geneva, Switzerland            |
| January 1982-December 1982  | Postdoctoral fellow, European Molecular Biology Laboratory, Heidelberg, Germany           |
| October-December 1984       | Visiting fellow- European Molecular Biology Laboratory, Heidelberg, Germany               |
| July-September 1989         | Visiting scientist, Scripps Clinic and Research Laboratory, La Jolla, USA                 |

### **CURRENT RESEARCH INTEREST**

One of the current research interests is to explore the potentiality of spermatogonial stem cells as a novel tool for cell therapy, with particular emphasis on liver metabolic diseases. Spermatogonial stem cells have been isolated from mice and are currently in culture in the laboratory. These stem cells have been found to convert spontaneously to pluripotent stem cells, termed germ cell-derived pluripotent stem cells or GPSCs. However, very little is known about the factors responsible for the conversion of spermatogonial stem cells to pluripotent stem cells. The Unit has developed a system for differentiating GPSCs into hepatocyte-like cells and renal cells and research on this aspects is presently under way. The main aims are to:-Develop culture conditions and identify factors responsible to differentiate GPSCs into hepatocytes as well as renal cells.-Employ a bioinformatics approach to identify genes that are enhancers of reprogramming.

### **Patents:**

**1) 19 December 2002 (WO2004056176)**

“MELUSIN, A MUSCLE SPECIFIC PROTEIN, AS A DRUG TARGET FOR PREVENTION AND TREATMENT OF HEART FAILURE AND APPLICATIONS THEREOF”

Il brevetto è di proprietà dell’Università di Torino e gli inventori sono: Mara Brancaccio, Lorenzo Silengo, Fiorella Altruda, Giuseppe Lembo, Luigi Fratta, e Guido Tarone.

**2) 17 Gennaio 2012 M.G. Faga, A. Bellosi, F. Altruda, S. Carossa, S. Coluccia, G. Martra, F. Mussano, E. Tolosano (2012). Impianto dentale od osseo, in particolare in nanocomposito allumina-zirconia. TO2012A000029, 50% Università degli Studi di Torino, 50% CNR**

## **Fiorella Altruda- Relevant Publications 2010-2015**

- 1)** Fagoonee S, Hobbs RM, De Chiara L, Cantarella D, Piro RM, Tolosano E, Medico E, Provero P, Pandolfi PP, Silengo L, Altruda F.  
Generation of functional hepatocytes from mouse germ line cell-derived pluripotent stem cells in vitro.  
*Stem Cells Dev.* 2010 Aug;19(8):1183-94.
- 2)** Roetto A, Di Cunto F, Pellegrino RM, Hirsch E, Azzolino O, Bondi A, Defilippi I, Carturan S, Miniscalco B, Riondato F, Cilloni D, Silengo L, Altruda F, Camaschella C, Saglio G.  
Comparison of 3 Tfr2-deficient murine models suggests distinct functions for Tfr2-alpha and Tfr2-beta isoforms in different tissues.  
*Blood.* 2010 Apr 22;115(16):3382-9. Epub 2010 Feb 23.
- 3)** Canavese M, Altruda F, Silengo L.  
Therapeutic efficacy and immunological response of CCL5 antagonists in models of contact skin reaction.  
*PLoS One.* 2010 Jan 15;5(1):e8725.
- 4)** Circolo E, Morello F, Hobbs RM, Wolf F, Marone R, Iezzi M, Lu X, Mengozzi G, Altruda F, Sorba G, Guan K, Pandolfi PP, Wymann MP, Hirsch E.  
Essential role of the p110beta subunit of phosphoinositide 3-OH kinase in male fertility.  
*Mol Biol Cell.* 2010 Mar;21(5):704-11. Epub 2010 Jan 6.
- 5)** Spiller F, Costa C, Souto FO, Vinchi F, Mestriner FL, Laure HJ, Alves-Filho JC, Freitas A, Rosa JC, Ferreira SH, Altruda F, Hirsch E, Greene LJ, Tolosano E, Cunha FQ.  
Inhibition of Neutrophil Migration by Hemopexin Leads to Increased Mortality Due to Sepsis in Mice.  
*Am J Respir Crit Care Med.* 2010 Oct 22.
- 6)** Canavese M, Altruda F, Ruzicka T, Schauber J.  
Vascular endothelial growth factor (VEGF) in the pathogenesis of psoriasis--a possible target for novel therapies?  
*J Dermatol Sci.* 2010 Jun;58(3):171-6. Epub 2010 Apr 9. Review.
- 7)** Canavese M, Altruda F, Silengo L, Castiglioni V, Scanziani E, Radaelli E.  
Clinical, pathological and immunological features of psoriatic-like lesions affecting keratin 14-vascular endothelial growth factor transgenic mice.  
*Histol Histopathol.* 2011 Mar;26(3):285-296.
- 8)** Ognibene M, Barbieri O, Vanni C, Mastracci L, Astigiano S, Emionite L, Salani B, Fedele M, Resaz R, Tenca C, Fais F, Sabatini F, De Santanna A, Altruda F, Varesio L, Hirsch E, Eva A. High frequency of development of B cell lymphoproliferation and diffuse large B cell lymphoma in Dbl knock-in mice.  
*J Mol Med.* 2011 May;89(5):493-504.
- 9)** Perino A, Ghigo A, Ferrero E, Morello F, Santulli G, Baillie GS, Damilano F, Dunlop AJ, Pawson C, Walser R, Levi R, Altruda F, Silengo L, Langeberg LK, Neubauer G, Heymans S, Lembo G, Wymann MP, Wetzker R, Houslay MD, Iaccarino G, Scott JD, Hirsch E.  
Integrating Cardiac PIP(3) and cAMP Signaling through a PKA Anchoring Function of p110 $\gamma$ .  
*Mol Cell.* 2011 Apr 8;42(1):84-95.

- 10)** Costa C, Germena G, Martin-Conte EL, Molineris I, Bosco E, Marengo S, Azzolino O, Altruda F, Ranieri VM, Hirsch E.  
The RacGAP ArhGAP15 is a master negative regulator of neutrophil functions.  
*Blood*. 2011 Jul 28;118(4):1099-108.
- 11)** Morello N, Bianchi FT, Marmiroli P, Tonoli E, Rodriguez Menendez V, Silengo L, Cavaletti G, Vercelli A, Altruda F, Tolosano E.  
A Role for Hemopexin in Oligodendrocyte Differentiation and Myelin Formation  
*PLoS One*. 2011;6(5):e20173.
- 12)** Fagoonee S, Pellicano R, Silengo L, Altruda F.  
Potential applications of germline cell-derived pluripotent stem cells in organ regeneration.  
*Organogenesis*. 2011 Apr 1;7(2):116-22. doi: 10.4161/org.7.2.16284.
- 13)** Canavese M, Altruda F, Silengo L, Castiglioni V, Scanziani E, Radaelli E.  
Clinical, pathological and immunological features of psoriatic-like lesions affecting keratin 14-vascular endothelial growth factor transgenic mice.  
*Histol Histopathol*. 2011 Mar;26(3):285-296.
- 14)** Fiorito V, Geninatti Crich S, Silengo L, Altruda F, Aime S, Tolosano E.  
Assessment of iron absorption in mice by ICP-MS measurements of (57)Fe levels.  
*Eur J Nutr*. 2012 Oct;51(7):783-9. Epub 2011 Oct 19.
- 15)** Robin M. Hobbs, Sharmila Fagoonee, Antonella Papa, Kaitlyn Webster, Fiorella Altruda, Ryuichi Nishinakamura, Li Chai, Pier Paolo Pandolfi  
Functional Antagonism between Sall4 and Plzf Defines Germline Progenitors  
*Cell Stem Cell*, Volume 10, Issue 3, 284-298, 2 March 2012.
- 16)** Lorenzo N, Barberá A, Domínguez MC, Torres AM, Hernandez MV, Hernandez I, Gil R, Ancizar J, Garay H, Reyes O, Altruda F, Silengo L, Padrón G.  
Therapeutic effect of an altered peptide ligand derived from heat-shock protein 60 by suppressing of inflammatory cytokines secretion in two animal models of rheumatoid arthritis  
*Autoimmunity* 2012 Sep;45(6):449-59. doi: 10.3109/08916934.2012.697592. Epub 2012 Jul 20
- 17)** Giorgio Merlo, Fiorella Altruda, Valeria Poli (2012). Mice as experimental organisms.  
CHICHESTER:JOHN WILEY & SONS, LTD., p. 1-11, 2012.
- 18)** Chiabrand D, Marro S, Mercurio S, Giorgi C, Petrillo S, Vinchi F, Fiorito V, Fagoonee S, Camporeale A, Turco E, Merlo GR, Silengo L, Altruda F, Pinton P, Tolosano E.  
The mitochondrial heme exporter FLVCR1b mediates erythroid differentiation.  
*J Clin Invest*. 2012 Dec 3;122(12):4569-79. doi: 10.1172/JCI62422. Epub 2012 Nov 26
- 19)** Chiabrand D, Fiorito V, Marro S, Silengo L, Altruda F, Tolosano E.  
Cell-specific regulation of Ferroportin transcription following experimentally-induced acute anemia in mice.  
*Blood Cells Mol Dis*. 2013 Jan;50(1):25-30. doi: 10.1016/j.bcmd.2012.08.002. Epub 2012 Aug 24
- 20)** 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*. 2013 Mar 26;127(12):1317-29. doi: 10.1161/CIRCULATIONAHA
- 21)** Fiorito V, Geninatti Crich S, Silengo L, Aime S, Altruda F, Tolosano E.  
Lack of Plasma Protein Hemopexin Results in Increased Duodenal Iron Uptake.  
*PLoS One*. 2013 Jun 27;8(6):e68146.

- 22)** Sharmila Fagoonee, Claudia Bearzi, Ferdinando Di Cunto, John G.Clohessy, Roberto Rizzi, Marcus O. Reschke, Emanuela Tolosano, Paolo Provero , Pier Paolo Pandolfi, Lorenzo Silengo and Fiorella Altruda  
The RNA binding protein ESRP1 fine-tunes the expression of pluripotency-related factors in mouse embryonic stem cells  
PLoS One, 2013 Aug 27;8 (8):e72300.DOI: 10.1371.
- 23)** Letizia De Chiara, Sharmila Fagoonee, Andrea Ranghino, Stefania Bruno, Giovanni Camussi, Emanuela Tolosano, Lorenzo Silengo and Fiorella Altruda  
Renal cells from germline stem cells protect against kidney injury  
J Am Soc Nephrol. 2014 Feb;25(2):316-28. doi: 10.1681/ASN.2013040367.
- 24)** Vallée A, Faga MG, Mussano F, Catalano F, Tolosano E, Carossa S, Altruda F, Martra G.  
Alumina-zirconia composites functionalized with laminin-1 and laminin-5 for dentistry: Effect of protein adsorption on cellular response.  
Colloids Surf B Biointerfaces. 2013 Oct 17;114C:284-293. doi: 10.1016/j.colsurfb.2013.09.053.
- 25)** Rolla S, Ingoglia G, Bardina V, Silengo L, Altruda F, Novelli F, Tolosano E.  
Acute-Phase Protein Hemopexin Is a Negative Regulator of Th17 Response and Experimental Autoimmune Encephalomyelitis Development.  
J Immunol. 2013 Dec 1;191(11):5451-9. doi: 10.4049/jimmunol.1203076. Epub 2013 Oct 23.
- 26)** Juan Valiente, Diana García del Barco, Gerardo Guillén, Héctor Santana,  
Fiorella Altruda, Guido Tarone, Lorenzo Silengo, Jorge Berlanga  
Cardiotropic effect of GHRP-6: in vivo characterization by echocardiography  
Biotecnología Aplicada 2013;30:285-289
- 27)** Maccarinelli F, Gammella E, Asperti M, Regoni M, Biasiotto G, Turco E, Altruda F, Lonardi S, Cornaghi L, Donetti E, Recalcati S, Poli M, Finazzi D, Arosio P, Cairo G. Mice lacking mitochondrial ferritin are more sensitive to doxorubicin-mediated cardiotoxicity. J Mol Med (Berl). 2014 Apr 13. [Epub ahead of print] PubMed PMID: 24728422.
- 28)** Fiorito V, Neri F, Pala V, Silengo L, Oliviero S, Altruda F, Tolosano E.  
Hypoxia controls Flvcr1 gene expression in Caco2 cells through HIF2 $\alpha$  and ETS1.  
Biochim Biophys Acta. 2014 Apr;1839(4):259-64. doi: 10.1016/j.bbagr.2014.02.010.  
Epub 2014 Feb 24. PubMed PMID: 24576667.
- 29)** 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. 2014 Jan 31. pii: S0016-5085(14)00144-9. doi: 10.1053/j.gastro.2014.01.053. [Epub ahead of print]  
PubMed PMID: 24486949.
- 30)** Rusconi F, Paganini L, Braida D, Ponzoni L, Toffolo E, Maroli A, Landsberger N, Bedogni F, Turco E, Pattini L, **Altruda F**, De Biasi S, Sala M, Battaglioli E.  
LSD1 Neurospecific Alternative Splicing Controls Neuronal Excitability in Mouse Models of Epilepsy.  
Cereb Cortex. 2014 Apr 15. [Epub ahead of print]
- 31)** Antonini D, Sirico A, Aberdam E, Ambrosio R, Campanile C, Fagoonee S, Altruda F, Aberdam D, Brissette JL, Missero C.  
A composite enhancer regulates p63 gene expression in epidermal morphogenesis and in keratinocyte differentiation by multiple mechanisms.  
Nucleic Acids Res. 2015 Jan 30;43(2):862-74. doi: 10.1093/nar/gku1396. Epub 2015 Jan 7
- 32)** 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. 2015 Mar 20. pii: haematol.2014.114488. [Epub ahead of print]

**33)** Giuseppe Orlando, Giuseppe Remuzzi and David F Williams Editors

Kidney transplantation, bioengineering and regeneration

chapter on: Renal cells from spermatogonial germline stem cells for protection against kidney injury

Elsevier, submitted

**34)** Sharmila Fagoonee<sup>1\*</sup>, Elvira S. Famulari<sup>2</sup>, Lorenzo Silengo<sup>2</sup>, Emanuela Tolosano<sup>2</sup>, Fiorella Altruda<sup>2\*</sup>

Long term liver engraftment of functional hepatocyte precursors obtained from germline cell-derived pluripotent stem cells

PLoS One, under revision