



CURRICULUM VITAE

Prof.ssa FIORELLA ALTRUDA

Full Professor of Molecular Genetics

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Fiorella Altruda

- Ph D in Biology

-Full Professor of Molecular Genetics

ACADEMIC APPOINTMENTS

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

From 2005-2015: President of the School of Biotechnology, University of Torino

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

2010: Member of the evaluation board in Biotechnology for the CNR Institutes

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

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

From 2012-2016: Member of the Director Board of the University Federico II, Naples

From 2015-2018: Member of the Senate of the University of Torino

From 2018: President of the CNR-University of Torino joint board

From 2002 Scientific member of the Consorzio Interuniversitario Biotecnologie (CIB) and member of the Executive Board from 2014
From 2017: site manager of the Cell Factory University of Torino
From 2015: affiliate to the CNR, Istituto di Biostrutture e Bioimmagini, Napoli

NON ACADEMIC APPOINTMENTS

From 2012: member of the Scientific Board of CentroScienza Foundation, from 2014 member of the Executive Board and President of the scientific board of Giovedì Scienza
From 2013: Member of the Accademia di Medicina, Torino
From 2015: President of the Bioindustry Park S.p.A. Colletterto Giacosa (Torino)
From 2017: Member of the Director Board of DiaSorin S.p.A.
From 2021: Member of the Accademia delle Scienze, 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

The research activity of Altruda's lab is aimed at studying the regulation of gene expression, in particular in the field of Stem cells and Regenerative Medicine. Research regarding the use of stem cells for the cure of metabolic liver diseases is particularly active in the lab. We have previously demonstrated that functional hepatocytes can be generated from mouse germline cell-derived pluripotent stem cells and that these cells can engraft in and participate to liver regeneration in vivo. To reach this goal, particular emphasis was given to the generation of murine models that can be used to correct organ damage. The research group has a strong experience in generating and analysis of mouse models with mutations in genes responsible for cell adhesion, inflammatory response and heme metabolism. Recently, the group has employed human liver stem cells to generate functional hepatocytes in vitro, and have shown that these cells can restore liver function in mice models of Crigler-Najjar syndrome type I. Moreover, the research team of Fiorella Altruda is working on optimising the conditions for using stem cells as platform for gene delivery or with microvesicles for the delivery of therapeutic agents in vivo.

Another research area regards studying the role of an RNA-binding protein, Epithelial Regulatory Protein 1 (ESRP1) in neoplastic transformation. We came across this gene in a large-scale cDNA microarray analysis on mouse embryonic stem cells aiming at finding novel genes involved in stemness- and pluripotency- maintenance. ESRP1 is responsible for epithelial differentiation and we are now studying:

- a) The role of ESRP1, by modulating its expression, in the neoplastic transformation of epithelial cells;
- b) Tumor growth (primary and metastatic) in vivo in immunocompromised animals. Recently the group has also set up a corneal alkali burn model to study the therapeutic effects of mesenchymal stem cell-derived extracellular vesicles on wound healing. Topical application of extracellular vesicles accelerates the wound healing process, while dampening inflammation and scarring. Molecular analyses of corneal wound healing are under way.

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 2016-2021

Voena C, Varesio LM, Zhang L, Menotti M, Poggio T, Panizza E, Wang Q, Minero VG, Fagoonee S, Compagno M, Altruda F, Monti S, Chiarle R.

Oncogenic ALK regulates EMT in non-small cell lung carcinoma through repression of the epithelial splicing regulatory protein 1.

Oncotarget. 2016 Apr 23. doi: 10.18632/oncotarget.8955. [Epub ahead of print]

Lorenzo N, Altruda F, Silengo L, Del Carmen Dominguez M.

APL-1, an altered peptide ligand derived from heat-shock protein, alone or combined with methotrexate attenuates murine collagen-induced arthritis.

Clin Exp Med. 2016 May 9. [Epub ahead of print]

Giuseppe Orlando, Giuseppe Remuzzi and David F Williams Editors

Chapter's Title. In: Kidney Transplantation, Bioengineering and Regeneration. Giuseppe Orlando, Giuseppe Remuzzi, David F Williams, Eds. Associated Press, NY, USA. In press

Fagoonee S, Famulari ES, Silengo L, Camussi G, Altruda F.

Prospects for Adult Stem Cells in the Treatment of Liver Diseases.

Fagoonee S, Famulari ES, Silengo L, Camussi G, Altruda F.

Stem Cells Dev. 2016 Sep 7. [Epub ahead of print]

Chiabrando D, Castori M, di Rocco M, Ungelenk M, Gießelmann S, Di Capua M, Madeo A, Grammatico P, Bartsch S, Hübner CA, Altruda F, Silengo L, Tolosano E, Kurth I.

Mutations in the Heme Exporter FLVCR1 Cause Sensory Neurodegeneration with Loss of Pain Perception.

PLoS Genet. 2016 Dec 6;12(12):e1006461. doi: 10.1371/journal.pgen.1006461.

Petrillo S, Chiabrando D, Genova T, Fiorito V, Ingoglia G, Vinchi F, Mussano F, Carossa S, Silengo L, Altruda F, Merlo GR, Munaron L, Tolosano E.

Heme accumulation in endothelial cells impairs angiogenesis by triggering paraptosis.
Cell Death Differ. 2017 Dec 11. doi: 10.1038/s41418-017-0001-7.

Fusella F, Secli L, Busso E, Krepelova A, Moiso E, Rocca S, Conti L, Annaratone L, Rubinetto C, Mello-Grand M, Singh V, Chiorino G, Silengo L, Altruda F, Turco E, Morotti A, Oliviero S, Castellano I, Cavallo F, Provero P, Tarone G, Brancaccio M.

The IKK/NF- κ B signaling pathway requires Morgana to drive breast cancer metastasis.
Nat Commun. 2017 Nov 21;8(1):1636. doi: 10.1038/s41467-017-01829-1.

Fagoonee S, Picco G, Orso F, Arrigoni A, Longo DL, Forni M, Scarfò I, Cassenti A, Piva R, Cassoni P, Silengo L, Tolosano E, Aime S, Taverna D, Pandolfi PP, Brancaccio M, Medico E, Altruda F.

The RNA-binding protein ESRP1 promotes human colorectal cancer progression.
Oncotarget. 2017 Feb 7;8(6):10007-10024. doi: 10.18632/oncotarget.14318.

Ingoglia G, Sag CM, Rex N, De Franceschi L, Vinchi F, Cimino J, Petrillo S, Wagner S, Kreitmeier K, Silengo L, Altruda F, Maier LS, Hirsch E, Ghigo A, Tolosano E.

Data demonstrating the anti-oxidant role of hemopexin in the heart.
Data Brief. 2017 May 13;13:69-76. doi: 10.1016/j.dib.2017.05.026. eCollection 2017 Aug.

Ingoglia G, Sag CM, Rex N, De Franceschi L, Vinchi F, Cimino J, Petrillo S, Wagner S, Kreitmeier K, Silengo L, Altruda F, Maier LS, Hirsch E, Ghigo A, Tolosano E.

Hemopexin counteracts systolic dysfunction induced by heme-driven oxidative stress.
Free Radic Biol Med. 2017 Jul;108:452-464. doi: 10.1016/j.freeradbiomed.2017.04.003. Epub 2017 Apr 8.

Petrillo S, Chiabrando D, Genova T, Fiorito V, Ingoglia G, Vinchi F, Mussano F, Carossa S, Silengo L, Altruda F, Merlo GR, Munaron L, Tolosano E.

Heme accumulation in endothelial cells impairs angiogenesis by triggering paraptosis.
Cell Death Differ. 2018 Mar;25(3):573-588. doi: 10.1038/s41418-017-0001-7. Epub 2017 Dec 11.

Mancini C, Hoxha E, Iommarini L, Brussino A, Richter U, Montarolo F, Cagnoli C, Parolisi R, Gondor Morosini DI, Nicolò V, Maltecca F, Muratori L, Ronchi G, Geuna S, Arnaboldi F, Donetti E, Giorgio E, Cavalieri S, Di Gregorio E, Pozzi E, Ferrero M, Riberi E, Casari G, Altruda F, Turco E, Gasparre G, Battersby BJ, Porcelli AM, Ferrero E, Brusco A, Tempia F.

Mice harbouring a SCA28 patient mutation in AFG3L2 develop late-onset ataxia associated with enhanced mitochondrial proteotoxicity.
Neurobiol Dis. 2018 Oct 30;124:14-28.

De Chiara L, Famulari ES, Fagoonee S, van Daalen SKM, Buttiglieri S, Revelli A, Tolosano E, Silengo L, van Pelt AMM, Altruda F.

Characterization of Human Mesenchymal Stem Cells Isolated from the Testis.
Stem Cells Int. 2018 Sep 3;2018:4910304

Bertino F, Firestone K, Bellacchio E, Jackson KE, Asamoah A, Hersh J, Fiorito V, Destefanis F, Gonser R, Tucker ME, Altruda F, Tolosano E, Chiabrando D.

Heme and sensory neuropathy: insights from novel mutations in the heme exporter feline leukemia virus subgroup C receptor 1.
Pain. 2019 Dec;160(12):2766-2775. doi: 10.1097/j.pain.0000000000001675.

Mancini C, Hoxha E, Iommarini L, Brussino A, Richter U, Montarolo F, Cagnoli C, Parolisi R, Gondor Morosini DI, Nicolò V, Maltecca F, Muratori L, Ronchi G, Geuna S, Arnaboldi F, Donetti E, Giorgio E, Cavalieri S, Di Gregorio E, Pozzi E, Ferrero M, Riberi E, Casari G, Altruda F, Turco E, Gasparre G, Battersby BJ, Porcelli AM, Ferrero E, Brusco A, Tempia F.

Mice harbouring a SCA28 patient mutation in AFG3L2 develop late-onset ataxia associated with enhanced mitochondrial proteotoxicity.

Neurobiol Dis. 2019 Apr;124:14-28. doi: 10.1016/j.nbd.2018.10.018. Epub 2018 Oct 30.

Destefanis F, Fiorito V, Altruda F, Tolosano E.

Investigating the Connection Between Endogenous Heme Accumulation and COX2 Activity in Cancer Cells.

Front Oncol. 2019 Mar 19;9:162. doi: 10.3389/fonc.2019.00162. eCollection 2019. Genova T, Petrillo S, Zicola E, Roato I, Ferracini R, Tolosano E, Altruda F, Carossa S, Mussano F, Munaron L.

The Crosstalk Between Osteodifferentiating Stem Cells and Endothelial Cells Promotes Angiogenesis and Bone Formation.

Front Physiol. 2019 Oct 14;10:1291. doi: 10.3389/fphys.2019.01291. eCollection 2019.

Cernigliaro V, Peluso R, Zedda B, Silengo L, Tolosano E, Pellicano R, Altruda F, Fagoonee S.

Evolving Cell-Based and Cell-Free Clinical Strategies for Treating Severe Human Liver Diseases.

Cells. 2020 Feb 7;9(2). pii: E386. doi: 10.3390/cells9020386. Review.

Famulari ES, Navarro-Tableros V, Herrera Sanchez MB, Bortolussi G, Gai M, Conti L, Silengo L, Tolosano E, Tetta C, Muro AF, Camussi G, Fagoonee S, Altruda F.

Human liver stem cells express UGT1A1 and improve phenotype of immunocompromised Crigler Najjar syndrome type I mice.

Sci Rep. 2020 Jan 21;10(1):887. doi: 10.1038/s41598-020-57820-2.

Ala U, Manco M, Mandili G, Tolosano E, Novelli F, Provero P, Altruda F, Fagoonee S.

Proteomics-Based Evidence for a Pro-Oncogenic Role of ESRP1 in Human Colorectal Cancer Cells.

Int J Mol Sci. 2020 Jan 16;21(2). pii: E575. doi: 10.3390/ijms21020575.

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 Aug 27. doi: 10.1089/ars.2020.8168. Online ahead of print.

Petrillo S, Carrà G, Bottino P, Zanotto E, De Santis MC, Margaria JP, Giorgio A, Mandili G, Martini M, Cavallo R, Barberio D, **Altruda F**.

A Novel Multiplex qRT-PCR Assay to Detect SARS-CoV-2 Infection: High Sensitivity and Increased Testing Capacity.

Microorganisms. 2020 Jul 17;8(7):1064. doi: 10.3390/microorganisms8071064

Saccu G, Menchise V, Giordano C, Delli Castelli D, Dastrù W, Pellicano R, Tolosano E, Van Pham P, **Altruda F**, Fagoonee S

Regenerative Approaches and Future Trends for the Treatment of Corneal Burn Injuries.

.J Clin Med. 2021 Jan 16;10(2):317. doi: 10.3390/jcm10020317

Torino, 15/02/2021

