Antonia Follenzi

Curriculum vitae

PERSONAL DATA

Date and place of birth: July 10, 1966, Cerignola (FG), Italy

Residency: Novara, Italy

BIO AND EDUCATION

Antonia Follenzi graduated in Medicine and Surgery in March 1992 with Honours and Printing Dignity at the University of Turin. In 1997 she specialized in Clinical Pathology at the University of Turin and in 2000 received her PhD in Human Oncology at the University of Turin. During the specialization, she spent one year (1996) as Research Fellow in Israel at the Weizmann Institute of Science in Rehovot at the Laboratory of Gene Regulation working with Prof. J. Yarden. From 1998 to 2003 she worked at IRCC of Candiolo (TO) with Prof. L. Naldini in gene therapy projects by the use of lentiviral vectors. From 2003 to 2006 she stayed in New York at the Albert Einstein of Medicine working in the laboratory of Prof. S. Gupta, where she is currently Visiting Assistant Professor. In March 2006 she became Assistant Professor and since October 2013 she is Associate Professor at the School of Medicine, Dept. of Health Sciences, of the University of Piemonte Orientale (Novara, Italy), scientific sector BIO/17 (Histology).

UNIVERSITY CAREER

Since October 2013	Associate Professor of Histology at the School of Medicine, Department of Health Sciences, University of Piemonte Orientale, Novara, Italy
2009-2013	Confirmed Researcher of Histology at the School of Medicine, Department of Health Sciences, University of Piemonte Orientale, Novara, Italy
2008-2016	Visiting Assistant Professor of Pathology, Albert Einstein College of Medicine, Bronx, NY
2006-2009	From march, Researcher of Histology at the School of Medicine, Department of Health Sciences, University of Piemonte Orientale, Novara, Italy
2003-2006	Research Associate and Instructor, Department of Pathology, Marion Bessin Liver Research Center, Albert Einstein College of Medicine, Bronx, NY (Prof. Sanjeev Gupta)
2000-2003	Senior Research Fellow, Department of Biomedical Sciences and Oncology, Candiolo Cancer Institute IRCC (University of Torino Medical School) working with Prof. Luigi Naldini
1997 al 2000	PhD in Human Oncology, Department of Biomedical Sciences and Oncology, (University of Torino Medical School), in Molecular Oncology Section with Prof. P.M. Comoglio during the first year, and in the laboratory of Gene Therapy with Prof. L. Naldini during the 2nd and 3rd, at the IRCC of Candiolo (TO)
1996-1997	Visiting Research Fellow, Department of Molecular Biology, Weizmann Institute of Science, Rehovot, Israel (Prof. Y. Yarden)

UNIVERSITY POSITIONS

2016-2018	In charge of the Department of Health Sciences in the University Committee for Internationalisation, University of Piemonte Orientale, Novara, Italy
2014-2016	Member of the Research Commission of the Department of Health Sciences, University of Piemonte Orientale, Novara, Italy
2008-2010	Member of the Board of the Department of Health Sciences, University of Piemonte Orientale, Novara, Italy

SCIENTIFIC POSITIONS

2008-present	Invited reviewer for Human Gene Therapy, Journal of Gene Medicine, Stem Cells, Journal of Clinical Investigation, Experimental Cell Research, Liver International, Blood, PLOS ONE, Molecular Therapy
2010-present	Grant reviewer for Italian Minister of the University and Research (MIUR), Genethon (France) and for the Fonds Wetenschappelijk Onderzoek (FWO) in Belgium
2007-present	Member of the Board of the PhD program in Biotechnologies for Human Health, University of Piemonte Orientale, Novara, Italy

MAIN FIELDS OF INTEREST

1. Gene transfer by the use of lentiviral vectors
2. Targeting transcriptional and post-transcriptional gene expression by the use of lentiviral vectors
3. Gene and cell therapy using parenchymal (hepatocytes) and non-parenchymal liver (hepatic sinusoidal endothelial cells and Kupffer cells)
4. Hemophilia A and B
5. Gene therapy against cancer using lentiviral vectors and magnetic nanoparticles

CURRENT ISSUES OF RESEARCH

Cell and gene therapy for Hemophilia A

To treat Hemophilia A, a disease in which the coagulation factor VIII is missing, a new approach is to seek the cells capable of producing FVIII. We have recently demonstrated that endothelial cells of hepatic sinusoid (LSEC) produce and secrete FVIII, although they are not the only ones. We have shown that animals deficient in FVIII can be cured by administering healthy bone marrow, indicating that the bone marrow cells of hematopoietic origin, mesenchymal or endothelial, can produce and secrete FVIII. On the basis of these findings in mice, we suggest that LSEC, cells from umbilical cord or from bone marrow of human origin, may be sources suitable for producing FVIII in a replacement cell therapy for the treatment of hemophilia A.

The research so far performed mainly concerns the cell and gene therapy of hemophilia A and transplantation of liver and hematopoietic cells in several models of disease, with particular regard to the implications of cellular and molecular biology of germination processes and proliferation of endothelial cells, macrophages and hepatocytes.

CURRENT FUNDED PROJECTS

PROGRAMME	FUNDED PROJECT
Horizon 2020 11/2015-10/2018	HemAcure – "Application of combined gene and cell therapy within an implantable therapeutic device for the treatment of severe Hemophilia A" http://www.hemacure.eu/
ERC 05/2011 – 04/2017	"Cell and gene therapy based strategies to correct the bleeding phenotype in Hemophilia A"
AIRC 1/2013 – 06/2016	"Development of engineered magnetic nanoparticles for cancer therapy"
Bando Ateneo Compagnia S.Paolo 04/2013-04/2016	"Development of Engineered Magnetic Nanoparticles for Targeted Therapies (LV-MNPs)"

TOP FIVE PAPERS

1. **Role of bone marrow cell transplantation for correcting hemophilia A in mice.** Follenzi A, Raut S, Merlin S, Sarkar R and Gupta S. (2012) Blood 119(23):5532-42
2. **Transplanted Endothelial Cells Repopulate the Liver Endothelium and Correct the Phenotype of Hemophilia A Mice.** Follenzi A, Benten D, Novikoff P, Faulkner L, Raut S, Gupta S. J Clin Invest. 118:935-945 (2008)
3. **Gene transduction by lentiviral vectors is limited by nuclear translocation of the genome and is rescued by incorporation of cis-acting sequences from the HIV-1 pol gene.** Follenzi A, Ailles LE, Bakovic S, Geuna M and Naldini L.. Nat Genetics 25:217-222 (2000).
4. **Extrahepatic sources of factor VIII potentially contribute to the coagulation cascade correcting the bleeding phenotype of mice with hemophilia A.** Zanolini D, Merlin S, Feola M, Ranaldo G, Amoruso A, Gaidano G, Zaffaroni M, Ferrero A, Brunelleschi S, Valente G, Gupta S, Prat M, Follenzi A. Haematologica. 2015 Jul;100(7):881-92. doi: 10.3324/haematol.2014.123117. Epub 2015 Apr 24.
5. **Visualization of dynamics of single endogenous mRNA labeled in live mouse**. Park HY, Lim H, Yoon YJ, Follenzi A, Nwokafor C, Lopez-Jones M, Meng X, Singer RH. Science. 2014 Jan 24;343(6169):422-4. doi: 10.1126/science.1239200

AWARDS

- 2016 Award for Research carried out at the University of Piemonte Orientale, Novara, Italy
- 2011 Application Number: US2011/000266, International Patent Application No. WO2011102890, Publication Date: August 25, 2011, METHODS OF TREATMENT OF HEMOPHILIA
- 2010 CSL-Behring Prof. Heimburger Award for scientists working on coagulation diseases
- 2008 Young Investigator Award from European Society of Gene and Cell Therapy (Bruges, Belgium)
- 2005 Liver Scholar Award from American Liver Foundation/American Association for the Study of Liver Disease
- 2005 Career Development Award from National Hemophilia Foundation (declined in favor of Liver Scholar Award from ALF)

- 2000 American Society for Gene Therapy Travel Grant Award
- 2000 American Society for Gene Therapy Outstanding Research Award for Students and Fellows
- 2000-2001 Research Fellowship, ISS (Italian Health Ministry) for AIDS Research Program
- 1996 Research Fellowship, “FIRC” (Italian Federation for Cancer Research), Weizmann Institute of Science - Rehovot (Israel)
- 1989-1990 Research Fellowship, "Comitato Regionale Piemontese Gigi Ghirotti", Department of Biomedical Sciences and Oncology (University of Torino Medical School).

FURTHER INFORMATION

Member of several scientific societies including the American Society of Gene and Cell Therapy (since 2000); the American Association for the Study of Liver Diseases (2004-2009), the European Society of Gene and Cell Therapy (since 2008) and the International Society of Thrombosis and Hemostasis (from 2011). Professor in the PhD program of Biotechnologies for Human Health, University of Piemonte Orientale, Novara, Italy since 2007.

Invited as lecturer at seminars in Italy and abroad at Children Hospital of Philadelphia, University of Philadelphia, Philadelphia; University of Pittsburgh, Pittsburgh, PA; Montefiore Medical Center, Bronx, NY; National Institute of Health e National Cancer Institute (NIH/NCI), Bethesda, MD; Molecular Biotecnology Center (MBC), Torino; Erasmus University, Rotterdam, the Netherland; Istituto per la Ricerca e la Cura del Cancro (IRCC), Candiolo (TO); HSR-TIGET, Milano; Queen’s University, Kingston, ON, Canada; IBEC, Barcelona, Spain; Mount Sinai School of Medicine, New York, USA; New York Blood Center, New York, USA; Hôpital Universitaire Paul Brousse, Paris Sud University; Free University of Brussels, Belgio.