

CURRICULUM VITAE

NAME	POSITION TITLE
Francesca Ficara	CNR researcher

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EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date	FIELD OF STUDY
University of Milan, Italy	Baccalaureate, 110/110 cum laude	02/1998	Biological Sciences
University of Ancona, Italy	PhD	03/2003	Immunological Sciences
Telethon Institute for Gene Therapy (HSR-TIGET), Milan, Italy		07/2004	Gene Therapy
Stanford University School of Medicine, Stanford, CA, USA	Postdoctoral in Pathology	08/2009	Stem Cell Biology

Positions and Honors

1996-1998	Undergraduate Student, HSR-TIGET, Milan, Italy
1998-1999	Telethon Research Fellow, HSR-TIGET
1999-2003	Graduate Student, University of Ancona, and HSR-TIGET
2003-2004	Postdoctoral Fellow, HSR-TIGET
2004-2009	Postdoctoral Scholar, Dept. of Pathology, Stanford University School of Medicine
2009-2010	Research Associate, Dept. of Pathology, Stanford University School of Medicine
2010-2017	Research Associate, Humanitas Clinical and Research Center, Rozzano (MI), Italy
2011-present	Tenured Researcher, Institute of Genetic and Biomedical Research (IRGB), UOS of Milan, National Research Council (CNR), Milan, Italy
2017-present	CNR Principal Investigator, Humanitas Clinical and Research Center, Rozzano (MI), Italy

Awards

2006	Junior Investigator Poster Award at the 4th ISSCR Annual Meeting in Toronto
2008	Travel Award for the 6th ISSCR Annual Meeting in Philadelphia

Research Topics

Hematopoietic stem cells and factors affecting regulation of the balance between self-renewal and differentiation, including transcription factors, micro-RNAs, interaction with different elements of the bone marrow microenvironment; myeloproliferative disorders ; osteopetrosis and regenerative medicine.

Contribution to Science

Publications: 27 peer-reviewed papers in international journals, total impact factor **206**; average: **7.6** (InCite Journal Citation Report 2019). These publications received to date 2088 citations.

H Index 16 (ISI Web of Science).

Abstracts accepted as oral presentations in international conferences such as ASH (American Society of Hematology), European Society of Gene Therapy (ESGT), International Congress of Immunology (ICI), European School of Immunology (ESH) meetings and EMBO/SEMM workshops, or accepted as poster presentations.

Recent abstracts (as last author):

- Pbx1 genetic ablation inhibits tumor growth in a mouse model of myeloproliferative neoplasm. *International Society of Experimental hematology (ISEH) 2020 Virtual Scientific Meeting, August 2020 (poster presentation)*
- Pbx1-directed stem cell transcriptional program drives tumor progression in JAK2V617F+ myeloproliferative neoplasm. *Alliance Against Cancer (AAC) 5th annual meeting*
- Lack of miR-127 down-regulation in the transition from hematopoietic stem cells to multi-potent progenitors leads to pancytopenia and defective self-renewal. *21st Congress of the European-Hematology-Association (EHA), 2016 (poster presentation)*

Other Activities

Teaching

Lectures: BIOMETRA PhD Program, International Medical School, Milan University; International PhD Program in Cellular and Molecular Biology, Vita Salute San Raffaele University, Milan, Italy.

Tutoring and PhD thesis supervisor: BIOMETRA PhD Program, International Medical School.

Teacher, School for Biomedical Laboratory Technicians, University of Milan

Mentorship

I supervised the activity of graduate and postgraduate research students.

Referee

External Reviewer for PhD dissertations, Milano BICOCCA University – DIMET; Ad-hoc Reviewer MIUR (PRIN 2012 and SIR 2014 Grants), Italy; Ad-hoc Reviewer for international journals (Stem Cell Research & Therapy, Life Sciences, Cellular & Molecular Biology Letters, Journal of Molecular Medicine, Cells, Cell Death and Differentiation)

Current professional memberships

- EHA (European Hematology Association), Member
- ISEH (International Society for Experimental Hematology), Member

Research Support

2005-2007	American-Italian Cancer Foundation Fellowship (Salary Award)
2008-2009	American Society of Hematology (ASH) Award (Salary Award)
2010-2014	Marie Curie International Reintegration Grant from the European Commission (FP7 program) (#256452)
2012-2015	Ricerca Finalizzata Giovani Ricercatori, Italian Ministry of Health (#GR-2010-2307975).
2015-2016	AIRC-Fondazione Cariplo Grant (TRIDEO#15822).
2020-2023	Ricerca Finalizzata, Italian Ministry of Health (RF-2018-12367680, as co-PI)

Publications

- 1) Expanded circulating hematopoietic stem/progenitor cells as novel cell source for the treatment of TCIRG1 osteopetrosis. Capo V, Penna S, Merelli I, Barcella M, Scala S, Basso-Ricci L, Draghici E, Palagano E, Zonari E, Desantis G, Uva P, Cusano R, Sergi L, Crisafulli L, Moshous D, Stepensky P, Drabko K, Kaya Z, Unal E, Gezdirici A, Menna G, Serafini M, Aiuti A, Locatelli SL, Carlo-Stella C, Schulz AS, **Ficara F**, Sobacchi C, Gentner B, Villa A. *Haematologica*. 2020 Jan 16;106(1):74-86
- 2) Generation of an immunodeficient mouse model of tcirg1-deficient autosomal recessive osteopetrosis. Palagano E, Muggeo S, Crisafulli L, Tourkova IL, Strina D, Mantero S, Fontana E, Locatelli SL, Monari M, Morengi E, Carlo-Stella C, Barnett JB, Blair HC, Vezzoni P, Villa A, Sobacchi C, **Ficara F**. *Bone Rep*. 2020 Jan 7;12:100242
- 3) MicroRNA-127-3p controls murine hematopoietic stem cell maintenance by limiting differentiation. Crisafulli L, Muggeo S, Uva P, Wang Y, Iwasaki M, Locatelli S, Anselmo A, Colombo FS, Carlo-Stella C, Cleary ML, Villa A, Gentner B, **Ficara F**. *Haematologica*. 2019 Sep;104(9):1744-1755
- 4) Chromosome Transplantation: Correction of the Chronic Granulomatous Disease Defect in Mouse Induced Pluripotent Stem Cells. Castelli A, Susani L, Menale C, Muggeo S, Caldana E, Strina D, Cassani B, Recordati C, Scanziani E, **Ficara F**, Villa A, Vezzoni P, Paulis M. *Stem Cells*. 2019 Jul;37(7):876-887
- 5) ACKR2 in hematopoietic precursors as a checkpoint of neutrophil release and anti-metastatic activity. Massara M, Bonavita O, Savino B, Caronni N, Mollica Poeta V, Sironi M, Setten E, Recordati C, Crisafulli L, **Ficara F**, Mantovani A, Locati M, Bonocchi R. *Nat Commun*. 2018 Feb 14;9(1):676
- 6) Fusion between cancer cells and macrophages occurs in a murine model of spontaneous neu+ breast cancer without increasing its metastatic potential. Lizier M, Anselmo A, Mantero S, **Ficara F**, Paulis M, Vezzoni P, Lucchini F, Pacchiana G. *Oncotarget*. 2016 Sep 20;7(38):60793-60806
- 7) Targeted Gene Correction in Osteopetrotic-Induced Pluripotent Stem Cells for the Generation of Functional Osteoclasts. Neri T, Muggeo S, Paulis M, Caldana ME, Crisafulli L, Strina D, Focarelli ML, Faggioli F, Recordati C, Scaramuzza S, Scanziani E, Mantero S, Buracchi C, Sobacchi C, Lombardo A, Naldini L, Vezzoni P, Villa A, **Ficara F**. *Stem Cell Reports*. 2015 Oct 13;5(4):558-68
- 8) MLL becomes functional through intra-molecular interaction not by proteolytic processing. Yokoyama A, **Ficara F**, Murphy MJ, Meisel C, Hatanaka C, Kitabayashi I, Cleary ML. *PLoS One*. 2013 Sep 10;8(9):e73649
- 9) Pbx1 restrains myeloid maturation while preserving lymphoid potential in hematopoietic progenitors. **Ficara F**, Crisafulli L, Lin C, Iwasaki M, Smith KS, Zammataro L, Cleary ML. *J Cell Sci*. 2013 Jul 15;126(Pt 14):3181-91
- 10) Osteopetrosis rescue upon RANKL administration to Rankl(-/-) mice: a new therapy for human RANKL-dependent ARO. Lo Iacono N, Blair HC, Poliani PL, Marrella V, **Ficara F**, Cassani B, Facchetti F, Fontana E, Guerrini MM, Traggiai E, Schena F, Paulis M, Mantero S, Inforzato A, Valaperta S, Pangrazio A, Crisafulli L, Maina V, Kostenuik P, Vezzoni P, Villa A, Sobacchi C. *J Bone Miner Res*. 2012 Dec;27(12):2501-10
- 11) Anti-CD3ε mAb improves thymic architecture and prevents autoimmune manifestations in a mouse model of Omenn syndrome: therapeutic implications. Marrella V, Poliani PL, Fontana E, Casati A, Maina V, Cassani B, **Ficara F**, Cominelli M, Schena F, Paulis M, Traggiai E, Vezzoni P, Grassi F, Villa A. *Blood*. 2012 Aug 2;120(5):1005-14
- 12) Proteolytically cleaved MLL subunits are susceptible to distinct degradation pathways. Yokoyama A, **Ficara F**, Murphy MJ, Meisel C, Naresh A, Kitabayashi I, Cleary ML. *J Cell Sci*. 2011 Jul 1;124(Pt 13):2208-19
- 13) GSK-3 promotes conditional association of CREB and its coactivators with MEIS1 to facilitate HOX mediated transcription and oncogenesis. Wang Z, Iwasaki M, **Ficara F**, Lin C, Matheny C, Wong SH, Smith KS, Cleary ML. *Cancer Cell*. 2010 Jun 15;17(6):597-608
- 14) The miR-17-92 microRNA polycistron regulates MLL leukemia stem cell potential by modulating p21 expression. Wong P, Iwasaki M, Somerville TC, **Ficara F**, Carico C, Arnold C, Chen CZ, Cleary ML. *Cancer Res*. 2010 May 1;70(9):3833-42
- 15) Pbx1 regulates self-renewal of long-term hematopoietic stem cells by maintaining their quiescence. **Ficara F**, Murphy MJ, Lin M, Cleary ML. *Cell Stem Cell*. 2008 May 8;2(5):484-96
- 16) Molecular purging of multiple myeloma cells by ex-vivo culture and retroviral transduction of mobilized- blood CD34+ cells. Deola S, Scaramuzza S, Birolo RS, Cerng M, **Ficara F**, Dando J, Voena C, Vai S, Monari M, Pogliani E, Comeo G, Peccatori J, Selleri S, Bordignon C, Roncarolo MG, Aiuti A, Bregni M. *J Transl Med*. 2007 Jul 12;5:35

- 17) IL-3 or IL-7 increases ex vivo gene transfer efficiency in ADA-SCID BM CD34+ cells while maintaining in vivo lymphoid potential. **Ficara F**, Superchi DB, Hernández RJ, Mocchetti C, Carballido-Perrig N, Andolfi G, Deola S, Colombo A, Bordignon C, Carballido JM, Roncarolo MG, Aiuti A. *Mol Ther*. 2004 Dec;10(6):1096-108.
- 18) Efficient gene transfer into primitive hematopoietic progenitors using a bone marrow microenvironment cell line engineered to produce retroviral vectors. Dando JS*, **Ficara F***, Deola S, Roncarolo MG, Bordignon C, Aiuti A. *Co-first. *Haematologica*. 2004 Apr;89(4):462-70
- 19) Mobilized blood CD34+ cells transduced and selected with a clinically applicable protocol reconstitute lymphopoiesis in SCID-Hu mice. Deola S, Scaramuzza S, Birolo RS, Carballido-Perrig N, **Ficara F**, Mocchetti C, Dando J, Carballido JM, Bordignon C, Roncarolo MG, Bregni M, Aiuti A. *Hum Gene Ther*. 2004 Mar;15(3):305-11
- 20) A T-cell epitope encoded by a subset of HLA-DPB1 alleles determines nonpermissive mismatches for hematologic stem cell transplantation. Zino E, Frumento G, Marktel S, Sormani MP, **Ficara F**, Di Terlizzi S, Parodi AM, Sergeant R, Martinetti M, Bontadini A, Bonifazi F, Lisini D, Mazzi B, Rossini S, Servida P, Ciceri F, Bonini C, Lanino E, Bandini G, Locatelli F, Apperley J, Bacigalupo A, Ferrara GB, Bordignon C, Fleischhauer K. *Blood*. 2004 Feb 15;103(4):1417-24
- 21) Gene therapy for adenosine deaminase deficiency. Aiuti A, **Ficara F**, Cattaneo F, Bordignon C, Roncarolo MG. *Curr Opin Allergy Clin Immunol*. 2003 Dec;3(6):461-6
- 22) Developmental expression of the T-box transcription factor T-bet/Tbx21 during mouse embryogenesis. Faedo A, **Ficara F**, Ghiani M, Aiuti A, Rubenstein JL, Bulfone A. *Mech Dev*. 2002 Aug;116(1-2):157-60
- 23) Correction of ADA-SCID by stem cell gene therapy combined with nonmyeloablative conditioning. Aiuti A, Slavin S, Aker M, **Ficara F**, Deola S, Mortellaro A, Morecki S, Andolfi G, Tabucchi A, Carlucci F, Marinello E, Cattaneo F, Vai S, Servida P, Miniero R, Roncarolo MG, Bordignon C. *Science*. 2002 Jun 28;296(5577):2410-3
- 24) Immune reconstitution in ADA-SCID after PBL gene therapy and discontinuation of enzyme replacement. Aiuti A, Vai S, Mortellaro A, Casorati G, **Ficara F**, Andolfi G, Ferrari G, Tabucchi A, Carlucci F, Ochs HD, Notarangelo LD, Roncarolo MG, Bordignon C. *Nat Med*. 2002 May;8(5):423-5
- 25) Optimisation of retroviral supernatant production conditions for the genetic modification of human CD34+ cells. Dando JS, Aiuti A, Deola S, **Ficara F**, Bordignon C. *J Gene Med*. 2001 May-Jun;3(3):219-27
- 26) Recovery of hematopoietic activity in bone marrow from human immunodeficiency virus type 1-infected patients during highly active antiretroviral therapy. Isgrò A, Mezzaroma I, Aiuti A, De Vita L, Franchi F, Pandolfi F, Alario C, **Ficara F**, Riva E, Antonelli G, Aiuti F. *AIDS Res Hum Retroviruses*. 2000 Oct 10;16(15):1471-9
- 27) Expression of CXCR4, the receptor for stromal cell-derived factor-1 on fetal and adult human lympho- hematopoietic progenitors. Aiuti A, Tavian M, Cipponi A, **Ficara F**, Zappone E, Hoxie J, Peault B, Bordignon C. *Eur J Immunol*. 1999 Jun;29(6):1823-31.

RESEARCH INTERRUPTIONS

Oct 2007 – Mar 2008 *Maternity leave*
 Feb 2012 – Oct 2012 *Maternity leave*

Milan, 26/01/2021