

Curriculum Vitae

Fabio Manenti

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Personal Statement

After diploma in Computer Science in 2009, I graduated in Medical Biotechnology in 2015 (University of Milan-Bicocca) and proceeding my lab experience for 6 months as researcher at the same university. Then, I moved under supervision of Prof. Lorenzo Piemonti at the Diabetes Research Institute (DRI) of San Raffaele Scientific Institute in Milan, Italy.

Here I have been involved in efforts towards improvement of differentiation protocol of the human induced pluripotent stem cells (hiPSC) into insulin-producing beta cells, that was worth the publication in 2017. I extended my technical knowledge in the fields of cell microscopy, and cellular biology and physiology. My previous IT skills make me able to improve experimental and prospective organization of my department, that allowed the implementation of a feasible backup and bio-banking systems.

In the last year, I attended two projects on pancreatic cancer: one focused on identification of novel tumor predictive peripheral biomarkers, and the other aimed to development of a drug-loaded cell targeting pancreatic cancer metastases.

My future perspective is to play a more managerial and organizational role, becoming a lab manager.

Work experiences

IT Manager of DRI Biobank

December 2019 - Now

IRCCS San Raffaele Scientific Institute, Diabetes Research Institute (OSR-DRI), Beta cell Biology unit, via Olgettina 60, Milan, Italy

Research fellow

October 2015 - Now

IRCCS San Raffaele Scientific Institute, Diabetes Research Institute (OSR-DRI), Beta cell Biology unit, via Olgettina 60, Milan, Italy

Principal Investigator: Dr. Lorenzo Piemonti

Focus:

- Innovative tools for early diagnosis and risk assessment of pancreatic cancer;
- Mesenchymal stem cells as chemotherapeutic drug delivery vector for metastatic pancreatic cancer;
- Dynamic perfusion protocol as tool for adherent cells stimulation;
- Differentiation of iPSC into insulin producing cells.

Research assistant

March 2015 - September 2015

Milano-Bicocca University, Via Cadore 48, Monza, Italy
Principal Investigator: Dr.ssa Silvia Brunelli

Main activity: Heterotopic Ossification in Skeletal Muscle and Endothelial Cells Recruitment to Chondrogenesis.

Internship

February 2014 - March 2015

Milano-Bicocca University, Via Cadore 48, Monza, Italy
Principal Investigator: Dr.ssa Silvia Brunelli

Main activity: NO in myogenic differentiation of embryonic endothelial progenitor cells.

Internship

March 2012

IRCCS San Raffaele Scientific Institute, Diabetes Research Institute (OSR-DRI), Beta cell Biology unit, via Olgettina 60, Milan, Italy
Principal Investigator: Dr. Lorenzo Piemonti

Education

Medical biotechnologies degree in Experimental Medicine

November 2012 - March 2015

26/03/2015: Master's degree: 94/110
Milano-Bicocca University, piazza dell'Ateneo Nuovo 1, Milan, Italy

Experimental thesis: Study of the role of NO in myogenic differentiation of embryonic endothelial progenitor cells.
Thesis Coordinator: D'Orlando Cristina
Thesis Advisor: Prof. Silvia Brunelli

Medical biotechnologies degree in Health sector

September 2009 - October 2012

15/10/2012: Bachelor's degree; 100/110
Milano-Bicocca University, piazza dell'Ateneo Nuovo 1, Milan, Italy

Experimental thesis: Study of the potential cytoprotective role of the Lnk protein in the activity of xenotransplants.
Thesis Advisor: Prof. Roberto Giovannoni

Secondary school focusing on Information Technology

September 2004 - July 2009

07/2009: High school diploma; 98/100
"ITSOS Marie Curie", Via Masaccio, 4, 20063 Cernusco sul Naviglio MI, Italy

Personal skills and competences

Mother tongue: Italian

Other language: English (level C1)

Technical skills:

Cellular Biology

Good knowledge of cell culture and cell biology assay: culture and differentiation of hiPSCs into Insulin producing cells; handling of immortalized cell lines (human and murine), cytospin; isolation of PBMC from human peripheral blood; processing of human samples.

Molecular Biology

RNA extraction, cDNA synthesis, real-Time PCR using Taqman probe, Taqman Low Density Array (TLDA)

Imaging techniques

Immunofluorescence (multiparametric staining), flow cytometry acquisition (FACSantoII, BD Accuri CS6, Beckman Gallios) and analysis (Diva software, Cell quest, FCS express). Advanced knowledge of fluorescence microscopy and confocal microscopy (Leica TC S SP2, Leica TC S SP5, PerkinElmer UltraVIEW ERS, IncuCyte, GE HealthCare DeltaVision Ultra, Leica SR GSD 3D TIRF, Zeiss Axio Observer.Z1, ThermoFisher ArrayScan XTI).

Immunohistochemistry techniques

Staining of paraffin-embedded and frozen sections.

Animal handling

Intraperitoneal, subcutaneous and iv injections; follow up of cancer development; OGTT test.

Cell physiology

Dynamic perfusion protocol with Biorep Perfusion System; ELISA.

IT competences:

- Knowledge of Window (excellent) and OSX (good) operating systems, Microsoft Office (excellent) and web browsers (Firefox, Google Chrome, Internet explorer);
- Use of statistical software program GraphPad Prism (good);
- Use of Adobe CS6 suite (excellent);
- Knowledge of imaging programs such as ImageJ (excellent), FIJI (excellent), softWoRx suite (good), Huygens Deconvolution software (good), Volocity (excellent), IncuCyte software (excellent);
- Use of MIPAV (Medical Image Processing, Analysis, and Visualization) application for quantitative analysis and visualization of medical images of numerous modalities such as PET, MRI, CT, or microscopy (good);
- Knowledge of programming languages such as Java (good), Delphi (excellent), C++ (good), C# (excellent) and development environments such as Visual Studio (good), Android Studio (good), Eclipse (good);
- Good knowledge web development (HTML, PHP, CSS, JS, Wordpress).

Research activities

ORCID: 0000-0003-0709-1550

Scopus Author ID: 57204137560

H-index: 2 (source: SCOPUS)

Published research paper [*] equally contribute as first author

- 1) Citro A, Moser PT, Dugnani E, Rajab KT, Ren X, Evangelista-Leite D, Charest JM, Peloso A, Podesser BK, Manenti F, Pellegrini S, Piemonti L, Ott H - **Biofabrication of Vascularized Islet Organs for Type 1 Diabetes** - BioMat - Jan 2019
- 2) C. Giorgio, M. Incerti, D. Pala, P. Chiodelli, M. Rusnati, A. M. Cantoni, R. Di Lecce, E. Barocelli, S. Bertoni, P. Ravassard, F. Manenti, L. Piemonti, F. Ferlenghi, Lodola, M. Tognolini - **Inhibition of Eph/ephrin interaction with a small molecule UniPR500 improves glucose tolerance in healthy and insulin-resistant mice** - Pharmacological Research - Jan 2019
- 3) Pellegrini S, Manenti F, Chimienti R, Nano R, Ottoboni L, Ruffini F, Martino G, Ravassard P, Piemonti L, Sordi V - **Differentiation of integration-free induced pluripotent stem cells (iPSC) into insulin producing cells.** - Cell Transplant - Oct 2018
- 4) Tirone M, Conti V, Manenti F, Nicolosi PA, D'Orlando C, Azzoni E, Brunelli S. - **Nitric Oxide Donor Molsidomine Positively Modulates Myogenic Differentiation of Embryonic Endothelial Progenitors.** - PlosS One - Oct 2016

Manuscript in preparation [*] equally contribute as first author

- 1) Manenti F*, Chimienti R*, Valla L, Costa S, Dugnani E, Citro A, Ravassard P, Piemonti L - **Development of dynamic perfusion protocol as tool for adherent cells stimulation.**
- 2) Chimienti R, Baccega T, Manenti E, Torchio S, Monti P, Pellegrini S, Pritchard-Meaker T, Sordi V, Lombardo A, Malnati M, Piemonti L - **Engineering of NK activating receptor ligands enhances immune compatibility of MHC-I/- iPSC for cell therapy of type 1 diabetes.**
- 3) Dugnani E, Maffia MC, Policardi M, Pellegrini S, Manenti F, Valla L, Marzinotto I, Lampasona V, Sordi V, Piemonti L, Citro A - **A Bioengineering of a Human iPSC derived vascularized endocrine pancreas for Type 1 Diabetes.**
- 4) Pellegrini S, Chimienti R, Scotti GM, Giannese F, Lazarevic D, Manenti E, Poggi G, Lombardo M, Cospito A, Piemonti L, Sordi V - **Transcriptional dynamics of induced pluripotent stem cell-derived β cell differentiation revealed by single-cell RNA sequencing.**

Training course

- “Corso ALEMBIC di Microscopia Ottica ed Elettronica” (Milan, San Raffaele Hospital, 27 and 31 May 2016)
- Practical microscopy training:
 - GE HealthCare DeltaVision Ultra (Milan, ALEBMIC - San Raffaele Hospital, 17/04/2019)
 - Leica SR GSD 3D TIRF (Milan, ALEBMIC - San Raffaele Hospital, 30/05/2018)
 - ThermoFisher ArrayScan XTI (Milan, ALEBMIC - San Raffaele Hospital, 14/05/2018)
 - IncuCyte (Milan, ALEBMIC - ALEBMIC - San Raffaele Hospital, 14/02/2018)
 - Leica TCS SP5 (Milan, ALEBMIC - ALEBMIC - San Raffaele Hospital, 01/02/2018)
 - PerkinElmer UltraVIEW ERS (Milan, ALEBMIC - San Raffaele Hospital, 15/09/2017)
 - GFP-Imaging (Milan, ALEBMIC - San Raffaele Hospital, 07/07/2017)
 - Leica TCS SP2 (Milan, ALEBMIC - San Raffaele Hospital, 21/06/2016)
 - Zeiss Axio Observer.Z1 (Milan, ALEBMIC - San Raffaele Hospital, 15/06/2016)

Other research related activities:

Best Poster Presentation Award, DITID Scientific Retreat, 16 and 17 Jan 2017, San Raffaele Hospital, Milan

Abstract: [§] selected for oral presentation [*] equally contribute as first author

- 1) Citro A, Dugnani E, Maffia MC, Policardi M, Pellegrini S, Manenti F, Valla L, Marzinotto I, Campo F, Lampasona V, Sordi V, Piemonti L - **Bioingegnerizzazione di un organo endocrino vascolarizzato costituito da iPSC per il T1D** - 28° Congresso Nazionale della Società Italiana di Diabetologia, Rimini, May 12-16, 2020.
- 2) Cospito A, Pellegrini S, Poggi G, Lombardo MT, Manenti F, Piemonti L, Sordi V - **Beta cellule differenziate da iPSC derivate da un paziente con MODY8** - 28° Congresso Nazionale della Società Italiana di Diabetologia, Rimini, May 12-16, 2020.
- 3) Torchio S, Chimienti R, Manenti F, Rossi G, Lombardo MT, Pellegrini S, Sordi V, Broccoli V, Frontino G, Meschi F, Piemonti L - **Uso di iPSCs come modello di studio per la sindrome di Wolfram: approcci farmacologici e sostitutivi** - 28° Congresso Nazionale della Società Italiana di Diabetologia, Rimini, May 12-16, 2020.
- 4) Poggi G, Lombardo MT, Pellegrini S, Cospito A, Manenti F, Piemonti L, Sordi V - **Generazione di β cellule da iPSC: il contributo delle cellule mesenchimali ed endoteliali del pancreas umano** - 28° Congresso Nazionale della Società Italiana di Diabetologia, Rimini, May 12-16, 2020.
- 5) Manenti F*, Chimienti R*, Valla L, Costa S, Dugnani E, Citro A, Ravassard P, Piemonti L - **Development of dynamic perfusion protocol as tool for adherent cells stimulation.** - OSR Scientific Retreat - Baveno, March 12-14 2020, Italy

- 6) Torchio S, Chimienti R, Manenti F, Rossi G, Lombardo MT, Pellegrini S, Sordi V, Broccoli V, Frontino G, Meschi F, Piemonti L - **Characterization of new disease-causing mutations in a Wolfram syndrome patient through iPSC modelling** - OSR Scientific Retreat - Baveno, March 12-14 2020, Italy
- 7) Cospito A, Pellegrini S, Poggi G, Lombardo MT, Manenti F, Piemonti L, Sordi V - **Insulin producing β cells from iPSC of a patient with monogenic diabetes** - OSR Scientific Retreat - Baveno, March 12-14 2020, Italy
- 8) Valla L, Citro A, Dugnani E, Manenti F, Policardi M, Doglioni C, Lavagnino Z, Maffia MC, Piemonti L - **Study of *cxcr2* receptor expression in the endocrine pancreas** - OSR Scientific Retreat - Baveno, March 12-14 2020, Italy
- 9) Dugnani E, Maffia MC, Policardi M, Pellegrini S, Manenti F, Valla L, Marzinotto I, Campo F, Lampasona V, Sordi V, Piemonti L, Citro A - **Bioengineering of an iPSC derived vascularized endocrine organ for T1D** - OSR Scientific Retreat - Baveno, March 12-14 2020, Italy
- 10) Lombardo MT, Pellegrini S, Poggi G, Cospito A, Manenti F, Scielzo C, Piemonti L, Sordi V - **Generation of β cells from iPSC: the contribution of human pancreatic mesenchymal and endothelial cells** - 10th EPITA Symposium & 39th AIDPIT Workshop, Igls, January 26-28, 2020
- 11) Lombardo MT, Pellegrini S, Poggi G, Cospito A, Manenti F, Piemonti L, Sordi V - **Generation of β cells from iPSC: the contribution of human pancreatic mesenchymal and endothelial cells** - DITID Retreat - Milano 20-21 Jan 2020
- 12) Cospito A, Pellegrini S, Poggi G, Lombardo MT, Manenti F, Chimienti R, Piemonti L, Sordi V - **Induced pluripotent stem cell (iPSC) from a patient with monogenic diabetes for autologous β cell replacement** - DITID Retreat - Milano 20-21 Jan 2020
- 13) Chimienti R, Baccega T, Manenti F, Torchio S, Monti P, Pellegrini S, Pritchard-Meaker T, Sordi V, Lombardo A, Malnati M, Piemonti L - **Engineering of NK activating receptor ligands enhances immune compatibility of MHC-I/- iPSC for cell therapy of type 1 diabetes** - DITID Retreat - Milano 20-21 Jan 2020
- 14) Citro A, Dugnani E, Maffia MC, Policardi M, Pellegrini S, Manenti F, Valla L, Marzinotto I, Campo F, Lampasona V, Sordi V, Piemonti L - **Bioengineering of an iPSC derived vascularized endocrine organ for T1D** - DITID Retreat - Milano 20-21 Jan 2020
- 15) Chimienti R, Baccega T, Manenti F, Torchio S, Pellegrini S, Pritchard-Meaker T, Sordi V, Lombardo A, Malnati M, Piemonti L - **Engineering of NK activating receptor ligands enhances immune compatibility of MHC-I/- iPSC for cell therapy of type 1 diabetes** - Nature Conference "Advanced Cell Therapies and Tissue Engineering" - Milano 14-16 Nov 2019
- 16) Sordi V, Pellegrini S, Poggi G, Manenti F, Chimienti R, Lombardo MT, Cospito A, Citro A, Piemonti L - **Induced pluripotent stem cells (iPSC)-derived β cells for β cell replacement in diabetes: comparison with human islets from organ donors and negative selection of residual pluripotent cells** - Nature Conference "Advanced Cell Therapies and Tissue Engineering" - Milano 14-16 Nov 2019
- 17) Pellegrini S, Lombardo MT, Poggi G, Cospito A, Manenti F, Piemonti L, Sordi V - **Generation of β cells from iPSC: the contribution of human pancreatic mesenchymal and endothelial cells** - Nature Conference "Advanced Cell Therapies and Tissue Engineering" - Milano 14-16 Nov 2019
- 18) Torchio S, Chimienti R, Manenti F, Rossi G, Cancellieri C, Pellegrini S, Sordi V, Broccoli V, Frontino G, Meschi F, Piemonti L - **In vitro iPSC modelling of a Wolfram syndrome patient suggests relationship between ER dysfunctions and disease pathogenesis** - 55th EASD Annual Meeting - Barcelona 16-20 Sep 2019
- 19) Chimienti R, Baccega T, Manenti F, Torchio S, Pellegrini S, Pritchard-Meaker T, Sordi V, Lombardo A, Malnati M, Piemonti L - **Engineering of NK activating receptor ligands enhances immune compatibility of MHC-I/- iPSC for cell therapy of type 1 diabetes** - 55th EASD Annual Meeting - Barcelona 16-20 Sep 2019
- 20) Citro A, Dugnani E, Policardi M, Pellegrini S, Manenti F, Valla L, Marzinotto I, Lampasona V, Valeria S, Piemonti L - **Bioengineering of an iPSC derived vascularized endocrine organ for T1D** - 17th World Congress of the international pancreas & islet transplant association (IPITA) - 2-5 July 2019

- 21) Citro A, Moser PT, Dugnani E, Rajab TK, Ren X, Evangelista-Leite D, Charest JM, Peloso A, Podesser BK, Manenti F, Pellegrini S, Piemonti L, Ott HC - **Biofabrication of a Vascularized Islet Organ for Type 1 Diabetes** - 17th World Congress of the international pancreas & islet transplant association (IPITA) - 2-5 July 2019
- 22) Cospito A, Pellegrini S, Poggi G, Lombardo MT, Manenti F, Chimienti R, Piemonti L, Sordi V - **iPSC from a patient with monogenic diabetes for autologous beta cell replacement** - 17th World Congress of the international pancreas & islet transplant association (IPITA) - 2-5 July 2019
- 23) Pellegrini S, Poggi G, Manenti F, Chimienti R, Lombardo MT, Cospito A, Citro A, Pritchard-Meaker T, Piemonti L, Sordi V. - **Insulin producing cells derived from induced pluripotent stem cells (iPSC): a comparison with human islets** - 17th World Congress of the international pancreas & islet transplant association (IPITA) - 2-5 July 2019
- 24) Lombardo MT, Pellegrini S, Poggi G, Cospito A, Manenti F, Pritchard-Meaker T, Piemonti L, Sordi V. - **Generation of β cells from iPSC: the contribution of human pancreatic mesenchymal and endothelial cells** - 17th World Congress of the international pancreas & islet transplant association (IPITA) - 2-5 July 2019
- 25) Citro A, Dugnani E, Policardi M, Pellegrini S, Manenti F, Valla L, Marzinotto I, Lampasona V, Valeria S, Piemonti L - **Vascularized Endocrine Organ for the treatment of T1D** - OSR Scientific Retreat - Baveno, March 14-16 2019, Italy
- 26) Chimienti R, Amabile A, Pellegrini S, Monti P, Manenti F, Baptista R, Hyllner J, Sordi V, Lombardo A, Piemonti L - **iPSC e β cellule ingegnerizzate per una terapia cellulare del diabete tipo 1 senza immunosoppressione** - 27° Congresso Nazionale della Società Italiana di Diabetologia - Rimini 16-19 May 2018
- 27) Pellegrini S, Manenti F, Chimienti R, Baptista R, Hyllner J, Piemonti L, Sordi V - **BRD proteins inhibition increases differentiation efficiency of iPSC into insulin-producing cells** - 27° Congresso Nazionale della Società Italiana di Diabetologia, Rimini, May 16-19, 2018.
- 28) Pellegrini S, Manenti F, Cito M, Chimienti R, Pipitone G, Carrera P, Ottoboni L, Piemonti L, Sordi V - **Induced pluripotent stem cells from a patient with monogenic diabetes for autologous β cell replacement** - 27° Congresso Nazionale della Società Italiana di Diabetologia, Rimini, May 16-19, 2018.
- 29) Chimienti R, Amabile A, Pellegrini S, Monti P, Manenti F, Baptista R, Hyllner J, Sordi V, Lombardo A, Piemonti L - **Exploiting targeted genome editing to avoid immune rejection of insulin-producing cells derived from human iPSC** - San Raffaele Scientific Retreat - Baveno (VB) 16-18 Mar 2018
- 30) Pellegrini S, Manenti F, Chimienti R, Cito M, Piemonti L, Sordi V - **BRD proteins inhibition increases differentiation efficiency of iPSC into insulin-producing cells** - Nature Conference "Regeneration", Milan, November 16-18, 2017.
- 31) Cito M, Pellegrini S, Manenti F, Chimienti R, Pipitone G, Carrera P, Ottoboni L, Piemonti L, Sordi V - **Induced pluripotent stem cells from a patient with monogenic diabetes for autologous β cell replacement** - Nature Conference "Regeneration", Milan, November 16-18, 2017.
- 32) Amabile A, Chimienti R, Pellegrini S, Monti P, Manenti F, Cito M, Sordi V, Lombardo A, Piemonti L - **Generation of universally transplantable allogenic cells by targeted genome editing** - Nature Conference "Regeneration", Milan, November 16-18, 2017.
- 33) Pellegrini S, Manenti F, Ottoboni L, Martino G, Piemonti L, Sordi V - **Differentiation of integration-free induced pluripotent stem cells (iPSC) into insulin-producing cells** - 7th EPITA Meeting & IPITA/EPITA Joint Workshop, Igls, January 29-31, 2017.
- 34) Manenti F, Pellegrini S, Ottoboni L, Martino G, Piemonti L, Sordi V - **Differentiation of integration-free induced pluripotent stem cells (iPSC) into insulin-producing cells** - DITID Retreat - Milano 16-17 Jan 2017 [5]
- 35) Pellegrini S, Ottoboni L, Manenti F, Tedesco C, Martino GV, Piemonti L, Sordi V - **Differentiation of integration-free induced pluripotent stem cells (iPSC) into insulin-producing cells** - 26° Congresso Nazionale della Società Italiana di Diabetologia, Rimini, May 4-7, 2016.