

Francesco ANDREATA

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EDUCATION

2014 - 2017: PhD in Immunology

Bio Sorbonne Paris Cité Doctoral School (Paris), France (*with honors*).

2012 - 2013: European Master in Genetics

(University of Paris-Diderot *and* Milan-Bicocca in joint supervision).

2011 - 2013: Master in Biotechnology

University of Milan-Bicocca (Milan), Italy (110/110 *with honors*).

2007 - 2010: Bachelor in Biotechnology

University of Milan-Bicocca (Milan), Italy.

June 2007: Scientific High School Graduation

Busto Arsizio (Varese), Italy.

WORK EXPERIENCES

April 2023 – Present: Assistant Professor in General Pathology. University of Milan-Bicocca (Milan).

October 2018 – April 2023: Postdoctoral fellow at the “**Dynamic of immune responses Laboratory**” department of immunology, transplantation and infectious diseases (San Raffaele Hospital, Milan). Spatiotemporal dynamic of CD8⁺ T cell immunity in the liver.

October 2017 to September 2018: Postdoctoral fellow at the “**Nanomedicine Laboratory**” department of Biomedical and Clinical Sciences "L. Sacco" (University of Milan, Milan). Interactions between anthracyclines-loaded ferritin nanoparticles and the immune system in breast cancer.

November 2013 to September 2017: PhD in immunology at the “**Laboratory for Vascular Translational Science**” INSERM U1148 (Bichat Hospital, Paris). Role of CD31 in phagocytes physiopathology.

January to October 2013: Internship at the laboratory of “**Hemostasis, Bio-Engineering and Cardiovascular Remodeling**” INSERM U698 (Bichat Hospital, Paris). Role of T follicular Helper cells in the formation of tertiary lymphoid organs in atherosclerotic aortas.

April to November 2011: Internship at the laboratory of “**Nanobiotechnology and Applied Biochemistry**” in the Department of Biotechnology and Biosciences, University of Milan-Bicocca (Milan). Expression, purification and characterization of recombinant proteins in heterologous systems for conjugation to gold nanoparticles.

January to May 2010: Internship at the “**Orthopedic Biotechnologies Lab**” of IRCCS Galeazzi Institute (Milan). Development of human cartilage for regenerative medicine.

TEACHING

2023 – present: Assistant professor in General Pathology

2016 – 2017: Instructor (ATER) in Immunology at the University Paris 7, Paris, France

ADDITIONAL TRAININGS

2016: Habilitation for animal experimentation, FELASA Category B (Paris-Descartes University), Paris, France.

2016: Protein-protein interaction, advanced training (Paris-Diderot University), Paris, France.

LANGUAGE SKILLS

Italian: Mother tongue.

English: Read, written and spoken (Advanced).

French: Read, written and spoken (Proficient).

INVESTIGATIONAL APPROACH AND TECHNICAL EXPERTISES

Immunology. Regulatory receptors involved in the homeostasis of the blood-vessel interface. Inflammatory response in vascular pathologies. Biology of neutrophil and CD8⁺ T cells. HBV pathogenesis. Cancer immunology. Mechanistic studies *in vitro*. Signaling pathways. Flow cytometry (BD, Beckman and Cytex Aurora instruments) and fluorescence-activated cell sorting (BD Melody and Miltenyi MACSQuant Tyto), cell culture, molecular biology, western blotting, intravital microscopy, immunohistochemistry, confocal microscopy.

IN VIVO EXPERIMENTAL SKILLS IN MICE

Retro-orbital sinus and caudal vein injections in mice. Retro-orbital and sub-mandibular blood collection. Intraperitoneal injections. Splenectomies. Oral gavage. Collection and processing of organs for downstream analysis (preparation of single cell suspensions and imaging): liver, spleen, blood, bone marrow, lymph nodes, lungs, brain, small intestine, skin and kidney.

INVITED POSITIONS AND SCIENTIFIC MEMBERSHIP

2021- Present Faculty Opinions: London, GB. Associate Faculty Member.

2021- Present SIICA member (Società Italiana di Immunologia, Immunologia Clinica e Allergologia).

2018- 2019 AICC member (Associazione Italiana Colture Cellulari).

CONGRESSES

2022 International HBV meeting. Paris, France. September 2022

Oral communication: *OX40 and 4-1BB stimulation reinvigorates intrahepatically primed dysfunctional HBV-specific CD8⁺ T cells in mice.*

2021 European Congress of Immunology (ECI). September 2021 (Online congress).

Oral communication: *Identification of a Kupffer Cell Subset Capable of Reverting the T Cell Dysfunction Induced by Hepatocellular Priming.*

- 2019** Pathogen immunity and signaling (EMBO), Oxford, United Kingdom. April 2019
- 2018** Interaction between nanomaterials and the immune system: medical exploitations and safety issues, Milan, Italy. July 2018
Poster: *Anthracyclines formulation in ferritin nanocages preserves immune competence of naïve T-cells: an accessible path toward immuno-mediated cancer remission?*
- 2016** International Congress of Immunology, Melbourne, Australia. August 2016
Oral communication: *Engagement of the ITIM receptor CD31 regulates neutrophil adhesion and rolling on activated endothelial cells in vitro and in vivo.*
- 2015** GREMI Meeting on Vascular inflammation. Paris, France. November 2015
Poster: *Role of CD31 during the acute phase of inflammation.*
- 2015** Gordon Research Seminar and Gordon Research Conference in Atherosclerosis. Sunday River in Newry (ME), United States. June 2015
Poster: *CD31 signaling modulates Neutrophils interactions in the vasculature*
- 2014** 10th NSFA (Nouvelle Société Française d'Athérosclérose) congress. Biarritz, France. June 2014
Oral communication: *Control of T follicular helper-germinal center B cells limits atherosclerosis development in ApoE KO mice.*
Winner of the competition for young researchers.
- 2013** Cardiac Regeneration and Vascular Biology. Venice, Italy. June 2013
Poster: *Qa-1 restricted CD8⁺ T regulatory cells control the development of pro-atherogenic adventitial tertiary lymphoid organs in apolipoprotein E KO mice.*

PUBLICATIONS (Total citations>440; h-index>11)

Iannacone M, Andreata F, Guidotti L

Immunological insights in the treatment of chronic hepatitis B.

Curr Opin Immunol. 2022.

Fumagalli pV, Venzin V, Di Lucia P, Moalli F, Ficht X, Ambrosi G, Giustini L, Andreata F, Grillo M, Magini D, Ravà M, Friedrich C, Fontenot J.D, Bousso P, Gilmore S.A, Khan S, Baca M, Vivier E, Gasteiger G, Kuka M, Guidotti L.G, Iannacone M

Group 1 ILCs regulate T cell-mediated liver immunopathology by controlling local IL-2 availability.

Sci Immunol. 2022.

De Simone G*, Andreata F*, Bleriot C*, Fumagalli V*, Laura C, Garcia-Manteiga J, Di Lucia P, Gilotto S, Ficht X, De Ponti F, Bono E, Giustini L, Ambrosi G, Mainetti M, Zordan P, Bénéchet A, Ravà M, Chakarov S, Moalli F, Bajenoff M, Guidotti L.G, Ginhoux F, Iannacone M. **Identification of a Kupffer cell subset capable of reverting the T cell dysfunction induced by hepatocellular priming.** (* Co-first authorship)

Immunity. 2021.

Blériot C, Barreby E, Dunsmore G, Ballaire R, Chakarov S, Ficht X, De Simone G, Andreata F, Fumagalli V, Guo W, Wan G, Gessain G, Khalilnezhad A, Zhang XM, Ang N, Chen P, Morgantini C, Azzimato V, Kong WT, Liu Z, Pai R, Lum J, Shihui F, Low I, Xu C, Malleret B, Kairi MFM, Balachander A, Cexus O, Larbi A, Lee B, Newell EW, Ng LG, Phoo WW, Sobota RM, Sharma A, Howland SW, Chen J, Bajenoff M, Yvan-Charvet L, Venteclef N, Iannacone M, Aouadi M, Ginhoux F. **A subset of Kupffer cells regulates metabolism through the expression of CD36.**

Immunity. 2021.

Cossarizza A, Chang HD, Radbruch A, Abrignani S, Addo R, Akdis R, Andrä I, Andreata F, (...), Yang J. **Guidelines for the use of flow cytometry and cell sorting in immunological studies (third edition).** *Eur J Immunol.* 2021.

Andreata F, Blériot C, Di Lucia P, De Simone G, Fumagalli V, Ficht X, Beccaria CG, Kuka M, Ginhoux F, Iannacone M. **Isolation of mouse Kupffer cells for phenotypic and functional studies.** *STAR Protoc.* 2021.

Andreata F*, Bonizzi A*, Sevieri M, Truffi M, Monieri M, Sitia L, Silva F, Sorrentino L, Allevi R, Zerbi P, Marchini B, Longhi E, Ottria R, Casati S, Vanna R, Morasso C, Bellini M, Prosperi D, Corsi F, Mazzucchelli S. **Co-administration of H-ferritin-doxorubicin and Trastuzumab in neoadjuvant setting improves efficacy and prevents cardiotoxicity in HER2⁺ murine breast cancer model.** (* Co-first authorship) *Sci Rep.* 2020.

Bénéchet AP, De Simone G, Di Lucia P, Cilenti F, Barbiera G, Le Bert N, Fumagalli V, Lusito E, Moalli F, Bianchessi V, Andreata F, Zordan P, Bono E, Giustini L, Bonilla WV, Blieriot C, Kunasegaran K, Gonzalez-Aseguinolaza G, Pinschewer DD, Kennedy PTF, Naldini L, Kuka M, Ginhoux F, Cantore A, Bertoletti A, Ostuni R, Guidotti L.G, Iannacone M. **Dynamics and genomic landscape of CD8⁺ T cells undergoing hepatic priming.** *Nature.* 2019.

Vigne J, Bay S, Aid-Launais R, Pariscoat G, Rucher G, Sénémaud J, Truffier A, Anizan N, Even G, Ganneau C, Andreata F, Le Borgne M, Nicoletti A, Le Guludec D, Caligiuri G, Rouzet F. **Cleaved CD31 as a target for in vivo molecular imaging of inflammation.** *Sci Rep.* 2019.

Andreata F*, Syvannarath V*, Clement M*, Delbosc S, Guedj K, Fornasa G, Khallou-Laschet J, Morvan M, Even G, Procopio E, Gaston AT, Le Borgne M, Deschamps L, Nicoletti A, Caligiuri G. **Macrophage CD31 Signaling in Dissecting Aortic Aneurysm.** *J Am Coll Cardiol.* 2018. (* Co-first authorship)

Chen CC, Pouliquen E, Broisat A, Andreata F, Racapé M, Bruneval P, Kessler L, Ahmadi M, Bacot S, Saison-Delaplace C, Marcaud M, Van Huyen JD, Loupy A, Villard J, Demuylder-Mischler S, Berney T, Morelon E, Tsai MK, Kolopp-Sarda MN, Koenig A, Mathias V, Ducreux S, Ghezzi C, Dubois V, Nicoletti A, Defrance T, Thaumat O. **Endothelial chimerism and vascular sequestration protect pancreatic islet grafts from antibody-mediated rejection.** *J Clin Invest.* 2018.

Hoang QT, Nuzzo A, Louedec L, Delbosc S, Andreata F, Khallou-Laschet J, Assadi M, Montravers P, Longrois D, Corcos O, Caligiuri G, Nicoletti A, Michel JB, Tran-Dinh A. **Peptide binding to cleaved CD31 dampens ischemia/reperfusion-induced intestinal injury.** *Intensive Care Med Exp.* 2018

Sannier A, Stroumza N, Caligiuri G, Le Borgne-Moynier M, Andreata F, Senemaud J, Louedec L, Even G, Gaston AT, Deschildre C, Couvelard A, Ou P, Cheynier R, Nataf P, Dorent R, Nicoletti A. **Thymic function is a major determinant of onset of antibody-mediated rejection in heart transplantation.** *Am J Transplant.* 2017.

El Khoury P, Roussel R, Fumeron F, Abou-Khalil Y, Velho G, Mohammedi K, Jacob MP, Steg PG, Potier L, Ghaleb Y, El Bitar S, Ragot S, Andreata F, Caligiuri G, Hadjadj S, Boileau C, Marre M, Abifadel M, Varret M, Hansel B. **Plasma proprotein-convertase-subtilisin/kexin type 9 (PCSK9) and cardiovascular events in type 2 diabetes.** *Diabetes Obes Metab.* 2017.

Clement M, Guedj K, Andreata F, Morvan M, Bay L, Khallou-Laschet J, Gaston AT, Delbosc S, Alsac JM, Bruneval P, Deschildre C, Le Borgne M, Castier Y, Kim HJ, Cantor H, Michel

JB, Caligiuri G, Nicoletti A. ***Control of the T follicular helper-germinal center B-cell axis by CD8⁺ regulatory T cells limits atherosclerosis and tertiary lymphoid organ development.*** *Circulation*. 2015.

Clement M, Fornasa G, Loyau S, Morvan M, Andreata F, Guedj K, Khallou-Laschet J, Larghi P, Le Roux D, Bismuth G, Chiocchia G, Hivroz C, Newman DK, Nicoletti A, Caligiuri G. ***Upholding the T cell immune-regulatory function of CD31 inhibits the formation of T/B immunological synapses in vitro and attenuates the development of experimental autoimmune arthritis in vivo.*** *J Autoimmun*. 2015.

Guedj K, Khallou-Laschet J, Clement M, Morvan M, Delbosc S, Gaston AT, Andreata F, Castier Y, Deschildre C, Michel JB, Caligiuri G, Nicoletti A. ***Inflammatory micro-environmental cues of human atherotrombotic arteries confer to vascular smooth muscle cells the capacity to trigger lymphoid neogenesis.*** *PLoS One*. 2014.

Mazzucchelli S, Colombo M, Verderio P, Rozek E, Andreata F, Galbiati E, Tortora P, Corsi F, Prosperi D. ***Orientation-Controlled Conjugation of HALO-Fused Homing Peptides to Multifunctional Nanoparticles for Specific Recognition of Cancer Cells.*** *Angew Chem Int Ed Engl*. 2013.

Milan
April 20th, 2023.