

BIOGRAPHICAL SKETCH

NAME: Di Mitri, Diletta

eRA COMMONS USER NAME (credential, e.g., agency login): ddimitri

POSITION TITLE: Associate Professor of Histology

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
University of Bologna	Master	07/2004	Medical Biotechnology
University of Tor Vergata, Rome	PHD	12/2008	Neuroscience
Fondazione Santa Lucia, Rome	Postdoctoral	03/2009	Immunology
University College London (UCL)	Postdoctoral	09/2010	Immunology
Fondazione Santa Lucia, Rome	Postdoctoral	09/2012	Immunology
Institute for Cancer Research (IOR), Bellinzona (CH)	Postdoctoral	09/2017	Tumor immunology

A. Personal Statement

I'm currently Assistant professor at Humanitas University and group leader of the Tumor microenvironment Unit at IRCSS Humanitas. I completed a B.Sc. (1999-2004) in Medical Biotechnology from University Alma Mater Studiorum in Bologna and a PhD from University of Rome Tor Vergata (2008). My PhD was focused on the profiling and functional characterization of T regulatory cells in Multiple Sclerosis patients, under the supervision of prof. Luca Battistini. Relevant publications include a study that unveiled the expression of CD39 on T regulatory cells (Blood 2007) and a study that profiled the dynamics of T regulatory cells in Multiple Sclerosis patients (Plos One 2011). I completed a first post-doc in London, at the UCL (University College London) under the supervision of prof. Arne Akbar, working on the investigation of mechanisms that regulate immune-aging in healthy donors and upon infections. I contributed to the dissection of the mechanisms that trigger immuno-aging (J Immunology 2011). I then moved to Switzerland for a second postdoc (2012-2017) in the laboratory of prof. Andrea Alimonti. My projects were dedicated to the dissection of the crosstalk between cancer cells and immune infiltrate on mouse models, with a specific focus on innate immunity. First author publications include a study demonstrating the promotion of senescence escape in cancer cells by tumor-infiltrating myeloid subsets (Nature 2014) and a study on macrophage re-education by prostate cancer (Cell Reports 2019). I also contributed to a body of work on myeloid cells and cancer resistance to therapy (Nature 2018) and on cancer metabolism (Nat Genetics 2018). Since October 2017 I'm leading the Unit of Tumor microenvironment in Humanitas. My research is focused on the profiling of immune system composition and immune cell dynamics in cancer patients by mean of single-cell based technologies including scRNAseq and multiparametric Flow Cytometry. Main scope is the dissection of cancer-immune crosstalk in patients and mouse models. An independent publication from my group has been accepted recently by the Journal of Experimental Medicine. The study identified a population of tumor-associated macrophages that is featured by lipid accumulation and promotes tumor progression and resistance to chemotherapy (Masetti M et al, JEM 2021).

B. Positions, Scientific Appointments, and Honors**Positions and Scientific Appointments****Current positions**

From 01/2024 Associate professor, BIO/17 Histology, Humanitas University
From 10/2017 Group leader, Tumor and microenvironment Unit, Humanitas Clinical and research Center

Academic titles and positions

From 01/2024 Associate professor for the module of “Histology”, School of Medicine, Nursing degree and Laboratory Technician degree

From 01/2021 to 12/2023 Assistant professor for the module of “Histology”, School of Medicine, Nursing degree and Laboratory Technician degree.
Humanitas University, Rozzano (Milan)

From 09/2019 to 12/2020 Adjunct professor for the module of “Hystology”, Nursing degree
Humanitas University, Rozzano (Milan)

Academic qualifications

From 2019 Member of the Academic board for the PhD programme in Molecular and Experimental Medicine (MEM)
Humanitas University, Rozzano (Milan)

From 24/09/2018 National academic qualification as associate professor (II fascia) in “05/H2 – ISTOLOGIA”

From 31/10/2018 National academic qualification as associate professor (II fascia) in “06/A2 - PATOLOGIA GENERALE E PATOLOGIA CLINICA”

Honors

2021 Price for the best oral presentation (Italian Cancer Society SIC 2021)

2017 Gerry Scotti Award 2018

2015 Pfizer research price 2015

2015 Best publication under 35 years, Switzerland

2014 What's up young talent awards (Campidoglio, Rome)

2014 Price for the best oral presentation (NIBIT 2014)

2011 Price for the best oral presentation (AINI XXI, 2011)

2008 Price for the best poster presentation (WIRM II, 2008)

Foundings since 2017

2024 AIRC Investigator grant 2024, AIRC (Principal Investigator 1.500.000. 5y)

2023 Fondo Italiano per la Scienza 2023, Mur (Principal Investigator 1.000.000€, 5y)

2023 Finalizzata PNRR 2023, Miur (Head of Unit 500.000€, 2y)

2023 AIRC Bridge 2023, AIRC (Principal Investigator, 100.000€, 1y)

2022 JTC2021 Transcan3 2022, FRRB (Principal Investigator, 370.000€, 3y)

2021 Giovani ricercatori 2019, Miur (Head of Unit, 85.000€, 3y)

2019 AIRC 5x1000 2019, AIRC (Head of Unit, 960.000€, 7y)

2019 Giovani ricercatori 2016, Miur (Principal Investigator, 411.000€, 3y)

2017 AIRC Start up grant 2016, AIRC (Principal Investigator, 750.000€, 5y)

C. Contributions to Science

Research monographs

1. The innate immune system: macrophages and neutrophils. Chapter for the “Cancer Immunotherapy Principles and Practice 2020”. Alberto Mantovani, Isabella Barajon, **Diletta Di Mitri**.
2. Pro-senescence therapy for cancer: time for the clinic. Chapter 8 for the “Stress Response Pathways in Cancer: From Molecular Targets to Novel Therapeutics”. Kalathur M, **Di Mitri D**, Alimonti A. Springer book, Wondrak G. editor. December 2014.

Peer reviewed publications

1. Lipid-loaded tumor-associated macrophages sustain tumor growth and invasiveness in prostate cancer. Masetti M, Carriero R,**Di Mitri D**. *J Exp Med*. 2022 Feb 7;219(2):e20210564. doi: 10.1084/jem.20210564. Epub 2021 Dec 17. PMID: 34919143
2. Neutrophil diversity and plasticity in tumour progression and therapy. Jaillon S, Ponzetta A, **Di Mitri D**, Santoni A, Bonecchi R, Mantovani A. **Nat Rev Cancer**. 2020 Jul 21. doi: 10.1038/s41568-020-0281-y. Online ahead of print. PMID: 326946241.
3. **Di Mitri D**,De Bono J, Alimonti A. Re-education of Tumor-Associated Macrophages by CXCR2 Blockade Drives Senescence and Tumor Inhibition in Advanced Prostate Cancer. **Cell Reports**. 2019 Aug 20;28(8):2156-2168.e5. doi: 10.1016/j.celrep.2019.07.068.
4. Arianna Calcinotto, Clarissa Spataro, **Diletta Di Mitri**,.....Johann De Bono & Andrea Alimonti. Nature, accepted. IL23 secreted by myeloid-derived suppressor cells confers castration resistance in prostate cancer. **Nature**. 2018 Jul;559(7714):363-369. doi: 10.1038/s41586-018-0266-0. Epub 2018 Jun 27. PMID: 29950727
5. Chen J, Guccini I, **Di Mitri D**,.....Bono J, Carracedo A, Alimonti A. **Nat Genet**. 2018 Feb;50(2):219-228. doi: 10.1038/s41588-017-0026-3. Epub 2018 Jan 15. Compartmentalized activities of the pyruvate dehydrogenase complex sustain lipogenesis in prostate cancer.
6. **Di Mitri D**, Alimonti A. Non-Cell-Autonomous Regulation of Cellular Senescence in Cancer. **Trends Cell Biol**. 2016 Mar;26(3):215-26. doi: 10.1016/j.tcb.2015.10.005. Epub 2015 Nov 9. Review. PubMed PMID: 26564316.
7. Tumor-infiltrating myeloid cells drive senescence evasion and chemoresistance in tumors. **Di Mitri D**, Toso A, Alimonti A. *Oncoimmunology*. 2015 Jun 3;4(9):e988473. doi: 10.4161/2162402X.2014.988473. eCollection 2015 Sep. PMID: 26405613
8. **Di Mitri D**, Sambucci M,.....Borsellino G, Battistini L. The p38 mitogen-activated protein kinase cascade modulates T helper type 17 differentiation and functionality in multiple sclerosis. **Immunology**. 2015 Oct;146(2):251-63. doi: 10.1111/imm.12497. Epub 2015 Jul 6. PubMed PMID: 26095162; PubMed Central PMCID: PMC4582966.
9. **Di Mitri D**, Toso A, Alimonti A. Molecular Pathways: Targeting Tumor-Infiltrating Myeloid-Derived Suppressor Cells for Cancer Therapy. **Clin Cancer Res**. 2015 Jul 15;21(14):3108-12. doi: 10.1158/1078-0432.CCR-14-2261. Epub 2015 May 12. PubMed PMID: 25967145.
10. Kalathur M, Toso A, Chen J, Revandkar A, Danzer-Baltzer C, Guccini I, Alajati A, Sarti M, Pinton S, Brambilla L, **Di Mitri D**,.....Alimonti A. A chemogenomic screening identifies CK2 as a target for pro-senescence therapy in PTEN-deficient tumours. **Nat Commun**. 2015 Jun 18;6:7227. doi: 10.1038/ncomms8227. PubMed PMID: 26085373.
11. Enhancing chemotherapy efficacy by reprogramming the senescence-associated secretory phenotype of prostate tumors: A way to reactivate the antitumor immunity. Toso A, **Di Mitri D**, Alimonti A.

12. Toso A, Revandkar A, **Di Mitri D**,.....Alimonti A. Enhancing chemotherapy efficacy in Pten-deficient prostate tumors by activating the senescence-associated antitumor immunity. **Cell Reports**. 2014 Oct 9;9(1):75-89. doi: 10.1016/j.celrep.2014.08.044. Epub 2014 Sep 25. PubMed PMID: 25263564.
13. **Di Mitri D**, Toso A....., Alimonti A. Tumour-infiltrating Gr-1+ myeloid cells antagonize senescence in cancer. **Nature**. 2014 Nov 6;515(7525):134-7. doi: 10.1038/nature13638. Epub 2014 Aug 24. PubMed PMID: 25156255
14. CD28 ligation in the absence of TCR stimulation up-regulates IL-17A and pro-inflammatory cytokines in relapsing-remitting multiple sclerosis T lymphocytes. Camperio C, Muscolini M, Volpe E, **Di Mitri D**,.....Battistini L, Tuosto L. *Immunol Lett*. 2014 Mar-Apr;158(1-2):134-42. doi: 10.1016/j.imlet.2013.12.020. Epub 2014 Jan 8. PMID: 24412596
15. **Di Mitri D**, Azevedo RI,...Battistini L, Akbar AN. Reversible senescence in human CD4+CD45RA+CD27-memory T cells. **J Immunol**. 2011 Sep 1;187(5):2093-100. doi: 10.4049/jimmunol.1100978. Epub 2011 Jul 25. PubMed PMID: 21788446.
16. **Di Mitri D***, Dalla Libera D*,.....Battistini L, Furlan R. T regulatory cells are markers of disease activity in multiple sclerosis patients. *PLoS One*. 2011;6(6):e21386. doi: 10.1371/journal.pone.0021386. Epub 2011 Jun 24. PubMed PMID: 21731726; PubMed Central PMCID: PMC3123332.
17. Cytomegalovirus infection induces the accumulation of short-lived, multifunctional CD4+CD45RA+CD27+ T cells: the potential involvement of interleukin-7 in this process. Libri V, Azevedo RI, Jackson SE, **Di Mitri D**,.....Akbar AN. *Immunology*. 2011 Mar;132(3):326-39. doi: 10.1111/j.1365-2567.2010.03386.x. Epub 2011 Jan 7. PMID: 21214539
18. Characterization of regulatory T cells identified as CD4(+)CD25(high)CD39(+) in patients with active tuberculosis. Chiacchio T, Casetti R, Butera O, Vanini V, Carrara S, Girardi E, **Di Mitri D**,Goletti D. *Clin Exp Immunol*. 2009 Jun;156(3):463-70. doi: 10.1111/j.1365-2249.2009.03908.x. PMID: 19438599.
19. CD49d provides access to "untouched" human Foxp3+ Treg free of contaminating effector cells. Kleinewietfeld M, Starke M, **Di Mitri D**,Rötzschke O, Falk K. *Blood*. 2009 Jan 22;113(4):827-36. doi: 10.1182/blood-2008-04-150524. Epub 2008 Oct 21. PMID: 18941119.
20. Efficacy of a nanocochleate-encapsulated 3,5-diaryl-s-triazole derivative in a murine model of graft-versus-host disease. Campo S, Arseni B, Rossi S, D'Alessio V, Lu R, Ngoje J, Ahl PL, Bonitz S, Mannino R, **Di Mitri D**, Battistini L, Carminati P, De Santis R, Ruggiero V. *Transplantation*. 2008 Jul 15;86(1):171-5. doi: 10.1097/TP.0b013e31817ba761. PMID: 18622296.
21. Expression of ectonucleotidase CD39 by Foxp3+ Treg cells: hydrolysis of extracellular ATP and immune suppression. Borsellino G, Kleinewietfeld M, **Di Mitri D**,Rötzschke O, Falk K. *Blood*. 2007 Aug 15;110(4):1225-32. doi: 10.1182/blood-2006-12-064527. Epub 2007 Apr 20. PMID: 17449799.