Curriculum vitae

PERSONAL INFORMATION

Antonella Viola

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Sex Female | Date of birth 03/05/1969 | Nationality Italian

WORK EXPERIENCE

11/2015–Present — Full Professor of Pathology
University of Padua - Department of Biomedical Sciences, Padua, Italy

2014–Present — Faculty, PhD program in Biomedical Sciences
University of Padua - Department of Biomedical Sciences, Padua, Italy

01/09/2017–31/10/2022 — Scientific Director
Pediatric Research Institute (IRP), Padua, Italy

2015–09/2017 — Deputy Director
Venetian Institute of Molecular Medicine (VIMM), Padua, Italy

11/2014–10/2015 — Associate Professor of Pathology
University of Padua - Department of Biomedical Sciences, Padua, Italy

2007–10/2014 — Assistant Professor of Pathology
Faculty of Medicine - University of Milan, Milan, Italy

2006–2014 — Group Leader
Istituto Clinico Humanitas, Rozzano, Milan, Italy

2002–2007 — Assistant Professor of Pathology
Faculty of Medicine - University of Padua, Padua, Italy

2001–2017 — Group Leader
Venetian Institute of Molecular Medicine (VIMM), Padua, Italy

06/1999–12/2000 — EMBO fellow
EMBL Monterotondo, Monterotondo, Italy

03/1995–05/1999 — Scientific Member of the Basel Institute for Immunology
Basel Institute for Immunology, Basel, Switzerland

1991–1995 — PhD student
Department of Biology - University of Padua, Padua, Italy

EDUCATION AND TRAINING

1986–1991

Biological Science degree

University of Padua, Padua, Italy

1991–1995

Ph.D in Evolutionary Biology

University of Padua, Padua, Italy

PERSONAL SKILLS

Mother tongue(s): Italian

Foreign language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C2	C2	C2

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user
Common European Framework of Reference for Languages

ADDITIONAL INFORMATION

Conferences

Among many others:

Seminars

The CBR Institute for Biomedical Research, Harvard Medical School, Boston, MA, USA;
The Kimmel Cancer Center of Thomas Jefferson University, Philadelphia, PA, USA;
Centro Nacional de Biotecnología/CSIC, Madrid, Spain;
Institut Pasteur, Paris, France;
Imperial College, London, UK;
Weatherall Institute of Molecular Medicine, University of Oxford, Oxford, UK;
Medical Research Council, Cambridge, UK;
Skirball Institute of Biomolecular Medicine, New York University School of Medicine, New York, NY, USA;
Department of Microbiology & Immunology, University of California, San Francisco, CA, USA;
La Jolla Institute of Allergology and Immunology, La Jolla, CA, USA.

Meetings

Keystone Conference A4-2006: Chemokines and Chemokine Receptors;
Keystone Conference D2-2006: Lipid Rafts and Cell Function;
Gordon Research Conference 2006: Chemotactic Cytokines;
35th Annual Autumn Immunology Conference, Chicago, IL, USA;
The 10th Membrane Research Forum, Kyoto, Japan;
94th Annual Meeting of the American Association of Immunologists, Miami, FL, USA;
Keystone Conference J3-2008: Chemokines and Chemokine Receptors.
Gordon Research Conference 2008: Chemotactic Cytokines;
European Congress of Immunology, ECI 2009 Berlin;
5th International Leukocyte Signal Transduction Workshop, 2009 Crete;
Gordon research Conference 2010: Chemotactic Cytokines;
European Association for Cancer Research meeting EACR21, 2010 Oslo;
ESH-EHA, Anti - Inflammatory & Immune Modulatory 2 Properties of MSCs, Cannes, 2012;
“Immunodeficiency and beyond”, Freiburg Symposium, 2012;
MedUni School of Immunology, Vienna, 2013;
Physics of Life meeting 2015, Cambridge;
EFIS School of Immunology, Becici 2015;
World Oncology Forum – European School of Oncology, Milan 2015;
Symposium “T lymphocyte activation”, Porto 2017;
51th ESCII conference, Genoa 2017;

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13th EFIS-EJI Tatra Immunology Conference, 2018;
17th International Congress of Immunology (17th ICI, IUIS2019, Beijing)

Honours and awards

1997: Roche Prize for Immunology
2005: Cancer Research Institute Investigator Award, USA.
2006: EMBO Young Investigator
2008: Prize “Chiara D’Onofrio”
2013: ERC Advanced Investigator Grant
2016: EMBO member
2022: Member of the Istituto Veneto di Scienze, Lettere e Arti

Projects

Among many others:
US Army Medical Research and Material Command, USA 2003: Human Prostate Cacner Infiltrating Lymphocytes (PI);
Associazione Italiana Ricerca sul Cancro (AIRC), Italy 2003, 2004, 2005, 2008 - New strategies in cancer immunotherapy (PI);
Cancer Research Institute of New York, USA 2005: Boosting anti-tumor responses of T lymphocytes infiltrating human prostate cancer (PI);
US Army Medical Research and Material Command, USA 2006: Defining novel molecules to rescue immunity against prostate cancer (PI);
Ministry of Education (PRIN), Italy 2007, 2009 – Immune system against cancer (PI);
Ministry of Health, Italy 2007, 2008, 2009: Tumor microenvironment (PI);
Telethon, Italy 2007 - Understanding the WHIM Syndrome (PI);
E-Rare Programme, EC 2008: Understanding the WHIM syndrome (Coordinator);
FP7-Health, EC 2008: Systems Biology of T-cell activation in health and disease (Partner);
Association for International Cancer Research (AICR), UK 2009: Chemokine nitration in the prostate cancer microenvironment (PI);
Telethon, Italy 2010 - The WHIM syndrome (Coordinator);
Ministry of Health « Giovani Ricercatori » Italy, 2011 : Mesenchymal Stem Cells (Coordinator);
ERC Advanced Investigator Grant, EC 2013: Signaling compartmentalization and vesicle trafficking at the phagocytic synapses (PI);
FP7-Health, EC 2013: Mesenchymal Stem Cells to Reduce Liver Inflammation (Work Package Leader);
CARIPARO Foundation, Italy 2015: Novel strategies to counteract obesity: immune signaling and mitochondria shape (PI);
ERC Proof-of-Concept, EC 2019: Monoamine oxidase B inhibitors as novel drugs targeting NLRP3 inflammasome (PI);
Città della Speranza & Human Technopole Foundations, Italy 2020: COVIDIamo: tracing the dynamics of COVID19 at single-cell multi-omic resolution for drug repurposing and biomarker identification (PI);
CARIPARO Foundation, Italy 2020: I recettori di SARS-CoV2: modulazione della loro espressione attraverso ormoni e infiammazione (SARS-CoV2 receptors: modulation of the expression of the receptors via hormones and inflammation) (PI).
PRIN: PROGETTI DI RICERCA DI RILEVANTE INTERESSE NAZIONALE – Bando 2022
High definition profiling of ovarian cancer ascites for the identification of prognostic biomarkers and immunotherapeutic targets: an integrative cell of origin-guided approach (PI).
PRIN: PROGETTI DI RICERCA DI RILEVANTE INTERESSE NAZIONALE – Bando 2022
PNRR: Exploring macrophage mitochondrial (dys)function in tissue-specific and systemic aging. (Coordinator).

Panels

2009- 2011: AIRC Scientific Committee
2006 – 2015: FP7 Expert Evaluator
2014 - 2019: ERC Grants Evaluator
2016 - 2019: Scientific Council of the Department of Biomedical Sciences, CNR Italy
2017 - 2020: CORIS Technical Committee
2019: Croatian Agency for Science and Higher Education
2019 - 2020: Academy of Finland
2019 - present: Member of the Comitato Scientifico di Osservatorio Terapie Avanzate (Scientific Committee for the Advanced therapy’s observatory)

2019 – present: Elena Cornaro Center, University of Padova, Board of Directors
2020 - present: Fondazione Onda (Onda Foundation), Scientific committee
2021 – present: Fusion Research Center, University of Padova, Board of Directors
2021 – present: Giangiacomo Feltrinelli Editore, Board of Directors

Patents

"Nitric oxide furoxan derivative compounds endowed with antitumoral activity" PCT/EP2009/000206, 15/01/2009;
"Nuovi derivati furossanici idrosolubili aventi attività antitumorale" MI2010A000287, 23/10/2010;
"New anti-angiogenic extracellular vescicles" PCT/IB2016/057608,14/12//2016;
""New use of inhibitors of MonoAmino Oxidase type BB" PCT/IB2019/055068, 18/06/2018.

Public outreach activities and awards

2008: Prize "Donne Eccellenti" (Exceptional women) Marisa Bellisario Foundation (Veneto);
2016: European Commission, #EuFactor;
2017: Prize "Nilde Iotti";
2020: Festival della Scienza (Genoa Science Festival) di Genova, Covid-19, Scientific Director;
Since 2017: Italian Committee for the Investigation of Claims of the Pseudoscience (CICAP), honorary member;
Since 2017: "100 donne contro gli stereotipi (100 women against stereotypes) Fondazione Bracco
Since 2018: "Viaggio al Centro della Scienza" (Journey into the depths of science) Creator and Scientific Director;
Since 2020: Patto Trasversale per la Scienza (Transversal Pact for Science) Board of Directors;
Since 2020: Scientific adviser for the Puglia Region, Strategic Group;
Since 2020: Scientific expert guest for numerous TV shows;
Since 2020: Weekly columnist for the National Newspaper 'La Stampa';
2022: Prize "Ercole Pisello"
2023: Prize "Le ragioni della nuova politica"
2024: Premio America, Fondazione Italia-USA
Since 2021: author of science books (*Danzare nella tempesta*, Feltrinelli 2021; *Virusgame*, Mondadori 2021; *Il sesso è (quasi) tutto*, Feltrinelli 2022; *Il cibo buono*, Gribaudo 2022; *La via dell'equilibrio,* Feltrinelli 2023; *Il digiuno intermittente*, Gribaudo 2023; I*l tempo del corpo*, Feltrinelli 2024).

Selected Scientific Publications

(among 109 documents, *h*-index 57, total citations 16596, according to Google Scholar; *h*-index 44, total citation 10,339, according to Scopus).

A. Viola & A. Lanzavecchia. 1996. T cell activation determined by T cell receptor number and tunable thresholds. Science, 273: 104-6.

A. Lanzavecchia, G. Iezzi & **A. Viola**. 1999. From TCR engagement to T cell activation: a kinetic view of T cell behaviour. Cell, 96:1.

A. Viola, S. Schroeder, Y. Sakakibara &. A. Lanzavecchia. 1999. T lymphocyte costimulation mediated by reorganization of membrane microdomains. Science, 283: 680-2.

M. F. Bachmann, A. Gallimore, S. Linkert, V. Cerundolo, A. Lanzavecchia, M. Kopf & **A. Viola**. 1999. Developmental regulation of Lck-targeting to the CD8 coreceptor controls signalling in I and memory T cells. The Journal of Experimental Medicine, 189: 1521-9.

A. Viola. 2001. Amplification of TCR signalling by membrane dynamic microdomains. Trends in Immunology, 22:322-7.

A. Viola. 2001. Antigen recognition by T cell: a strong sense of structure. Trends in Immunology, 22:601.

R. Zambello, A. Cabrelle, L. Trentin, C. Agostini, G. Semenzato and **A. Viola**. 2004. The raft marker GM1 distinguishes functional subsets of Granular Lymphocytes in patients with CD3+ Lymphoproliferative Disease of Granular Lymphocytes. Leukemia, 18:771-6.

V. Bronte, T. Kasic, G. Gri, K. Gallana, G. Borsellino, I. Marigo, L. Battistini, M. Iafrate, T. Prayer-Galetti, F. Pagano and **A. Viola**. 2005. Boosting anti-tumor responses of T lymphocytes infiltrating human prostate cancers. The Journal of Experimental Medicine, 201:1257-68.

B. Molon, G. Gri, M. Bettella, C. Goumez-Mouton, A. Lanzavechia, C. Martinez-A, S. Manes

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and **A. Viola**. 2005. T cell costimulation by chemokine receptors. Nature Immunology, 6:465-71.

A. Viola, R. Contento and B. Molon. 2006. T cells and their partners: the chemokine dating agency. Trends in Immunology, 27:421-427.

R. Tavano, R.L. Contento, S.J. Baranda, M. Soligo, L. Tuosto, S. Manes and **A. Viola**. 2006. CD28 interaction with filamin-A controls lipid raft accumulation at the T cell immunological synapse. Nature Cell Biology, 8:1270-1276.

S. Campello, R.A. Lacalle, M. Bettella, S. Manes, L. Scorrano and **A. Viola**. 2006. Orchestration of leukocyte chemotaxis by mitochondrial dynamycs. The Journal of Experimental Medicine, 203: 2879-2886.

A. Viola and V. Bronte. 2007. Metabolic mechanisms of cancer-induced inhibition of immune responses. Seminars in Cancer Biology, 17:309-316.

A. Viola and N. Gupta. 2007. Tether and Trap: Regulation of membrane rafts by actin-binding proteins. Nature Reviews Immunology, 7:889-96.

A. Viola and A.D. Luster. 2008. Chemokines and Their Receptors: Drug Targets in Immunity and Inflammation. Annual Review of Pharmacology and Toxicology, 48:171-197.

.R.L. Contento, B. Molon, C. Boularan, T. Pozzan, S. Manes, S. Marullo and **A. Viola**. 2008. CXCR4-CCR5: a couple modulating T-cell functions. Proceedings of the National Academy of Science of the United States of America, 105:10101-10106.

R.L. Contento, S. Campello, A.E. Trovato, E. Magrini, F. Anselmi and **A. Viola**. 2010. Adhesion shapes T cells for prompt and sustained T cell receptor signalling. EMBO Journal, 29:4035-47.

C. Mazzon, A. Anselmo, J. Cibella, C. Soldani, A. Destro, N. Kim, M. Roncalli, S.J. Burden, M.L. Dustin, A. Sarukhan and **A. Viola**. 2011. The critical role of agrin in the hematopoietic stem cell niche. Blood, 118: 2733-2742.

Molon B., Ugel S., Del Pozzo F., Soldani C., Zilio S., Avella D., De Palma A., Mauri P.L., Monegal A., Rescigno M., Savino B., Colombo P., Jonjic N., Pecanic S., Lazzarato L., Fruttero R., Gasco A., Bronte V., **Viola A**. 2011. Chemokine nitration prevents intratumoral infiltration of antigen-specific T cells. The Journal of Experimental Medicine 208:1949-62.

Zanotti L., Sarukhan A., Dander E., Castor M., Cibella J., Soldani C., Elisa Trovato A., Ploia C., Luca G., Calvitti M., Mancuso F., Arato I., Golemac M., Jonjic N., Biondi A., Calafiore R., Locati M., D'Amico G., **Viola A**. 2012. Encapsulated mesenchymal stem cells for *in vivo* immunomodulation. Leukemia 27:500-3.

Viola A., Sarukhan A., Bronte V., Molon B. 2012. The pros and cons of chemokines in tumor immunology. Trends Immunol. 33: 496-504.

Mazzon C., Anselmo A., Soldani C., Cibella J., Ploia C., Moalli F., Burden S.J., Dustin M.L., Sarukhan A., **Viola A**. 2012. Agrin is required for survival and function of monocytic cells. Blood 119:5502-11.

Kallikourdis M, Trovato AE, Anselmi F, Sarukhan A, Roselli G, Tassone L, Badolato R, **Viola A**. 2013. The CXCR4 mutations in WHIM syndrome impair the stability of the T cell immunological synapse. Blood 122:666-73.

Wang C.M., Ploia C., Anselmi F., Sarukhan A., **Viola A**. 2014. ATP acts as a paracrine signalling molecule to reduce the motility of T cells. EMBO Journal, 33:1354-64.

Anselmo A., Lauranzano E., Soldani C., Ploia C., Angioni R., D'amico G., Sarukhan A., Mazzon C., **Viola A.** 2016. Identification of a novel agrin-dependent pathway in cell signalling and adhesion within the erythroid niche. Cell Death and Differentiation, 23:1322-30.

Molon B., Calì B., **Viola A**. 2016. T cells and cancer: how metabolism shapes immunity. Frontiers in Immunology 7:20.

Zanotti L., Angioni A., Calì B., Soldani C., Ploia C., Moalli F., Gargesha M., D'Amico G., Elliman S., Tedeschi G., Maffioli E., Negri A., Zacchigna S., Sarukhan A., Stein J.V. and **Viola A**. 2016. Mouse Mesenchymal stem cells inhibit high endothelial cell activation and lymphocyte homing to lymph nodes by releasing TIMP-1. Leukemia 30:1143–1154.

Zumerle S, Calì B, Munari F, Angioni R, Di Virgilio F, Molon B, **Viola A.** 2019. Intercellular Calcium Signaling Induced by ATP Potentiates Macrophage Phagocytosis. Cell Reports 27:1-10.

Viola A, Munari F, Sánchez-Rodríguez R, Scolaro T, Castegna A. 2019. The Metabolic Signature of Macrophage Responses. Front Immunol. 10:1462.

Angioni R., Herkenne S., Liboni C., Sánchez-Rodríguez R., Borile G., Muraca M., Calì B., **Viola A**. 2020. CD73+ extracellular vesicles inhibit angiogenesis through adenosine A2B receptor signalling. Journal of Extracellular Vesicles, 9(1): 1757900.

Sánchez-Rodríguez R., Munari F., Angioni R., Venegas F., Agnellini A., Castro-Gil M.P.,

Castegna A., Luisetto R., **Viola A.***, Canton M. 2021. Targeting monoamine oxidase to dampen NLRP3 inflammasome activation in inflammation. Cellular & Molecular Immunology, 18:1311–1313 (* co-last, corresponding author).

Angioni R., Sanchez-Rodriguez R., Munari F., Bertoldi N., Arcidiacono D., Cavinato S., Marturano D., Realdon S., Cattelan A. & **Viola A.** & Molon B. 2020. Age-severity matched cytokine profiling reveals specific signatures in Covid-19 patients. Cell Death and Disease: 11(11),957

Feno S., Munari F., Reane D.V., Gissi R., Hoang D.H., Castegna A., Chazaud B., **Viola A*.**, Rizzuto R., Raffaello A. 2021. The dominant-negative mitochondrial calcium uniporter subunit MCUb drives macrophage polarization during skeletal muscle regeneration. Science Signalling 14(707):eabf3838. (* co-last author).

Cioccarelli C., Sánchez-Rodríguez R., Angioni R., Venegas F.C., Bertoldi N., Munari F., Cattelan A., Molon B., **Viola A.** 2021. IL1β promotes TMPRSS2 expression and SARS-CoV-2 cell entry through the p38 MAPK-GATA2 axis. Frontiers in Immunology 12:781352.

Sánchez-Rodríguez R., Tezze C., Agnellini A.H.R., Angioni R., Venegas F.C., Cioccarelli C., Munari F., Bertoldi N., Canton M., Desbats M.A., Salviati L., Gissi R., Castegna A., Soriano M.E., Sandri M., Scorrano L., **Viola A***, Molon B. 2022 OPA1 drives macrophage metabolism and functional commitment via p65 signaling. Cell Death & Differerentiation doi: 10.1038/s41418-022-01076-y. (*co-last author).

Calì B., Deygas M., Munari F., Marcuzzi E., Cassará A., Toffali L., Vetralla M., Bernard M., Piel M., Gagliano O., Mastrogiovanni M., Laudanna C., Elvassore N., Molon B., Vargas P., **Viola A**. Atypical CXCL12 signaling enhances neutrophil migration by modulating nuclear deformability. Science Signaling 15(761), eabk2552.

Angioni R., …**Viola A***., Testa G. RAGE engagement by SARS-CoV-2 enables monocyte infection and underlies COVID-19 severity. Cell Report Medicine 2023, DOI: 10.1016/j.xcrm.2023.101266 (*co-last author).

Venegas FC, Sánchez-Rodríguez R, Luisetto R, Angioni R, **Viola A***, Canton M. Oxidative Stress by the Mitochondrial Monoamine Oxidase B Mediates Calcium Pyrophosphate Crystal-Induced Arthritis. Arthritis Rheumatol. 2024 doi: 10.1002/art.42697. (*co-last author).

Testa, A. M., Vignozzi, L., Corallo, D., Aveic, S., **Viola, A.**, Allegra, M., & Angioni, R. (2024). Hypoxic Human Microglia Promote Angiogenesis Through Extracellular Vesicle Release. *International Journal of Molecular Sciences*, *25*(23), 12508.

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Padua, 10th January 2024

Prof. Antonella Viola

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