

CURRICULUM VITAE

Name and surname: MASSIMO ALFANO
Place and date of birth: Bergamo (Italy), March 15, 1967
Gender: Male
Citizenship: Italian
Civil status: Married
Work address: Urological Research Institute (URI),
 Dibit2, San Raffaele Scientific Institute
 Via Olgettina n. 60, 20132, Milano, Italy.
 Tel: ++39-02-2643.6351
 Fax. +39-02-2643.5659
 E-mail: massimo.alfano@hsr.it



Narrative Biosketch

Massimo Alfano is author of 66 peer-reviewed publications (Scopus h-index; 22) and two patents (United States Patent #6,019,979, 2001, Anti-viral treatment with pertussis Toxin B-oligomer; Application EP1365797, European Patent Bulletin, 2007, Antibodies modulating the uPA/uPAR interaction and uses thereof), and was recipient of grants as PI and as co-investigator. In 2007 Massimo Alfano was appointed as scientific tutor for two INGENIO projects sponsored by Regione Lombardia (Milan, Italy). Since 2002 Massimo was supervisor/director of studies of undergraduate/graduated and Phd students, and has received national teaching qualification as Associate Professor of Molecular Biology in January 2014. Since 2006 Massimo is member of the Editorial Advisory Board of Anti-Allergy and Anti-Inflammatory Agents in Medicinal Chemistry, and since 2010 reviewer for Journal of Infection, Cytokine, Future Medicine and Plos One. In 2010 Massimo was editor for the e-book "Soluble factors mediating innate immune responses to HIV infection", Bentham Science Publishers.

Massimo Alfano has a longstanding know-how in the field of HIV infection/AIDS, and he was the first showing modulation of HIV infection by intracellular signaling. His identification of the non-toxic component of pertussis toxin, B-oligomer, inhibiting HIV entry and replication via heterologous desensitization of CCR5 has represented a breakthrough observation, as testified by the front cover and commentary on Journal of Experimental Medicine. Few years later Massimo has also shown that the interaction among the urokinase plasminogen activator and its receptor leads to an interferon-like effect, such as accumulation of virions in intracellular vesicles. Findings from these projects have been deposited in the patents reported above.

In the last years Massimo has developed interest for the tissue microenvironment, and he recently published a manuscript showing how to isolate the extracellular matrix from human colon mucosa, and providing evidence on the influence of healthy/perilesional/colorectal carcinoma-derived ECMs on tissue homeostasis and tumorigenesis; relevance of this study has been highlighted through press release by the University of Milan, <http://www.unimi.it/news/72818.htm>. As to this topic, in 2013 Massimo has been invited as speaker to several national meetings and at present he is collaborating with researchers from Ospedale San Raffaele (Milan), Ospedale San Martino (Genoa), University of Milan (Milan), University of Brescia (Brescia) and University of Verona (Verona). Few months ago Massimo has been invited to contribute with a chapter for a book edited by the National Academy of Sciences of Ukraine (5), and has recently been awarded by the European Community for accessing and using the Diamond facilities (Diamond Light Source, Oxford, UK), for 2 projects entitled "Molecular characterization of tumour stroma in human colorectal cancer by IR microprobe" (Experiment Reference Number: SM9460, May 2014) and

“Exploring the extracellular matrix of urothelial bladder cancer by SR FTIR micro-spectroscopy” (Experiment Reference Number: SM11263, May 2015).

Spatial organization of cells, accumulation of extracellular matrix components, stiffness and branching patterns of glycans are known to influence gene expression and cell phenotype, thus modulating drug-responsiveness of cancer cells. The overall aim of the usage of tissue-derived extracellular matrix is to establish dis-modulation of extracellular microenvironment features associated to neoplasia and chronic inflammation, as well as to assess intracellular signalings/gene expression and drug-responsiveness of cells seeded in a proper 3D environment. This approach will likely enhance the success rate of drugs evaluated with conventional systems.

Currently Massimo Alfano is in charge of projects aiming to establish features and relevance of extracellular matrix and tissue-associated microbiota in colorectal carcinoma, urothelial bladder cancer, prostate cancer and male infertility. Massimo is also collaborating with investigators to assess distribution, expression and relevance of ADAM-10 in colorectal cancer and lymphomas, and establishing the role of extracellular matrix in the development of prostate cancer from cancer stem cells.

1. Alfano M, et al. The B-oligomer of pertussis toxin deactivates CC chemokine receptor 5 and blocks entry of M-tropic HIV-1 strains. *J Exp Med.* 1999;190:597-605.
2. Wang JM, Oppenheim JJ. Interference with the signaling capacity of CC chemokine receptor 5 can compromise its role as an HIV-1 entry coreceptor in primary T lymphocytes. *J Exp Med.* 1999;190:591-5.
3. Alfano M, et al. Urokinase-urokinase receptor interaction mediates an inhibitory signal for HIV-1 replication. *PNAS U S A.* 2002;99:8862-7.
4. Genovese L, Zawada L, Zerbi P, Allevi R, Nebuloni M, Alfano M. Cellular Localization, Invasion and Turnover Are Differently Influenced by Healthy and Tumor Derived Extracellular Matrix. *TISSUE ENGINEERING: Part A, Volume 20 (13-14), 2014.*
5. Luca Genovese, Manuela Nebuloni, Filippo Canducci, Massimo Alfano. Two Interacting Dynamic Niches in Gut Mucosa Extracellular Environment: Role of the Extracellular Matrix and Microbiota in Chronic Inflamed Intestine and Intestinal Tumors. Book chapter in “Tumor pathophysiology for Oncologist”. S. Osinsky, V. Chekhun, P. Vaupel (Eds.). In press (2014). National Academy of Sciences of Ukraine.

Education

- | | |
|----------|---|
| 12/2001: | Ph.D. in “Physiopathology, Clinics and Diagnostics of the Immunocompromized Host”, University of Milan, Italy. |
| 1995: | Post-Graduate Course (400 hours) in Scientific Communication, Dept. of Pharmacology, University of Milan, Italy (Dr. Flavia Bruno). |
| 1993: | State License in Biological Sciences, University of Milan, Italy. |
| 1992: | M.Sc. degree in Biological Sciences, University of Milan, Italy. |

Professional Training

- | | |
|------------------|--|
| 2014: | Teaching qualification as “Associate Professor” in Molecular Biology. |
| 06/2014 to date: | Senior scientist, Urological Research Institute, San Raffaele Scientific Institute, Milan, Italy. Head: Andrea Salonia, M.D. |
| 2010: | Editor for the E-book "Soluble factors mediating innate immune responses to HIV infection". Bentham Science Publishers. |

eISBN: 978-1-60805-006-2, 2010.

<http://www.bentham.org/ebooks/9781608050062/index.htm>

- 2007: Scientific Tutor (code number C0000410, protocol number 00027 January 19, 2007) for two INGENIO projects (sponsored by Regione Lombardia, Milan, Italy; www.ingenio-lombardia.it).
- 2005-05/2014: Senior scientist, *AIDS Immunopathogenesis Unit*, DIBIT, San Raffaele Scientific Institute, Milan, Italy. Head: Guido Poli, M.D.
- 2002-2005: Researcher, *AIDS Immunopathogenesis Unit*, DIBIT, San Raffaele Scientific Institute, Milan, Italy. Head: Guido Poli, M.D.
- 2001-to date: Supervisor of graduates students, doctorates and post-docs working at the *AIDS Immunopathogenesis Unit*, DIBIT, San Raffaele Scientific Institute, Milan 20132, Italy. Head: Guido Poli, M.D.
- Sept./Dec.-2000: Adjunct Scientist, *Laboratory of Cellular and Molecular Biophysics*, NICHD, National Institute of Health (NIH), Washington D.C., USA. Head: Leonid Margolis, M.D.
- 2000-2001: Post-Doctoral Scientist, *AIDS Immunopathogenesis Unit*, DIBIT, San Raffaele Scientific Institute, Milan, Italy. Head: Guido Poli, M.D.
- 1997-2000: Postdoctoral Investigator, *Laboratory of Molecular Biology of HIV*, The Picower Institute for Medical Research, New York, U.S.A. Head: Michael Bukrinsky, MD, Ph.D.
- 1995-1996: Research fellow, *AIDS Immunopathogenesis Unit*, DIBIT, San Raffaele Scientific Institute, Milan, Italy. Head: Guido Poli M.D.
- 1995-1996: Consulting biologist, *Experimental Endocrinology Laboratory*, Dept. of Pharmacology, University of Milan, Milan, Italy. Head: Antonio Pecile MD, PhD
- 1992-1995: Research fellow, *Laboratory of Biochemistry*, Scientific Institute H.S. Raffaele, Milan, Italy. Head: Michelangelo Murone M.D.
- 1990-1992: Research internship, *Biomedical Engineering Laboratory*, “Mario Negri Institute for Pharmacological Research”, Bergamo, Italy. Head: Andrea Remuzzi Ph.D.

Teaching activities

- 2015-2016 Contract Professor “Host and hostile extracellular microenvironments” course, Vita-Salute University, San Raffaele Scientific Institute, Milan, Italy.
- 2006 - 2012: Contract Professor “Immunotoxins” course, Vita-Salute University, San Raffaele Scientific Institute, Milan, Italy.

- 2005 -2012: Contract Professor “General Pathology and Immunology” course, Vita-Salute University, San Raffaele Scientific Institute, Milan, Italy.
- Students graduation** Supervisor of undergraduate and PhD students, as reported in NEIDOS web site (<http://neidos.it/index.pl?pos=03.01&ids=442>).
- 2016: • Andrea Russo, Università Vita-Salute (Medicine), San Raffaele Scientific Institute, Milan, Italy.
- 2015: • Angela Pecoraro, Università Vita-Salute (Medicine), San Raffaele Scientific Institute, Milan, Italy.
• Silvia Ippolito, Università Vita-Salute (Medicine), San Raffaele Scientific Institute, Milan, Italy.
- 2014: • Luca Genovese, PhD at the “International Graduate School in Molecular Medicine”, Vita-Salute San Raffaele University, Milan.
- 2011: • Renato Arnese, Bachelor degree in Biotechnology, Università Vita-Salute, San Raffaele Scientific Institute, Milan, Italy (September 2010).
- 2010: • Debora Vignali, Bachelor degree in Biotechnology, Università Vita-Salute, San Raffaele Scientific Institute, Milan, Italy (September 2010).
• Francesca Graziano, Bachelor degree in Biotechnology, Università Vita-Salute, San Raffaele Scientific Institute, Milan, Italy (September 2010).
- 2009: • Matteo Castelli, Bachelor degree in Biotechnology, Università Vita-Salute, San Raffaele Scientific Institute, Milan, Italy (November 2009).
• Maurizio Vacca, Bachelor degree in Biotechnology, Università Vita-Salute, San Raffaele Scientific Institute, Milan, Italy (September 2009).
- 2008: • Valerio Castoldi, Bachelor degree in Biotechnology, Università Vita-Salute, San Raffaele Scientific Institute, Milan, Italy.
• Selena Viganò, Bachelor degree in Biotechnology, Università Vita-Salute, San Raffaele Scientific Institute, Milan, Italy.
- 2006: • Orazio Fortunato, Bachelor degree in Biotechnology, Università Vita-Salute, San Raffaele Scientific Institute, Milan, Italy.
• Daniele Bertino, Bachelor degree in Biotechnology, Università Vita-Salute, San Raffaele Scientific Institute, Milan, Italy.
• Sara Rizzitano, Bachelor degree in Biotechnology, Università Vita-Salute, San Raffaele Scientific Institute, Milan, Italy.
- 2005: • Luca Cassetta, Bachelor degree in Biotechnology, University of Milan, Italy.
- 2004: • Chiara Rizzi, Master in Molecular Immunopathology, University of Milan-Bicocca, Italy.
• Leda Adduce, Speciality in Biotechnologies, University of Milan, Italy.
• Roberta Diotti, Bachelor degree in Biotechnology, Università Vita-Salute, San Raffaele Scientific Institute, Milan, Italy.
- 2002: • Davide Corti, Bachelor degree in Biotechnology, University of Milan, Italy.

- Chiara Rizzi, Bachelor degree in Biological Sciences, University of Milan, Italy.

Thesis examiner

- 2015 • Maria Teresa Palano, Bachelor degree in Biotechnology, Università Vita-Salute, San Raffaele Scientific Institute, Milan, Italy.
- 2013 • Marco Delfini, Bachelor degree in Biotechnology, Università Vita-Salute, San Raffaele Scientific Institute, Milan, Italy.
- 2012 • Sara Maruzzelli, Bachelor degree in Biotechnology, Università Vita-Salute, San Raffaele Scientific Institute, Milan, Italy.
- 2007 • Luca Alberici, Bachelor degree in Biotechnology, Università Vita-Salute, San Raffaele Scientific Institute, Milan, Italy.

Membership/Reviewer

- 2016: Reviewer for the 3rd National Plan for Research, Development and Innovation for the period 2015-2020 (PNCDI III) (<https://www.brainmap.ro/>) – Romania.
- 2010 -: Reviewer for “Journal of Infection”, “Cytokine”, Journal of Leukocyte Biology, Plos One <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0121093#pone.0121093.s001>
- 2009-2015: Abstract reviewer for the International AIDS Society.
- 2008-2015: Abstract reviewer for the International AIDS Conference.
- 2006-to date: Member of the Editorial Advisory Board of “Anti-Inflammatory and Anti-Allergy Agents in Medicinal Chemistry”, published by Bentham Science Publisher Ltd. ISSN 1871-5230

Patents

- 2007: “Antibodies modulating the uPA/uPAR interaction and uses thereof”. Inventors: Francesco Blasi, Nicolai Sidenius, Massimo Resnati, Massimo Alfano, Guido Poli, Anna Mondino. Applicant: Fondazione Centro San Romanello del Monte Tabor (Milan, Italy) Application No: EP1365797 (European Patent Bulletin 2007/18, May 2, 2007) <http://www.google.it/patents?hl=it&lr=&vid=USPATAPP10470245&id=9cGVAAAAEBAJ&oi=fnd&dq=alfano+m+hiv+upa+mariani>
- Feb. 1, 2000: “Anti-viral treatment with pertussis toxin B-oligomer”. Inventors: Massimo Alfano & Michael Bukrinsky. Applicant: The Picower Institute for Medical Research (New York, USA). Application No: United States Patent # 6,019,979. <http://www.everypatent.com/comp/pat6019979.html>

Grants and Awards

- 2016-2018 AIRC. Co-investigator. ADAM10 as therapeutic target to enhance the anti-tumor response in Hodgkin lymphoma: development of specific inhibitors. PI: Dr.ssa Mara Zocchi (OSR).
- 2016-2018 AIRC. Co-investigator. Neuroendocrine prostate cancer. PI: Dr. Matteo Bellone (OSR).
- 01/2015-06/2016 PI. NON-CONVENTIONAL PROGNOSTIC MARKERS AND THERAPEUTICAL TARGETS IN DEVELOPMENT AND PROGRESSION OF MUSCLE INVASIVE BLADDER CANCER. Amici di URI (ONLUS).
- 01/2015-06/2016 PI. Extracellular environments in male infertility. Amici di URI (ONLUS).
- 2015 PI. Awarded access and use of the Diamond facilities (Diamond Light Source, Oxford. UK); Experiment Reference Number: SM11263. The application entitled “Exploring the extracellular matrix of urothelial bladder cancer by SR FTIR micro-spectroscopy” was awarded with 15 shifts (Diamond synchrotron, at the Harwell Science and Innovation Campus, Oxfordshire, UK.) and full reimbursement covering 1 week of experiments for 3 researches. 15 shifts are equal of 180.000 euros. Certificate reported at the end of the file.
2014. Bando Conto Capitale 2011 - IRCCS - Ministero della Salute. Awarded elutriator (48.000 euro). PI: Prof. Pietro Mortini (OSR).
2014. Co-investigator. Anti-inflammatory activity of ground rice fermented by *Lactobacillus paracasei* CBA L74. 22.000 euro. Heinz Italia SpA. PI: Prof. Manuela Nebuloni (University of Milan).
2014. Co-investigator. Awarded access and use of the Diamond facilities (Diamond Light Source, Oxford. UK); Experiment Reference Number: SM9460. The application entitled “Molecular characterization of tumour stroma in human colorectal cancer by IR microprobe” was awarded with 15 shifts (Diamond synchrotron, at the Harwell Science and Innovation Campus, Oxfordshire, UK.) and full reimbursement covering 1 week of experiments for 3 researches. PI: Prof. Claudio Sorio (University of Verona). 15 shifts are equal of 180.000 euros. Certificate reported at the end of the file.
- 2014-2015: Co-investigator: The potential role of the Central Nervous System as HIV reservoir: insights from the study of cerebrospinal fluid and tissues samples from long-term ART-treated suppressed patients. Gilead. 40.000 euro. PI: Dr. Paola Cinque (San Raffaele Scientific Institute).
- 12/2010-06/2013: Principal Investigator: “The plasminogen activator system in HIV infected primary macrophages leading to cell polarization and

microenvironment favoring malignancies". Project number 40H11: 97.920 euro.

- 2006-2008: Co-investigator: "HIV-Associated Dementia and the Urokinase Plasminogen Activation System". National Institute of Health, Bethesda, Maryland, USA. 164.959 \$, August 10, 2006-July 31, 2007, 137.560 \$, August 1, 2007-July 31, 2008. PI: Dr. Paola Cinque (San Raffaele Scientific Institute).
- 1999-2006 (4 grants): Principal Investigator: "Characterization of the anti HIV activity of the pertussis toxin B-oligomer". National Program of Research Against AIDS, Istituto Superiore di Sanità, Rome, Italy. (VI Program; 25.000 euro, V Program; 45.000 euro, IV Program: 36.151 euro, III Program; 60.000.000 £).
- 2002: Travel and registration award, ECEAR 2002 – 7th European Conference on Experimental AIDS. Madrid, Spain.
- 2006: Travel and registration award, Gordon Research Conference "Plasminogen Activator & Extracellular Proteolysis". California, USA.
- 2008: Travel and registration award, 2nd Mediterranean Clinical Immunology Meeting, Antalya, Turkey.
- 2012: Travel and registration award, The 8th International Workshop "HIV, Cells of Macrophage/Dendritic", Varenna, Italy.

Personal References

Prof. Manuela Nebuloni, M.D.
Head, Pathology Unit, Department of Clinical Sciences, Università degli Studi di Milano,
Via G.B. Grassi 74, Milan, Italy. email: manuela.nebuloni@unimi.it

Prof. Guido Poli, M.D.,
Head, AIDS Immunopathogenesis Unit,
DIBIT, Scientific Institute H.S. Raffaele
Via Olgettina 58, Milano 20100, Italy.
email: poli.guido@hsr.it

Michael Bukrinsky, MD, Ph.D.
George Washington University, School of Medicine and Health Sciences
Professor and Vice Chairman, Department of Microbiology, Immunology & Tropical Medicine
2300 Eye St. NW, Ross Hall Rm. 736, Washington, DC 20037.
email: mbukrinsky@gwu.edu

Leonid Margolis, M.D.,
Head, Laboratory of Cellular and Molecular Biophysics
NICHD
Bldg 10, Room 9D58
10 Center Drive
Bethesda, MD 20892
email: margolis@helix.nih.gov

Prof. Francesco Blasi, M.D.
Vice-director IFOM-IEO Campus
Via Adamello, 16 - 20139 Milan, Italy
email: francesco.blasi@ifom.eu

Publications – Original Articles

1. Human prostate derived extracellular matrix as a model of prostate microenvironment. *European Urology Focus*. 2016 in press.
2. Manuela Nebuloni, Luca Albarello, Annapaola Andolfo, Cinzia Magagnotti, Luca Genovese, Irene Locatelli, Giovanni Tonon, Erika Longhi, Pietro Zerbi, Raffaele Allevi, Alessandro Podestà, Luca Puricelli, Paolo Milani, Armando Soldarini, Andrea Salonia, Massimo Alfano. INSIGHT ON COLORECTAL CARCINOMA INFILTRATION BY STUDYING PERILESIONAL EXTRACELLULAR MATRIX. *Scientific Reports* 2016 Mar 4;6:22522. doi: 10.1038/srep22522.
Selected for citation in: <http://www.extracellularmatrixnews.com/issue/volume-7-10-mar-17/>
3. Cassol E, Rossouw T, Malfeld S, Mahasha P, Slavik T, Seebregts C, Bond R, du Plessis J, Janssen C, Roskams T, Nevens F, Alfano M, Poli G, van der Merwe SW. CD14(+) macrophages that accumulate in the colon of African AIDS patients express pro-inflammatory cytokines and are responsive to lipopolysaccharide. *BMC Infect Dis*. 2015 Oct 17;15:430. doi: 10.1186/s12879-015-1176-5.
4. Alfano M, Cinque P, Giusti G, Proietti S, Nebuloni M, Danese S, D'Alessio S, Genua M, Portale F, Lo Porto M, Singhal PC, Rastaldi MP, Saleem MA, Mavilio D, Mikulak J. Full-length soluble urokinase plasminogen activator receptor down-modulates nephrin expression in podocytes. *Sci Rep*. 2015 Sep 18;5:13647. doi: 10.1038/srep13647.
5. Graziano F, Desdouits M, Garzetti L, Podini P, Alfano M, Rubartelli A, Furlan R, Benaroch P, Poli G. Extracellular ATP induces the rapid release of HIV-1 from virus containing compartments of human macrophages. *Proc Natl Acad Sci U S A*. 2015 Jun 23;112(25):E3265-73. doi: 10.1073/pnas.1500656112. Epub 2015 Jun 8.
6. Moroni M, Ghezzi S, Baroli P, Heltai S, De Battista D, Pensieroso S, Cavarelli M, Dispinseri S, Vanni I, Pastori C, Zerbi P, Tosoni A, Vicenzi E, Nebuloni M, Wong K, Zhao H, McHugh S, Poli G, Lopalco L, Scarlatti G, Biassoni R, Mullins JI, Malnati MS, Alfano M. Spontaneous control of HIV-1 viremia in a subject with protective HLA-B plus HLA-C alleles and HLA-C associated single nucleotide polymorphisms. *J Transl Med*. 2014 Dec 5;12(1):335. [Epub ahead of print].
7. Luca Genovese, Lidia Zawada, Antonella Tosoni, Angelita Ferri, Pietro Zerbi, Manuela Nebuloni, Massimo Alfano. Cellular Localization, Invasion and Turnover Are Differently Influenced by Healthy and Tumor Derived Extracellular Matrix. *Tissue Eng Part A*. 2014 Jul;20(13-14):2005-18. Epub 2014 Mar. Press release by University of Milan (<http://www.unimi.it/news/72818.htm>). Selected for the collection 3DCellCluture.com (http://3dcellculture.com/Search_Results/id/11275).
8. Nebuloni M, Zawada L, Ferri A, Tosoni A, Zerbi P, Resnati M, Poli M, Genovese L, Alfano M. HIV-1 Infected Lymphoid Organs Upregulate Expression and Release of the Cleaved Form of uPAR That Modulates Chemotaxis and Virus Expression. *Plos One*, 2013 July 29; 8(7): e70606.
9. Cassetta L, Kajaste-Rudnitski A, Coradin T, Saba E, Chiara GD, Barbagallo M, Graziano F, Alfano M, Cassol E, Vicenzi E, Poli G. M1 polarization of human monocyte-derived macrophages restricts pre-and post-integration steps of HIV-1 replication. *AIDS*. 2013 Apr 26.

10. Edana CASSOL, Luca CASSETTA, Chiara RIZZI, Dana Gabuzda, Massimo ALFANO* and Guido POLI*. Dendritic Cell-Specific ICAM-3 Grabbing Nonintegrin mediates HIV-1 Infection of and Transmission by M2a-Polarized Macrophages In Vitro. AIDS 2012, 26. *Co-last authorship.
11. Graziano F., Elia C., Laudanna C., Poli G., Alfano M. Urokinase Plasminogen Activator Inhibits HIV Virion Release from Macrophage-Differentiated Chronically Infected Cells via Activation of RhoA and PKC ϵ . Plos One, August 2011; 6(8):e23674: 1-15.
12. Edana Cassol, Susan Malfeld, Phetole Mahasha, Schalk van der Merwe, Sharon Cassol, Chris Seebregts, Massimo Alfano, Guido Poli and Theresa Rossouw. Persistent Microbial Translocation and Immune Activation in HIV-1-Infected South Africans on Combination Antiretroviral Therapy. Journal of Infectious Diseases, 2010:202 (1 September).
13. Chiara Urbinati, Stefania Nicoli, Mauro Giacca, Guido David, Simona Fiorentini, Arnaldo Caruso, Massimo Alfano, Luca Cassetta, Marco Presta and Marco Rusnati. HIV-1 Tat and heparan sulfate proteoglycan interaction: a novel mechanism of lymphocyte adhesion and migration across the endothelium. Blood, 8 October 2009, Vol. 114, No. 15, pp. 3335-3342.
14. Cassetta L., Fortunato O., Adduce L., Rizzi C., Hering J., Rovere-Querini P., Bianchi M.E., Alfano M.*, Poli G.*. Extracellular HMGB1 Inhibits Replication of both CCR5- and CXCR4-Dependent HIV-1 Strains in Human Mononuclear Phagocytes Without Induction of Pro-Inflammatory Cytokines and Chemokines. Submitted. *Equal contribution. AIDS, 2009, Feb 3.
15. Abbadessa G., Accolla R., Aiuti F., Albini, A., Aldovini A, Alfano M., et al. Unsung Hero Robert C. Gallo. Science, 2009 January 9, 323:206-7.
16. Cassol E., Cassetta L., Rizzi C., Alfano M., Poli G. M1 and M2a polarization of human monocyte-derived macrophages inhibits HIV-1 replication by distinct mechanisms. Journal of Immunology, 2009, 182:6237-6246.
17. Ferrarini M., Delfanti F., Gianolini M., Rizzi C., Alfano M., Lazzarin A., Biswas P. NF-K β modulates sensitivity, proinflammatory and migratory potential in short- vs long-term cultured human $\gamma\delta$ lymphocytes. J Immunol. 2008 Nov 1;181(9):5857-64.
18. Alfano M., Mariani S.A., Elia C., Pardi R., Blasi F., Poli G. Ligand-engaged Urokinase-Type Plasminogen Activator Receptor (uPAR) and The CD11b/CD18 (Mac1) Integrin Inhibit Late Events of HIV Expression in Monocytic Cells. Blood 2009 Feb 19;113(8):1699-709.
19. Raina N. Fichorova, Nicola Richardson-Harman, Massimo Alfano, Laurent Belec, Cedric Carbonneil, Silvia Chen, Melanie Cokonis, Lisa Cosentino, Kelly Curtis, Charlene S. Dezzutti, Betty Donoval, Gustavo F. Doncel, Melissa Donaghay, Jean-Charles Grivel, Esmeralda Guzman, Madeleine Hayes, Betsy Herold, Sharon Hillier, Carol Lackman-Smith, Alan Landay, Leonid Margolis, Kenneth H. Mayer, Jenna-Malia Pasicznyk, Guido Poli, Paula Roberts, Irma Rodriguez, Hela Saidi, Rosaria Rita Sassi, Robin Shattock, James E. Cummins. Biological and Technical Variables Affecting Immunoassay Recovery of Cytokines from Human Serum and Simulated Vaginal Fluid: A Multicenter Study. Analytical Chemistry, May 17, 2008.
20. Elia C., Cassol E., Sidenius N., Blasi F., Castagna A., Poli G., Alfano M. Inhibition of HIV Replication by Plasminogen Activator Is Dependent Upon Vitronectin-Mediated Cell Adhesion. Journal of Leukocyte Biology. 2007 Nov;82(5):1212-20.

21. Rizzi C., Crippa M.P., Jeeninga R.E., Berkhout B., Blasi F., Poli G., Alfano M. Pertussis Toxin B-oligomer suppresses IL-6 induced HIV-1 and chemokine expression in chronically infected U1 cells via inhibition of activator protein 1. *J. Immunology*. 2006 176:999-1006.
22. Alfano M., Grivel J.C., Ghezzi S., Corti D., Trimarchi M., Poli G., Margolis L. Pertussis toxin B-oligomer dissociates T cell activation and HIV replication in CD4 T cells released from infected lymphoid tissue. *AIDS*. 2005 Jul 1;19(10):1007-1014.
23. M.Raffaella Zocchi, Paola Contini, Massimo Alfano, and Alessandro Poggi. Pertussis toxin B subunit prevents Tat-induced TGF- β production and functional impairment of NK cells through an AKT dependent pathway. *J Immunol*. 2005 May 15;174(10):6054-61.
24. Lapenta C., Spada M., Santini S.M., Racca S., Dorigatti F., Poli G., Belardelli F., Alfano M. The Nontoxic Binding Subunit of Pertussis Toxin Inhibits HIV Infection and Replication in Hu-PBL-SCID Mice. *Int Immunol*. 2005 Apr;17(4):469-75.
25. Serena Marchiò, Massimo Alfano, Luca Primo, Daniela Gramaglia, Luca Butini, Luisa Gennero, Enrico De Vivo, Wadih Arap, Mauro Giacca, Renata Pasqualini & Federico Bussolino. Cell Surface-Associated Tat Modulates HIV-1 Infection and Spreading through a Specific Interaction with gp120 Viral Envelope Protein. *Blood*. 2005 Apr 1;105(7):2802-11.
26. Rizzi C., Alfano M., Bugatti A., Camozzi M., Poli G., Rusnati M. Inhibition of Intra- and Extracellular Tat Function and HIV Expression by Pertussis Toxin B-oligomer. *Eur J Immunol*. 2004 Feb;34(2):530-6.
27. Alfano M., Sidenius N., Panzeri B., Blasi F., & Poli G. Urokinase/urokinase receptor interaction mediates an inhibitory signal for human immunodeficiency virus type-1 replication. *Proc Natl. Acad Sci (USA)*, 2002 June 25, 99(13):8862-67.
28. Beretta A, Hasson H., Samiabadi A., Alfano M., Trabattoni D., Lillo F., Ferrante P., Clerici M., Lazzarin A. Selective granulocyte/monocyte apheresis in the treatment of HIV-infected patients: short-term and long-term effects on immunological and virological parameters. *Perfusion*, 2002 May;17 Suppl:47-51.
29. Hasson A., Saniabadi A., Alfano M., Trabattoni D., Ferrante P., Lillo F., Clerici M., Lazzarin A., Beretta A. Granulocyte/monocyte apheresis induces sustained increases in CD4 T cells in HIV-1 infected patients with poor CD4 T cell restoration after suppression of viral replication by HAART. *J Biol Regul Homeost Agents*, 2002 Jan-Mar;16(1):58-63.
30. Kinter A.L., Biswas P., Alfano M., Justetment J.S., Mantelli B., Rizzi C., Gatti A.R., Vicenzi E., Bressler P., Poli G. Interleukin-6 and glucocorticoids synergistically induce human immunodeficiency virus type-1 expression in chronically infected U1 cells by a long terminal repeat independent post-transcriptional mechanism. *Molecular Medicine*, 2001, 7(10):668-79.
31. Alfano M., Vallanti G., Biswas P., Bovolenta C., Vicenzi E., Mantelli B., Lazzarin A., Pushkarsky T., Rappuoli R., Bukrinsky M., & Poli G. Pertussis toxin B-oligomer inhibits HIV-1 infections in primary macrophages and chronically infected U1 cell line. *J. Immunol.*, 2001, 166:1863-70.
32. Vicenzi E.*, Alfano M.*,Ghezzi S., Gatti A., Veglia F., Lazzarin A., Sozzani S., Mantovani A., & Poli G. Divergent regulation of HIV-1 replication in PBMC of infected individuals by CC

- chemokines: suppression by RANTES, MIP-1 α , and MCP-3, and enhancement by MCP-1. *J. Leukoc. Biol.*, 2000, 68(3):405-412. *co-first autor.
33. Alfano M., Pushkarsky T., Poli G., & Bukrinsky M. The B-oligomer of pertussis toxin inhibits HIV-1 replication at multiple stages. *J. Virol.*, 2000, 74(18):8767-70.
34. Alfano M., Schmidtmayerova H., Amella C.A., Pushkarsky T., & Bukrinsky M. The B-oligomer of pertussis toxin deactivates CC chemokine receptor 5 and blocks entry of M-tropic HIV-1 strains. (*plus Editorial comments and cover*). *J. Exp. Med.*, 1999, Sept 6; 190(5): 597-605.
35. Alfano M., Veglia F., & Poli G. Role of peripheral blood mononuclear cell subset of seronegative donor in HIV replication: suppression by CD8⁺ and CD16⁺ cells and enhancement by CD14⁺ monocytes. *AIDS Res Hum Retrovir*, 1999, 15(5):489-91.
36. Brambilla A., Salvatori F., Pristerà R., Alfano M., Vedovelli C., Lazzarin A., Rimenti G., Poli G., & Vicenzi E. New evidence supporting HIV-1 transmission during a bloody fight between two adults. *Giorn It Mal Inf*, 1998, 4: 307-311.
37. Brambilla A., Salvatori F., Pristerà R., Alfano M., & Vicenzi E. Molecular analysis of HIV-1 relatedness in a case of viral transmission during a bloody fight between two adults. *AIDS*, 1998, 12(14):2-3.
38. Alfano M., Schmidtmayerova H., & Bukrinsky M. Bacterial lipopolysaccharide is a potent inhibitor of HIV-1 replication in T lymphocytes and macrophages. *AIDS*, 1998, 12(13):1724-1726.
39. Schmidtmayerova H., Alfano M., Nuovo G., & Bukrinsky M. HIV-1 T-Lymphotropic strains enter macrophages via CD4 and CXCR4-mediated pathway: replication is restricted at a post-entry level. *J. Virol.*, 1998, 72(6):4633-4642.
40. Sherry B., Zybarth G., Alfano M., Dubrovsky L., Mitchel R., Rich D., Ulrich P., Bucala R., Cerami A., & Bukrinsky M. Role of Cyclophilin A in the uptake of HIV-1 by macrophages and T lymphocytes. *Proc Natl. Acad Sci (USA)*, 1998, 95(4):1758-1763.
41. Vicenzi E., Bagnarelli P., Santagostino E., Muratori S., Ghezzi S., Soldini L., Alfano M., Turchetto L., Moretti G., Sinnone M.S., Mannucci P.M., Cusini M., Clementi M., Murone M., Lazzarin A., Gringeri A. & Poli G. HIV replication in vivo and soluble cytokine receptors define non-progressing infected individuals. *J AIDS Res Human Retrovir*, 1997, 15(Suppl. 1):S51-S53.
42. Ghezzi S., Alfano M., Biswas P., Mengozzi M., Delfanti F., Cota M., Sozzani S., Lazzarin A., Mantovani A., Poli G. & Vicenzi E. Chemokines and HIV: more than just suppression. *J. AIDS Res Human Retrovir*, 1997, 15(Suppl. 1):S31-S33.
43. Vicenzi E., Bagnarelli P., Santagostino E., Ghezzi S., Alfano M., Sinnone M.S., Fabio G., Turchetto L., Moretti G., Lazzarin A., Mantovani A., Mannucci P.M., Clementi M., Gringeri A., & Poli G. Haemophilia and non-progressing human immunodeficiency virus type 1 infection. *Blood*, 1997, 89(1):191-200.
44. Casari E., Alfano M., Valente M., Clarke GD., Ferni G., & Grazioli V.. Ovariectomy in the rat induces a rapid increase in the urinary excretion of hydroxylysine glycosides and nonreducible crosslink residues. *Osteoporosis Int.*, 1997, 7(6):539-543.

45. Gaetani P., Tartara F., Tancioni F., Baena R., Casari E., Alfano M., & Grazioli V. Deficiency of total collagen and deoxypyridinoline in intracranial aneurysm walls. *FEBS Letters*, 1997, (404):303-306.
46. Grazioli V., Alfano M., Stenico A., & Casari E. Urinary output of hydroxylysine glycosides and pyridinium cross-links in detecting rat bone collagen turnover rate. *FEBS Letters*, 1996, (388):134-138.
47. Valente F., Casari E., Alfano M., Grazioli V., Clarke G.D., Ferni G. Ovariectomy induced rapid increase in urinary excretion of hydroxylysine glycosides and non reducible crosslinks residues in mature rats. *Calcified Tissue International*, 1995, 56(5):447.
48. Alfano M., Casari E., Felicetti E., Moro G.L., Murone M., Valente M., Grazioli V. Glycosilation and cross-linkage of rat cortical and trabecular bone collagen are not influenced by ovariectomy. *Calcified Tissue International*, 1995, 56(5):453-4.
49. Alfano M., Casari E., Stenico A., Murone M., Grazioli V. Improved HPLC method for determination of urinary hydroxylysine glycosides to study bone turnover rate in humans and rats. *Clinical Chemistry*, 1994, 40 (11):2113-4.
50. Lucca A., Lucini V., Catalano M., Alfano M., Smeraldi E. Plasma tryptophan to large neutral amino acids therapeutic response to a selective serotonin uptake. *Neuropsychobiology*, 1994, 29(3):108-11.
51. Remuzzi A., Puntorieri S., Alfano M., Macconi D., Abbate M., Bertani T., Remuzzi G. Pathophysiological implications of proteinuria in a rat model of progressive glomerular injury. *Lab. Invest.*, 1992, 67:572-9.

Reviews & Book chapter

52. HOST AND HOSTILE MICROENVIRONMENTS ASSOCIATED WITH UROTHELIAL BLADDER CANCER. Massimo Alfano, Filippo Canducci, Manuela Nebuloni, Francesco Montorsi, Andrea Salonia. Review. *Nature Reviews Urology*. 2015. Dec 15.
53. Luca Genovese, Manuela Nebuloni, Filippo Canducci, Massimo Alfano. Two Interacting Dynamic Niches in Gut Mucosa Extracellular Environment: Role of the Extracellular Matrix and Microbiota in Chronic Inflamed Intestine and Intestinal Tumors. Book chapter in "Tumor pathophysiology for Oncologist". S. Osinsky, V. Chekhun, P. Vaupel (Eds.). In press (March 2014). National Academy of Sciences of Ukraine.
54. Massimo Alfano, Francesca Graziano, Luca Genovese and Guido Poli. Macrophage Polarization at the Crossroad Between HIV-1 Infection and Cancer Development. Invited reviewed for the Book "SCHMIDT SERIES; Macrophages and Disease". *Arteriosclerosis, Thrombosis, and Vascular Biology*. 2013;33.
55. Luca Genovese, Manuela Nebuloni, and Massimo Alfano. Cell-mediated Immunity in Elite Controllers Naturally Controlling HIV Viral Load. In "Current Perspectives in non-progressive HIV disease"; *Frontiers in Immunology* (section of HIV and AIDS). Guest editor Prof. Nitin Saxena. April 2013;4:86. Highlighted in *Immunology of Infectious Disease News* 1.03. (<http://connexoncreative.com/publications/archives/IIDN105.aspx>)

56. Alfano Massimo & Poli Guido. Pertussis Toxin (PTX) and its Non-Toxic Derivaties as Vaccine Adjuvant and Microbicide. In; Anti-Inflammatory and Anti-Allergy Agents in Medicinal Chemistry, Bentham Science Publisher. Volume 10, Number 5, October 2011; 358-367. ISSN (print): 1871-5230. ISSN (online): 1875-614X.
57. Luca Cassetta, Guido Poli & Massimo Alfano. HIV and Cytokines: an Immunopathogenetic *Liaison*. In: Modern Insights Into Disease From Molecules to Man: Cytokines. Editors; Victor R. Preedy and Ross Hunter. Ed. Science Publishers. April 2011. ISBN: 978-1-57808-690-0.
58. Edana Cassol, Luca Cassetta, Massimo Alfano, Guido Poli. Macrophage polarization and HIV-1 infection. Journal of Leukocyte Biology. April, (87):599-608, 2010.
59. Massimo Alfano, Ph.D., Andrea Crotti, M.S., Elisa Vicenzi, Ph.D., & Guido Poli, M.D. New Players in Cytokine Control of HIV Infection. Current HIV/AIDS Reports, 5;27-32, 2008.
60. Massimo Alfano, Chiara Rizzi, Guido Poli, Priscilla Biswas. HIV-1 infection of promonocytic U937 and U1 cell lines. Clonal distribution of innate restriction factors. In: HIV and the Macrophage, 2007:89-113 ISBN: 81-7895-271-8. Transworld Research Network.
61. Elisa Vicenzi, Massimo Alfano, Silvia Ghezzi, & Guido Poli. Immunopathogenesis of HIV Infection. In "The biology of Dendritic cells and HIV infection". Editor: Sandra Gessani and Filippo Belardelli. Springer, 2007. springer.com. ISBN:9780387337845.
62. Massimo Alfano, Guido Poli. Human Retroviruses and the Cytokine Network. In "Cytokine, Stress and Immunity", 2nd edition. Editors: Nickolas P. Plotnikoff and Robert E. Faith. CRC Press, Taylor & Francis Group. 2006. www.taylorandfrancisgroup.com. ISBN: 0849320747.
63. Massimo Alfano, Luca Casetta, Guido Poli. Glycosyl Phosphatidylinositol-Anchored Proteins and HIV Infection. Letters in Drug Design & Discovery, 2006, 3(9), 598-604.
64. Cassol Edana, Massimo Alfano, Biswas Priscilla, Poli Guido. Monocyte-derived macrophages and myeloid cell lines as targets of HIV-1 replication and persistence. Journal of Leukocyte Biology, 2006, 80.
65. Alfano M., Poli G. Immunomodulatory and Anti-Viral Activities of Pertussis Toxin and of Its Non-Toxic Derivatives. Current Medicinal Chemistry special issue "Innate immunity and cytokines: how to regulate host response against pathogens avoiding autoreactivity", 2005, 4, 177-183.
66. Alfano M., Rizzi C., Corti D., Adduce L., Poli G. Bacterial Toxins: Potential Weapons Against Human Immunodeficiency Virus Infection. Current Pharmaceutical Design, 2005, 11, 2909-2926.
67. Alfano M., Poli G. Role of Cytokines and Chemokines in the Regulation of Innate Immunity and HIV Infection. Molecular Immunology, 2005 Feb;42(2):161-82.
68. Alfano M., Poli G. The HIV Life Cycle: Multiple Targets for Antiretroviral Agents. Drug Design Reviews - Online, 2004, 1, 83-92.
69. Alfano M., Sidenius N., Blasi F., Poli G. The Role of Urokinase-Type Plasminogen Activator (uPA)/uPA Receptor in HIV-1 Infection. J Leukoc Biol. 2003; Aug 21.

70. Alfano M., Poli G. The cytokine network in HIV infection. *Current Molecular Medicine*, 2002 December, 2(8):677-89.
71. Alfano M. & Poli G. Multiple roles of cytokines in human immunodeficiency virus infection, replication, and therapy. In "Cellular Aspects of HIV Infection". Cossarizza A. & D. Kaplan, Eds., John Wiley & Sons, Inc., New York, NY, 2002. ISBN-10: 0-471-38666-9, ISBN-13: 978-0-471-38666-7.
72. Alfano M. & Poli G. Cytokine and chemokine based control of HIV infection and replication. Review. In *Curent Pharmaceutical Design*, 2001, 7, 125-133.
73. Vicenzi E., Alfano M., Poli G., Lazzarin A. Monitoraggio della terapia: correlazione tra HIV Monitor e CD4. *Esasystem*, Sept. 1995, (3):21-26.



Diamond Light Source Ltd
Diamond House
Harwell Science and Innovation Campus
Didcot
Oxfordshire OX11 0DE
United Kingdom
T : +44 (0) 1235 7788217
F : +44 (0) 1235 778449
E : dominic.semple@diamond.ac.uk

www.diamond.ac.uk

Dr. Massimo Alfano, Ph.D.
Urological Research Institute
DiBit2, Scientific Institute San Raffaele
Via Olgettina, 60
20132 Milan
Italy

30th March 2016

Dear Dr Alfano,

Due to the high quality of the science being proposed, I can confirm that Diamond Light Source supported 2 research projects in which you were involved through the award of both beamtime, and additionally by paying the travel costs of the users to undertake the research at Diamond. This beamtime was awarded through competitive peer review. The two projects were:

Massimo Alfano, Principal Investigator (PI).

Experiment Reference Number: **SM11263**.

The application entitled: ***"Exploring the extracellular matrix of urothelial bladder cancer by SR FTIR micro-spectroscopy"*** was awarded with **15 shifts of beamtime** on the B22 "MIRIAM" beamline.

Massimo Alfano, Co-investigator (Claudio Sorio, PI).

Experiment Reference Number: **SM9460**.

The application entitled: ***"Molecular characterization of tumour stroma in human colorectal cancer by IR microprobe"*** was awarded with **15 shifts of beamtime** on the B22 "MIRIAM" beamline.

The representative total costs of the beamtime awarded was approximately £190,000.00 (i.e. 242k€ at the current exchange rate).

If you have any further queries, then do not hesitate to contact me.

Yours sincerely,

A handwritten signature in black ink, appearing to read "D Semple", written over a white background.

Dr Dominic Semple
Executive Assistant and Programme Coordinator
Diamond Light Source Ltd