

## BRIEF CURRICULUM VITAE

**NAME** Alberto MANTOVANI  
**SEX** Male  
**DATE AND PLACE OF BIRTH** October 29, 1948, Milan, Italy  
**CITIZENSHIP** Italian  
**MARITAL STATUS** Married, four children, eight grandchildren  
**INSTITUTIONAL ADDRESSES** Humanitas University / Istituto Clinico Humanitas  
Via Levi Montalcini, 4  
20090 Pieve Emanuele, Milan, Italy  
Tel. +39- 02 8224.2444/2445/2446  
Fax +39- 02 8224.5101  
E-mail [alberto.mantovani@humanitasresearch.it](mailto:alberto.mantovani@humanitasresearch.it)  
[alberto.mantovani@hunimed.eu](mailto:alberto.mantovani@hunimed.eu)  
  
William Harvey Research Institute  
Queen Mary University,  
Charterhouse Square, London EC1M 6BQ, UK  
E-mail [a.mantovani@qmul.ac.uk](mailto:a.mantovani@qmul.ac.uk)

**PRIVATE ADDRESS** Largo Brasilia 4,  
20146 Milan, Italy  
<http://www.humanitas-research.org/alberto-mantovani/>

---

### EDUCATION

**1973:** M.D., University of Milan, Italy  
**1976:** Specialist in Oncology, University of Pavia, Italy

### SELECTED MAJOR HONORS

#### National or International awarded in Italy

**1998:** Biotec Award  
**2004:** Guido Venosta Award for Cancer Research by the President of the Republic of Italy  
**2005:** Premio Ippocrate per la Ricerca Biomedica  
**2006:** "Onorificenza al Merito della Repubblica Italiana" (Commendatore, knightwood equivalent) for scientific contribution by the President of the Republic of Italy  
**2007:** Galileo Galilei Prize for Research in Biomedical Sciences (International Jury)  
**2012:** Premio Nazionale "L'Altra Italia ... Vite da Premio"  
**2014:** Premio Rosa Camuna 2014, Regione Lombardia  
**2015:** Ferrari-Soave International Prize, Accademia delle Scienze, Torino.  
**2016:** NIBIT Award, Siena  
**2016:** Premio Roma allo Sviluppo del Paese.  
**2016:** International Feltrinelli Prize from the Accademia dei Lincei.  
**2017:** Premio Scanno, Fondazione Tanturri, Scanno, Italy.  
**2018:** Medaglia d'Oro di Benemerenzza Civica, Milan Municipality (Ambrogino d'Oro).  
**2019:** Sigillo d'Oro, Università degli Studi di Bari.  
**2019:** Premio Chirone, Accademia Nazionale di Medicina

#### International

**2000:** Marie T. Bonazinga Award, Society for Leukocyte Biology, Boston, USA

- 2006:** European Federation of Immunological Societies – Schering Plough, 1<sup>st</sup> European Immunology Prize, Paris, France
- 2009:** William Harvey Award, Outstanding Scientist 2009, London, UK.
- 2015:** European Society for Clinical Investigation Albert Struyvenberg Medal
- 2015:** The Milstein Award for Excellence in Interferon and Cytokine Research, International Cytokine & Interferon Society.
- 2016:** OECI (Organization of European Cancer Institutes) Prize for contribution to Cancer Immunology and Immunotherapy. OECI awards the OECI Prize every three years.
- 2016:** Robert Koch Award, Robert Koch Stiftung, Germany
- 2017:** Journal of Autoimmunity dedicated Issue to Alberto Mantovani
- 2018:** American-Italian Cancer Foundation (AICF, New York) Prize for Excellence in Medicine.
- 2019:** American Association for Cancer Research International Pezcoller Award for Extraordinary Achievement in Cancer Research.
- 2019:** ITOC6 – 6<sup>th</sup> Immunotherapy of Cancer Conference Lifetime Achievement Award

### **SELECTED MEMBERSHIPS, BOARDS AND ACADEMIES**

- 1995-1998:** President, Italian Federation of Immunological Societies
- 1998-2001:** President, Italian Society of Immunology
- 2000 to date:** European Molecular Biology Organization (EMBO) Member
- 2002:** Member, The Henry Kunkel Society
- 2003:** Co-founder and President (2011-2012) of Gruppo 2003, the association of Italian highly cited scientists to promote Science awareness in Italy
- 2005-2010:** Board Member of the Global Alliance for Vaccines and Immunization (GAVI Alliance)
- 2008:** Member, Faculty of 1000 Biology
- 2009-2010:** President, International Cytokine Society
- 2011-2013:** Board Member, International Union of Immunological Societies (IUIS)
- 2013-2016:** Vice-President/President Elect, International Union of Immunological Societies (IUIS)
- 2016:** Member, Accademia dei Lincei, Rome, Italy
- 2016:** Member, Robert Koch Stiftung, Berlin
- 2016-2019:** President, International Union of Immunological Societies (IUIS)
- 2017:** Member, Academia Europaea
- 2017:** Honorary Member, Scandinavian Society of Immunology

### **ACADEMIC APPOINTMENTS**

- 1973-1975:** Research assistant Department of Tumor Immunobiology and Chemotherapy, Istituto di Ricerche Farmacologiche "Mario Negri", Milan, Italy.
- 1975-1976:** Visiting fellow at the Department of Tumor Immunology, Chester Beatty Research Institute, Belmont, Sutton, Surrey, England.
- 1978 and 1979:** Visiting fellow at the Laboratory of Immunodiagnosis, NIH, Bethesda, MD., USA, supported by a NATO Grant.
- 1979-1981:** Senior investigator, Department of Tumor Immunology and Chemotherapy, Istituto di Ricerche Farmacologiche "Mario Negri", Milan, Italy.

- 1981-1996:** Chief, Laboratory of Immunology, Istituto di Ricerche Farmacologiche "Mario Negri", Milan, Italy.
- 1987:** Eleanor Roosevelt UICC Scholar, Laboratory of Molecular Immunoregulation, NIH, Frederick, MD., USA.
- 1994 to 2001:** Full Professor of General Pathology, School of Medicine, University of Brescia, Italy.
- 1996 to 2005:** Head, Department of Immunology and Cell Biology, Istituto di Ricerche Farmacologiche "Mario Negri", Milan, Italy.
- 2001 to 2014:** Full Professor of General Pathology, School of Medicine, State University of Milan, Italy
- Sept. 2005 to date:** Scientific Director, Istituto Clinico Humanitas, and President, Fondazione Humanitas per la Ricerca.
- 2014 to date:** Full Professor of General Pathology, School of Medicine, Humanitas University.
- 2017 to date:** Professor, Chair of Inflammation and Therapeutic Innovation, William Harvey Research Institute, Queen Mary University, London, UK

### **Editorial Activity (current)**

Editor-in-Chief, Seminars in Immunology (I.F. 9.6)  
Senior Editor, Cancer Immunology Research (I.F. 8.2)

### **Selected trainees (H index as of October 2017)**

Biondi Andrea, Italy (81); Biswas Subhra Kumar, Singapore (30); Bordignon Claudio, Italy (58); Colotta Francesco, Italy (49); Delgado René, Cuba (31); Gadina Massimo, USA (39); Ghezzi Pietro, UK (68); Giavazzi Raffaella, Italy (51); Jonjic Nives, Croatia (19); Locati Massimo, Italy (57); Rambaldi Alessandro, Italy (77); Sica Antonio, Italy (62); Sozzani Silvano, Italy (84); Wang Ji-Ming, USA (33).

### **Main contributions**

Tumor-associated macrophages (TAM). Demonstration in the late '70s of the protumor function of tumor-associated macrophages (TAM, an acronym now generally used and coined by him in the '70s) linking inflammation and cancer (reviewed in Balkwill and Mantovani, Lancet, 2001). TAM as an M2-like population (Bottazzi et al, Science 1983; Mantovani et al., Nature 2008; Balkwill et al., Cancer Cell 2005). Promotion of tumor progression by IL-1 (Cancer Res. 1990; 1993). First linking of a genetic event (RET/PTC rearrangement) causing cancer in humans to the construction of an inflammatory microenvironment (Borrello et al., PNAS 2005). Proof of principle that targeting tumor promoting macrophages has therapeutic value in humans (Germano et al, Cancer Cell 2013). Demonstration that PTX3 is an extrinsic oncosuppressor regulating Complement and macrophage-driven tumor promoting inflammation (Bonavita et al Cell 2015). Discovery of a novel pathway of anti-tumor immunity involving neutrophils, macrophages and unconventional, double negative T cells (Ponzetta et al, Cell 2019). Alberto Mantovani is recognized among his peers as a forerunner in the '70s and a "founding father" of the renaissance of the inflammation-cancer connection. For IL-1R8, see below, IL-1.

**Chemokines.** Description and role in TAM recruitment of a unique monocyte attractant, Monocyte Chemoattractant Protein-1 (CCL2), as tumor-derived chemotactic factor (Bottazzi et al, Science 1983). Characterization of chemokines and role in pathophysiology, including dendritic cell and polarized T cell migration. Induction of chemokine production by IL-6 in endothelial cells via trans-signaling, a key component of chronic inflammation and cancer (Romano et al, Immunity 1997). Characterization of D6 as a decoy receptor for inflammatory CC chemokines (Mantovani et al, Nature Rev. Immunol 2006). Role of chemokines in carcinogenesis (for a recent contribution Bonavita et al Cell 2015).

**IL-1/Toll-like receptors (TLR).** Endothelial cell activation by IL-1 and cytokines (Rossi et al., Science 1985; Bussolino et al, Nature 1989; Romano et al, Immunity 1997). Identification of the type II receptor as a decoy receptor, a novel concept in biology (Colotta et al, Science 1993); the discovery of a decoy receptor represented a paradigm shift after the original definition of the concept of "receptor" by Langley in the 1930'; decoy receptors are now recognized as a general, evolutionary conserved strategy to tune cytokines, chemokines and growth factors. Cloning of an intracellular isoform of the IL-1 receptor antagonist (Muzio et al., J. Exp. Med. 1995). First demonstration of MyD88 as the adaptor of mammalian Toll-Like Receptors (TLR) and identification of downstream transducers (Muzio et al., J. Exp. Med. 1998). Cloning and characterization of TIR8/SIGIRR (IL-1R8), a negative regulator of IL-1 receptor and TLR signalling (Garlanda et al, Immunity 2013; 2019). Role in carcinogenesis. In NK cells IL-1R8 serves as a checkpoint: its blocking unleashes resistance to carcinogenesis and metastasis at selected anatomical sites (Molgora et al, Nature 2017).

**Humoral innate immunity:** cloning (cDNA and genomic, mouse and human), structural and functional characterization of the first long pentraxin PTX3 as an IL-1 inducible gene (Garlanda et al, Nature 2002; Jeannin et al, Immunity 2005; Jaillon et al. J. Exp Med 2007 ; Deban et al, Nature Immunol. 2010; Jaillon et al. Immunity 2014; Bonavita et al. Cell 2015); structural immunobiology; role as a paradigm for humoral innate immunity; role as an extrinsic oncosuppressor in murine and human tumors regulating Complement and macrophage driven tumor promoting inflammation (Bonavita et al. Cell 2015); diagnostic and therapeutic translation (Cunha et al New England J. Med. 2014; ongoing). Thus, a regulator of macrophage-driven tumor promoting inflammation is a bona fide cancer gene, silenced in selected human tumors such as colorectal cancer, a finding now independently confirmed in large patients cohorts.

### **Contribution to Public Awareness of Science**

Alberto Mantovani has been actively involved in the fostering of science and scientific policies in Italy at various levels, with a focus on Immunology, Vaccines, Oncology and Public Health, taking public stands on several issues including quackery whenever appropriate. He regularly contributes to the most authoritative Italian daily newspapers (eg Corriere della Sera; La Repubblica; La Stampa; Il Sole 24 Ore) and magazines (Espresso and Panorama). He wrote four books on Immunology and Science targeted to the lay public (I Guardiani della Vita, Baldini e Castoldi, 2011; Immunità e Vaccini, Mondadori, 2016; Non avere Paura di Sognare, La Nave di Teseo, 2016; Bersaglio Mobile, Mondadori, 2018). He contributed to scientific (eg SuperQuark; TGR Leonardo; Radiotre Scienza) and general radio (e.g. Radio Tre Scienza) and television (eg Geo; Che Tempo che Fa) programs. To promote science awareness and policy he cofounded the association "Gruppo2003" of Italian highly cited scientists (<http://www.gruppo2003.it>) and together with astrophysicist Tommaso Maccacaro founded the website <http://www.scienzainrete.it>.

### **Impact**

The broad impact of the contribution of Alberto Mantovani is testified by citations. As of July 2019 he has over 115,900 (Scopus), 108,900 (Web of Science) or 166,900 (Google Scholar) citations and an H-index of 163 (Scopus), 161 (Web of Science) or 187 (Google Scholar). A bibliometric analysis indicates that he is one of the most quoted immunologists ([http://www.tisreports.com/products/19-Top\\_scientists\\_in\\_the\\_world\\_the\\_Via\\_academy\\_compilation.aspx](http://www.tisreports.com/products/19-Top_scientists_in_the_world_the_Via_academy_compilation.aspx)).

In December 2017 Journal of Autoimmunity dedicated an Issue to Alberto Mantovani.

## Selected publications

### Originals

Ponzetta A, Carriero R, Carnevale S, Barbagallo ML, Molgora M, Perucchini C, Magrini E, Gianni F, Kunderfranco P, Polentarutti N, Pasqualini F, Di Marco S, Supino D, Peano C, Cananzi F, Colombo P, Pilotti S, Alomar SY, Bonavita E, Galdiero MR, Garlanda C, Mantovani A, Jaillon S.

Neutrophils driving unconventional T cells mediate resistance against murine sarcomas and selected human tumors. *Cell*, 178(2):346-360, 2019.

Mattiola I, Tomay F, De Pizzol M, Silva-Gomes R, Savino B, Gulic T, Doni A, Lonardi S, Boutet MA, Nerviani A, Carriero R, Molgora M, Stravalaci M, Morone D, Shalova IN, Lee Y, Biswas SK, Mantovani G, Sironi M, Pitzalis C, Vermi W, Bottazzi B, Mantovani A\*, Locati M\*.

The interplay of the macrophage tetraspan MS4A4A with Dectin-1 and its role in NK cell-mediated resistance to metastasis. (\*corresponding authors).

*Nature Immunol*, Jul 1. doi: 10.1038/s41590-019-0417-y. [Epub ahead of print].

Molgora M, Bonavita E, Ponzetta A, Riva F, Barbagallo M, Jaillon S, Popovic B, Bernardini G, Magrini E, Gianni F, Zelenay S, Jonjic S, Santoni A, Garlanda C, Mantovani A. IL-1R8 is a checkpoint in NK cells regulating anti-tumor and anti-viral activity. *Nature*, 551:110-114, 2017.

Doni A, Musso T, Morone D, Bastone A, Zambelli V, Sironi M, Castagnoli C, Cambieri I, Stravalaci M, Pasqualini F, Laface I, Valentino S, Tartari S, Ponzetta A, Maina V, Barbieri SS, Tremoli E, Catapano AL, Norata GD, Bottazzi B, Garlanda C, Mantovani A. An acidic microenvironment sets the humoral pattern recognition molecule PTX3 in a tissue repair mode. *J Exp Med*. 212: 905-925, 2015.

Bonavita E, Gentile S, Rubino M, Maina V, Papait R, Kunderfranco P, Greco C, Feruglio F, Molgora M, Laface I, Tartari S, Doni A, Pasqualini F, Barbati E, Basso G, Galdiero MR, Nebuloni M, Roncalli M, Colombo PG, Laghi L, Lambris JD, Jaillon S, Garlanda C, Mantovani A. PTX3 is an extrinsic oncosuppressor regulating complement-dependent inflammation in cancer. *Cell* 160: 700-714, 2015.

Jaillon S, Moalli F, Ragnarsdottir B, Bonavita E, Riva F, Barbati E, Nebuloni M, Krajcinovic LC, Markotic A, Valentino S, Doni A, Tartari S, Graziani G, Montanelli A, Delneste Y, Svanborg C, Garlanda C, Mantovani A. The humoral pattern recognition molecule PTX3 is a key component of innate immunity against urinary tract infection. *Immunity* 40: 621-632, 2014.

Cunha C, Aversa F, Lacerda JF, Busca A, Kurzai O, Grube M, Löffler J, Maertens JA, Bell AS, Inforzato A, Barbati E, Almeida B, Santos e Sousa P, Barbui A, Potenza L, Caira M, Ph.D., Rodrigues F, Salvatori G, Pagano L, Luppi M, Mantovani A, Velardi A, Romani L, Carvalho A. Genetic deficiency of PTX3 and aspergillosis in stem cell transplantation. *New Engl J Med*, 370:421-432, 2014.

Germano G, Frapolli R, Belgiovine C, Anselmo A, Pesce S, Liguori M, Erba E, Uboldi S, Zucchetti M, Pasqualini F, Nebuloni M, van Rooijen N, Mortarini R, Beltrame L, Marchini S, Fuso Nerini I, Sanfilippo R, Casali PG, Pilotti S, Galmarini CM, Anichini A, Mantovani A, D'Incalci M, Allavena P. Role of macrophage targeting in the antitumor activity of trabectedin. *Cancer Cell* 23: 249-262, 2013.

Deban L, Castro Russo R, Sironi M, Moalli F, Scanziani M, Zambelli V, Cuccovillo I, Bastone A, Gobbi M, Valentino S, Doni A, Garlanda C, Danese S, Salvatori G, Sassano M, Evangelista V, Rossi B, Zenaro E, Constantin G, Laudanna C, Bottazzi B, Mantovani A. Regulation of leukocyte recruitment by the long pentraxin PTX3. *Nature Immunol*, 11: 328-334, 2010.

Di Liberto D, Locati M, Caccamo N, Vecchi A, Meraviglia S, Salerno A, Sireci G, Nebuloni M, Cardona P-J, Dieli F, Mantovani A. Role of the chemokine decoy receptor D6 in balancing inflammation, immune activation and antimicrobial resistance in *Mycobacterium tuberculosis* infection. *J. Exp. Med.* 205: 2075-2084, 2008.

Lech M, Kulkarni OP, Pfeiffer S, Savarese E, Krug A, Garlanda C, Mantovani A, Anders H-J. Tir8/Sigirr prevents murine lupus by suppressing the immunostimulatory effects of lupus autoantigens. *J. Exp. Med.* 205: 1879-1888, 2008.

Jaillon S, Peri G, Delneste Y, Frèmaux I, Doni A, Moalli F, Garlanda C, Romani L, Gascan H, Bellocchio S, Bozza S, Cassatella MA, Jeannin P, Mantovani A. The humoral pattern recognition receptor PTX3 is stored in neutrophil granules and localized in extracellular traps. *J. Exp. Med.*, 204, 793-804, 2007.

Martinez de la Torre Y, Buracchi C, Borroni EM, Dupor J, Bonecchi R, Nebuloni M, Pasqualini F, Doni A, Lauri E et al. Protection against inflammation- and autoantibody- caused fetal loss by the chemokine decoy receptor D6. *PNAS* 104:2319-2324, 2007

Biswas SK, Gangi L, Paul S, Schioppa T, Saccani A, Sironi M, Bottazzi B, Doni A, Vincenzo B, Pasqualini F, Vago L, Nebuloni M, Mantovani A\*, Sica A. (\* corresponding author). A distinct and unique transcriptional program expressed by tumor-associated macrophages (defective NF-kappaB and enhanced IRF-3/STAT1 activation). *Blood* 107:2112-2122, 2006.

Borrello MG, Alberti L, Fischer A, Degl'Innocenti D, Ferrario C, Gariboldi M, Marchesi F, Allavena P, Greco A, Collini P, Pilotti S, Cassinelli G, Bressan P, Fugazzola L, Mantovani A\*, Pierotti M\* (\*corresponding authors). Induction of a proinflammatory programme in normal human thyrocytes by the RET/PTC1 oncogene. *PNAS*, 102: 14825-14830, 2005.

Jeannin P., Bottazzi B., Sironi M., Doni A., Rusnati M., Presta M., Maina V., Magistrelli G., Haeuw J.F., Hoeffel G., Thieblemont N., Corvaia N., Garlanda C., Delneste Y., Mantovani A. Complexity and complementarity of outer membrane protein-A recognition by cellular and humoral innate immunity receptors *Immunity* 22: 551-560, 2005.

Bertini R, Allegretti M, Bizzarri C, Moriconi A, Locati M, Zampella G, Cervellera M N, Di Cioccio V, Cesta M C, Galliera E, Martinez F O, Di Bitondo R, Troiani G, Sabbatini V, Anacardio R, Cutrin J C, Cavaliere B, Mainiero F, Strippoli R, Villa P, Di Girolamo M, Martin F, Gentile M, Santoni A, Corda D, Ghezzi P, Poli Giuseppe, Mantovani A, Colotta F. A new class of non-competitive allosteric inhibitors of the inflammatory chemokine receptors CXCR1 and CXCR2: Prevention of reperfusion injury. *Proc Natl Acad Sci USA* 101: 11791-11796, 2004

Garlanda C, Riva F, Polentarutti N, Buracchi C, Sironi M, De Bortoli M., Muzio M, Bergottini R, Scanziani E, Vecchi A, Hirsch E, Mantovani A. Intestinal inflammation in mice deficient in TIR8, an inhibitory member of the IL-1 receptor family. *Proc Natl Acad Sci USA* 101: 3522-3526, 2004

Schioppa T., Uranchimeg B., Saccani A., Biswas S., Doni A., Rapisarda A., Bernasconi S., Saccani S., Nebuloni M., Vago L., Mantovani A., Melillo G., Sica A. Regulation of the chemokine receptor CXCR4 by hypoxia. *J. Exp. Med.* 198: 1391-1402, 2003

Wittamer V, Franssen J D, Vulcano M, Mirjolet J F, Le Poul E, Migeotte I, Brezillon S, Tyldesley R, Blanpain C, Detheux M, Mantovani A, Sozzani S, Vassart G, Parmentier M, Communi D. Specific recruitment of antigen-presenting cells by Chemerin, a novel processed ligand from human inflammatory fluids. *J Exp Med* 198: 977-985, 2003

Garlanda C., Hirsch E., Bozza S., Salustri A., De Acetis M., Nota R., Maccagno A., Riva F., Bottazzi B., Peri G., Doni A., Vago L., Botto M., De Santis R., Carminati P., Siracusa G., Altruda A., Vecchi A., Romani L., Mantovani A. Non-redundant role of the long pentraxin PTX3 in anti-fungal innate immune response. *Nature* 420: 182-186, 2002.

Fratlicelli P, Sironi M, Bianchi G, D'Ambrosio D, Albanesi C, Stoppacciaro A, Chieppa M, Allavena P, Ruco L, Girolomoni G, Sinigaglia F, Vecchi A, Mantovani A. Fractalkine (CX3CL1) as an amplification circuit of polarized Th1 responses. *J Clin Invest.* 107: 1173-1181, 2001

D'Amico G, Frascaroli G, Bianchi G, Doni A, Transidico P, Vecchi A, Sozzani S, Allavena P, Mantovani A. Uncoupling of inflammatory chemokine receptors by interleukin 10: Generation of functional decoys. *Nature Immunol.* 1: 387-391, 2000.

Hirsch E, Katanaev V L, Garlanda C, Azzolino O, Silengo L, Sozzani S, Mantovani A, Altruda F, Wymann M P. Central role for G protein-coupled phosphoinositide 3-kinase $\gamma$  in inflammation. *Science* 287: 1049-1053, 2000.

Muzio M, Natoli G, Saccani S, Levrero M, Mantovani A.. The human Toll signaling pathway: Divergence of nuclear factor  $\kappa$ B and JNK/SAPK activation upstream of tumor necrosis factor receptor-associated factor 6 (TRAF6). *J. Exp. Med.* 187: 2097-2101, 1998.

Sozzani S, Allavena P, D'Amico G, Luini W, Bianchi G, Kataura M, Imai T, Yoshie O, Bonecchi R, Mantovani A.. Differential regulation of chemokine receptors during dendritic cell maturation: A model for their trafficking properties. *J. Immunol.* 161: 1083-1086, 1998.

Sozzani S, S. Ghezzi, G. Iannolo, W. Luini, A. Borsatti, N. Polentarutti, A. Sica, M. Locati, C. Mackay, T. N. C. Wells, P. Biswas, E. Vicenzi, G. Poli, and A. Mantovani.. Interleukin-10 increases CCR5 expression and HIV infection in human monocytes. *J. Exp. Med.* 187:439-444, 1998

Bonecchi R, Bianchi G, Panina Bordignon P, D'Ambrosio D, Lang R, Borsatti A, Sozzani S, Allavena P, Gray P A, Mantovani A, Sinigaglia F..Differential expression of chemokine receptors and chemotactic responsiveness of type 1 T helper cells (Th1s) and Th2s. *J. Exp. Med.* 187: 129-134, 1998.

Romano M, Sironi M, Toniatti C, Polentarutti N, Fruscella P, Ghezzi P, Faggioni R, Luini W, Van Hinsberg V, Sozzani S, Bussolino F, Poli V, Ciliberto G, Mantovani A. Role of IL-6 and its soluble receptor in induction of chemokines and leukocyte recruitment. *Immunity* 6: 315-325, 1997.

Godiska R, Chantry D, Raport C J, Sozzani S, Allavena P, Leviten D, Mantovani A, Gray P W..Human macrophage-derived chemokine (MDC), a novel chemoattractant for monocytes, monocyte-derived dendritic cells, and natural killer cells. *J. Exp. Med.* 185: 1595-1604, 1997.

Sica, A., A. Saccani, A. Borsatti, C. A. Power, T. N. C. Wells, W. Luini, N. Polentarutti, S. Sozzani, and A. Mantovani.. Bacterial lipopolysaccharide rapidly inhibits expression of C-C chemokine receptors in human monocytes . *J. Exp. Med.* 185:969-974, 1997.

Re, F., M. Sironi, M. Muzio, C. Matteucci, M. Introna, S. Orlando, G. Penton-Rol, S. K. Dower, J. E. Sims, F. Colotta, and A. Mantovani. Inhibition of interleukin-1 responsiveness by type II receptor gene transfer: a surface "receptor" with anti-interleukin-1 function. *J. Exp. Med.* 183: 1841-1850, 1996

Sozzani S, Sallusto F, Luini W, Zhou D, Piemonti L, Allavena P, Van Damme J, Valitutti S, Lanzavecchia A, Mantovani A. Migration of dendritic cells in response to formyl peptides, C5a, and a distinct set of chemokines. *J. Immunol.* 155: 3292-3295, 1995

Colotta, F., S. Orlando, E. J. Fadlon, S. Sozzani, C. Matteucci, and A. Mantovani. Chemoattractants induce rapid release of the interleukin 1 type II decoy receptor in human polymorphonuclear cells. *J. Exp. Med.* 181:2181-2188, 1995.

Muzio, M., N. Polentarutti, M. Sironi, G. Poli, L. De Gioia, M. Introna, A. Mantovani, and F. Colotta. Cloning and characterization of a new isoform of the interleukin-1 receptor antagonist. *J. Exp. Med.* 182:623-628, 1995

Colotta, F., F. Re, M. Muzio, R. Bertini, N. Polentarutti, M. Sironi, J. G. Giri, S. K. Dower, J. E. Sims, and A. Mantovani. Interleukin-1 type II receptor: a decoy target for IL-1 that is regulated by IL-4. *Science* 261: 472-475, 1993

Bussolino, F., J. M. Wang, P. Defilippi, F. Turrini, F. Sanavio, C. J. Edgell, M. Aglietta, P. Arese, and A. Mantovani. Granulocyte- and granulocyte-macrophage-colony stimulating factors induce human endothelial cells to migrate and proliferate. *Nature* 337: 471-473. 1989.

Rossi, V., F. Breviario, P. Ghezzi, E. Dejana, and A. Mantovani. Prostacyclin synthesis induced in vascular cells by interleukin-1. *Science* 229: 174-176, 1985.

Bottazzi, B., N. Polentarutti, R. Acero, A. Balsari, D. Boraschi, P. Ghezzi, M. Salmona, and A. Mantovani. Regulation of the macrophage content of neoplasms by chemoattractants. *Science* 220:210-212, 1983.

Mantovani A. Effects on in vitro tumor growth of murine macrophages isolated from sarcoma lines differing in immunogenicity and metastasizing capacity. *Int. J. Cancer* 22, 741-746, 1978.

## Reviews

Mantovani A., Marchesi F., Laghi L., Malesci A., Allavena P. Tumor-associated macrophages as treatment targets in oncology. *Nature Rev, Clin. Oncol.* 14(7):399-416, 2017.

Mantovani A, Allavena P. The interaction of anticancer therapies with tumor-associated macrophages. *J Exp Med.* 2015 Apr 6;212(4):435-445.

Garlanda C., Dinarello C.A., Mantovani A. The IL-1 family: back to the future. *Immunity* 39: 1003-1018, 2013.

Locati M., Mantovani A., Sica A. Macrophage activation and polarization as an adaptive component of innate immunity. *Adv. Immunol.* 120: 163-184, 2013

Sica A, Mantovani A. Macrophage plasticity and polarization: in vivo veritas. *J Clin Invest.* 122: 787-795, 2012.

Biswas S.K. and Mantovani A. Orchestration of metabolism by macrophages. *Cell Metab.* 15: 432-437, 2012.

Mantovani A, Cassatella MA, Costantini C, Jaillon S. Neutrophils in the activation and regulation of innate and adaptive immunity. *Nat Rev Immunol.* 11: 519-531, 2011.

Biswas S.K. and Mantovani A. Macrophage plasticity and interaction with lymphocyte subsets: cancer as paradigm. *Nat Immunol* 11: 889-896, 2010.

Bottazzi B, Doni A, Garlanda C, Mantovani A. An Integrated View of Humoral Innate Immunity: Pentraxins as a Paradigm. *Annu Rev Immunol.* 28:157-183, 2010.

Garlanda C, Anders HJ, Mantovani A. TIR8/SIGIRR: an IL-1R/TLR family member with regulatory functions in inflammation and T cell polarization. *Trends Immunol.* 30: 439-446, 2009.

Mantovani A. Cancer: Inflaming metastasis. *Nature* 45: 36-37, 2009.

Mantovani A, Allavena P, Sica A, Balkwill F. Cancer-Related Inflammation. *Nature* 454: 436-444, 2008.

Mantovani, A., Romero, P., Paluka, AK., Marincola, FM. Tumor immunity: effector response to tumor and the influence of the microenvironment. *Lancet* 371:771-783, 2008.

Mantovani A, Bonecchi R, Locati M. Tuning inflammation and immunity by chemokine sequestration: decoys and more. *Nature Rev. Immunol.* 6: 907-918, 2006.

Balkwill F, Charles KA, Mantovani A. Smouldering and polarized inflammation in the initiation and promotion of malignant disease. *Cancer Cell* 7: 211-217, 2005.

Garlanda C., Bottazzi B., Bastone A., Mantovani A., Pentraxins at the crossroads between innate immunity, inflammation, matrix deposition, and female fertility *Annu. Rev. Immunol.*, 23: 337-366, 2005.



- Mantovani A., Sica A., Sozzani S., Allavena P., Vecchi A., Locati M. The chemokine system in diverse forms of macrophage activation and polarization. *Trends Immunol.* 25: 677-686, 2004.
- Mantovani A., Sozzani S., Locati M., Allavena P., Sica A. Macrophage polarization: tumor-associated macrophages as a paradigm for polarized M2 mononuclear phagocytes. *Trends Immunol.* 23: 549-555, 2002.
- Mantovani A., Locati M., Vecchi A., Sozzani S., Allavena P. Decoy receptors as a strategy to regulate inflammatory cytokines and chemokines. *Trends Immunol.* 22: 328-336, 2001.
- Balkwill F. and Mantovani A. Inflammation and cancer: back to Virchow? *Lancet* 357: 539-545, 2001.
- Mantovani A. The chemokine system: redundancy for robust outputs. *Immunol. Today* 20: 254-257, 1999.
- Mantovani, A., F. Bussolino, and M. Introna. Cytokine regulation of endothelial cell function: from molecular level to the bed side. *Immunol. Today.* 18:231-239, 1997
- Colotta, F., S. K. Dower, J. E. Sims, and A. Mantovani. The type II 'decoy' receptor: novel regulatory pathway for interleukin-1. *Immunol. Today.* 15:562-566, 1994.
- Mantovani, A., F. Bussolino, and E. Dejana. Cytokine regulation of endothelial cell function. *FASEB. J.* 6:2591-2599, 1992.
- Mantovani, A., B. Bottazzi, F. Colotta, S. Sozzani, and L. Ruco. The origin and function of tumor-associated macrophages. *Immunol. Today.* 13:265-270, 1992.
- Mantovani, A. and E. Dejana. Cytokines as communication signals between leukocytes and endothelial cells. *Immunol. Today.* 10:370-375, 1989.