



## CIMT Lifetime Achievement Award 2021

### **Alberto Mantovani, M.D.**

The Association for Cancer Immunotherapy's (CIMT) Lifetime Achievement Award is a biennial recognition of a European researcher who has substantially contributed to the advancement of cancer immunotherapy. The CIMT Awards Committee identifies honorees who have dedicated their careers to finding immunological treatment options for cancer patients, and who have had an impact on the field by virtue of their ingenuity and dedication.

The 2021 recipient of the award is Alberto Mantovani, an expert on the molecular mechanisms of innate immunity and inflammation. Over his 50-year career, Alberto Mantovani has significantly advanced knowledge in the field of immunology by formulating new paradigms and identifying new molecules and functions. In addition, he has furthered awareness of science and medicine by authoring books and articles on immunology, vaccines and health targeted at the general public.

### About Alberto Mantovani

Alberto Mantovani is Emeritus Professor of Pathology at the Humanitas University in Milan, and Scientific Director of the Istituto Clinico Humanitas. After completing his medical doctorate at the University of Milan in 1973, Alberto Mantovani specialized in oncology. He trained and worked at the Chester Beatty Research Institute, London, UK, and at the National Institutes of Health, Bethesda and Frederick, MD, USA at various stages in his career. He served as Head of the Laboratory of Human Immunology and then Department of Immunology and Cell Biology, Istituto Mario Negri, Milan, Italy. He served as Full Professor of General Pathology at the State University of Brescia, State University of Milan and at Humanitas University.

Throughout his scientific life, he focused his attention on primitive mechanisms of resistance and inflammation, now referred to as innate immunity. He contributed to the field by formulating new paradigms and by identifying new molecules and functions. Starting in the late 1970s, he identified

tumor-associated macrophages as an essential component of the tumor microenvironment promoting tumor progression acting as “corrupted policemen”, against current wisdom at the time. Alberto Mantovani’s studies on tumor-associated macrophages led to the recognition that inflammation is an essential component of the tumor microenvironment, thus giving a seminal contribution to a paradigm shift, from a cancer cell-centric view of neoplasia to one encompassing the ecological niche, including taming of immunity and tumor-promoting inflammation. In 1993, this led to the identification of a tumor-derived attractant responsible for macrophage recruitment, subsequently identified as the chemokine CCL2, thus contributing to the foundation of the chemokine field. In the context of his interest in inflammatory cytokines, he identified the Interleukin-1 type 2 receptor as a decoy for IL-1, a molecular trap for the ligand and a negative pathway of regulation. The discovery of decoy receptors represented a shift from the classic concept of a “receptor” which includes ligand recognition and signaling. In the same general field of inflammatory cytokines, he discovered gene expression-dependent activation of endothelial cells by IL-1. In 1998, his laboratory discovered MyD88 as a key component of the signal transduction pathway of, at the time single, human Toll, now TLR4, a discovery with broad impact in diverse fields in biology and medicine. Alberto Mantovani identified molecules in innate immunity and inflammation and, among these, PTX3, the first member of the long pentraxin family. He used PTX3 to dissect the role and logic of humoral innate immunity. In an unexpected twist, he discovered that PTX3 acts in preclinical models and in selected human tumors as an extrinsic oncosuppressor gene, taming complement and macrophage-driven tumor-promoting inflammation. He discovered the innate immunity checkpoint IL-1R8 and identified the function of myeloid- expressed tetraspan molecules.

Confronted with the COVID-19 pandemic, he was part or promoter of studies that led to the dissection of host genetics, identification of novel biomarkers and usage of single dose vaccines in past COVID patients.

For his work Alberto Mantovani has been presented with many national and international awards, including the OEI (Organization of European Cancer Institutes) Prize for contribution to Cancer Immunology and Immunotherapy, the Robert Koch Award (Robert Koch Stiftung, Germany), and

The American Association for Cancer Research International Pezcoller Award for Extraordinary Achievement in Cancer Research. In Italy, he was nominated Commendatore and subsequently Cavaliere di Gran Croce al Merito della Repubblica Italiana. Throughout his career, Alberto Mantovani has been committed to raising public awareness of science and medicine with many educational contributions to daily newspapers, magazines, TV and Radio programs, books to lay public.