CRISTINA BOTTINO

Birthplace-birthday: Genova (Italy), October 23, 1958
1985: M.D. degree (110/110 cum laude), School of Medicine, University of Genova (Italy)
1986-88: Postdoctoral Fellow, Laboratory of Human Immunology, Ludwig Institute for Cancer Research, Lausanne (Switzerland)
1989-2001: Staff Member, Laboratory of Immunology, Istituto Nazionale per la Ricerca sul Cancro, Genova (Italy)
2002-2006: Head Molecular Immunology Unit, Laboratory of Clinical and Experimental Immunology, Istituto G. Gaslini, Genova (Italy)
2006-today: Full Professor of General Pathology, Dipartimento di Medicina Sperimentale, School of Medicine, University of Genova and Head of the Laboratory of Clinical and Experimental Immunology, Istituto G. Gaslini, Genova (Italy)

Major Scientific Achievements

The research activity of Cristina Bottino is focused on the analysis of the molecular mechanisms regulating the immune mediated recognition of tumors and virus-infected cells in human. Since 1990 a major object of her research has been the study of the human Natural Killer (NK) cell functions in physiological and pathological conditions. i) Discovery and molecular characterization of HLA-class I-specific inhibitory receptors, including Killer Ig-like receptors (KIR) and CD94/NKG2A as well as their activating counterparts; ii) Identification and molecular characterization of IRp60 and p75/AIRM1, inhibitory receptors expressed by NK and myeloid cells; iii) identification of the (non-MHC specific) activating NK receptors and co-receptors responsible for recognition and killing of tumor cells. These include NKp46, NKp30 and NKp44 (collectively termed Natural Cytotoxicity Receptors, NCR), 2B4, NKp80 and NTB-A. iv) Identification of PVR and Nectin-2, ligands of DNAM-1 activating receptor and demonstration that of NTB-A displays homophilic recognition; v) Characterization of the function of NK cells in patients with primary immunodeficiencies (PID) such as X-linked lymphoproliferative disease 1 (XLP-1), leukocyte adhesion deficiency type 1 (LAD1) and familial hemophagocytic lymphohistiocytosis (FHL); vi) analysis of the molecular interactions involved in NK/DC and NK/macrophage crosstalk in physiological conditions and in the tumor microenvironment.; vii) demonstration the NK cells are able to kill tumor cells with stem cell properties (CSC) in Medulloblastoma and Glioblastoma.
Since 2003 a major aim of her research has been the characterization in high risk Neuroblastoma (NB) patients of tumor-associated molecular targets, anti-tumor immune responses and tumor escape mechanisms: i) Characterization of the receptor/ligand interactions involved in NK cell-mediated recognition of NB; ii) Identification of B7-H3 as a cell surface molecule protecting Neuroblastoma from NK-mediated recognition; iii) Downregulation of PVR expression protects NB from NK-cell-mediated killing; iv) Neuroblastoma-derived TGF-β1 modulates the

chemokine receptor repertoire of NK cells; v) PD-L1 expression as an additional mechanism for limiting immune surveillance in metastatic NB.

The research activity of C. Bottino is documented by several scientific publications in high rank International Journals (https://scholar.google.it). In 2006 she has been included among the highly cited researchers (subject category; Immunology) (Institute for Scientific Information, ISI, Philadelphia, http://isihighlycited.com)

Honors/Awards

2004 Gerolamo Gaslini Prizes for excellence in Research. 2005 Gerolamo Gaslini Prizes for excellence in Research. February 13, 2014 "Commendatore Ordine al Merito della Repubblica Italiana"

Patents

1. THERAPEUTIC AND DIAGNOSTIC METHODS AND COMPOSITIONS TARGETING 4IG-B7-H3 AND ITS COUNTERPART NK CELL RECEPTOR. Publication info: ES2534288 (T3) 2015-04-21
2. NTB-A, A SURFACE MOLECULE INVOLVED IN NATURAL KILLER CELLS ACTIVITY. Publication info: AT464320 (T) 2010-04-15
3. Novel Triggering Receptor Involved in Natural Cytotoxicity Mediated by Human Natural Killer Cells and Antibodies That Identify the Same. Publication info: US2010015153 (A1) 2010-01-21
4. NOVEL TRIGGERING RECEPTOR INVOLVED IN NATURAL CYTOTOXICITY MEDIATED BY HUMAN NATURAL KILLER CELLS, AND ANTIBODIES THAT IDENTIFY THE SAME. Publication info: ES2321687 (T3) 2009-06-10
5. Polypeptides having a triggering NK activity and biological applications. Publication info: US2006246068 (A1) 2006-11-02
6. NOVEL TRIGGERING RECEPTOR INVOLVED IN NATURAL CYTOTOXICITY MEDIATED BY HUMAN NATURAL KILLER CELLS AND ANTIBODIES THAT IDENTIFY THE SAME. Publication info: CA2288307 (A1) 2001-05-15