Università di Genova

Prof. Alberto Ballestrero

Full Professor of Internal Medicine

EDUCATION AND TRAINING

2005 *Full Professor of Internal Medicine (SSD-MED/09), appointed by the Faculty of Medicine and Surgery of the University of Genoa in November 2005*

2001 *Associate Professor of Internal Medicine (SSD-MED/09)*

1997 *Specialist in Oncology, with honours, discussing a thesis entitled 'High-dose cyclophosphamide with G-CSF, GM-CSF or IL-3 and GM-CSF support: comparative effects on toxicity and mobilisation of peripheral haematopoietic progenitors'.*

1991 *Specialist in Internal Medicine, with honours, discussing a thesis entitled 'Rapid haematopoietic reconstitution with reinfusion of bone marrow and peripheral blood stem cells after high-dose chemotherapy with Mitoxantrone and Melphalan'.*

PhD In 1991, *he obtained a PhD in Experimental Haematology from the University of Genoa.*

1982 *Graduated with honours in Medicine and Surgery from the University of Genoa.*

ACADEMIC EXPERIENCE

2005 *Full Professor of Internal Medicine (SSD-MED/09), University of Genoa - Genoa - IT*

From 1/11/2018 to 31/10/2024 *Director of the Department of Internal Medicine and Medical Specialities (Di.M.I.), University of Genoa, Viale Benedetto XV n.6, 16132 Genoa*

2001 – 2005 *Associate Professor of Internal Medicine (SSD-MED/09), University of Genoa - Genoa - IT*

PROFESSIONAL EXPERIENCE

2018 present Head of the Department of Specialised Medicine, IRCCS San Martino Polyclinic Hospital

2013 – 2018 Director of the Integrated Oncology Therapies Care Department, IRCCS San Martino Polyclinic Hospital

2013 – PRESENT Level II Medical Director, UOC Clinic of Internal Medicine with a focus on Oncology, University of Genoa and IRCCS San Martino Polyclinic – Genoa – IT

2009 – 2013 Level II Medical Director, UOC Medical Semiotics and Methodology I, San Martino University Hospital - Genoa - IT

2005 – 2009 Level II Medical Director, UOS Intensive Chemoimmunotherapy, San Martino University Hospital - Genoa - IT

2001 – 2005 Level I Medical Director at the Internal Medicine Clinic I, San Martino Hospital and University Clinics - Genoa - IT

1997 – 2001 First Level Medical Director (band A) Internal Medicine Clinic I, San Martino Hospital and University Clinics - Genoa - IT

1993 – 1997 First Level Medical Director (band A) Medical Semiotics II, San Martino Hospital and University Clinics - Genoa - IT

ACADEMIC POSITIONS

Bachelor's Degree in Medicine and Surgery (University of Genoa)
since 2025 – ongoing Coordinator of the Applied Medical Therapy degree programme
ongoing Teaching in the integrated Internal Medicine course

Specialisation Schools (University of Genoa)
2020 ongoing Director of the Internal Medicine specialisation school, University of Genoa - Genoa - IT

Teaching position at the Specialisation Schools in Internal Medicine, Haematology and Radiotherapy at the University of Genoa.

Supervision of doctoral students, specialisation students and research fellows
Since 1 January 2007, member of the teaching staff of the doctoral programme at the University of Genoa.

Since 1/1/2007, member of the teaching staff of the PhD programme at the University of Genoa

Coordinator from the 26th cycle “Clinical and Experimental Oncology and Haematology” (academic years 2011-2013) to the 32nd cycle “Translational Medicine in Oncology and Haematology” (academic years 2016-2018).

RESEARCH INTERESTS

Main research topics
2004 - Present Genomics applied to clinical medicine
2000 - Present Immunotherapy of solid tumours
2000 - Present Molecular mechanisms of cytotoxicity from antineoplastic agents
1998 - Present Molecular biology of Philadelphia-positive CML, breast cancer, colorectal cancer and lung cancer
1989 - 2013 High-dose chemotherapy with autologous peripheral blood haematopoietic stem cell transplantation in solid and haematological tumours
1980 - 1992 Functions of phagocytes in neoplasms; Mechanisms of cytotoxic activity of neutrophils against tumour cells; Interactions between human neutrophils and other lympho-haematopoietic cells
Laboratory research: cell biology
Translational research: molecular biology of tumours
In 1998, Prof. Ballestrero launched a translational research programme in molecular oncology and haematology. To develop this research, he organised a specifically dedicated laboratory section and obtained support for this project from the Italian Leukaemia Association (AIL Genoa section), which

provided funding for the purchase of equipment and the establishment of scholarships and research grants.
Several lines of research have been initiated as part of this programme.
Study of minimal disease and BCR-ABL fusion gene mutations in chronic myeloid leukaemia and study of RAS and RAF gene mutations in colorectal cancer. As a result of this research, tests have also been implemented for the molecular diagnosis of chronic myeloid leukaemia and Philadelphia-positive leukaemias, as well as for the molecular diagnosis of colorectal tumours and gliomas. For the molecular diagnosis of chronic myeloid leukaemia, the laboratory has been the reference centre for Liguria since 2001 and is part of the Italian network coordinated by GIMEMA.
The laboratory also has European Molecular Genetics Quality Network (EMQN) certification for performing molecular analyses using both the Sanger method and Next Generation Sequencing methodology. Genomic analysis of multifocal breast cancer, which has made it possible to demonstrate the inter-tumour heterogeneity of different tumour foci with consequent implications for treatment planning. This is an international research project to which Prof. Ballestrero's laboratory has made a substantial contribution by performing mutational analysis of all cases using the next generation sequencing method. This study involved collaboration with prestigious research institutions such as the Institut Jules Bordet in Brussels, international reference centre for the study of breast cancer and the Wellcome Trust Sanger Institute, an international reference centre for genomic analysis.
Genomic analysis of the National Cancer Institute Antitumor Cell Line Panel (NCI-60) led to the identification of the SLFN11 gene as a determinant of response to anti-tumour drugs that act by damaging DNA. The SLFN11 gene plays a particularly important role in ovarian and colorectal cancer. The research was conducted in collaboration with the prestigious National Cancer Institute in Bethesda, Maryland, US. The identification of the role of the SLFN11 gene has enabled validation studies to be initiated on clinical cases, which are still ongoing and involve collaboration with other national and international research groups. [...] national and international. [...]
Clinical research: autologous haematopoietic stem cell transplantation.
From 1989 to 2012 (last reinfusion in August 2012), Prof. Ballestrero was responsible for the clinical research programme on supramaximal chemotherapy and autologous haematopoietic stem cell transplantation for haematological and non-haematological neoplasms.
Clinical research: participation in phase II and III clinical trials.
Since 2000, Principal Investigator of 50 phase II, phase III, observational and translational clinical studies on breast and colorectal cancer.
He is the principal investigator in two international translational research projects aimed at developing tumour tissue biobanks for genomic screening of advanced colorectal cancer and metastatic breast cancer.

RESEARCH PROJECTS

AIRC MFAG10570 Chk2 synthetic lethality discovery in p53-deficient cancer models through high throughput siRNA libraries

Scientific director
AIRC MFAG10570: Chk2 synthetic lethality discovery in p53-deficient cancer models through high throughput siRNA libraries (2011)

Fondazione CARIGE Sequenziamento di nuova generazione in oncologia e ematologia

Scientific director

Studio del profilo mutazionale dellaggressività biologica e delleterogeneità genetica nel carcinoma mammario sottoposto a terapia[..]

Compagnia di San Paolo 2013
Scientific director

Compagnia di San Paolo 2013 “Studio del profilo mutazionale, dell'aggressività biologica e dell'eterogeneità genetica nel carcinoma mammario sottoposto a terapia neo-adiuvante”

Dynamic modeling e caratterizzazione molecolare di tumori colo-rettali verso una razionalizzazione di associazioni di farmaci t

Compagnia di San Paolo 2013

Scientific director

Dynamic modeling e caratterizzazione molecolare di tumori colo-rettali: verso una razionalizzazione di associazioni di farmaci target specifici

Implementation of Systems Medicine across Europe FP7- HEALTH-2012

CASYM Coordinating Action Systems Medicine

Scientific director

CASYM Coordinating Action Systems Medicine - Implementation of Systems Medicine across Europe FP7-HEALTH-2012 (Grant 305033).

Smart Cities and Communities and Social Innovation SNC00558

Responsabile scientifico

Progetto Health @ Home, Smart Cities and Communities and Social Innovation SNC_00558

Preclinical evaluation of the Nampt inhibitor FK866 for the treatment of autoimmunity and lymphoblastic leukemia

Ministero della Salute (GR-2008-1135635)

Partecipant

Ministero della Salute (GR-2008-1135635) “Preclinical evaluation of the Nampt inhibitor FK866 for the treatment of autoimmunity and lymphoblastic leukemia”

Proof of concept studies of SIRT6 inhibitors for treating type II diabetes

Ministero della Salute (GR-2011-02347192)

Partecipant

Ministero della Salute (GR-2011-02347192) “Proof of concept studies of SIRT6 inhibitors for treating type II diabetes'

Piattaforme intelligenti di sequenziamento per analisi genomica e diagnostica molecolare personalizzata del cancro e delle malat

Ministero dello Sviluppo Economico (MI0100424)

Partecipant

Progetto finanziato dal Ministero dello Sviluppo Economico (MI01_00424) intitolato “Piattaforme intelligenti di sequenziamento per analisi genomica e diagnostica molecolare personalizzata del cancro e delle malattie multifattoriali”

PANACREAS Integrating chemical approaches to treat pancreatic cancer making new leads for a cure

Settimo Programma Quadro della Comunità Europea

Partecipant

progetto del Settimo Programma Quadro della Comunità Europea PANACREAS (http://www.panacreas.eu/) “Integrating chemical approaches to treat pancreatic cancer: making new leads for a cure”

ATHERO-B-CELL Targeting and exploiting B cell functions for treatment in cardiovascular diseases

Settimo Programma Quadro della Comunità Europea

Partecipant

progetto del Settimo Programma Quadro della Comunità Europea ATHERO-B-CELL (http://www.atherobcell.eu/) “Targeting and exploiting B cell functions for treatment in cardiovascular diseases”

Progetto START-UP AIRC Chemical-genetic screens for synthetic lethal interactions in mammalian cancer cells

START-UP AIRC

Partecipant

Progetto START-UP AIRC “Chemical-genetic screens for synthetic lethal interactions in mammalian cancer cells

Inibizione dellautofagia nella leucemia mieloide cronica come strategia per eradicare la cellula staminale leucemica

Fondazione CARIGE

Partecipant

Progetti sponsorizzato da Fondazione CARIGE 'Inibizione dell'autofagia nella leucemia mieloide cronica come strategia per eradicare la cellula staminale leucemica' (2013).

SPECTAcolor (http//spectacolor.eortc.org/)

European Organisation for Research and Treatment of Cancer (EORTC)

Scientific director

SPECTAcolor (http://spectacolor.eortc.org/), una importante iniziativa europea coordinata dall’ European Organisation for Research and Treatment of Cancer (EORTC), che ha l’obiettivo di sviluppare una bio-banca di tessuti tumorali di carcinoma del colon-retto avanzato per il profiling genetico

AURORA

Breast International Group (BIG)

Scientific director

AURORA piattaforma di screening genomico del carcinoma mammario metastatico, sponsorizzata dal Breast International Group (BIG).

ASSIGNMENTS ABROAD

International collaborations

The development of various research programmes has led to numerous collaborations with Italian and foreign cancer centres and researchers, as well as with the international biotechnology industry. Notable collaborations over the last five years include those with the Institut Jules Bordet in Brussels (Dr Christos Sotiriou and Dr Christine Desmedt), the National Cancer Institute in Bethesda, Maryland (Dr Yves Pommier), the European Institute of Oncology (Prof. Giuseppe Viale), the Céntre Léon Bérard in Lyon (Dr Nicholas Chopin, Dr Olivier Trédan), the Wellcome Trust Sanger Institute (Dr Peter Campbell), the CIO (Centre for Integrated Oncology) in Bonn-Cologne (Director Prof. Peter Brossart), the Haematology Department of the Centre Hospitalier Universitaire Vaudois (Prof. Michel Duchosal) and the Ecole Polytechnique Federale de Lausanne (Prof. Pierre Vogel), both in Lausanne, and with the Norris Comprehensive Cancer Centre at the University of Southern California (Prof. Valter D. Longo and Dr. Tanya Dorff) and with Life Technology US.

All of the above collaborations are officially formalised and/or documented by publications..

SCIENTIFIC PUBLICATIONS

He is the author of over 210 scientific publications, 185 of which have been published in full in international journals.