



Gabriele Zoppoli

Associate professor

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Education and training

2017

**Italian License for Associate Professor of Internal Medicine
(ASN II Fascia MED06/B1)**

2014

Residency in Internal Medicine

50/50 cum Laude

University of Genoa - Genoa - IT

2012

Ph.D. Clinical and Translational Oncology and Hematology

University of Genoa - Genoa - IT

2005

Medical Degree

'Telomerase as a tumor-associated antigen' ('La telomerasi quale antigene-tumore associato') - 110/110 Summa Cum Laude

University of Genoa - Genoa - IT

Academic experience

2018 - ONGOING

Assistant Professor in Internal Medicine (R.T.D.B)

University of Genova - Genoa - IT

2015 - 2018

Research Associate (R.T.D.A)

University of Genoa - Genoa - IT

2013 - 2015

**Research Fellow J.C. Heuson Translational Research
Laboratory**

Institut Jules Bordet Université Libre de Bruxelles - Brussels - BE

2010 - 2011

Guest Researcher Laboratory of Molecular Pharmacology

National Cancer Institute National Institutes of Health - Bethesda - US

2009 - 2012

Ph.D. Fellow Department of Internal Medicine

University of Genoa - Genoa - IT

2005 - 2013

Internal Medicine Resident Internal Medicine and Oncology Unit

University Hospital Policlinico San Martino - Genoa - IT

Work experience

2016 - ONGOING

**Assistant Medical Director (Dirigente Medico I Livello)
Internal Medicine and Oncology Unit**

University Hospital Policlinico San Martino - Genoa - IT

Inpatient and outpatient consultations internal medicine and breast and colorectal oncological patients resident tutoring

Language skills

English

Proficient

French

Basic

Teaching activity

2016 – ongoing: Translational Hematology and Oncology Board of Ph.D.

Teachers, XXXII Doctoral Cycle of the University of Genoa, Genoa IT

2016 – ongoing: Clinical Medicine (Medicina I) Board of Teachers, School of Medicine, University of Genoa, Genoa IT

2018 – ongoing: Semeiotics and Medical Methodology (Semeiotica e Metodologia Medica) Board of Teachers Director, School of Medicine, University of Genoa, Genoa IT

2018 – ongoing: Internal Medicine Residency Board of Teachers, School of Medicine, University of Genoa, Genoa IT

Postgraduate research and teaching activity

Supervision of PhD students, residents and post-doctoral fellows

I am currently supervising two Ph.D. Fellows in Clinical and Translational Oncology and Hematology. I have been supervisor and co-supervisor of several MD dissertations, as well as co-supervisor of bioengineering doctoral dissertations

Research interests

As a researcher, I believe my greatest achievement has been the successful study of a cohort of 413 clinically annotated invasive lobular breast cancers,

which I carried out as a Research Fellow at Institut Jules Bordet, BE. In that effort, I performed most of the NGS and microarray data analyses, as well as a large part of the clinical statistics. Thanks to my contribution, our team was able to discover novel and clinically relevant properties of this type of breast cancer, which is characterized by an indolent behaviour, its resistance to chemotherapy, and a propensity to relapse late in its clinical course. We identified novel actionable targets, such as ERBB2 and ERBB3 mutations, the activation of the PI3K/mTOR pathway, and the amplification and overexpression of ESR1, the gene encoding for the estrogen receptor protein. Our findings were reported in a publication in the Journal of Clinical Oncology in 2016, of which I was co-first author (*Desmedt C et al., J Clin Oncol 2016*).

During my postgraduate education, I spent two years (2010-11) as Guest Researcher in the Laboratory of Molecular Pharmacology, NIH (Bethesda, MD), mentored by Dr Y. Pommier. There, by applying transcriptomics analysis methods, I identified a previously uncharacterized protein, SLFN11 in correlation with activity of TOP1 and TOP2 inhibitors, and demonstrated its causal involvement in cancer sensitivity to DNA damaging agents (*Zoppoli G et al., Proc Natl Acad U.S.A. 2012*). That protein is now object of intense research by the scientific community, largely thanks to our publication.

Likewise, back at University of Genoa, by combining *in silico* analyses on the Cancer Genome Atlas pan-cancer data with *in vitro* experiments, I described the prognostic and potentially therapeutic relevance for breast cancer of SQLE, a rate-limiting cholesterol synthesis enzyme. I reported on its copy dosage/prognosis correlation and *in vitro* actionability in *Brown DN et al., Sci Rep 2016* (as last author). SQLE is a novel and highly actionable target for cancer treatment, in that several selective inhibitors were developed against that protein in the '90s as cholesterol-lowering agents. Thanks to my report, interest in SQLE has resurfaced, and an entire class of orphan drugs may be soon put to use after being repurposed as anticancer agents.

Since I became Assistant Professor at University of Genoa, I took the scientific lead of the Translational Genomics Laboratory of my Department, where we are now conducting translational research with cutting-edge technologies. Currently, my researches are dedicated to: a) discovery of NGS-based non-invasive biomarkers of cancer relapse in early breast cancer (mainly through the detection of free circulating tumor DNA mutations, financed grant as Unit co-PI 5x1000 IRCCS); b) analysis of mechanisms of acquired resistance to endocrine treatment in breast cancer using NGS approaches (targeted gene screening and transcriptome sequencing, External Collaborator, IG AIRC grant to Giancarlo Pruneri); c) SLFN11 characterization in breast and ovarian cancer and its interconnections with the immune system (supported by a grant by University of Genoa).

Grants

2017 - ONGOING

Unveiling potentially actionable mechanisms of acquired endocrine resistance in breast cancer patients

AIRC - IT

Participant

PI of Collaborating Unit with Prof. G. Pruneri (INT, Milan, Italy). Currently supervising next-generation-sequencing of more than 150 matched primary and metastatic samples of HR+ breast cancer samples using a patent-pending custom targeted NGS multigene panel devised by our research team

2012 - 2017

305033 CASyM Coordinating Action Systems Medicine Implementation of systems medicine across Europe

FP7 - European Community

Participant

2012 - 2014

MI0100424 Development of smart integrated next-generation sequencing platforms for clinical diagnostics in oncology'

Ministry of Development - IT

Participant

2011 - 2014

Research of Chk2 synthetic lethality combinations through high throughput siRNA screening in TP53-deficient cancer models'

AIRC - IT

150000 Euro - Pricipal investigator

Editorial activity

2018- ongoing: Associate Editor, Journal of Translational Medicine

Assignments abroad

2010-11: Guest Researcher, Laboratory of Molecular Pharmacology, National Cancer Institute, National Institutes of Health, Bethesda MD

2013-15: Research Fellow, J.C. Heuson Translational Research Laboratory, Institut Jules Bordet – Université Libre de Bruxelles, Brussels BE