# Work Experience

## 2019-at present: University of Torino (Oncology Department). RTDA, Assistant Professor in Histology.

## 2018-at present: *Co-Founder and shareholders of NeoPhore Limited, Cambridge.* Since 2018, I am actively collaborating to develop DNA repair inhibitory molecules. By NeoPhore we aim to compromise DNA damage repair pathways to disrupt the equilibrium between cancer cells and the immune system from tolerance to recognition.

## 2014- 2019: *Candiolo Cancer Institute, Candiolo (Italy)*. *Post-doctoral fellows at the Oncology Department.* During my postdoctoral experience*:*

## We demonstrated that the chemical and metabolic stress in tumor microenvironment (e.g., hypoxia, low glucose) are part of the mechanisms of resistance to anti EGFR therapies in colorectal cancer selecting oncogenic mutations.

1. I found that circulating tumor cells in colorectal cancer are detectable in one third of patients whereas circulating tumor DNA in all patients tested. We concluded that circulating DNA, and not circulating tumor cells, is a readily available candidate for clinical application in colorectal cancer.
2. We demonstrated that the genetic compromission of mismatch repair perturbed the neoantigen landscape of tumors and consequently the immunogenic properties of cancer cells. Other collaborators (e.g., L. Diaz, Bardelli’s group) and I have contributed to the agnostic FDA approval in 2017 of immune checkpoint blockade therapies in tumors with mismatch repair alterations independently by their origin and localization.

* 2011-2013:*University Hospital, Zurich. Post-doctoral fellow at the Oncology Department.* The project demonstrated that fibroblast activation protein (FAP) can cleave the granulocyte/monocyte differentiating factor (GMCSF) in vitro altering the landscape of the immune repertoire in tumor microenvironment.

## Education and Training

* March 2006 - August 2011: *IRCCS Clinical and Research Institute Humanitas, Rozzano (Milan). Department of Oncology and Inflammation.* International Ph.D. in “Basic and Applied Immunology” track of the International Graduate School of Molecular Medicine of Vita-Salute University San Raffaele, Milano, Italy.

Our findings disclosed a new anti-tumoral mechanism of trabectedin, an approved alkylating agent, into targeting tumor associated macrophages (TAM) in preclinical murine models and in cancer patients.

* April 2004-March 2006: *European Institute of Oncology, Milan, Italy.* We dissected the role of RaLP protein in melanocytes, primary and metastatic melanoma showing that RaLP is activated in the initial phase of melanocyte differentiation and when melanoma acquires radial growth becoming metastatic.

## Teaching activity

## 2020-at present: Histology course co-leader at Biotechnology and Medicine classes, University of Torino.

## 2019-2020: Histology course leader at Nursing Science classes, University of Torino.

**Research main topics**

Iam a cancer immunologist with deep understanding of an unmet clinical need of how turning a cold (immune refractory) into hot (immune responsive) tumors. In 2011 I got my Ph.D. in basic and applied immunology in a cutting-edge group into inflammation and cancer field studying the in vivo effects of a registered compound (trabectedin) on tumor associated macrophages. After my postdoc at the University Hospital of Zurich, I am now a leader of an immune-oncology asset in the host laboratory. Here, we found that altering DNA repair pathways in cancer triggers immune surveillance in presence of immune checkpoint blockades. Based on previous validation studies described in Nature, I co-founded NeoPhore LTD, a start-up company aimed to identifying chemical compounds able to inhibit DNA damage repair pathways. In the lab, the main responsibilities include organization and alignment of cross-functional teams (with clinical, biology, mathematic, physic and chemistry leaders), planning, refinement, and execution of clear strategies for finding immune mediated cancer vulnerability altering DNA repair machineries. As an expert on immune oncology in the group, I am an active contributor of several projects coordinating a motivated, committed and engaged network, to ensure alignment of appropriate technologies, capabilities, and resources for the development of high impact projects.

**Main projects as PI**

* FPRC 5xmille 2017 Ministero Salute PTCRC-Intra 2020 (REGENERATION-YIG 2020 project): *The impact of immune-mediated surveillance on cancer cells with mismatch repair alterations*
* AIRC MFAG 2020 Grant-ID 24604: *The impact of the non-coding genome on response to immune-based therapies in gastrointestinal cancers*

**Abilitazione Scientifica Nazionale 2018-2020**

Settore Concorsuale 05/H2 - II Fascia - Dal 18/11/2020 al 18/11/2030

**Fellowships and Awards**

* January 2015-2017: 7th Framework Programme: Marie Curie Actions, International Cancer Research Fellowship iCARE 2014.
* Lorini Price 2017: Fondazione Andrea e Libi Lorini conferred the Price for the Manuscript Published in Nature (Inactivation of DNA repair triggers neoantigen generation and impairs tumour growth).

**Mother Tongue and Other Languages**

**Italian: mother tongue**

**English: Academic Writing and Presentation Skills C1**

**Major congress as invited speaker**

UEG Week Vienna 2016, Austria Center Vienna. October 15-19, 2016.

AACR 2016 Tumor Immunology and Immunotherapy conference, Boston 20-23th October 2016

AACR Annual Meeting, Session: Interceptin Metastasis in Gastrointestinal Malignancies. Chicago 14-18 April 2018

Clinical Genomics and NGS Bertinoro (Italy), 31st Course jointly organized by ESGM, ESHG AND CEUB

April 29 – May 4, 2018.

72° Congresso Nazionale della Società Italiana di Anatomia e Istologia, 20-23 September 2018.

ESTRO 38, Targeting Optimal Care Together, Milan 26-30 April 2019

EACR 2022 Congress - Innovative Cancer Science: Translating Biology to Medicine, May Seville 2022

EACR-AACR-SIC Immune Response & DNA Repair, Florence March 2023

**Bibliography:**

**Best 10 Publications:**

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**Germano G**., Lu S., Rospo G., Lamba S., Rousseau B., Fanelli S., Stenech D., Le T.D., Hays J., Totaro MG., Amodio V., Chilà R., Mondino A., Diaz A.L., Di Nicolantonio F., Bardelli A.

CD4 T cell dependent rejection of beta 2 microglobulin null mismatch repair deficient tumors.

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[SHP2 is required for growth of KRAS-mutant non-small-cell lung cancer in vivo.](https://www.ncbi.nlm.nih.gov/pubmed/29808006)

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[*Inactivation of DNA repair triggers neoantigen generation and impairs tumour growth.*](https://www.ncbi.nlm.nih.gov/pubmed/29186113)

**Nature.** 2017 Nov 29. doi: 10.1038/nature24673.

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*Anti-tumor and anti-inflammatory effects of trabectedin on human Myxoid liposarcoma cells.*

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