BIOGRAPHICAL SKETCH

Arianna Calcinotto

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POSITION TITLE: Group Leader, Cancer Immunotherapy lab, IOR, Bellinzona, Switzerland

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE	START DATE	END DATE	FIELD OF STUDY
University of Milano-Bicocca, IT	M.S	10/2004	10/2007	Industrial Biotechnology
University of Milano-Bicocca, IT	B.S.	10/2007	10/2009	Biotechnology
Università Vita-Salute San Raffaele, IT	Ph.D.	01/2011	02/2015	Molecular Medicine
Mayo Clinic, Scottsdale, US Lab: Leif Bergsagel, (Research fellow)	n.a.	08/2013 06/2015	12/2013 09/2015	Cancer Immunology
Università Vita-Salute San Raffaele, IT Lab: Matteo Bellone, (postdoc)	n.a.	02/2015	11/2015	Cancer Immunology
Institute of Oncology Research (IOR), CH Lab: Andrea Alimonti, (postdoc)	n.a.	11/2015	06/2019	Cancer Immunology

Personal Statement

I have always been fascinated and puzzled by the immune system and its ability to distinguish what is harmful from what is safe. This pushed me to work in the field of cancer immunology and immunotherapy. My scientific career started 10 years ago at the San Raffaele Institute in Milan, where I investigated the dynamics of T cells infiltrating melanoma and prostate cancer neoplasms (Calcinotto *et al*, J Immunol 2012*;* Calcinotto *et al,* Cancer Res 2012). Likely enough, both publications opened new therapeutic opportunities for cancer patients that have been and/or are under clinical investigation. As a PhD student at San Raffaele, I have studied how the gut microbiota may support the progression of multiple myeloma [OncoImmunology 2015 and Nature Communications 2018]. This work has been the ground for an ongoing clinical trial in patients affected by smoldering multiple myeloma. The latter has been developed in collaboration with the lab of Prof. Bergsagel at Mayo Clinic (Arizona, USA), where I spent several months. At the end of 2015, I joined the lab of Prof. Alimonti at Institute of Oncology Research for my post-doctoral experience. Here, my research was focused on the characterization of the mechanisms controlling the development of castration-resistant prostate cancer (CRPC). This project gave me the opportunity to start a solid collaboration with Prof de Bono and to visit his lab in London (UK). I described for the first time how an immune cell population can fuel the proliferation of prostate cancer cells. We demonstrated that tumour infiltrating MDSCs produce IL-23 driving CRPC in mice and patients. Antibody-mediated inactivation of IL23 reverted castration resistance and further enhanced the efficacy of standard of care ADT *in vivo* (Calcinotto *et al*., Nature 2018; patent US20200095314A1). Importantly, we have started a multi-center clinical trial on CRPC patients financed by a big pharma. Recently, we have identified an unexpected role played by the gut microbiota in CRPC patients. Additionally, we have found compositional differences in the gut microbiota in PC patients responding or not to ADT and we have identified the microbial signature of CRPC patients (Calcinotto *et al*., Science 2021; filled patent EP 102021000021974). Lately, I focused to further characterize tumour-infiltrating PMN-MDSCs in prostate and breast cancers, identifying a persistent sub-population of PMN-MDSCs that acquire features of senescent cells with peculiar pro-tumorigenic features (Calcinotto* *et al.* Nature *under II revision*).

My career had a sudden shift in July 2019, when I took the opportunity to start my group on Cancer Immunotherapy at IOR. The team now counts seven members (a research assistant, a postdoc, two PhD students, a pre-PhD student fellowship and two master students). The major interest of the lab is at identifying the mechanisms underlying the contribution of the innate immune cells in regulating later stages of tumour progression and how they favour therapy resistance in hormone-dependent cancers. As last corresponding author, I recently reported the clinical outcome of SARS-CoV-2 infection in breast and ovarian cancer patients underwent anti-estrogenic therapy (Montopoli *et al.* Annals of Oncology 2021) and showed the CD40-independent CD4+ T cells support to the growth of leukemic clones in TCL1 mice (Grioni *et al.* Blood Adv 2021).

My first NIBIT meeting was in 2010. I always enjoyed the warm and informal atmosphere of these meetings. A great opportunity to freely discuss about science with junior and senior investigators as well. I'm ready to give back and share my experience and enthusiasm to make the NIBIT even better. We need more involvement among the youngest, more "social" visibility and more networking with labs abroad. That's why I put forward my candidature for Member of the Board of Directors of the NIBIT.