
BIOGRAPHICAL SKETCH



NAME
Valentina Audrito, PhD
(Feb 24, 1985, Italian)

POSITION TITLE
Ph.D., senior post-doc (assegnista di ricerca)
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PERSONAL STATEMENT

My research interest is focused on two main aspects of cancer biology: i) the study of how oncogenic signaling drives cancer metabolic adaptation mechanisms, modifying NAD metabolism homeostasis (biosynthetic/consumption pathways) and ii) the study of metabolic/signaling crosstalk between tumor cells and tumor microenvironment. The final goal is to discover new molecules that can be exploited as therapeutic targets.

Since I was a Master Degree student (2007-2009), and then during the PhD program in Biomedical Sciences and Human Oncology (2010-2013) my research project was focused on understanding the role of NAD metabolism in cancer progression, evaluating in particular the role of NAD precursors, NAD-biosynthetic enzymes (NBEs) and NAD-consuming enzymes. I continued the training in oncology obtaining a 3-year fellowship (2014-2016) from the Italian Association for Cancer Research (AIRC), under the supervision of Prof. Deaglio, with a project aimed at analyzing and dissecting whether the network of signals controlled by extracellular nucleotide/nucleoside metabolism may play functional and molecular roles in creating a growth-favorable microenvironment of chronic lymphocytic leukemia (CLL). Here, I identified the NBE nicotinamide phosphoribosyltransferase (NAMPT), as a main player in creating immunosuppressive and tumor-promoting conditions in the CLL microenvironment. During those years, I was visiting scientist (December 2014) at the laboratories of the Weill Cornell Medical College, NY, where Prof. Deaglio was Visiting Professor to set-up xenograft model of lymphoid malignances. Moreover, I spent time (June 2015) to learn Seahorse technology for real-time bioenergetics analysis to study cancer metabolism in the lab Prof. Giuseppe Matarese (Lab of Immunology, Istituto di Endocrinologia e Oncologia Sperimentale, Naples, IT).

In the last 4 years, as postdoctoral research fellow, thanks to the collaboration with Dr. Mario Mandalà (Dermatological Unit, Papa Giovanni XIII Hospital, Bergamo, IT), I moved to study the oncogenic pathways that lead to the acquisition of BRAF inhibitor resistance in metastatic melanoma (MM). My attention was focused on studying the intracellular/extracellular role of NAMPT in driving metabolic reprogramming in resistant MM, becoming a therapeutic target.

In parallel, in the last two years, I set-up a new luminex/ELISA assay (IT patent I0174545 20/02/2018, PCT/IB2019/051314 19/02/2019, Audrito & Deaglio inventors) to measure other NAD-biosynthetic enzymes in extracellular fluids. We discovered that also nicotinate phosphoribosyltransferase (NAPRT) is secreted and exerts "cytokine" functions in inflammatory conditions.

During all these years, I have progressively acquired independence in the design of experiments and studies, analysis and interpretation of the have established fruitful collaborations with other Italian and foreign researcher working in the field. Since 2017 I am a senior postdoc (research fellow) in the laboratory of Tumor Immunogenetics directed by Prof. Silvia Deaglio (Dept. Medical Sciences, University of Turin).

EDUCATION AND TRAINING

2010-2013 PhD in Biomedical Sciences and Human Oncology (curriculum Human Genetics), University of Torino, Italy.

2007-2009 Master Degree in Medical Biotechnologies (110/110 magna cum laude and dignity of print), University of Torino, Italy.

2004-2007 Bachelor Degree in Biotechnology (109/110), University of Torino, Italy.

POSITIONS and EMPLOYMENT

2017 - Present Senior Post-Doctoral fellow (Assegnista di Ricerca). Department of Medical Sciences, University of Torino, Italy

2014-2016 Post-Doctoral fellow (AIRC/FIRC Fellowship #15047) at Immunogenetics Research Unit of the Italian Institute of Genomic Medicine (IIGM), Torino, Italy.

December 2014: Visiting Scientist, Weill Cornell Medical College, NY, USA

June 2015: Visiting Scientist, Lab of Immunology, Istituto di Endocrinologia e Oncologia Sperimentale, Consiglio Nazionale delle Ricerche (IEOS-CNR), University of Naples "Federico II", Naples, Italy.

2010-2013 PhD student (Biomedical Sciences and Human Oncology, curriculum Human Genetics), Immunogenetics Research Unit of the IIGM-Torino and Department of Medical Sciences, University of Torino, Italy.

2007-2009 Internal student, Master Degree in Medical Biotechnologies, Laboratory of Immunogenetics, Department of Genetics, Biology and Biochemistry, University of Torino, Italy.

AWARDS AND HONORS

2020 Application for the USERN 2020 international award
2019-2020 Assegno di ricerca co-finanziato- XXI, XXII Tornata
2019 AACR Scholar in Training Award sponsored by Società Italiana Cancerologia SIC
2018 Pezcoller-Begnudelli Award for the best presentation at the Pezcoller Symposium
2017 ISCaM2017 Travel awards, ISCaM2017 - 4th Annual Meeting - Cancer Metabolism
2016 "Cecilia Cioffrese" Prize 2016 (Carlo Erba Foundation) for the research in oncologic diseases
2015 Fondazione Franco e Marilisa Caligara: co-funding of research project grant 2016 "Defining the role of NAD-biosynthetic enzymes as prognostic markers and therapeutic targets in metastatic melanoma"
2013 AACR Scholar in Training Award sponsored by Pezcoller Foundation;
2013 Pezcoller-Begnudelli Award for the best presentation at the Pezcoller Symposium
2012 Travel grant for the attendance at the XII SIES NATIONAL CONGRESS, Roma, Italy
2010 "CARLO GENETTA" Prize for the best poster presented at the 7° S.I.Ci.C.S. National Congress (Società Italiana di Citometria Clinica e Sperimentale)
2010 Travel Bursary to attend the 9th International Conference on Human Leukocyte Differentiation Antigens (HLDA9), Barcelona, Spain
2009 Degree Prize 2009 "Lorenzetti Lando" for the best degree thesis, FONDAZIONE PER LA RICERCA SUL CANCRO "F. e G. Renzi", Ancona, Italy

GRANTS

1. FIRC/AIRC triennial fellowship #15047 "Role of nicotinamide phosphoribosyltransferase (NAMPT) in the microenvironment of chronic lymphocytic leukemia" (2014-2016 completed, role: PI)
2. "Carlo Chianello" Foundation fellowship/award 2014 (Università degli Studi di Palermo), "Intracellular/Extracellular NAMPT/visfatin in metastatic melanoma: predictive role in response to treatment and prognosis" (2015 completed, role: PI)
3. Co-funding assegno di ricerca 2015/2016 "Franco e Marilisa Caligara" Foundation fellowships (Turin) "Defining the role of NAD biosynthetic enzymes as prognostic markers and therapeutic targets in metastatic melanoma" (completed at the end of February 2017, role: PI).
4. Gilead Fellowship 2018 "Circulating NAD biosynthetic enzymes (NBEs) as novel prognostic markers in chronic lymphocytic leukemia and Richter's syndrome" (funded, role: Co-PI with Prof. Silvia Deaglio)
5. PRIN: PROGETTI DI RICERCA DI RILEVANTE INTERESSE NAZIONALE – Bando 2017 "Understanding and targeting the extracellular NADome in inflammation" (funded, role: collaborator)
6. Ex-60% 2019, University of Turin, "Growth hormone-releasing hormone (GHRH) antagonists enhance radiosensitivity in lung cancer cells" PI Prof. Riccarca Granata. (funded, role: PI of operative Unit)
7. Ricerca Finalizzata 2019 "Targeting tumor microenvironment to improve anticancer effects of complex I inhibitors" PI Ivana Kurelac (submitted, role: PI of operative Unit)
8. MFAG-AIRC grant "The oncogenic role of NAMPT in driving melanoma progression: a therapeutic target to overcome BRAF inhibitors resistance" (submitted, role: PI)

OTHER EXPERIENCE AND PROFESSIONAL MEMBERSHIPS

2011-: American Association for Cancer Research AACR (associated member)
2012-: Italian Society for Experimental Hematology SIES (associated member)
2014-: Società Italiana di Cancerologia SIC (associated member)
2015-: International Society of Cancer Metabolism (associated member)
2015-: European Association for Cancer Research EACR (associated member)

September 2015-: certification of didactic collaborator. Course for nurses and pediatric nurses (MED/03 Medical Genetics), University of Turin School of Medicine, Turin, Italy

Reviewer Oncotarget ISSN: 1949-2553
Reviewer Cell Communication and Signaling ISSN: 1478-811X
Reviewer Cancers ISSN 2072-6694
Reviewer Cells ISSN: 0092-8674 (print); 1097-4172 (web)
Reviewer Frontiers in Oncology ISSN 2234-943X

MENTORING ACTIVITY

-Trained 1 PhD student in Biomedical Sciences and Human Oncology, curriculum in Advanced Techniques of Human Tumors Localization, 5 Master students (3 past) in Molecular Biotechnologies, University of Torin

SELECTED PUBLICATIONS

Total number of publications: 30; First name publications: 10

Total IF (JCR 2017): 226.165, Mean IF: 7.8, H-index: 14 (Scopus), Citations: 754

<https://pubmed.ncbi.nlm.nih.gov/?term=audrito+v&sort=date>

https://www.scopus.com/authid/detail.uri?authorId=36550032100&featureToggles=FEATURE_AUTHOR_DETAILS_BOTOX:1&at_feature_toggle=1

<https://scholar.google.com/citations?user=aDXkN5UAAAAJ&hl=it&oi=ao>

1. Audrito V, Vaisitti T, Rossi D, et al. Nicotinamide blocks proliferation and induces apoptosis of chronic lymphocytic leukemia cells through activation of the p53/miR-34a/SIRT1 tumor suppressor network. *Cancer research* 2011; 71: 4473-4483. doi: 10.1158/0008-5472.CAN-10-4452. PMID: 21565980. **IF: 9.130**
2. Audrito V, Vaisitti T, Serra S, et al. Targeting the microenvironment in chronic lymphocytic leukemia offers novel therapeutic options. *Cancer letters* 2013; 328: 27-35. Review. **IF: 6.491**
3. D. Massi, D. Brusa, B. Merelli, M. Ciano, V. Audrito, et al. PD-L1 marks a subset of melanomas with a shorter overall survival and distinct genetic and morphological characteristics. *Annals of oncology*; 2014; 25: 2433-2442. **IF: 13.926**
4. Audrito V, Serra S, Brusa D et al. Extracellular nicotinamide phosphoribosyltransferase (NAMPT) promotes M2 macrophage polarization in chronic lymphocytic leukemia. *Blood* 2015; 125: 111-123. doi: 10.1182/blood-2014-07-589069. PMID: 25368373. **IF: 15.132**
5. Vaisitti T, Audrito V, Serra S et al. The enzymatic activities of CD38 enhance CLL growth and trafficking: implications for therapeutic targeting. *Leukemia* 2015; 29: 356-368. **IF: 10.023**
6. Audrito V.*, Serra S*, Stingi A., et al. PD-L1 up-regulation in melanoma increases disease aggressiveness and is mediated through miR-17-5p. *Oncotarget*. 2017; 8(9):15894-15911 doi: 10.18632/oncotarget.15213. PMID: 28199980. **IF: 5.168**
7. Audrito V., Managò A., La Vecchia S., et al. Nicotinamide phosphoribosyltransferase (NAMPT) as a therapeutic target in BRAF-mutated metastatic melanoma *J Natl Cancer Inst*. 2018;110(3). doi: 10.1093/jnci/djx198. PMID: 29309612. **IF: 11.238**
8. Audrito V., Managò A., Zamporlini F., et al. Extracellular nicotinamide phosphoribosyltransferase (eNAMPT) is a novel marker for patients with BRAF-mutated metastatic melanoma. *Oncotarget*. 2018;9(27):18997-19005. doi: 10.18632/oncotarget.24871. PMID: 29721178. **IF: 5.168**
9. Audrito V, Managò A, Gaudino F, et al. NAD-Biosynthetic and Consuming Enzymes as Central Players of Metabolic Regulation of Innate and Adaptive Immune Responses in Cancer. *Front Immunol*. 2019;10:1720. doi: 10.3389/fimmu.2019.01720. PMID: 31402913. Review. **IF: 4.716**

10. Managò A*, Audrito V*, Mazzola F, et al. Extracellular nicotinate phosphoribosyltransferase binds Toll like receptor 4 and mediates inflammation. Nat Commun. 2019 Sep 11;10(1):4116. doi: 10.1038/s41467-019-12055-2. PMID: 31511522. **IF: 11.880**
11. Gaudino F, Manfredonia I, Managò A, Audrito V, et al. Subcellular characterization of NAD+ biosynthesis in metastatic melanoma by using organelle-specific biosensors. Antioxid Redox Signal. 2019 Nov 20;31(15):1150-1165. doi: 10.1089/ars.2019.7799. **IF: 6.530**
12. Audrito V, Managò A, Gaudino F, Deaglio S. Targeting metabolic reprogramming in metastatic melanoma: The key role of nicotinamide phosphoribosyltransferase (NAMPT). Semin Cell Dev Biol. 2020 Feb;98:192-201 doi: 10.1016/j.semcdb.2019.05.001. PMID: 31059816 Review. **IF: 6.138**
13. Audrito V, Messina VG, Deaglio S. NAMPT and NAPRT: Two Metabolic Enzymes With Key Roles in Inflammation. Front Oncol. 2020 Mar 19;10:358. doi: 10.3389/fonc.2020.00358 Review. **IF: 4.137**

PATENT

1. "Procedimento immunologico e kit per la diagnosi in vitro di patologie tumorali e/o infiammatorie" (Italian patent I0174545, N. 102018000002866, deposited 20/02/2018), inventors Deaglio Silvia & Valentina Audrito, owners Università di Torino & IIGM. International patent PCT (PCT/IB2019/051314, filed on 19/02/2019)

Turin, September 23, 2020

