

**SUMMARY CURRICULUM VITAE**

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**I. Educational and professional background** (reverse chronological order)

- **Education**

- **2012** PhD in Molecular Biology, Catholic University, School of Medicine and Surgery, Rome
- **2008** Hematology, *summa cum laude*, Catholic University, School of Medicine and Surgery, Rome
- **2004** MD, *summa cum laude*, Catholic University, School of Medicine and Surgery, Rome

- **Professional**

- **08/2018** – *ongoing* Assistant Professor in Medicine, Harvard Medical School, Boston, USA
- **10/2016** – **07/2018** Assistant Professor in Medicine - Part Time, Harvard Medical School, Boston, USA
- **10/2016** – *ongoing* Staff Scientist II, Beth Israel Deaconess Medical Center, Department of Medicine, Division Hematology, Boston, USA
- **09/2015** – **02/2018** Special Research Fellow (Ricercatore Tempo Determinato Tipo A; Italian dpr 232/2011) Department of Translational Medicine University of Eastern Piedmont, Novara, Italy
- **01/2015** – **12/2016** Instructor Hematology, Beth Israel Deaconess Medical Center, Department of Medicine, Harvard Medical School, 3 Blackfan Circle, Boston, USA
- **11/2007** – **12/2014** Research Fellow in Hematology, Beth Israel Deaconess Medical Center, Department of Medicine, Harvard Medical School, 3 Blackfan Circle, Boston, USA
- **10/2004** – **11/2007** Clinical Fellow in Hematology, Policlinico Universitario “A. Gemelli”, Catholic University, School of Medicine and Surgery, Rome, Italy
- **10/2002** – **10/2004** Research Fellow, Molecular Biology Laboratory, Institute of Hematology, Policlinico A. Gemelli, Catholic University, School of Medicine and Surgery, Rome, Italy
- **05/2002** – **10/2004** Clinical Internship in Hematology, Policlinico A. Gemelli, Catholic University School of Medicine and Surgery, supervisor Prof. G. Leone, Rome, Italy
- **07/2002** – **10/2002** Visiting student, Molecular Biology Laboratory, Department of Hematology, supervisor Prof. Alan K. Burnett, University of Wales, Cardiff, UK
- **10/2001** – **10/2004** Fellow in Medicine, Policlinico A. Gemelli, Catholic University, School of Medicine and Surgery, Rome, Italy

**II. Key accomplishments, honors and demonstrated areas of expert knowledge**

- **Key accomplishments and honors**

- **07/2020** – **07/2022** Recipient of the Bone Marrow Failure Research Program Idea Development Award Early Career Investigator from the Department of Defense US Army W81XWH-20-1-0518
- **07/2014** – **07/2021** NCI NIH, K99/R00 Awardee CA188595
- **2015** Melvin Jones Lions International Club Fellow
- **2014** "Silvia Fiocco" National Italian Prize from the Accademia Nazionale dei Lincei
- **11/2012** – **10/2013** Italian Society of Experimental Hematology (SIES) Award “Dr. Tito Bastianello”
- **05/2009** – **05/2012** NIH Training T32 HL007917-11A1 Beth Israel Deaconess Medical Center
- **11/2007** – **10/2008** Italian Foundation for Cancer Research (FIRC) Award for abroad “LEONINO FONTANA E MARIA LIONELLO”

- **Editorial activities**

- **2020** – **Guest Editor Method and Protocols** Special Issue: DNA Methylation: A Biomarker of the Epigenetic Clock in Aging) and **Molecules** (Special Issue: RNA Therapeutics and Disease: a new frontier in Medicine); **Plos One Academic Editor**; **Guest Associate Editor** Frontiers in Cell and Development of Biology and Frontiers in Oncology; **Associate Editor** Molecular Therapy Nucleic Acid;
- **2014** – **Reviewer**: Journal of BioMed Research International; Nucleic Acid Research, Biochimica et Biophysica Acta, Molecular Cell Research, Cells, Cell Biology and Toxicology, Plos One, Gene, Molecular Therapy, Molecular Therapy – Nucleic Acid, Communications Biology, International Journal of Immunogenetics, Cancers, MDPI, Molecules, MDPI, International Journal of Molecular Sciences, MDPI

- **Technological and Other Scientific Innovations**

- *Chimeric RNA Oligonucleotides and Uses Thereof*, US Application No.PCT/US2012/033617
- *Methods and Compositions For Gene Specific Demethylation And Activation*, US Provisional Patent Application No. US 62/874,160;
- *DNMT1-Specific Aptamers and Uses Thereof*, Italian Provisional Patent Application No. 102019000019822

- **Narrative**

Dr. Annalisa Di Ruscio is an Assistant Professor in Medicine in the division of Hematology-Oncology, Beth Israel Deaconess Medical Center, at Harvard Medical School. She received her MD from the Università Cattolica Sacro Cuore (UCSC), Rome in 2004. She joined Prof. Tenen's group at Harvard Medical School during her hematology fellowship in 2007, and she started working on long non-coding RNAs. Upon completion of her clinical training on 2008, she pursued a PhD program in molecular biology and graduated in 2012. She continued as post-doctorate fellow in Prof. Tenen's laboratory. During this time, she discovered a class of novel RNAs, termed **DNA methyltransferase 1 (DNMT1)-interacting RNAs (DiRs)**, that play a key role in controlling cell type-specific DNA methylation patterns. This discovery defined a paradigm shift on the existing view on DNA methylation establishment offering a trailblazing perspective on the relationship between transcription and DNA methylation.

Currently the main focus of Dr. Di Ruscio laboratory is to understand the impact of transcriptional activity in the establishment of epigenetic marks. and to define the translational potential of RNAs as a tool to correct aberrant DNA methylation. Another major direction is to define the translational potential of RNAs as a tool to correct aberrant DNA methylation - one of the most common molecular lesions in cancer cells. Particularly, Di Ruscio's group investigates the functional role of DiRs in myeloid disorders that are characterized by abnormal DNA methylation profile, such as Myelodysplastic Syndromes (MDS) and MDS evolution to Acute Myeloid Leukemia. To this end, Di Ruscio's group is developing DiR-mimicking platforms to correct DNA methylation profile both globally and selectively. This pioneering approach shows promise in overcoming the toxicity and lack of specificity of the existing FDA-approved hypomethylating drugs.

The ultimate goal is to generate RNA-based epigenetic therapy in addition to providing novel insights on the molecular events leading to aberrant DNA methylation in cancers and other conditions such as rare genetic disorders.

**Complete List of Published Work in PubMed:**

<https://www.ncbi.nlm.nih.gov/myncbi/1rO-v1Vc1qIQ5/bibliography/public/>