

PERSONAL INFORMATION

LORENA ZANNINO

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Place and date of birth: Milan, 30/12/1990

Nationality: Italian



WORK EXPERIENCE

PhD student – Phd Program in Genetics, Molecular and Cellular Biology

University of Pavia

Scientific supervisor: Professor Marco Biggiogera

Ultrastructural studies on the heterochromatin organization and nucleolar activity in hepatocytes under different cell stress.

Thesis title: “Cell stress and ageing affect nucleolus and heterochromatin organization in mouse hepatocytes”.

Methods : Transmission Electron microscopy (TEM), Immunohistochemistry, Immunocytochemistry at TEM, Immunofluorescence, Western blot, RT-qPCR. Cell culture maintenance: *Mus musculus* hepatocytes AML12 (ATCC®). Development of a methodology to highlight basic proteins in tissue sections at ultrastructural level.

From October 2020-February 2021

Internship. Max Planck Institute for the Biology of Ageing, Köln, Germany

Scientific supervisor: Professor Adam Antebi

Project title: “The Nucleolus as a hub in the ageing process”. During this period I carried out research on the transcriptional factors that influence heterochromatin organization and nucleolar activity during ageing, mainly in the nematode *C. elegans* as a model organism. Immunolabelling of nucleolar proteins in muscle and epidermal cells of *C.elegans* at TEM and fluorescence microscopy in K.O. or knock down *C.elegans* strains.

From February 2017 to April 2018

Molecular diagnostics of Myeloid and Lymphoblastic Leukemias

Papa Giovanni XXIII Hospital, Bergamo, Italy

Head Physician: Professor Alessandro Rambaldi

Evaluation of the course of patients disease through the analysis of coding gene sequences as markers of tumor transformation or of chemotherapeutic drug sensitivity.

Methods: Isolation of different cell blood populations from bone marrow and peripheral blood by gradient centrifugation, nucleic acids extraction and quantitation, RT-qPCR for chimeric fusion genes detection and to monitor the minimal residual disease (MRD), Genescan Analysis and Sanger sequencing for gene variants identification.

July 2015 - September 2016

Internship. Institute of Molecular Genetics (INGM). Policlinico Hospital, Milan.

Scientific supervisor: Dr. Beatrice Bodega

The study was focused on the molecular characterization of Facioscapulohumeral Dystrophy and the role of repeated sequences in the epigenetic regulation.

Methods : CRISPR/CAS9, ChIP, Cloning, bacterial transformation, extraction of plasmids and BAC from bacteria, DNA and RNA extraction; RT-qPCR, retrovirus and lentivirus production and infection, Immunofluorescence, FACS. Cell culture maintenance: Primary and immortalized human muscle cells from

biceps of FSHD patients or healthy donors. Embryonic HEK293TN cells for lentivirus and retrovirus production.

EDUCATION

From October 2013 to October 2016

University of Milano Bicocca

Master's Degree in Biology (07/10/2016)

Grade: 110/110 cum Laude

Thesis title: "Characterization of the topology and dynamic interactions of the D4Z4 macrosatellite, as a model for understanding the role of repeated sequences in the 3D genome's organization".

From October 2009 to March 2013

University of Milano Bicocca

27/03/2013 - Bachelor Degree in Biological Sciences

Grade: 103/110 Thesis title: "Numb protein controls p53 tumor suppressor activity".

PUBLICATIONS

Peer reviewed journal papers

Zannino L, Siciliani S, Biggiogera M. Timing of cytosine methylation on newly synthesized RNA. *Methods Mol. Biol.* 2020; 2175:197-205

Zannino L, Casali C, Siciliani S, Biggiogera M. The dynamics of the nuclear environment and their impact on gene function. *J. Biochem.* 2020; mvaa091

Zannino L, Pagano A, Casali C, Saia L, Balestrazzi A, Biggiogera M. Mercury Chloride Alters Heterochromatin Domain Organization and Nucleolar Activity in Mouse Liver. *Cells*. Submitted

Gianella M, Doria E, Dondi D, Milanese C, Gallotti L, Börner A, **Zannino L**, Macovei A, Pagano A, Guzzon F, Biggiogera M, Balestrazzi A. Exploring physiological and molecular factors involved in seed longevity: a case study of *Pisum sativum*. *Plant, Cell & Environment*. Submitted

Poster communications:

Zannino L, Pagano A, Casali C, Balestrazzi A, Biggiogera M. Dexamethasone remodels some epigenetic features of heterochromatin domains and nucleolar activity in mouse liver. SIBBM, *Frontiers in Molecular Biology seminar, web seminar*. 7-10 June 2021.

Zannino L, Bertone V, Siciliani S, Saia L, Biggiogera M. Investigating the nucleolar epigenetic code at ultrastructural level. XXVI Wilhelm Bernhard Workshop on the Cell Nucleus, Dijon, France. *Biopolym. Cell.* 2019; 35(3):243-244.

Oral communications:

Zannino L. The nucleolus epigenetics in a photograph. *Life Science, 3rd Joint Annual Symposium of the Departments of Biology and Biotechnology, Molecular Medicine and CNR-Institute of Molecular Genetics, University of Pavia, Italy*. 19-21 February 2020.

Abstracts

Pagano A, **Zannino L**, Pagano P, Doria E, Dondi D, Macovei A, Biggiogera M, de Sousa Araujo S, Balestrazzi A. Nucleolar processes underlying the *Medicago truncatula* seed resilience to genotoxic injury. EMBO Workshop, Plant genome stability and change, Leiden, Netherlands. 5-8 December 2021.

Pagano A, Pagano P, **Zannino L**, Doria E, Dondi D, Gaonkar SS, Macovei A, Biggiogera M, de Sousa Araujo S, Balestrazzi A. Exploring the stress response induced during the rehydration-dehydration cycle in primed and overprimed *Medicago truncatula* seeds. 13th ISSS (International Society for Seed Science), web Congress. 9-13 August 2021.

Gianella M, Doria E, Dondi D, Milanese C, Gallotti L, Börner A, **Zannino L**, Macovei A, Pagano A, Guzzon F, Biggiogera M, Balestrazzi A. Exploring physiological and molecular factors involved in seed longevity: the case study of *Pisum sativum* L. 13th ISSS (International Society for Seed Science), web Congress. 9-13 August 2021.

Casali C, **Zannino L**, Biggiogera M. The nuclear envelope: a toolbox function for splicing factors. GIC XXXIX, web conference. 14-18 June 2021.

Pagano A, **Zannino L**, Biggiogera M, Galeotti E, Pagano P, Macovei A, de Sousa Araújo S, Balestrazzi A. How do seeds respond to post-priming desiccation? Exploring DNA damage response and mapping chromatin accessibility in *Medicago truncatula*. Plant Genomes in a Changing Environment, web workshop. 12-14 October 2020.

Biggiogera M, Siciliani S, **Zannino L**. The Perichromatin Region: a crossroad of events. XXVI Wilhelm Bernhard Workshop on the Cell Nucleus, Dijon, France. Biopolym. Cell. 2019; 35(3):203-204.

Siciliani S, Masiello I, **Zannino L**, Basiricò F, Casali C, King E, Lacavalla A, Saia L, Scaltritti M, Biggiogera M. High resolution study of epigenetic processes: new insights into methylation and demethylation. XXVI Wilhelm Bernhard Workshop on the Cell Nucleus, Dijon, France. Biopolym. Cell. 2019; 35(3):178-178.

Spinelli O, Salmoiraghi S, Zanghì P, Cavagna R, Michelato A, Buklijas K, **Zannino L**, Intermesoli T, Lussana F, Delaini F, Oldani E, Caprioli C, Stefanoni P, Gianfaldoni G, Marmont F, Ferrero D, Terruzzi E, De Paoli E, Rossi G, Borlenghi E, Cavattoni I, Tajana M, Scattolin AM, Mattei D, Corradini P, Campiotti L, Ciceri F, Bernardi M, Todisco E, Cortelezzi A, Cortelazzo S, Audisio E, Bosi A, Falini B, Pavoni C, Bassan R, Rambaldi A. Molecular profile by next generation sequencing of Acute Myeloid Leukemia with normal karyotype: clinical results from the prospective trial 02/06 of the northern Italy Leukemia group (NILG). 23 rd Congress of the European Hematology Association, Stockholm, Sweden. 2018

DIDACTIC ACTIVITY

- Member of the examination board of the Advanced Microscopy master's course headed by Professor Marco Biggiogera, 2019-2021, University of Pavia
- Tutoring for the Cytology and Histology and Comparative Anatomy courses at University of Pavia (2020).
- Co-supervisor for master's and bachelor's Degree thesis
- From 2019 to 2021: Lectures and seminars for Advanced Microscopy master's course and Cytology and Histology bachelor's course, headed by Professor Marco Biggiogera, at university of Pavia.