

Maria Chiara Mottola

EDUCATION

University of Pavia

PhD Program in Genetics, Molecular and Cellular Biology

Pavia (PV), IT

Oct 2023- Present

University of Rome “La Sapienza”

MSc in Genetics and Molecular Biology

Cumulative GPA: 27,92/30

Final grade: 109/110

Thesis: Oncogenic role of SMN in Laryngeal squamous cell carcinoma

Supervisor: Professor Alessandro Rosa; Co-supervisor: Dr. Maria Grazia Di Certo

Roma (RM), IT

Oct 2020 – Jan 2023

University of Sannio

BSc in Biotechnology

Final grade: 97/110

Thesis: Role of the CNP520 inhibitor of the BACE-1 enzyme in the prevention of Alzheimer's disease

Supervisor: Professor Angelo Lupo

Benevento (BN), IT

Oct 2016 – Jul 2020

British International School Institute of New York

English course

New York (NY), USA

Jul 2015

Liceo scientifico “G.Galilei”

High School Diploma

Final grade: 85/100

Benevento (BN), IT

2012 – 2016

WORK EXPERIENCE

Istituto di Genetica Molecolare – Consiglio Nazionale delle Ricerche (IGM-CNR)

Stage

Pavia (PV), IT

September 2023 - present

Supervisor: Dr. Alessandra Montecucco

- Study of the importance of alternative splicing in Amyotrophic Lateral Sclerosis caused by a mutation in TDP-43, with perspective in biomarker analysis and novel therapeutical targets for Amyotrophic Lateral Sclerosis. During this period, I performed RNA-Seq data analysis with focus on differential splicing events, more specifically exon skipping. With the aim to identify a splicing switch between Homozygous and wild type animal model for the mutation TDP-43A382T. I was able to identify differences using bioinformatic tools, to analyze perform gene mapping and primer design via tools such as: NCBI, Ensembl, Benchling and Uniprot. To validate the reproducibility of these changes I used fibroblast cell culture, for the RNA extraction and purification which allowed me to perform PCR followed by Agarose gel Electrophoresis.

Istituto di Genetica Molecolare – Consiglio Nazionale delle Ricerche (IGM-CNR)

Stage

Pavia (PV), IT

April 2023 – September 2023

Supervisor: Dr. Claudia Ghigna

- Study of the role of alternative splicing in the regulation of angiogenetic process. During this stage I studied the different expression of the splicing factor NOVA2 in the endothelial cell line (HUVEC) after treatments with conditioned medium deriving from Ovarian Carcinoma cell line and hTERT-immortalized cells of a fallopian tube. To study the different expression, I performed RealTime PCR, as well as Western blot analysis to study the protein levels.

Istituto di Biochimica e Biologia Cellulare – Consiglio Nazionale delle Ricerche (IBBC-CNR)

Roma (RM), IT

Supervisor: Dr. Maria Grazia Di Certo

- Master thesis project: Investigation of the role of the RNA-binding protein SMN in Laryngeal Squamous Cell Carcinoma. During my period of thesis internship, I explored the expression levels of SMNs in laryngeal squamous cell carcinoma. This study involved a cohort of 19 patients that allowed me to experience the work with fresh tissues and with Formalin-Fixed Paraffin-Embedded (FFPE) sections. I evaluated SMN protein expression levels by Western blotting and densitometric analysis comparing the LSCCs tissues to the normal adjacent one. I also approached imaging studies performing indirect immunofluorescence and padlock assay to FFPE sections. To evaluate the impact of SMN depletion in LSCC I conducted in vitro studies using a LSCC Cell line (HLac-79). More specifically I performed MTT assay, colony formation assay and wound healing assay, that allowed me to evaluate the viability and the sensitivity to cisplatin, the colony-forming capability and the cellular migration. All these assays were performed comparing siSMN- and siControl-transfected cells.

TECHNICAL SKILLS AND COMPETENCE

Wet lab skills: Cell cultures, RNA extraction and analysis from cells and tissues, protein extraction and analysis from cells and tissues, SDS-Page & Western Blot, immunofluorescence and analysis by optical and fluorescent microscopy on cells and paraffin-embedded tissue sections, Padlock assay for visualization of intracellular transcripts by fluorescence microscopy, RT-PCR, Agarose Gel Electrophoresis, Realtime PCR, Colony Formation Assay, Wound Healing Assay.

Dry lab skills: R, Pubmed, NCBI, BLAST, UniProt, Ensembl. Primer design and sequence mapping, Benchling. RNAseq analysis, Gene Ontology, Revigo. Office 365. ImageJ. ImageLab.

CONGRESSES AND SEMINARS PARTICIPATION

Collegio Ghislieri Conference

Nadirex ECM: 21° advanced formation course on Single cell Genomics

Online Platform

03th -04th -05th May 2023

National Congress on the Rare Disease Syngap1 “Incontri ravvicinati”

University of Rome “La Sapienza”

Online Platform

20th -21th June 2023

PUBLICATIONS

Gabanella F, Colizza A, **Mottola MC**, Francati S, Blaconà G, Petrella C, Barbato C, Greco A, Ralli M, Fiore M, Corbi N, Ferraguti G, Corsi A, Minni A, de Vincentiis M, Passananti C, Di Certo MG. The RNA-Binding Protein SMN as a Novel Player in Laryngeal Squamous Cell Carcinoma. *Int J Mol Sci*. 2023 Jan 16;24(2):1794. doi: 10.3390/ijms24021794. PMID: 36675308; PMCID: PMC9864193. IF (2023) = 5.6

CERTIFICATES

Cambridge English

B2 First (May 2015)

Bio-Rad

Fundamentals of Digital PCR

- Topics covered: Introduction to Digital PCR, Counting with Digital PCR, Reaction Setup and Workflow, Applications, Gene Expression Using Droplet Digital PCR

Fundamentals of Western Blotting

- Topics covered: Sample Preparation, Gel Electrophoresis and Transfer, Immunodetection, Image Acquisition, Image Analysis

Advanced Western Blotting course

- Topics covered: Sample Preparation, Protein Sources, Cell Lysis Methods, Buffers, Reduction

Fundamentals of RT-qPCR

- Topics covered: Introduction to RT-qPCR and gene expression, Sample Preparation considerations, Experimental design for gene expression by RT-qPCR, Assay optimization for RT-qPCR, Gene Expression analysis by RT-qPCR

SKILLS AND INTERESTS

Language: Italian mother tongue. Good knowledge of written and spoken English (B2 First).