Name: Gabriele   **Surname:** Rovetta   **Date of birth**: 06-03-1998

Current Position: PhD student, Molecular and Cellular Biology, Department of Biosciences, University of Milan.

Contact: gabriele.rovetta@unimi.it

➢ WORK EXPERIENCES:

02/10/2023 – NOW

PhD STUDENT - Department of Bioscience, University of Milan

Milan, Italy

Currently, I am a PhD student in Molecular and Cellular Biology in the Department of Biosciences at the University of Milan, in Prof. Graziella Messina Lab's. The aim of the lab is to find out a therapeutical approach to treat Duchenne Muscular Dystrophy. Our lab investigates the role of the transcription factor Nfix, which has a fundamental function from embryonic to fetal myogenesis and has a crucial role in the progression of Muscular Dystrophies. Especially, my main project is the creation of a proper myogenic cell-based system to evaluate the Nfix genetic regulation. This work will be combined with the creation of a bioinformatic customized drug library to target the pathways that control the *Nfix* gene expression. These outcomes will be used to determine which drugs can modulate the *Nfix* gene expression through a High-Throughput Screening assay.

A side project of mine is the investigation of the epigenetic effects causing the *Nfix* gene activation in muscular development and aging.

To perform these projects, I am exploiting several scientific approaches:

Molecular Biology techniques:	- Bacteria cultures - Plasmid digestion with Restriction Enzyme - PCR approaches - Cloning with Restriction Enzyme
Cellular Biology techniques:	- Cultured cell - DNA, and mRNA extraction from cultured cells and tissues - Lentiviral transduction on cultured cells - Plasmid transfection on cultured cells
Epigenetic studies:	5'Azacytidine treatment - Extraction of mRNA and genomic DNA from cultured cells and tissues - Real-Time qPCR - Bisulfite Analysis - MSRE-PCR and MSRE-qPCR assays

Fluorescence techniques:	• Fluorescence Activated Cell Sorting (FACS)
	• High-Content Screening
CRISPR-Cas9 editing:	• Design and cloning of the sgRNAs
	• Cloning of sgRNAs in Cas9 plasmids
	• Evaluation of transfection efficiency of sgRNAs-Cas9 plasmid
	• Evaluation of the proper cutting site of Cas9 nuclease
	• Construction and Delivery of the donor template
	• Assembly of Cas9 nuclease and sgRNA
FRT-Flp Recombinant Approach:	• Study of the Flp recognition sites
	• Generation and Integration of the Recombinant Mediate Cassette Exchange
Mouse model handling and treatment:	• Extraction of embryonic and fetal murine myoblasts
	• Extraction and stabilization of juvenille and adult murine myoblasts

05/10/2022 – 30/09/2023
RESEARCH FELLOW - Department of Bioscience, University of Milan
Milan, Italy
Winner of the "Promising graduates fellowship". Development of the master's thesis project and starting of a new scientific project. Tutor of a master student and coordinator of the master's thesis.

01/10/2021 – 27/09/2022
INTERNSHIP - Department of Bioscience, University of Milan
Milan, Italy
Master thesis project developed in the Differentiation Biology and Therapy Lab, coordinated by Professor Graziella Messina. I learned different biological techniques:
-DNA purification and evaluation of a DNA sequence by restriction enzyme digestion
-Cultured cells transduction with lentiviral particles and antibiotic selection
-Evaluation of myogenic features on cultured cells (Fusion and Differentiation Index)
-Analysis of gene expression through quantitative Real-Time PCR
-Assessment of fluorescence signal in cultured cells, including Fluorescence Activated Cell Sorter (FACS) technique and High Content Screening (HCS) technique.
-Cultured cell transfection through Lipofectamine LTX, Lipo3000, and Lipo2000
-Creation of a bioinformatic customized Drug Library
-Analysis of gene features through PubMed, Eukaryotic Promoter Database (EPD), DrugBankOnline,
-Target Database, David Gene Ontology, Kegg Pathway, Ensembl, UCSC including all
services offered by NCBI.
-Ability to create an experimental procedure, including all issues and possible outcomes.

03/03/2020 – 30/05/2020
INTERN - Department of Bioscience, University of Milan
Milan, Italy

I attended the Science Biological internship "Dall' organismo alle molecole: fattori trascrizionali e regolazione dello sviluppo del differenziamento" from Home due to the SARS-CoV2 pandemic, following the lessons of the professors Beltrame Monica, Louise Gourlay, and Giuseppina Caretti.

➢ EDUCATION:

02/10/2023 – NOW
PhD STUDENT - Department of Bioscience, University of Milan
Milan, Italy
Molecular and Cellular Biology Doctoral School (XXXIX cycle)
Address: Via Celoria, 26, Milano, Italy
Website: https://www.unimi.it/it

30/09/2020 – 27/09/2022
MASTER'S DEGREE IN BIOLOGIA APPLICATA ALLA RICERCA BIOMEDICA – University of Milan
Milan, Italy
Address: Via Celoria, 26, Milano, Italy
Website: https://www.unimi.it/it
Final grade: 110/110 CUM LAUDE
Thesis: Development of a High-Throughput Screening to identify Nfix-modulating drugs as a novel therapy for Muscular Dystrophy

05/10/2017 – 20/10/2020
BACHELOR'S DEGREE IN SCIENZE BIOLOGICHE – Università Statale degli Studi di Milano
Milan, Italy
Address: Via Celoria, 26, Milano, Italy
Website: https://www.unimi.it/it
Final grade: 102/110
Thesis: Analisi di fattori di trascrizione: ruolo nel differenziamento

13/09/2012 – 02/07/2017
SCIENTIFIC HIGH SCHOOL DIPLOMA – Liceo Scientifico Edoardo Amaldi
Alzano Lombardo, Italy
Address: Via Locatelli 16, Alzano Lombardo, Italy
Field of study: Liceo Scientifico Scienze Applicate
Final grade: 64/100

➢ TRAINING AND COURSES:

05/07/2024 – 08/07/2024
DISEASE MODELING IN MOLECULAR BIOMEDICINE: FOCUS ON EXCITABLE SYSTEMS (PhD Course)
University of Milan, Department of Biosciences

Head Teacher: Prof. Annalisa Bucchi (University of Milan), Prof. Graziella Cappelletti (University of Milan), Graziella Messina (University of Milan)

Training Course: The course will highlight the importance of proper disease modeling to investigate the structural-functional relationship in the pathophysiology of excitable systems. Current advances in invitro/invivo approaches used to identify the pathological mechanisms underlying cardiac arrhythmias, muscular dystrophies, and neurodegenerative diseases will be presented.

CFU: 2

20/06/2024 – 21/06/2024

BIG-DATA IN MOLECULAR BIOLOGY: FROM EXPERIMENTAL DESIGN TO MOLECULAR FUNCTION (PhD Course)

University of Milan, Department of Biosciences

Head Teacher: Prof. Diletta Dolfini (University of Milan), Prof. Matteo Chiara (University of Milan), Federico Zambelli (University of Milan)

Training Course: The course will provide indications on the importance of using genomics and transcriptomics data. The most recent bioinformatics methods used for the analysis of genomics and transcriptomics data and their use in complex projects will be described and illustrated.

CFU: 2

26/02/2024 – 28/02/2024

MOLECULAR AND CELLULAR BIOLOGY: METHODS AND COMMUNICATION OF RESULTS (PhD Course)

University of Milan, Department of Biosciences

Head Teacher: Prof. Roberto Mantovani (University of Milan), Dr. Rosella Visintin (SEMM, European School of Molecular Medicine)

Training Course: This is an active course where students are required to produce presentations and actively discuss the provided material. The course will help students understand how to design an experimental strategy, interpret the results and communicate them in various forms.

CFU: 4

08/01/2024 – 31/01/2024

BIOSTATISTICS FOR MOLECULAR AND CELLULAR BIOLOGY (PhD Course)

University of Milan, Department of Biosciences

Head Teacher: Prof. Roberto Mantovani (University of Milan), Prof. Giorgio Binelli (DBSV University of Insubria)

Training Course: The goal of this course is to present and/or remind the basics of statistical analysis, with special emphasis on the planning of the experiments and the analysis of experimental data in the field of Life Sciences.

CFU: 5

12/10/2023 – 15/10/2023

5TH HIGH TRAINING COURSE IN ADVANCED MYOLOGY UPDATE

University of Perugia, 20th Interuniversity Institute of Myology (IIM) Meeting

Training Course: In addition to the meeting activities, the course offers dedicated roundtables moderated by outstanding international scientists, and a dedicated Advanced Myology training session on the morning of

October 15. The course is reserved for trainees who will be under 35 years at the date of the meeting, and it will represent a special event in which young researchers will have the opportunity to talk with prestigious scientists in a friendly and informal setting during the sessions and at lunch. Participants will receive a high training certificate useful to improve their CVs.

CFU: 2

16/03/2023 – 16/03/2023

PRACTICAL FUNCTION A- 3.2 Basic and appropriate biology, 6.2 Humane methods of killing, 8 Minimally invasive procedures without anaesthesia (Mouse)

Charles River Italia, Calco (LC)

Training Course: as required by the "Decreto 5 agosto 2021, Disciplina sulla formazione degli addetti ai compiti e alle funzioni di cui all'articolo 23, comma 2, del decreto legislativo n. 26/2014, in materia di protezione degli animali utilizzati a fini scientifici", which enforces the provisions of the EU Directive 63/2010 on the protection of animals used for scientific purposes. This is to certify that **Rovetta Gabriele** has successfully completed the following programme of training: **pratical function a 3.2 Basic and appropriate biology, 6.2 Humane methods of killing, 8 Minimally invasive procedures without anaesthesia** (**Mouse).**

ECTS: 6 CFP

30/05/2022 – 30/11/2022

NATIONAL LEGISLATION AND ETHICS LEVEL 1, MODULES 1 AND 2, DM 5 AUGUST 2021

Istituto Zooprofilattico Sperimentale della Lombardia e dell'Emilia-Romagna (IZSLER)

Field of study: Veterinary health. Activities in animal enclosures.

Description: Training event recognized as suitable by the Ministry of Health with assignment of 5 CFPs for the following functions • Function referred to in Art. 1, paragraph 1, lett. a) of the DM 5 August 2021 - 5 CFP • Function referred to in art. 1, paragraph 1, lett. b) of the DM 5 August 2021 - 5 CFP • Function referred to in art. 1, paragraph 1, lett. c) of the DM 5 August 2021 – 5 CFP • Function referred to in art. 1, paragraph 1, lit. d) of the Ministerial Decree of 5 August 2021 - 5 CFP

ECTS: 7.5 E.C.M.

25/07/2022 – 30/11/2022

ETHICS AND PROJECT DESIGN, MODULES 9, 10, 11, DM 5 AUGUST 2021

Istituto Zooprofilattico Sperimentale della Lombardia e dell'Emilia-Romagna (IZSLER)

Field of study: Veterinary health. Activities in animal enclosures

Description: Training event recognized as suitable by the Ministry of Health with obtaining the credits necessary to carry out the following functions: Function referred to in art. 1, paragraph 1, lett. b) of the D.M 5 August 2021 - 6 CFP

ECTS: 9 E.C.M.

28/02/2022 – 30/11/2022

IN VITRO CELLS: A DIAGNOSTIC AND ADVANCED THERAPY TOOL

Istituto Zooprofilattico Sperimentale della Lombardia e dell'Emilia-Romagna (IZSLER)

Field of study: Veterinary health. Activities in animal enclosures

ECTS: 5 E.C.M.

14/02/2023 – 30/11/2023

ZEBRAFISH AS A MODEL ORGANISM: APPROACHES IN VITRO AND IN VIVO RESEARCH EXPERIMENTS SCIENTIFIC

Istituto Zooprofilattico Sperimentale della Lombardia e dell'Emilia-Romagna (IZSLER)
Field of study: Veterinary health. Activities in animal enclosures

11/07/2022 – 06/10/2022

LABORATORY ANIMAL BIOLOGY HANDLING, MODULES 3.1, 4, 5, 6.1, 7. DM 5 AUGUST 2022 RODENTS AND LAGOMORPHS

Istituto Zooprofilattico Sperimentale della Lombardia e dell'Emilia-Romagna (IZSLER)
Field of study: Veterinary health. Activities in animal enclosures
Description: The educational event recognized as eligible by the Ministry of Health, obtaining the necessary credits for the performance of the following functions: Function of which to art. 1, comma 1, lett. **a)** of the D.M 5 August 2021 - 21 CFP • Function referred to in art. 1, paragraph 1, lit. **b)** of Legislative Decree 5 August 2021 – 21 CFP • Function referred to in art. 1, paragraph 1, lett. **c)** of D.M 5 August 2021 - 17 CFP • Function referred to in art. 1, paragraph 1, lett. **d)** of D.M 5 August 2021
19.5 Crediti Formativi E.C.M.

27/04/2022 – 27/04/2022

ANIMAL HANDLING AND SUPPRESSION COURSE (THEORIC AND PRACTICE COURSE)

University of Milan (Milan, Italy)
"Regulation on the training of those involved in the tasks and functions referred to in Article 23, paragraph 2, of Legislative Decree n.26/2014, on the protection of animals used for scientific purposes"
Theoric: Animal Handling and Suppression
Practice: Animal Handling
Species: Mus musculus
Address: Via Celoria 26, C, Milan, Italy

15/12/2022 – 17/12/2022

ANIMAL HANDLING AND SUPPRESSION COURSE (THEORIC COURSE)

Mario Negri Institute of Pharmacological Sciences (IRCCS) – University of Milan
Description: It is claimed that Dr Rovetta Gabriele participated in the "Introductory course to animal testing" (18 hours) organized by the Institute of Pharmacological Sciences Mario Negri_ IRCCS held on 15-16-17 December 2021 and has successfully passed the relevant verification of the final learning.
Species: Mus musculus, Rattus norvegicus, Danio rerio
Address: Via Celoria 26, C, Milan, Italy

08/05/2021 – 17/05/2021

WORKPLACE SAFETY COURSE

Brescia, Italy
AiFOS
The General Training of Workers course, provided through the e-learning platform Aifos, according to the criteria established by the Agreement State-Regions of 21/12/2011, constitutes permanent training credit for any type of

working sector. The course is dedicated to the presentation of the general concepts of prevention and safety at work. At the end of the course was held a final test for the assessment of competence.
Address: Via Branze, 45, Brescia, Italy

➢ **PUBLICATIONS**

"MEK inhibitors decrease Nfix but induce unexpected calcifications in Muscular Dystrophy, partially rescued with Cyanidin diet."
2024
Giuseppe Angelini, Emanuele Capra, Francesca Rossi, Giada Mura, Marielle Saclier, Valentina Taglietti, **Gabriele Rovetta**, Raffaele Epis, Giorgia Careccia, Chiara Bonfanti, and Graziella Messina.
Journal: iScience
DOI: https://doi.org/10.1016/j.isci.2023.108696
PMID: 38205246
Own contribution: performed *in vitro* experiments.

➢ **MEETINGS AND CONFERENCES**

"Development of a High-Throughput Screening to identify Nfix-modulating drugs as novel therapy for Muscular Dystrophy."
2023
Gabriele Rovetta, Giuseppe Angelini, Serena di Savino, Raffaele Epis, Giorgia Careccia, Chiara Bonfanti, Graziella Messina
Author and poster presenter at the 20th Interuniversity Institute of Myology (IIM) Meeting
Assisi, Italy; 2023

"Development of a High-Throughput Screening to identify Nfix-modulating drugs as novel therapy for Muscular Dystrophy."
2023
Giuseppe Angelini, **Gabriele Rovetta**, Serena di Savino, Laura Lociuro, Chiara Bonfanti, and Graziella Messina
Co-author and poster presenter in the scientific poster at Duchenne Parent Project Conference "XX International Conference on Duchenne and Becker Muscular Dystrophy"
Rome, Italy; 2023

"Oral treatment with MEK-inhibitors decreases Nfix in adult dystrophic muscles: a pilot study for drug-repurposing in Muscular Dystrophy"
2022
G. Angelini, G. Mura, E. Capra, V. Taglietti, M. Saclier, F. Rossi, **G. Rovetta**, G. Motta, C. Bonfanti, and G. Messina
Scientific poster at EMBO Workshop: "Muscle formation, maintenance, regeneration, and pathology"
Chantilly, France; 2022

➢ **SEMINARS:**

24/11/2023
"Molecular evolution and host adaptation of human-infecting dsDNA viruses"
Speaker: Dr. Manuela Sironi.
Affiliation: Bioinformatics - Scientific Institute IRCCS E.MEDEA (Bosisio Parini, LC)

19/01/2024
"Neuromuscular organoids for studying the human neuromuscular system in vitro"
Speaker: Dr. Anna Urciuolo.
Affiliation: Department of Molecular Medicine, University of Padova

01/03/2024
"Ex vivo gene therapy for DMD: steps towards efficacy"
Speaker: Prof. Giulio Cossu
Affiliation: Division of Cell Matrix Biology & Regenerative Medicine University of Manchester Division of Neurosciences, INSPE, Unit of Cell Therapy for Myopathies IRCCS San Raffaele

13/03/2024
"From myogenesis to muscle wasting: uncovering new players and therapeutic approaches"
Speaker: Dr. Giorgia Careccia
Affiliation: Department of Biosciences, University of Milan

➢ **AWARDS:**

10/12/2022
"NfiX-Factor: Acceleration phase access at Seed4Innovation 2022 edition"
The NfiX-Factor project has been awarded as a project that has been awarded at Seed4Innovation 2022 edition.
Own contribution: Co-author of the project. Custom drug library design and realization of the cell-based system.
Description: Seed4Innovation (S4I) contributes to the development of a contaminated environment between the research world and companies interested in enriching their pipeline of innovation projects. Through Open Innovation approaches, S4I offers access to a customer-tailored innovation development support program that increases the chances of growth in a constant confrontation with business needs. Seed4Innovation identifies research results with potential for technology transfer (innovative technologies, products, or services), within any subject area and in any field of application. The broad spectrum of research skills, which make the University of Milan a university of excellence, is applied in various fields, and usually with multidisciplinary approaches.

28/11/2022
"Promising graduates fellowship"
Description: This Regulation shall govern the University of Milan's establishment of a scholarships fund for promising graduates to allow them to continue and complete their academic training. Assigned through a public selection process, the scholarships are intended to fund research activities within University

Departments under the supervision of a lead instructor, and within the scope of a program of independent study set by that instructor.

➢ TUTORING ACTIVITIES:

4/10/2022 – 30/07/2023
MASTER'S STUDENT TUTORING
Milan, Italy
Department of Biosciences, University of Milan
Description: Tutoring activity for a master's student (Serena di Savino) and construction and realization of a master's thesis. Teaching of the basic technical scientific skills.

12/06/2023 – 16/06/2023
ART. 45, CusMiBio STUDENT TUTORING ACTIVITY
Milan, Italy
Department of Biosciences, University of Milan
Description: Tutoring activities with students of high schools; involvement in the activities of laboratory; expertise in carrying out assistance activities of students in laboratories of biological and biotechnological fields; tutoring with students in the field biological-biotechnological.

➢ LANGUAGE CERTIFICATIONS:

23/06/2023 – 23/06/2023
INTERNATIONAL ENGLISH LANGUAGE TEST SYSTEM (IELTS)
Milan, Italy
Listening: 6.5
Reading: 7.5
Writing: 6.0
Speaking: 6.0
Overall Band Score: 6.5
CEFR Level: B2
Address: Via Borgospesso, 11, Milan, Italy

03/03/2021 – 18/07/2021
B2 ENGLISH LANGUAGE CERTIFICATION
Milan, Italy
SLAM - University of Milan Language Centre
Description: "I hereby certify that ROVETTA GABRIELE, student of the University of Milan (982931), attended a 60-hour English course organized by SLAM - University of Milan Language Centre during the second semester of a.y. 2020-2021. On 22/07/2021 ROVETTA GABRIELE passed the end of course test, achieving a score corresponding to the B2 level according to the Common European Framework of Reference for Languages (CEFR)."
Address: Via Celoria, 26, Milan, Italy

➢ DIGITAL SKILLS:

My Digital Skills
- ***Basic Digital Skills:*** Windows, Microsoft Office, Google, Pubmed, Mendeley
- ***Drug Discovery Database:*** DrugBankOnline, Database Therapeutic Target, Espacenet, Wipo
- ***Genome Analysis Database***: Database Eukaryotic Promoter Database (EPD), NCBI, UniProt, Ensembl, Primer Blast, PolyAsite Database, ChIPAtlas Database, UCSC, OligoEvaluator, KEGG Pathway, David Gene Ontology
- ***CRISPR-Cas9 design Database:*** Genome editing CHOPCHOP, CRISPOR, CAS-Off-Finder
- ***Epigenetic Database:*** EpiGenome Browser, RoadMap Epigenome, scMethBank
- ***Image Software:*** ImageJ, Fiji, GelAnalyzer, GraphPad Prism
- ***Data Analysis:*** ATAC-Seq analysis, Bisulfite sequencing Analysis, RNA-Seq analysis, Integrative Genomics Viewer (IGV), Snapgene, Benchling.