europass

Federica Mirabella

WORK EXPERIENCE

01/02/2024 – CURRENT Catania, Italy

RESEARCH FELLOW AOUP "G. RODOLICO - SAN MARCO"

Ongoing research project to explore mechanisms of synaptic dysfunction in movement disorders and epilepsy.

15/06/2021 – 14/06/2022 Catania, Italy

RESEARCH GRANT UNIVERSITY OF CATANIA, DEPARTMENT OF CLINICAL AND EXPERIMENTAL MEDICINE

Research project aimed to investigate the biological relevance of an interferon signature induced by Insulin receptor isoform A in breast cancer:

- basic and advanced biomolecular techniques (e.g. cell culture, functional cell assays; DNA, RNA and protein extraction and quantification; end-point and Real-time PCR; Western blot assay; ELISA assay; MTT assay; Immunoprecipitation assay)
- managing of the experimental plan
- statistical analysis
- graphical presentation
- interpretation of results

01/01/2021 – 20/04/2021 Catania

LAB VISITOR UNIVERSITY OF CATANIA, DEPARTMENT OF BIOMEDICAL AND BIOTECHNOLOGICAL SCIENCES

- Laboratory activities
- Writing new research proposals

01/11/2017 – 31/12/2020 Catania, Italy

PHD STUDENT IN TRANSLATIONAL BIOMEDICINE UNIVERSITY OF CATANIA, DEPARTMENT OF BIOMEDICAL AND BIOTECHNOLOGICAL SCIENCES

During the three-year PhD, I worked on two research projects based on miRNA profiling in body fluids of patients affected by Autism Spectrum Disorder, Tourette syndrome and Arnold-Chiari syndrome:

- basic and advanced biomolecular techniques (e.g. RNA extraction and quantification from patient biofluids, end-point and Real-time PCR, NanoString nCounter system assays, TaqMan microRNA reverse transcription assays, Single TaqMan assays)
- managing of the experimental plan
- statistical analysis
- graphical presentation
- interpretation of results

22/09/2020 – 21/12/2020 Liège, Belgium

RESEARCH INTERNSHIP IN NEUROSCIENCE UNIVERSITY OF LIÈGE, GIGA-STEM CELLS - MOLECULAR REGULATION OF NEUROGENESIS

I joined the Nguyen's lab and I was involved in two projects:

- the study of the contribution of mechanical forces to cortical interneuron behavior and migration during cortical development, by using a 3D scaffold model
- the study of the role of CCP1 gene in the morphogenesis and interneuron migration in the context of human brain development and neural disorders, by using human brain organoids and assembloids.

06/02/2017 – 06/08/2017 Dublin, Ireland

POST-GRADUATE RESEARCH INTERNSHIP IN BIOMEDICAL ENGINEERING CONWAY INSTITUTE OF BIOMOLECULAR AND BIOMEDICAL SCIENCE- UCD CENTRE FOR BIOMEDICAL ENGINEERING

I joined the Raynaud's lab, as part of the biology team, dealing with:

- additive manufacturing (3D printing)
- light sheet microscopy applications
- advanced sample preparation
- 3D printing models and files.

I was involved in a collaboration with members of Carl Zeiss Microscopy GmbH for a project aimed to establish protocols for light sheet microscopy applications.
The internship was established by an international internship agreement between the University of Catania and the University College Dublin (UCD), referred as the "Hosting Institution", from wich I received an allowance for performing the work during the internship.

02/11/2015 – 23/09/2016 Catania, Italy

RESEARCH INTERNSHIP IN MOLECULAR AND CELLULAR BIOLOGY UNIVERSITY OF CATANIA, DEPARTMENT OF BIOMEDICAL AND BIOTECHNOLOGICAL SCIENCES

I joined the Purrello's lab, as an intern, learning and applying many basic and advanced biomolecular techniques.
I was involved in a project aimed to identify alterations of long non-coding and circular RNAs profiles in colorectal cancer cells after inhibition of ERK.

07/09/2015 – 06/11/2015 Catania, Italy

RESEARCH INTERNSHIP IN MICROBIOLOGY UNIVERSITY OF CATANIA, DEPARTMENT OF BIOMEDICAL AND BIOTECHNOLOGICAL SCIENCES

I learned the basic microbiology techniques related to the study of expression of virulence in *S. pyogenes*.

08/07/2013 – 13/08/2013 Catania, Italy

RESEARCH INTERNSHIP IN MOLECULAR GENETICS UNIVERSITY OF CATANIA, DEPARTMENT OF BIOLOGICAL, GEOLOGICAL AND ENVIRONMENTAL SCIENCE

I learned the basic molecular and genetic techniques, deepening the study of molecular and immungenetic of *Pemphigus vulgaris* disease.

EDUCATION AND TRAINING

01/02/2024 – CURRENT Catania, Italy

SPECIALIZATION SCHOOL IN CLINICAL PATHOLOGY AND CLINICAL BIOCHEMISTRY University of Catania

02/02/2024 – CURRENT Palermo, Italy

MEMBER OF PROFESSIONAL ASSOCIATION OF BIOLOGISTS (SIC_A7216) Ordine dei Biologi della Sicilia

21/04/2021 Catania, Italy

PHD University of Catania, Department of Clinical and Experimental Medicine

Field of study Translational Biomedicine |

Thesis MicroRNA profiling in body fluids of patients affected by ASD, TS and AC syndrome

09/01/2017 Catania, Italy

TITLE OF PROFESSIONAL BIOLOGIST, SECTION A University of Catania

29/09/2016 Catania, Italy
MASTER'S DEGREE University of Catania

Field of study Cellular and Molecular Biology | **Final grade** 110/110 cum laude |

Thesis Alterations of Long Non-Coding and Circular RNAs profiles in Colorectal Cancer Cells

27/03/2014 Catania, Italy
BACHELOR'S DEGREE University of Catania

Field of study Biological science | **Thesis** Patologia molecolare e immunogenetica del Pemphigus vulgaris

06/07/2009 Catania, Italy
HIGH-SCHOOL DIPLOMA Principe Umberto Di Savoia School

LANGUAGE SKILLS

Mother tongue(s): **ITALIAN**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	B2	B2	B2	B1	B2
SPANISH	B2	B2	B2	B1	B2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

DIGITAL SKILLS

Microsoft Office: Word, Excel, Access, Power Point, Outlook. | Google Suite (Drive, Sheets, Docs) | Ultimaker cura 3D priting | Video Conferencing (Zoom Skype Google Hangout) | Sketch-Up | Adobe paket (Illustrator, Photoshop, Premiere) | MeV 4.9 software | nSolver | SPSS Statistical Tool | GraphPad PRISM | miRNet 2.0 | metaboanalyst 4.0 | Fiji-ImageJ | miRTarBase | Reference Management software [Zotero, EndNote,Mendeley]

PUBLICATIONS

2021
Serum Extracellular Vesicle-Derived circHIPK3 and circSMARCA5 Are Two Novel Diagnostic Biomarkers for Glioblastoma Multiforme

Stella M, Falzone L, Caponnetto A, Gattuso G, Barbagallo C, Battaglia R, Mirabella F, Broggi G, Altieri R, Certo F, Caltabiano R, Barbagallo G. M. V., Musumeci P, Ragusa M, Di Pietro C, Libra M [†], Purrello M [†], & Barbagallo D*. Serum Extracellular Vesicle-Derived circHIPK3 and circSMARCA5 Are Two Novel Diagnostic Biomarkers for Glioblastoma Multiforme. Pharmaceuticals (Basel). 2021 Jun 27;14(7):618. doi: 10.3390/ph14070618. PMID: 34198978; PMCID: PMC8308516. [†] = Senior Authors. * = Corresponding Author.

2021
The GAUGAA Motif Is Responsible for the Binding between circSMARCA5 and SRSF1 and Related Downstream Effects on Glioblastoma Multiforme Cell Migration and Angiogenic Potential

Barbagallo D*[†], Caponnetto A*, Barbagallo C, Battaglia R, Mirabella F, Brex D, Stella M, Broggi G, Altieri R, Certo F, Caltabiano R, Barbagallo GMV, Anfuso CD, Lupo G, Ragusa M, Di Pietro C, Hansen TB, Purrello M. The GAUGAA Motif Is Responsible for the Binding between circSMARCA5 and SRSF1 and Related Downstream Effects on Glioblastoma Multiforme Cell Migration and Angiogenic Potential. Int J Mol Sci. 2021 Feb 7;22(4):1678. doi: 10.3390/ijms22041678. PMID: 33562358; PMCID: PMC7915938. * = Equal Contribution. [†]Corresponding Author.

2021

LINC00483 has a potential tumor-suppressor role in Colorectal Cancer through multiple molecular axes

Brex D*, Barbagallo C, Mirabella F, Caponnetto A, Battaglia R, Barbagallo D, Caltabiano R, Memeo L, Di Pietro C, Purrello M, Ragusa M***. LINC00483 Has a Potential Tumor-Suppressor Role in Colorectal Cancer Through Multiple Molecular Axes. Front Oncol. 2021 Jan 20;10:614455. doi: 10.3389/fonc.2020.614455. PMID: 33552987; PMCID: PMC7855711. * = First author. ***Corresponding Author.

2021

Enrichment and correlation analysis of serum miRNAs in comorbidity between Arnold-Chiari and Tourette syndrome contribute to clarify their molecular bases

Mirabella F*, Gulisano M, Capelli M, Lauretta G, Cirnigliaro M, Palmucci S, Stella M, Barbagallo D, Di Pietro C**, Purrello M**, Ragusa M***, Rizzo R**. Enrichment and correlation analysis of serum miRNAs in comorbidity between Arnold-Chiari and Tourette syndrome contribute to clarify their molecular bases. Front Mol Neurosci. 2021 Jan 5;13:608355. doi: 10.3389/fnmol.2020.608355. PMID: 33469418; PMCID: PMC7813987. * = First author. **Senior Author. ***Corresponding Author.

2020

Potential Associations Among Alteration of Salivary miRNAs, Saliva Microbiome Structure, and Cognitive Impairments in Autistic Children

Ragusa M*, Santagati M*, Mirabella F*, Lauretta G, Cirnigliaro M, Brex D, Barbagallo C, Domini CN, Gulisano M, Barone R, Trovato L, Oliveri S, Mongelli G, Spitale A, Barbagallo D, Di Pietro C**, Stefani S**, Rizzo R**, Purrello M***. Potential Associations Among Alteration of Salivary miRNAs, Saliva Microbiome Structure, and Cognitive Impairments in Autistic Children. Int J Mol Sci. 2020 Aug 27;21(17):6203. doi: 10.3390/ijms21176203. PMID: 32867322; PMCID: PMC7504581. * = Equal Contribution. **Senior Author. ***Senior Corresponding Author.

2019

CircSMARCA5 Regulates VEGFA mRNA Splicing and Angiogenesis in Glioblastoma Multiforme Through the Binding of SRSF1

Barbagallo D*, Caponnetto A, Brex D, Mirabella F, Barbagallo C, Lauretta G, Morrone A, Certo F, Broggi G, Caltabiano R, Barbagallo GM, Spina-Purrello V, Ragusa M**, Di Pietro C**, Hansen TB***, Purrello M***. CircSMARCA5 Regulates VEGFA mRNA Splicing and Angiogenesis in Glioblastoma Multiforme Through the Binding of SRSF1. Cancers (Basel). 2019 Feb 7;11(2):194. doi: 10.3390/cancers11020194. PMID: 30736462; PMCID: PMC6406760. * =First author. **=Senior Author. ***= Senior Corresponding Author.

2018

Upregulated microRNAs in membranous glomerulonephropathy are associated with significant downregulation of IL6 and MYC mRNAs

Barbagallo C*, Passanisi R*, Mirabella F, Cirnigliaro M, Costanzo A, Lauretta G, Barbagallo D, Bianchi C, Pagni F, Castorina S, Granata A**, Di Pietro C**, Ragusa M**, Malatino LS**, Purrello M**. Upregulated microRNAs in membranous glomerulonephropathy are associated with significant downregulation of IL6 and MYC mRNAs. J Cell Physiol. 2019 Aug;234(8):12625-12636. doi: 10.1002/jcp.27851. Epub 2018 Dec 4. PMID: 30515781. * = Equal Contribution. ** = Senior Corresponding Author.

DRIVING LICENCE

Driving Licence: B

CONFERENCES AND SEMINARS

17/05/2024 – 17/05/2024 Siracusa

Retreat - Medclin meeting

18/04/2024 – 20/04/2024 online

18th Troina Meeting on Genetics of Neurodevelopmental Disorders

Genetics of Neurodevelopmental Disorders

29/03/2021 Online
The evolutionary origin of synapses and neurons

19/04/2021 Online
Mechanisms and mechanics of tube morphogenesis

29/03/2021 Online
L'innovazione e il ruolo delle Biotecnologie nella medicina translazionale: l'esempio dello sviluppo del vaccino contro Covid-19

24/03/2021 Online
Disease modeling using Induced Pluripotent Stem Cells (iPSC)-derived brain organoids

22/03/2021 Online
The mRNA epitranscriptome and how it regulates gene expression

04/10/2019 – 05/10/2019 Milano (Italy)
XIX AIBG National Conference

Speaker of the project with the title "Alterations of circulating miRNAs and microbiome structure in saliva of autistic children are associated with cognitive impairments: potential cross-talking and diagnostic applications"

Link https://congressi.laan.it/frontend/web/index.php?r=evento/view&id=9

01/02/2019 Torre Biologica, Catania (Italy)
3rd Etnean Occupational Medicine Workshop - Tumore alla mammella e lavoro

24/11/2018 – 25/11/2018 Castiglione di Sicilia, Catania (Italy)
Retreat - Biometec meeting

Speaker of the project with the title "Potential Associations Among Alteration of Salivary miRNAs, Saliva Microbiome Structure, and Cognitive Impairments in Autistic Children"

12/04/2018 – 14/04/2018 Troina, Enna (Italy)
13th Troina Meeting on Genetics of Neurodevelopmental Disorders

09/05/2017 – 10/05/2017 Royal College of Surgeons in Ireland (RCSI), Dublin (Ireland)
Applied Biomedical Imaging Module Workshops and training sessions focusing on advanced microscopy and flow cytometry techniques

RECOMMENDATIONS

References are available on request

ORGANISATIONAL SKILLS

Organisational skills

- Good organisational skills gained by working both in a team and alone with high sense of responsibility, delivering data on time, able to foresee and plan upcoming issues
- Good organisational skills gained by working in collaboration with external individuals and groups on the same projects

COMMUNICATION AND INTERPERSONAL SKILLS

Communication and interpersonal skills

- Good oral communication skills gained by working with many people from different countries and workplaces and by oral expositions of job projects in public contexts
- Good non-verbal communication skills gained by writing and editing scientific articles

JOB-RELATED SKILLS

Job-related skills

■ Use of many biomolecular and biocellular techniques as sample collection and processing, cell culture, functional cell assays, DNA, RNA and protein extraction and quantification, end-point and Real-time PCR, protein analysis through Western Blot, ELISA assay, immunoprecipitation assay, NanoString nCounter system assays, TaqMan microRNA reverse transcription assays, Single TaqMan assays, preparation of chemical solutions, organ clearing, advanced samples preparation for Light Sheet microscopy, mouse brain dissection, genotyping, MGE isolation and dissociation, cell culture, 3D scaffold preparation, immunocytochemistry and immunohistochemistry
■ Use of lab equipment such as pipettes, centrifuges, thermocyclers, chemical and biological hoods, machineries for electrophoresis, spectrophotometer, vacuum desiccator. Also, use of biomedical imaging instruments as advanced microscopy and flow cytometry techniques, Light Sheet Microscopy applications and the technology of 3D printing
■ Ability to examine the results: analysis of DNA, RNA and protein expression data, analysis of imaging data, computational analysis, statistical analyses of experimental data, graphical presentation
■ Scientific writing and oral communication
■ Use of 3D printing models

PRESENTATIONS

17/05/2024 – 17/05/2024
Retreat - Medclin meeting

Speaker of the project with the title "Mechanisms of synaptic dysfunction in movement disorders and epilepsy".

04/10/2019 – 05/10/2019
XIX AIBG National Conference

Speaker of the project with the title "Alterations of circulating miRNAs and microbiome structure in saliva of autistic children are associated with cognitive impairments: potential cross-talking and diagnostic applications"

Link http://users.unimi.it/triplet/AIBG_ABSTRACT_ORAL/6.pdf

24/11/2018 – 25/11/2018
Retreat - Biometec meeting

Speaker of the project with the title " Potential Associations Among Alteration of Salivary miRNAs, Saliva Microbiome Structure, and Cognitive Impairments in Autistic Children"

20/06/2017
Meeting with the Company Supervisor of Carl Zeiss Microscopy GmbH

Presentation of the technical results about the 3D printing project titled "Adaptive sample preparation toolkit using additive manufacturing"

Autorizzo il trattamento dei miei dati personali ai sensi del Decreto Legislativo 30 giugno 2003, n. 196 "Codice in materia di protezione dei dati personali".

Catania , 24/05/2024

Federica Mirabella