

CURRICULUM VITAE – COLONNA FRANCESCA



PERSONAL AND CONTACT DETAILS

Last and first name: Colonna Francesca

Living address:

E-mail:

Date of birth:

Phone:

SUMMARY

My strong interest in medical sciences and research drove me to pursue a university career by moving first to Parma and then to Rome, where I obtained a master's degree in Medical Biotechnology with a bimolecular curriculum. After the laboratory training for master thesis, I gained the possibility to work in a very interesting project for my PhD in Oncological Sciences that I obtained at the Catholic University of the Sacred Heart in Rome. During my studies, I had the opportunity to carry out traineeships in public hospital facilities and research institutes. I achieved the national qualification to the profession of biologist (ONB), and then I had five years of working experience as a researcher, joining a biomedical research group, which operates in the field of translational medicine at the Catholic University of the Sacred Heart / A. Gemelli Policlinic. Currently I am a Catholic University of the Sacred Heart's research fellow joining the Fiori Lab's group.

PROFESSIONAL EXPERIENCE

05/2021 – Present

Research fellow at Catholic University of the Sacred Heart, General Pathology, Rome, Italy

I'm continuing my research project winning a research fellowship at the Catholic University in Rome in the same research group. In particular, I'm focusing the molecular pathways involving in tumor-stroma crosstalk.

11/2017 – 05/2021

PhD Student in ONCOLOGICAL SCIENCES at Catholic University of the Sacred Heart, General Pathology, Rome, Italy

I worked in the field of oncologic translational research focusing on the liver metastatic microenvironment of colorectal cancer. I joined the same group I worked for Master thesis following the development of ideas for the drafting of a research project. In particular, the project aim the identification of tumor-stroma crosstalk in liver metastasis with patient-derived metastatic and primary cancer stem cells and fibroblasts as preclinical model. After this 3 years-work I have discuss the PhD thesis "Hepatic Cancer Associated Fibroblasts: determinant components of the metastatic niche in advanced colorectal cancer patients"

In detail, I dealt with:

- molecular biology techniques for: genetic analysis, through DNA, RNA and protein extraction from cancer stem cells and cancer cell lines and tissues; quantification of nucleic acids and protein; amplification by different PCR methods and related purification of the PCR products; western-blot and related reading and interpretation of results. Molecular cloning techniques with plasmids, transfection, production of lentivirus and infection of human patients' cancer stem cells and cancer-associated fibroblasts.
- cellular biology techniques for: culture of 3D primary and metastatic cancer stem cells (as spheres or organoids) and cancer cell lines and culture of primary cancer-associated fibroblasts (CAFs); 3D co-culture of cancer cells and CAFs in collagen or approaching the cutting-edge technique of 3D-bioprinting (in collaboration with INGM, Milan) to mimicking and deep study the tumor microenvironment. Immortalisation of CAFs with lentiviral infection. Migration and invasion assays with scratch assay and/or transwell cultures. Metabolic and viability assays, FACS, IF, IHC, fluorescence, confocal and optic microscopy.
- software and databases management for the primer design, alignment and the gene expression study, WB results, microscopy images and analysis of migration/invasion assays.
- planning of the purchase of materials and reagents for the laboratory activities, the study and planning of research projects, the conduction of experiments and the writing of experimental results;
- writing of documents, protocols, and scientific papers as a co-author. I also attended conferences in Italy and abroad as a viewer and as a poster presenter for the presentation of the lab results.

10/2016 – 10/2017

Trainee for Master degree at Higher Health Institute, department of Haematology, Oncology and Molecular Medicine; Rome, Italy

CURRICULUM VITAE – COLONNA FRANCESCA

The project I worked for concerns in the study of new therapeutic approaches for colorectal cancer. In particular, new molecules were tested on cancer stem cells and organoids produced by these cancer stem cells were characterised as a new reproducible in vitro model of the tumor 3D structure. In this regard I used Molecular and Cellular Biology techniques. Finally, I got the Master degree with a thesis named "HDAC inhibitors: identification of a novel therapeutic approach for colorectal cancer through the study of cancer stem cells as pre-clinical model".

04/2014 - 09/2014

Trainee for Bachelor degree at "Arcispedale Santa Maria Nuova" Hospital, department of Tissue Typing, Cryobiology and Regenerative Medicine; Reggio Emilia, Italy

I had the thesis project for my bachelor named "HLA DQA1* and Celiac Disease: Linkage between the presence of the allele and degree of susceptibility". I acquired manual skills in molecular biology of the tissue typing such as: DNA extraction and quantification, SSP- and SSO-PCR, Electrophoresis in agarose gel and the use of a sort of microarray with the "Mr.Spot" instrument.

EDUCATION AND ACADEMIC TRAINING

2021 FELASA Accredited Course F 023/09 "Laboratory animal science" for persons Functions A, C, D. It covered the species: *mice and rats* and included the additional task specific modules: 10, 20, 21, 22 (see the Directive 2010/63/EU and the related EC Guidelines (EC, 2014)

2020 24 CFU for teaching in mathematics (A-28) and natural, chemical and biological sciences (A-50) classes

2018 Qualification from National Order of Biologist - University of TorVergata - Rome – Biologist "Section A"

2017 Master's Degree in Medical Biotechnologies (LM-9), University of Rome "La Sapienza"

Thesis title: "HDAC inhibitors: identification of a novel therapeutic approach for colorectal cancer through the study of cancer stem cells as pre-clinical model"

I attended classes with distinguished professors in their field of scientific research. I worked often in groups by proposing new topics in class after studying well the new literature. I attended also a program in the laboratory of Anatomy and Histology, Crystallography, Biochemistry and Nuclear Medicine.

2014 Bachelor's Degree in Biotechnologies (L-2) - University of Parma

Thesis title: "HLA DQA1* and Celiac Disease: Linkage between the presence of the allele and degree of susceptibility"

During my undergraduate studies, I attended a program in the laboratory of organic chemistry where I could learn and use techniques as gas chromatography, IR spectrometry, TLC (Thin Layer Chromatography) and a program in the laboratory of recombinant DNA technologies where I could first approach with molecular techniques.

2010 High school leaving qualification at Higher Education Institution "Leonardo Da Vinci"

In this linguistic high school, I studied English, French and German. I have been in each state of each language in foreign families so I could really appreciate the style of life of people in that state and in this time I attend some courses in language which issued me a certificate of my level (Pierre Overall in France 1 week, ISIS in England 2 weeks, Zertifikat in Germany 1 week). I got the certificate DELF B2 of French and the ECDL (European Computer Driving Licence).

LABORATORY TECHNICAL SKILLS and COURSES

In the fields of research, I have some molecular and cellular skills.

Molecular skills: Nucleic Acids extraction from cells, tissues and blood patients, cloning with plasmids, transfection, production of lentivirus and infection of human patients cancer stem cells and cancer-associated fibroblasts, SSP- and SSO-PCR, electrophoresis with agarose gel and the use of "Mr.Spot" (an instrument used for array with probes), Western Blot, RT-PCR and qPCR.

Microscopy skills: "Dal Macro al Micro. Allestimento di preparati per la microscopia" course at "Bambino Gesù" Hospital, in collaboration with SISM, I BLaST, SITLaB and ONB (2018).

Cellular skills: cell culture, cancer stem cells culture, 3D cell culture (organoids) and 3D cell co-culture (also 3D bioprinting in collaboration), FACS, IF, IHC, microscopy, some assays used for stemness like colony assay or LDA (Limiting Dilution Assay), some other assays used for migration and invasiveness like scratch assays, transwell cultures and finally, viability and metabolic assay

CURRICULUM VITAE – COLONNA FRANCESCA



LANGUAGES

Italian Native speaker
English B1 Comprehension, writing and speaking

CERTIFICATIONS

Drive Licence B (own car);
ECDL European informatics Licence
Training Course on the protection of animals used for scientific purposes (EU Directive 63/2010) (Catholic University of the sacred Heart and Institute of Animal Technology (IAT)
FELASA Accredited Course F 023/09 "Laboratory animal science" for persons Functions A, C, D (Directive 2010/63/EU and the related EC Guidelines (EC, 2014)) (Santa Lucia Foundation IRCCS Rome)

SOFTWARES

Microsoft Office software (Word, Excel, PowerPoint), ImageJ, Photoshop, ImageLab (Biorad), GraphPad Prism, Vector NTI

OTHER INTERESTS

I always wanted to be independent and helpful for my family so I pay my studies. During master degree I won a grant for cooperate with my university. Therefore, I spent some time to help administration offices of my department, to help some students in difficulty of my course. I was very excited to work in team and help the institution that allowed me to study and to form my professional future. In the past, I earned some money helping some students that asked me a theoretical and/or practical support to pass exams.

PUBLICATIONS AND CONFERENCES

Publications:

1. Luongo F, Colonna F, Calapà F, Vitale S, Fiori ME, De Maria R
PTEN Tumor-Suppressor: The Dam of Stemness in Cancer.
Cancers 2019;
2. Javarsiani MH, Javanmard SH, Colonna F
Metastatic components in colorectal cancer
J RES MED SCI. 2019

Conferences:

02-04/03/2020

EACR-AACR-ASPIC "Basic and Translational Research Conference Tumor Microenvironment"; Lisbon, Portugal.

Poster: "3D models of tumor stroma crosstalk in liver metastases of colorectal cancer"

F.Colonna, L.Villanova, F.Luongo, F.Calapà, C.Abbate, S.Vitale, F.Maiullari, R.Rizzi, R.DeMaria, M.E.Fiori

