PERSONAL DATA

Francesca Fabretti

francesca.fabretti@uniroma1.it

EDUCATION

January 2020-present

Post-doc, Assegno di Ricerca– SSD MED/04

Laboratory of Molecular Oncology, Dept. of Molecular Medicine, Sapienza University, Rome (Italy).

February 2020

PhD degree in Biomedical Technologies in Clinical Medicine, Dept. of Internal Medicine and Medical Specialties, Sapienza University, Rome (Italy).

Thesis title: An emerging connection between Nbs1 and Sonic Hedgehog (SHH) pathway is essential for cerebellar development and carcinogenesis

November 2019- December 2019

Scholarship holder, Istituto Pasteur Italia, Fondazione Cenci-Bolognetti

Laboratory of Molecular Oncology, Dept. of Molecular Medicine, Sapienza University, Rome (Italy).

November 2016-October 2019

PhD Student in Biomedical Technologies in Clinical Medicine, Dept. of Internal Medicine and Medical Specialties, Sapienza University, Rome (Italy).

Research program: Role of Nbs1, NMyc and Sonic Hedgehog pathway in cerebellar development and carcinogenesis. Laboratory of Molecular Oncology, Dept. of Molecular Medicine, Sapienza University, Rome (Italy).

Tutor: Giuseppe Giannini

November 2018

Course in “Scienza degli animali da Laboratorio”, FELASA-course F n.023/09- Functions A,C,D (Dir 63/2010/UE), at European Brain Research Institute (CERC), Rome, Italy.

European Brain Research Institute (CERC), Roma, Italy.

June 2018

Course in Phase-contrast and fluorescence microscopy, NIKON

Dept. of Molecular Medicine, Sapienza University, Rome (Italy).

October 2016

Master’s degree in Genetics and Molecular Biology in Basic and Biomedical Research at Sapienza University, Rome (Italy).

Score: 110/110 cum laude.

Thesis title: “Caratterizzazione di un nuovo modello murino “knock-out” per KCASH2”.

Supervisor: Prof Enrico De Smaele – Dept. of Experimental Medicine, Sapienza University, Rome (Italy)

July 2014

Bachelor’s degree in Biological Science at Sapienza University, Rome (Italy).

Score: 110/110 cum laude.

Thesis title: “Incorporazione di amminoacidi non naturali in Ferroportina umana espressa in lievito”.

Supervisor: Prof.ssa Maria Carmela Bonaccorsi – Dept. of Biochemistry "Rossi Fanelli", Sapienza

University, Rome (Italy)

RESEARCH EXPERIENCE

2016-present

Scientific research as PhD student and post-doc

Study of the role of Nbs1, MycN and Sonic Hedgehog pathway in cerebellar development and carcinogenesis

Genome integrity needs to be preserved for the propagation of genetic information. Inactivation of proteins involved in DNA damage responses (DDR) are often associated with cancer and/or developmental disorders of the nervous system, which appear particularly vulnerable to DNA distress. I studied the effect of Nbs1 inactivation during murine SHH/MycN-dependent cerebellar development and tumorigenesis of medulloblastoma.

Laboratory of Molecular Oncology, Dept. of Molecular Medicine, Sapienza University, Rome (Italy).

Supervisor: Prof. Giuseppe Giannini

2015 –2016

Scientific research as a Master's student in Genetics and Molecular Biology in Basic and Biomedical Research

Characterization of the new KCASH2- KO mouse model

KCASH (KCTD containing Cullin 3 Adaptor, Suppressor of Hedgehog) proteins are important regulators of the Hedgehog pathway: through their interaction with Cullina3 E3 Ligase they mediate the ubiquitination and degradation of HDAC1 preventing the transcriptional activity of Gli1, one of the most important effectors of SHH pathway. I characterized the new KCASH2 KO mouse model with particular attention on cerebellar development.

Laboratory of Molecular Oncology, Dept. of Molecular Medicine, Sapienza University, Rome (Italy).

Tutor: Prof. Enrico De Smaele

2014

Scientific research as a Bachelor's student in Biological sciences

Non-essential amino acid incorporation in human Ferroportin expressed in Pichia Pastoris yeast

Ferroportin (Fpn) is the sole iron exporter so far identified in vertebrates and Its malfunctioning leads to the so-called 'ferroportin disease' or type 4 haemochromatosis. Like all polytopic membrane proteins, Fpn is problematic to study from a structural point of view and no data are available on Fpn crystallization. I studied a new biochemical technique for its functional and structural analysis through non-essential amino acid incorporation in human Fpn expressed in Pichia Pastoris yeast.

Laboratory of Biochemistry, Dept. of Biochemistry "Rossi Fanelli", Sapienza University, Rome (Italy).

Tutor: Prof. Maria Carmela Bonaccorsi

PERSONAL SKILLS

Mother language: Italian

Other languages

	COMPREHENSION		SPOKEN		WRITTEN
	Listening	Reading	Comunication	Oral	
English	B2	B2	B2	B2	B2

Communication skills

- Excellent listening skills;
- Excellent ability in communication and group work;
- Good ability in analyzing and discussing scientific papers;
- Good ability in presenting the scientific work in front of both general and specialized audiences;

Organizational skills

- Good ability in designing and conducting a scientific project in biological and biotechnological fields;
- Excellent adaptation skills and resilience under pressure;
- Excellent ability in organizing work
- Responsible in the correct use of numerous scientific machineries and in relationships with scientific specialists;

Professional skills

- Manipulation of mice and xenografting
- Cell culture maintenance
- Primary cell culture production (from murine tissue)
- Cytological preparations
- Histological slides preparations and immuno-histochemical techniques
- Immunofluorescence techniques
- Optic and fluorescence microscopy
- Imagej and Huygens software
- Cell transfection (electroporation or cationic liposome)
- Protein/DNA/RNA extraction
- PCR
- Rt-PCR, real time PCR
- Western blot
- Immunoprecipitation
- Protein fraction isolation (centrosome)
- Restriction and cloning
- Bacterial transformation, miniprep, maxiprep
- Clonogenic assay
- DNA damage measurement (comet assay)

Ecxellent attitude in managing experiments, taking into consideration the more appropriate and recent scientific methodologies

Digital skills

Self evaluation

- Good ability in using the main softwares: Microsoft Windows e Mac OS
- Good ability in using Microsoft Office and Adobe (Acrobat e Photoshop)
- Good knowledge in browsing databases and software/tools for analysis (PubMed, Blast, IMAGEJ, Huygens)

Other skills

Good competence in statistical analysis and graph elaboration

Drivers licence

B

OTHER INFORMATION

Patents

Sistema stabile di coltura in vitro di cellule precursori granulari cerebellari (GCP), metodo stabile per la coltura in vitro di dette cellule e usi di detto sistema o metodo per la coltura in vitro *(System for the in vitro culture of cerebellar granule cells precursors (GCP) stable method for the in vitro culture of said system or method for in vitro culture)*. Giannini G., Petroni M., Saun Roncero M., Colicchia V., Capalbo C., Di Giulio S., Belardinilli F.; **Fabretti F**. (10% of co-ownership); Italian patent application February 2021, N°102019000004377, Sapienza

University;

Publications

Di Giulio, S., Colicchia, V., Pastorino, F., Pedretti, F., **Fabretti, F**., Nicolis di Robilant, V., Ramponi, V., Scafetta, G., Moretti, M., Licursi, V., Belardinilli, F., Peruzzi, G., Infante, P., Goffredo, BM., Coppa, A., Canettieri, G., Bartolazzi, A., Ponzoni, M., Giannini, G., Petroni, M. (2021). A combination of PARP and CHK1 inhibitors efficiently antagonizes MYCN-driven tumors. Oncogene - ISSN 0950-9232.

Corsi, A., Palmisano, B., Spica, E., Di Filippo, A., Coletta, I., Dello Spedale Venti, M., Labella, R., **Fabretti, F**., Donsante, S., Remoli, C., Serafini, M., & Riminucci, M. (2020). Zoledronic Acid in a Mouse Model of Human Fibrous Dysplasia: Ineffectiveness on Tissue Pathology, Formation of "Giant Osteoclasts" and Pathogenetic Implications. Calcified tissue international, 107(6), 603–610.

Belardinilli, F., Capalbo, C., Malapelle, U., Pisapia, P., Raimondo, D., Milanetti, E., Yasaman, M., Liccardi, C., Paci, P., Sibilio, P., Pepe, F., Bonfiglio, C., Mezi, S., Magri, V., Coppa, A., Nicolussi, A., Gradilone, A., Petroni, M., Di Giulio, S., **Fabretti, F**., … Giannini, G. (2020). Clinical Multigene Panel Sequencing Identifies Distinct Mutational Association Patterns in Metastatic Colorectal Cancer. Frontiers in oncology, 10, 560.

Petroni, M., Sahùn Roncero, M., Ramponi, V., **Fabretti, F**., Nicolis Di Robilant, V., Moretti, M., Alfano, V., Corsi, A., De Panfilis, S., Giubettini, M., Di Giulio, S., Capalbo, C., Belardinilli, F., Coppa, A., Sardina, F., Colicchia, V., Pedretti, F., Infante, P., Cardinali, B., Tessitore, A., … Giannini, G. (2019). SMO-M2 mutation does not support cell-autonomous Hedgehog activity in cerebellar granule cell precursors. Scientific reports, 9(1), 19623.

Nicolussi, A., Belardinilli, F., Silvestri, V., Mahdavian, Y., Valentini, V., D'Inzeo, S., Petroni, M., Zani, M., Ferraro, S., Di Giulio, S., **Fabretti, F**., Fratini, B., Gradilone, A., Ottini, L., Giannini, G., Coppa, A., & Capalbo, C. (2019). Identification of novel BRCA1 large genomic rearrangements by a computational algorithm of amplicon-based Next-Generation Sequencing data. PeerJ, 7, e7972.

Spiombi, E., Angrisani, A., Fonte, S., De Feudis, G., **Fabretti, F**., Cucchi, D., Izzo, M., Infante, P., Miele, E., Po, A., Di Magno, L., Magliozzi, R., Guardavaccaro, D., Maroder, M., Canettieri, G., Giannini, G., Ferretti, E., Gulino, A., Di Marcotullio, L., Moretti, M., … De Smaele, E. (2019). KCTD15 inhibits the Hedgehog pathway in Medulloblastoma cells by increasing protein levels of the oncosuppressor KCASH2. Oncogenesis, 8(11), 64.

Petroni, M., Sardina, F., Infante, P., Bartolazzi, A., Locatelli, E., **Fabretti, F**., Di Giulio, S., Capalbo, C., Cardinali, B., Coppa, A., Tessitore, A., Colicchia, V., Sahùn Roncero, M., Belardinilli, F., Di Marcotullio, L., Soddu, S., Comes Franchini, M., Petricci, E., Gulino, A., & Giannini, G. (2018). MRE11 inhibition highlights a replication stress-dependent vulnerability of MYCN-driven tumors. Cell death & disease, 9(9), 895.

Conferences

December 2021 — Speaker at the "Molecular Pathology: from bench to bedside" SIPMeT Young Scientist Meeting, Perugia. Title of presentation: Inactivation of the Nijmegen Breakage Syndrome 1 (Nbs1) protein abrogates SHH-dependent medulloblastoma by altering primary cilium dynamics

September 2019 — Poster C036, Petroni M…Fabretti F. et al., “Dual role of Nbs1 in SHH-dependent medulloblastoma” ABCD Congress 2019, Bologna (Italy)

October 2018 — Embo workshop Cilia 2018, Copenhagen, Denmark

July 2018 — School of Immunology 2018, Villa Pace, Messina, Italia

Participation in seminars and workshops

Francesca Fabretti