



I the undersigned asks to participate in the public selection, for qualifications and examinations, for the awarding of a type B fellowship at **Dipartimento di Bioscienze**

Scientist- in - charge: Professor Roberto Mantovani

Roberta Vazzana

CURRICULUM VITAE

PERSONAL INFORMATION

Surname	Vazzana
Name	Roberta
Date of birth	17.12.1986

PRESENT OCCUPATION

Appointment	Structure
Ph.D. Student	IFOM-The FIRC institute for Molecular Oncology/Open University UK

EDUCATION AND TRAINING

Degree	Course of studies	University	year of achievement of the degree
Bachelor Degree	Biotechnology (grade: 105/110)	University of Palermo	2014
Master Degree	Biotechnologies for Industry and Scientific Research (grade: 110/110)	University of Palermo	2017
Post-Graduate Courses	Biochemistry, Bioinformatics, Imaging, Scientific Methodologies, Statistics	SEMM European School of Molecular Medicine (Milan)	2017
Post-Graduate Courses	Cancer Genetics, Genomics and Proteomics, Scientific Writing	SEMM European School of Molecular Medicine (Milan)	2018
Post-Graduate Courses	Training Course in Mouse handling for scientists	IFOM - The FIRC Institute for Molecular Oncology (Milan)	2019
PhD	Ph.D. in Fundamentals of Cancer Biology	Open University UK, Milton Keynes, United Kingdom	Expected date - May 2021



FOREIGN LANGUAGES

Languages	level of knowledge
English	C2

AWARDS, ACKNOWLEDGEMENTS, SCHOLARSHIPS

Year	Description of award
2019	Winner of the Best Poster Presentation Award at the 6 th Ph.D. Open University UK meeting
2018	Winner of the One Year Grant offered by Fondazione Fiera Milano per la Ricerca Scientifica
2017	Winner of the Doctoral-4 Years-Fellowship within the Open University Research Programme in “Fundamentals of Cancer Biology” at IFOM The FIRC Institute for Molecular Oncology of Milano
2014	Winner of the Placement Scholarship within the Swiss-European Mobility Programme for one year Research experience in the Laboratory of Laura Suter-Dick at University of Applied Sciences Northwestern Switzerland, Basel (Switzerland)

TRAINING OR RESEARCH ACTIVITY

June 2017-Today: Ph.D. student in Fundamentals of Cancer Biology at Open University UK/IFOM The FIRC Foundation for Molecular Oncology (Milan) in the Metabolism, Epigenetic and Breast Cancer Lab led by Dr. Kristina Havas, Ph.D. During my Ph.D., I mainly worked on 2 projects. The first one was focused on the characterization of lipid droplets role in breast cancer stem cells. During the development of this project, I learned the following cell biology techniques: growth and maintenance of human cells; transfection of mammalian cells with calcium phosphate, lipofectamine reagents and lentiviral infection; generation of transient and stable mammalian cell lines for protein expression; RNA interference; immunofluorescence; colony formation assay; lipid and nuclear stainings; growth curves; mammospheres formation assay and their relative staining). As well as, I learned to perform *in vivo* experiments with mice (animal care and mouse model handling, genotyping; blood and organ collection for histopathology analysis). I published as first author the results of this project in 2019 in the Journal of Clinical Medicine (JCM). The second project I developed, instead, was more specifically focused on the biochemical characterization of the interplay between lipid and glucose metabolism. While working on this project, I gained experience in molecular biology, biochemistry and structural biology. Particularly, I learned the following technologies: cloning; mutagenesis; PCR, enzymatic digestion, DNA electrophoresis, bacterial transformation and DNA plasmid extraction; recombinant protein expression and purification in *E. coli*; Size exclusion chromatography and purified protein preparation for crystallization protocols; protein crystallization by hanging drop method; techniques for the identification of protein-protein and protein-lipids interactions (His-pulldown, Immunoprecipitation, Co-IP, fatty-acid pull-down assay using fatty acids-coupled agarose beads, *in vitro* binding assays using lipid probes); protein extraction from whole cells, nuclei and cytoplasm; SDS-PAGE, Western Blotting; metabolic assays (Pyruvate Kinase assays; fatty acid beta-oxidation, mitochondrial respiration, lactic acid detection), RNA extraction and reverse transcription; click-IT chemistry assays, lipid droplets purification; immunofluorescence staining and analysis using widefield and confocal microscopy. Moreover, the structural part of this project was developed in collaboration with the Structural Biology Unit of IEO - European Institute of Oncology in Milan, led by Sebastiano Pasqualato, Ph.D. This gave me the opportunity to learn the principles of the crystallization procedures, X-ray diffraction and data collection. During these last years, I also became familiar with different bioinformatic tools: Cell Profiler software for the analysis of imaging-quantification data; ImageJ/Fiji, Adobe Illustrator, GraphPad Prism, Microsoft Office package, Pymol.

March-May 2017: Scientist at IFOM The FIRC Foundation for Molecular Oncology (Milan) in the Metabolism, Epigenetic and Breast Cancer Lab led by Dr. Kristina Havas, Ph.D.



October 2014-October 2015: Research Intern in the Toxicology Lab of Laura Suter-Dick at the University of Applied Sciences Northwestern Switzerland, Basel, Switzerland. As a winner of the "Swiss-European Mobility Program", I was involved in a project related to the development of a three-dimensional culture as a breast cancer model for the evaluation of the cytotoxicity of anti-cancer drugs. During this experience, I worked on the generation and the characterization of 3D biocompatible cultures generated by microfluidic techniques and cancer microtissues using the Hanging drop technology.

September 2012-September 2013: Undergraduate student at the "Centro di Onco-biologia Sperimentale" of Palermo led by Prof. Dr. Ida Pucci under the supervision of Professor Patrizia Cancemi, Ph.D. During this period, I worked on the analysis of the PI3K/AKT pathway using human samples from breast cancer biopsies and basic biochemical techniques.

PROJECT ACTIVITY

Year	Project
2017-today	<ol style="list-style-type: none"> 1. The interplay between glucose and lipid metabolism in breast cancer 2. Lipid droplets define a subpopulation of breast cancer stem cells IFOM/Open University UK - Ph.D. projects
2014-2015	Development of a three-dimensional culture as a breast cancer model for the evaluation of the cytotoxicity of anti-cancer drugs. University of Applied Sciences Northwestern Switzerland - Master Internship
2012-2013	Analysis of the PI3K/AKT pathway in human breast cancer biopsies Centro di Oncobiologia Sperimentale/University of Palermo - Bachelor Internship

CONGRESSES AND SEMINARS

Date	Title	Place
14-15 November 2019	Breaking Boundaries: metabolism at the cross-roads	Milan, Italy
17-19 October 2019	The 6 th meeting of the International Society of Cancer Metabolism (ISCaM)	Braga, Portugal
19-21 September 2019	The biennial congress of the Italian association of cell biology and differentiation (ABCD Meeting)	Bologna, Italy
13-14 June 2019	The 6 th Ph.D. Open University UK meeting	Milan, Italy
9-10 January 2019	2 rd PhD Networking days	Milan, Italy
25-27 June 2018	Cancer and Metabolism conference	Cambridge, United Kingdom
3-4 May 2018	EMBL in Italy	Milan, Italy
19-21 March 2018	National Ph.D. Meeting	Salerno, Italy
11-14 September 2016	XI International Summer School on Advanced Biotechnology	Palermo, Italy



PUBLICATIONS

Lipid Droplets Define a Sub-Population of Breast Cancer Stem Cells.

Hershey B.J.*, Vazzana R.*, Joppi D.L., Havas KM.

*equal contribution

J Clin Med, 2019. 9(1) doi.org/10.3390/jcm9010087

Congress proceedings

The role of fatty acids on the metabolic reprogramming of breast cancer cells. The 6th meeting of the International Society of Cancer Metabolism (ISCaM), 17-19 October 2019, Braga, Portugal. **Poster Communication**

The role of fatty acids on the metabolic reprogramming of breast cancer cells. The biennial congress of the Italian association of cell biology and differentiation (ABCD Meeting), 19-21 September 2019, Bologna, Italy. **Poster Communication**

The interplay between fatty acid and glucose metabolism in breast cancer. The 6th Ph.D. Open University UK meeting, 13-14 June 2019, Milan, Italy. **Poster Communication - #Best Poster Presentation Award**

The interplay between fatty acid and glucose metabolism in breast cancer. 2rd PhD Networking days, 9-10 January 2019, IFOM-IEO Campus - Milan, Italy. **Poster Communication**

The interplay between fatty acid and glucose metabolism in breast cancer. Cancer and Metabolism conference, 25-27 June 2018, Cambridge, UK. **Poster Communication**

The interplay between fatty acid and glucose metabolism in breast cancer. National Ph.D. Meeting, 19-21 March 2018, Salerno, Italy. **Poster Communication**

OTHER INFORMATION

EACR Member - European Association for Cancer Research - January 2020/today

ISCaM Member - International Society of Cancer Metabolism - January 2019/today

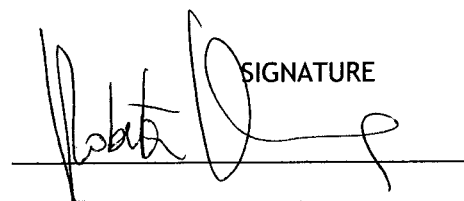
ABCD Junior Member - Associazione di Biologia Cellulare e del Differenziamento - January 2018/today

Fundraising Volunteer AIRC - Fondazione AIRC per la ricerca sul cancro

Declarations given in the present curriculum must be considered released according to art. 46 and 47 of DPR n. 445/2000.

The present curriculum does not contain confidential and legal information according to art. 4, paragraph 1, points d) and e) of D.Lgs. 30.06.2003 n. 196.

Place and date: Milano, 7 March 2021

 SIGNATURE