Curriculum Vitae - Giorgio Durante

EDUCATION

B. Sc. Biotechnology - University of Salento – 15/03/2019

I received a bachelor's degree in Biotechnology. Experimental thesis: "Role of nitric oxide in the absorption processes of endothelial copper ion" (Discipline: Biophysics and Physiology). Professor Michele Maffia and Dr. Emanuela Urso were the supervisors of my bachelor's degree thesis. Final mark: 105/110

M. Sc. Medical Biotechnology – University of Bologna - 12/04/2016

I received a master's degree in Medical Biotechnology. Experimental thesis: "Genetic alterations and CGAS/STING expression as biomarkers of benefit to immunotherapy in NSCLC" (Discipline: General Pathology). Professor Manuela Ferracin and Dr. Noemi Laprovitera were the supervisors of my master's degree thesis. Final mark: 110 summa cum laude

Ph.D. in Oncology, Hematology, and Pathology - University of Bologna

Graduation expected date: June 2024

WORK EXPERIENCE

From August 2022 to January 2023

PhD Period Abroad - Institut Universitaire de Recherche Clinique (IURC), Laboratoire Cellules Circulantes Rares Humaines.

During my period abroad I have delineated a suitable protocol for viable CTC preservation collected from patients with metastatic melanoma. Moreover, I successfully defined a viable CTC cell isolation protocol from blood and other fluids like cerebrospinal fluid and peritoneal effusions from other cancers.

I developed a panel of surface and cytoplasmatic biomarkers for melanoma CTC count for the EPIDROP assay and technologies such as Parsortix and DEPArray systems. I improved my knowledge of primary and cell lines cell cultures methods and learned immunofluorescence staining protocols.

Finally, I learned the workflow of Circulating Tumor Cell (CTC) kit using the Menarini CellSearch system.

From November 2020 until now

PhD student - University of Bologna, Department of Medical and Surgical Sciences.

My PhD project is focused on the study of circulating microRNAs and circulating tumor cells (CTCs) as biomarkers in peripheral blood of metastatic melanoma patients and Cancer of Unknown primary (CUP) patients.

During the first year I used the Parsortix system to isolate or identify CTCs from peripheral blood of metastatic melanoma and CUP's patients to establish long term CTCs cell line and perform molecular characterization. Moreover, I performed plasma and serum separation from whole blood and extracted total RNA to perform circulating miRNA quantification by digital droplet PCR and correlate miRNA signature with clinical diagnosis, stage, overall survival (OS), progression free survival (PFS) and response to anticancer treatment.

From July 2020 to October 2020

Research Fellowship - University of Bologna, Department of Experimental, Diagnostic and SpecialtyMedicine.

During my scholarship, I was engaged in the collection of samples of various types (plasma, fresh tissue, FFPE) from patients with different types of human tumors from which to obtain nucleic acids of high quality,

for the downstream analysis of expression levels of microRNAs.

I have been also involved in the bioinformatic analysis of data obtained by Small-RNA-Seq of melanoma patients. I learned the usage of DESeq2 R package for the analysis of differential gene expression and improved the knowledgeof R software environment for statistical computing and data visualization.

From July 2019 to June 2020

Research Fellowship – Istituto Ortopedico Rizzoli, Experimental Oncology (Dr. Katia Scotlandi lab)

The objective of the scholarship was to provide indications on potential markers associated with resistance to traditional and newly synthesized drugs to be applied in the clinic and useful for the evaluation of tumor heterogeneity in sarcomas and the detection of the most aggressive cells. During this project I learned the entire workflow of Total RNA-Seq (Illumina) and gene fusions detection using targeted sequencing (Archer FusionPlex) techniques on the Illumina NextSeq500 platform.

I used the DEPArray NxT machine and learned rare cell isolation protocols from heterogeneous and FFPE samples. Furthermore, I have developed bioinformatics skills such as enrichment analysis with GeneSetEnrichmentAnalysis and the programming language "R" for visualization of RNA-Seq data.

From February 2018 to March 2019

Internship – University of Bologna, Department of Experimental, Diagnostic and Specialty Medicine.

During my internship with Professor Manuela Ferracin's research group, I participated in the project aimed to identify biomarkers of benefit for immune checkpoint inhibitors that could improve patient stratification and therefore select patients who could benefit from treatment. immunotherapy, I learned several molecular biology techniques such as: nucleic acid extraction, PCR, RT-qPCR, droplet digital PCR, and the entire workflow of the sequencing technique with Ion Torrent PGM system.

I also developed bioinformatics skills regarding statistical analysis using GraphPad and MedCalc softwares, online databases that use high-throughput genome-wide sequencing data such as The Cancer Genome Atlas (TCGA) and The Cancer Immunome Atlas (TCIA) and the use of gene pathway analysis software (MetaCore software suite, DAVID and miRpath).

From July 2014 to January 2015

Internship – University of Salento, Department of Biological and Environmental Sciences and Technologies.

My internship with the research group of Professor Michele Maffia was about the study of the role of nitric oxide in the endothelial absorption processes of the copper ion in primary cell cultures of the HUVEC line. The variation in the absorption of copper ions over time following the NO treatment of HUVEC cells was evaluated by incubation with the green-fluorescent heavy metal indicator Phen Green ™ SK and subsequent fluorimeter detection. During the internship, I learned cell culture methods and improved the aseptic technique with laminar flow cabinet.

SCIENTIFIC PRODUCTION

Articles

1. Nagpal N, Sharma S, Maji S, **Durante G**, Ferracin M, Thakur J, Kulshreshtha R - "Essential role of MED1 in the transcriptional regulation of ER-dependent oncogenic miRNAs in breast cancer" - Scientific Reports, 8, pp. 11805 - 11805, 2018.

2. Laprovitera N, Riefolo M, Porcellini E, **Durante G**, Garajova I, Vasuri F, Aigelsreiter A, Dandachi N, Benvenuto

G, Agostinis F, Sabbioni S, Berindan Neagoe I, Romuald C, Ardizzoni, A, Trerè D, Pichler M, D'Errico A, & Ferracin M (2021). "MicroRNA expression profiling with a Droplet Digital PCR assay enables molecular diagnosis and prognosis of cancers of unknown primary (CUPs)." Molecular oncology, 2021 Jun 2.

3. Dika E, Broseghini E, Porcellini E, Lambertini M, Riefolo M, **Durante G**, Loher P, Roncarati R, Bassi C, Misciali C, Negrini M, Rigoutsos I, Londi E, Patrizi, A, & Ferracin M. Unraveling the role of microRNA/isomiR network in multiple primary melanoma pathogenesis. Cell death & disease, 12(5), 473, 2021.

4. Carrabotta M, Laginestra MA, **Durante G**, Mancarella, C., Landuzzi, L., Parra, A., Ruzzi, F., Toracchio, L., De Feo, A., Giusti, V., Pasello, M., Righi, A., Lollini, P. L., Palmerini, E., Donatii, D. M., Manara, M. C., & Scotlandi, K. Integrated molecular characterization of patient-derived models reveals therapeutic strategies for treating CIC-DUX4 sarcoma. Cancer Res. 2021; canres.1222.2021.

5. **Durante G**; Veronesi G; Misciali C; Riefolo M; Lambertini M; Tartari F; Ricci C; Dika E, M. Ferracin. Dysplastic nevi and melanoma: microRNAs tell a divergent story. Pathol Res Pract. 2022 Jul;235:153942. doi: 10.1016/j.prp.2022.153942. Epub 2022 May 14.

6. Cavazzoni A, Salamon I, Fumarola C, Gallerani G, Laprovitera N, Gelsomino F, Riefolo M, Rihawi K, Porcellini E, Rossi T, Mazzeschi M, Naddeo M, Serravalle S, Broseghini E, Agostinis F, Deas O, Roncarati R, **Durante G**, Lauriola M, Garajova I, Calin GA, Bonafè M, D'Errico A, Petronini PG, Cairo S, Ardizzoni A, Ferracin M. Synergic activity of FGFR2 and MEK inhibitors in the treatment of FGFR2-amplified cancers of unknown primary ,doi: https://doi.org/10.1101/2023.03.12.23287041 [submitted]

Review articles

1. **Durante G**, Comito F, Lambertini M, Broseghini E, Dika E, Ferracin M. Non-coding RNA dysregulation in skin cancers. Essays Biochem. 2021 Oct 27;65(4):641-655. doi:10.1042/EBC20200048.

2. **Durante G**, Broseghini E, Comito F, Naddeo M, Milani M, Salamon I, Campione E, Dika E, Ferracin M. Circulating microRNA biomarkers in melanoma and non-melanoma skin cancer. Expert Rev Mol Diagn. 2022 Mar;22(3):305-318. doi: 10.1080/14737159.2022.2049243. Epub 2022 Mar 11.

Congress abstracts

1. N* Laprovitera, M* Cinausero, **G. Durante**, M. Riefolo, G. De Maglio, M. Fiorentino, Manuela Ferracin & Andrea Ardizzoni – Poster presented in the annual meeting of SIC (2018): "The mutational landscape of nivolumab response in non-small cell lung cancer". *Equal contribution authorship."

2. **G. Durante**, E. Porcellini, N. Laprovitera, M. Riefolo, Manuela Ferracin – Poster presented in the annual meeting of ABCD (2019): "Evaluation of cGAS/STING expression as a marker of tumor immunogenicity."

3. N. Laprovitera, E. Porcellini, M. Riefolo, **G. Durante**, E. Broseghini, I. Garajova, S. Sabbioni, A. Ardizzoni, A. D'Errico and Manuela Ferracin – Poster presented in the annual meeting of SIC (2019): "Molecular prediction of Cancer of Unknown Primary site-of-origin".

4. Broseghini E, Porcellini E, Riefolo M, **Durante G**, Lambertini M, Dika E, Patrizi A, Ferracin – Poster presented in the annual meeting of ABCD (2019): "Understanding the biology of multiple primary melanoma"

5. Broseghini E, Porcellini E, Riefolo M, **Durante G**, Lambertini M, Londin E, Patrizi A, Dika E, Ferracin M – Poster presented in the AACR virtual annual meeting II (2020): "Unraveling the role of microRNAs in multiple primary melanoma pathogenesis.

6. F. Comito, D. de Biase, PV. Marchese, R. Pagani, **G. Durante**, B. Corti, E. Gruppioni, A. Altimari, M. Ferracin, A. Ardizzoni, B. Melotti - Poster presented to XXVII Congresso Nazionale IMI (2021): "The role of TERT promoter mutations in BRAF V600E mutant metastatic melanoma patients treated in first line with BRAF/MEK inhibitors"

7. **G. Durante**, F. Comito, F. Longo, A. Ardizzoni, M. Ferracin – Poster presented to Learn&Share Virtual Meeting La ricerca dei dottorandi DIMEC, Bologna 2° edizione (2022): "Circulating microRNAs, as predictive and

prognostic biomarkers for advanced melanoma patients"

8. Naddeo M, Lambertini M, Riefolo M, Broseghini E, **Durante G**, Misciali C, Dika E, Ferracin M. - Poster presented in the annual meeting of SIC (2022): "Association of microRNAs with prognostic features in melanoma subtypes"

9. **G. Durante**, F. Comito, F. Longo, G. Gallerani, M. Naddeo, A. Ardizzoni, M. Ferracin. Poster presented in the EACR annual meeting (2023): "Evaluation of circulating microRNAs as predictive and prognostic biomarkers for advanced melanoma patients"

LANGUAGE KNOWLEDGE

Italian - first language
English professional (B2)

WORKSHOPS AND TRAININGS

Certificate of recognition for satisfactory completion of the training "DEPArray NxT™ Basic training" 04/09/2019

Certificate of recognition for satisfactory completion of the training "DEPArray NxT™ FFPE training" 21/02/2020

Course of "basic bioinformatic" - BMR genomics 11/02/2021

Course of "Academic English Skills - AcES - course at level Upper-Intermediate" 01/07/2022

AWARDS

Winner of the Guido Berlucchi Foundation Young Researcher Mobility Programme Grant 2022

TEACHING ACTIVITIES AND SEMINARS

- Teaching tutor at the Department of Medical and Surgical Sciences (DIMEC) University of Bologna for the course "Frontiers in biomedical research" SSD MED/04 General Pathology
- Speaker for the event "Incontri con la ricerca nelle scuole" organized by Fondazione Italiana per la Ricerca sul Cancro (AIRC)
- Speaker at Droplet Digital PCR Conference at University of Brescia, organized by BioRad – Brescia (Italy) 22nd June 2023 "Evaluation of circulating microRNAs as predictive and prognostic biomarkers for advanced melanoma patients."
- Thesis co-supervisor:
    - 2022 Federica Longo (LM in Molecular and cell biology, Università di Bologna)
    - 2021 Francesco Pignatelli (LM Medical Biotechnology, Università di Bologna)

CERTIFICATIONS

Qualification to practice the profession of biologist (senior), obtained in November 2022 at the University of Sannio in Benevento

SCIENTIFIC SOCIETY MEMBERSHIP

From 2021 member of Società Italiana di Cancerologia (SIC)

Bologna 11/12/2023