EUROPEAN CURRICULUM VITAE

PERSONAL INFORMATION

Name	**FATTORE LUIGI**
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E-mail	**luigifattore1985@gmail.com**
Nationality	Italiana
Date of birth	12/06/1985

WORK EXPERIENCE

• Dates (from – to)

- **From July to the present:** Researcher of UOSD SAFU, Department of Research, Diagnosis and Innovative Technologies, Traslational Research Area, IRCCS Regina Elena National Cancer Institute
- **From January 2020 to June 2020:** Researcher of Department of Melanoma, Oncologic Immunotherapy and Innovative Therapies Istituto Nazionale Tumori IRCCS, "Fondazione G. Pascale", Naples
- **January 2019 to December 2019**: Post Doc fellow of the Istituto Pasteur Italia, Fondazione Cenci Bolognetti beside the Laboratory of Cellular and Molecular Biology of the Department of Clinical and Molecular Medicine, “Sapienza" University of Rome within the Department of Surgery "P. Valdoni", Rome.
- **January 2018 to December 2018:** Post Doc fellow “Fondazione Umberto Veronesi” at UOSD Modelli Preclinici e Nuovi Agenti Terapeutici, IRCCS Istituto Nazionale Tumori "Regina Elena" of Rome in collaboration with the Laboratory of Cellular and Molecular Biology of the Department of Clinical and Molecular Medicine, “Sapienza" University of Rome within the Department of Surgery "P. Valdoni", Rome.
- **From July 2017:** reviewer for the international journals "Journal of Translational Medicine", "Cell Death & Disease", Journal of Experimental & Clinical Cancer Research" and "Frontiers in Oncology".
- **January 2016 at the present**: member of the executive board of the "Società Italiana di Biofisica e Biologia Molecolare", SIBBM.
- **September 2016 to December 2016**: Research collaboration with the laboratories of Prof. C. Croce, Department of Molecular Virology, Immunology, and Medical Genetics at the Ohio State University in Columbus (Ohio, USA). Research interest: study of novel miRNA involvement in phenotypic resistance to BRAF/ MEK inhibitors in melanoma. Study of the interaction between miR-579-3p and MITF transcription factor in melanoma differentiation, proliferation and resistance to targeted therapies.
- **January 2015 to December 2017**: Post Doc fellow “FIRC Fondazione Italiana per la ricerca sul Cancro” at IRCCS “Fondazione G. Pascale” of Naples in collaboration with the Laboratory of Cellular and Molecular Biology of the Department of Clinical and Molecular Medicine, “Sapienza" University of Rome within the Department of Surgery "P. Valdoni", Rome.

Organizer of the BeMM (Biology and Molecular Medicine) PhD Symposium, 23RD January 2015 at I Clinica Medica of Policlinico Umberto I, "Sapienza" University of Rome.

- **May 2014 to November 2014:** PhD student training in the laboratories of Prof. C. Croce, Department of Molecular Virology, Immunology, and Medical Genetics at the Ohio State University in Columbus (Ohio, USA). Research interest: new miRNAs involved in

resistance to BRAF/ MEK inhibitors in melanoma. Identification of mechanisms of resistance to BRAF/ MEK inhibitors in melanoma.

- **November 2011 to February November 2014:** PhD student of Experimental Medicine on Molecular and Clinical Medicine Department, "Sapienza" University of Rome, under the supervision of Prof. Rita Mancini with expertise in setting up of vitro bioassays and drug testing using also primary and 3D cultures of tumor cells. Research interest: Identification of mechanisms of resistance to BRAF/ MEK inhibitors in melanoma. Assessment of "*in vitro"* and "*in vivo"* activity of anti-ErbB3 receptor mAbs on primary lung cancer cells, also in combination with chemotherapy. Study of the role of monoclonal antibodies directed against ErbB3 receptor in inhibition of growth and migration of melanoma cells. Identification of the molecular mechanism involved in antiErbB3 mAbs-induced internalization and degradation of ErbB3 receptor.

- ***September 2009 to March 2011:*** *Undergraduated student on University of Naples Federico II under the supervision of Prof Paola Costanzo. Research interest: Study the role of WT1/ ZNF224 interaction in the modulation of the expression of apoptotic genes in erythroleukemia cells*

EDUCATION AND TRAINING

• Dates (from – to)

- **February 2015:** PhD in Experimental Medicine on Molecular and Clinical Medicine Department, "Sapienza" University of Rome. Title of the tesis: *"ErbB3 receptor in melanoma: a key player in the development of resistance to therapy".*
- **November 2012:** Qualification as a Professional Biologist, Second University of Studies of Naples (Caserta).
- **August 2011**: Certificate of attendance of English language study at Callan School of London.
- **March 2011**: Second level degree in Medical Biotechnology on University of Naples Federico II, final grade 105 /110. Title of the thesis: ***"****The interaction between the transcriptional factors WT1 and ZNF224 modulates the expression of apoptotic genes in erythroleukemia K562 cells".*
- **March 2007**: First level degree in Biotechnology on the Second University of Studies of Naples (Caserta), final grade 102/110. Title of the thesis: *"Pathogenesis of prion diseases: current knowledge and future prospects".*
- **July 2003**: High School Degree on Liceo Scientifico "Nino Cortese", Maddaloni (CE)

PERSONAL SKILLS AND COMPETENCES

- Human tumor xenografts in mouse models. Setting up of primary cultures from biological fluids.
- Adherent and in suspension different cell cultures; methods of stable and transient transfections, functional assays of activity of reporter genes; apoptosis tests. Migration assays through porous membrane and colorimetric proliferation assays. Immunofluorescence assays to assess cell proliferation and use of specific markers for endocytic compartments
- Cell lysates, immunoprecipitation techniques of endogenous and overexpressed proteins, western blot. Bacterial cultures, cloning.
- Methods of RNA interference, chromatin immunoprecipitation, RT-PCR, - Real Time PCR, electrophoretic techniques.
- Isolation and evaluation of miRNAs from cell cultures and formalin-fixed paraffin embedded (FFPE) samples.
- Basis of bionformatic tools to discover new miRNAs and their predicted target genes

LANGUAGE	**ITALIAN**
OTHER LANGUAGES	
	ENGLISH
• Reading	EXCELLENT
• Writing	EXCELLENT
• Oral	EXCELLENT
DRIVING LICENSE	Patent B

PUBBLICATIONS

1) Ruggiero CF*, **Fattore L***, Terrenato I, Sperati F, Salvati V, Madonna G, Capone M, Valenti F, Di Martino S, Mandoj C, Liguoro D, Castaldo V, Cafaro G, Simeone E, Vanella V, Russillo M, Conti L, Cuda G, Giannarelli D, Ascierto PA, Mancini R, Ciliberto G. Identification of a miRNA-based non-invasive predictive biomarker of response to target therapy in BRAFmutant melanoma. Theranostics 2022; 12(17):7420-7430. doi:10.7150/thno.77761
2) **Fattore L**, Cafaro G, Di Martile M, Campani V, Sacconi A, Liguoro D, Marra E, Bruschini S, Stoppoloni D, Cirombella R, De Nicola F, Pallocca M, Ruggiero CF, Castaldo V, Catizone A, Del Bufalo D, Viglietto G, Vecchione A, Blandino G, Aurisicchio L, Fanciulli M, Ascierto PA, De Rosa G, Mancini R, Ciliberto G. Oncosuppressive miRNAs loaded in lipid nanoparticles potentiate targeted therapies in BRAF-mutant melanoma by inhibiting core escape pathways of resistance. Oncogene. 2022 Nov 23;115. doi: 10.1038/s41388-022-02547-9.
3) Bruschini B, Pallocca M, Sperandio E, D'Ambrosio L, Ascenzi F, De Vitis C, Salvati V, Esposito A, Di Martino S, De Nicola F, Paolini F, **Fattore L**, Alessandrini G, Facciolo F, Foddai ML, Bassi M, Venuta F, D'Ascanio M, Ricci A, D' Andrilli A, Napoli C, Aurisicchio L, Fanciulli M, Rendina EA, Ciliberto G, Mancini R. Deconvolution of malignant pleural effusions immune landscape unravels a novel macrophage signature associated with worse clinical outcome in lung adenocarcinoma patients. J Immunother Cancer. 2022 May;10(5):e004239. doi: 10.1136/jitc-2021004239.
4) **Fattore L**, Ruggiero CF, Liguoro D, Castaldo V, Catizone A, Ciliberto G, Mancini R. The Promise of Liquid Biopsy to Predict Response to Immunotherapy in Metastatic Melanoma. Front Oncol. 2021 Mar 18;11:645069. doi: 10.3389/fonc.2021.645069. eCollection 2021.
5) **Fattore L**; Mancini R; Ciliberto G. Cancer Stem Cells and the Slow Cycling Phenotype: How to Cut the Gordian Knot Driving Resistance to Therapy in Melanoma. Cancers (Basel). 2020 Nov 13;12(11):3368. doi: 10.3390/cancers12113368.
6) Liguoro D; **Fattore L**, Mancini R, Ciliberto G. Drug tolerance to target therapy in melanoma revealed at single cell level: What next? Biochim Biophys Acta Rev Cancer. 2020 Dec;1874(2):188440. doi: 10.1016/j.bbcan.2020.188440.
7) **Fattore L**; Malpicci D; Milite C; Castellano S; Sbardella G; Botti G; Ascierto PA; Mancini R; Ciliberto G. Reverse transcriptase inhibition potentiates target therapy in BRAF-mutant melanomas: effects on cell proliferation, apoptosis, DNA-damage, ROS induction and mitochondrial membrane depolarization. Cell Commun Signal. 2020 Sep 15;18(1):150. doi: 10.1186/s12964-020-00633-7.2
8) **Fattore L**, Campani V, Ruggiero CF, Salvati V, Liguoro D, Scotti L, Botti G, Ascierto PA, Mancini R, De Rosa G, Ciliberto G. In Vitro Biophysical and Biological Characterization of Lipid Nanoparticles Co-Encapsulating Oncosuppressors miR-199b-5p and miR-204-5p as Potentiators of Target Therapy in Metastatic Melanoma. Int J Mol Sci. 2020 Mar 12;21(6):1930. doi: 10.3390/ijms21061930.
9) Tupone MG, D'Aguanno S, Di Martile M, Valentini E, Desideri M, Trisciuoglio T, Donzelli S, Sacconi A, Buglioni S, Ercolani C, Biagioni A, Fibbi G, **Fattore L**, Mancini R, Ciliberto G, Blandino G, Del Bufalo D. "microRNA378a5p is a novel positive regulator of melanoma progression". Oncogenesis. 2020 Feb 14;9(2):22. doi: 10.1038/s41389-020-0203-6.
10) **Fattore L**, Ruggiero CF, Liguoro D, Mancini R, Ciliberto G. Single cell analysis to dissect molecular heterogeneity and disease evolution in metastatic melanoma. Cell Death and Disease. 2019 DOI:10.1038/s41419-019-2048-5
11) Ruggiero CF, Malpicci D, Liguoro D, Salvati V, Capone M, Bedogni B, Ascierto P, Mancini R, **Fattore L**, Madonna G, Vanella V, Mallardo D, Ciliberto G. ErbB3 Phosphorylation as Central Event in Adaptive Resistance to Targeted Therapy in Metastatic Melanoma: Early Detection in CTCs during Therapy and Insights into Regulation by Autocrine Neuregulin. Cancers (Basel). 2019 Sep 25;11(10). pii: E1425. doi: 10.3390/cancers11101425.
12) Bruschini S, di Martino S, Pisanu ME, **Fattore L**, De Vitis C, Laquintana V, Buglioni S, Tabbì E, Cerri A, Visca P, Alessandrini G, Facciolo F, Napoli C, Trombetta M, Santoro A, Crescenzi A, Ciliberto G, Mancini R.

CytoMatrix for a reliable and simple characterization of lung cancer stem cells from malignant pleural effusions. J Cell Physiol. 2019 Aug 9. doi: 10.1002/jcp.29121.

13) Leonetti E, Gesualdi L, Scheri KC, Dinicola S, **Fattore L**, Masiello MG, Cucina A, Mancini R, Bizzarri M, Ricci G, Catizone A. c-Src Recruitment is Involved in c-MET-Mediated Malignant Behaviour of NT2D1 NonSeminoma Cells. Int J Mol Sci. 2019 Jan 14;20(2). pii: E320. doi: 10.3390/ijms20020320.
14) Pisanu ME, Maugeri-Saccà S **Fattore L**, Bruschini S, De Vitis C, Tabbì E, Bellei B, Migliano E, Kovacs D, Camera E; Picardo M, Jakopin Z, Cippitelli C, Bartolazzi A, Raffa S, Torrisi MR, Fulciniti F, Ascierto PA, Ciliberto G, Mancini R. Inhibition of Stearoyl-CoA desaturase 1 reverts BRAF and MEK inhibition-induced selection of cancer stem cells in BRAF-mutated melanoma. J Exp Clin Cancer Res. 2018. Accepted paper (JECC-D-1801658R2). 10.1038/s41418-018-0205-5.
15) **Fattore L**, Mancini R, Ascierto PA, Ciliberto G. The potential of BRAFassociated non-coding RNA as a therapeutic target in melanoma. Expert Opin Ther Targets. 2019 Jan;23(1):53-68. doi: 10.1080/14728222.2019.1554057.
16) **Fattore L**, Ruggiero CF, Pisanu ME, Liguoro D, Cerri A, Costantini S, Capone F, Acunzo M, Romano G, Nigita G, Mallardo D, Ragone C, Carriero MV, Budillon A, Botti G, Ascierto PA, Mancini R, Ciliberto G. Reprogramming miRNAs global expression orchestrates development of drug resistance in BRAF mutated melanoma. Cell Death Differ. 2018 Sep 25. doi:
17) **Fattore L**, Sacconi A, Mancini R, Ciliberto G. "MicroRNA-driven deregulation of cytokine expression helps development of drug resistance in metastatic melanoma". Cytokine Growth Factor Rev. 2017 May 17. pii: S1359-6101(17)30059-X. doi: 10.1016/j.cytogfr.2017.05.003.
18) Acunzo M, Romano G, Nigita G, Veneziano D, **Fattore L**, Laganà A, Zanesi N, Fadda P, Fassan M, Rizzotto L, Kladney R, Coppola V, Croce CM. "Selective targeting of point-mutated KRAS through artificial microRNAs". Proc Natl Acad Sci U S A. 2017 May 23;114(21):E4203- E4212. doi: 10.1073/pnas.1620562114.
19) **Fattore L**, Costantini S, Malpicci D, Ruggiero CF, Ascierto PA, Croce CM, Mancini R, Ciliberto G "MicroRNAs in melanoma development and resistance to target therapy". Oncotarget. 2017 Jan. doi: 10.18632/oncotarget.
20) **Fattore L**, Mancini R, Acunzo M, Romano G, Laganà A, Pisanu ME, Malpicci D, Madonna G, Mallardo D, Capone M, Fulciniti F, Mazzucchelli L, Botti G, Croce CM, Ascierto PA, Ciliberto G. "miR-579-3p controls melanoma progression and resistance to target therapy". Proc Natl Acad Sci U S A. 2016 Aug; 113(34):E5005-13. doi: 10.1073/pnas.1607753113.
21) **Fattore L**, Malpicci D, Marra E, Belleudi F, Noto A, De Vitis C, Pisanu ME, Coluccia P, Camerlingo R, Roscilli G, Ribas A, Di Napoli A, Torrisi MR, Aurisicchio L, Ascierto PA, Mancini R, Ciliberto G. "Combination of antibodies directed against different ErbB3 surface epitopes prevents the establishment of resistance to BRAF/MEK inhibitors in melanoma". Oncotarget. 2015 Sep; 6(28):24823-41. doi: 10.18632/oncotarget.4485.
22) Costanzo P, Santini A, **Fattore L**, Novellino E, Ritieni A. "Toxicity of aflatoxin B1 towards the vitamin D receptor (VDR)". Food Chem Toxicol. 2015 Feb;76:77-9. doi: 10.1016/j.fct.2014.11.025.
23) Noto A, De Vitis C, Roscilli G, **Fattore L**, Malpicci D, Marra E, Luberto L, D'Andrilli A, Coluccia P, Giovagnoli MR, Normanno N, Ruco L, Aurisicchio L, Mancini R, Ciliberto G. "Combination therapy with anti-ErbB3 monoclonal antibodies and EGFR TKIs potently inhibits non-small cell lung cancer". Oncotarget. 2013 Aug;4(8):1253-65.
24) **Fattore L**, Marra E, Pisanu ME, Noto A, De Vitis C, Belleudi F, Aurisicchio L, Mancini R, Torrisi MR, Ascierto PA, Ciliberto G. "Activation of an early feedback survival loop involving phospho-ErbB3 is a general response of melanoma cells to RAF/MEK inhibition and is abrogated by anti-ErbB3 antibodies". J Transl Med. 2013 Jul 27;11:180.
25) Ricci A, De Vitis C, Noto A, **Fattore L**, Mariotta S, Cherubini E, Roscilli G, Liguori G, Scognamiglio G, Rocco G, Botti G, Giarnieri E, Giovagnoli MR, De Toma G, Ciliberto G, Mancini R. "TrkB is responsible for EMT transition in malignant pleural effusions derived cultures from adenocarcinoma of the lung". Cell Cycle. 2013 Jun 1;12(11):1696-703. doi: 10.4161/cc.24759.

26) Montano G, Cesaro E, **Fattore L**, Vidovic K, Palladino C, Crescitelli R, Izzo P, Turco MC, Costanzo P. “Role of WT1 ZNF224 interaction in the expression of apoptosis-regulating genes”. Hum Mol Genet. 2013 May 1;22(9):1771-82. doi: 10.1093/hmg/ddt027.
27) Belleudi F, Marra E, Mazzetta F, **Fattore L**, Giovagnoli MR, Mancini R, Aurisicchio L, Torrisi MR, Ciliberto G. “Monoclonal antibody-induced ErbB3 receptor internalization and degradation inhibits growth and migration of human melanoma cells”. Cell Cycle. 2012 Apr; 11(7):1455-67. doi: 10.4161/cc.19861.

AWARDS

- Principal collaborator of the research project granted by Italian Ministry of Health PNRR-POC-2022-12375713 - TArgeting drug resistant melanoma with miCroRNAsdelivered by Lipid NanoparTICles (TACTIC)
- Principal Investigator of the research project granted by Lega Italiana per la Lotta contro i Tumori (LILT) Call 5x1000, 2020 entitled "Therapeutic and diagnostic implications of miR-4488 and miR-4443 to fight resistance to targeted therapy in metastatic melanoma".
- Winner of the best poster prize in the XXVI Congresso Nazionale IMI 1st Virtual Edition 2020 with: "Reverse transcriptase inhibition potentiates target therapy in BRAF-mutant melanomas: an in vitro study"
- Recipient of the biennal research project "Teresa Ariaudo" of the Istituto Pasteur Italia, Fondazione Cenci Bolognetti, Sapienza University of Rome. Title of the project: " Novel miRNAs as therapeutic tools for intervention in melanoma drug resistance".
- Recipient of annual "Fondazione Umberto Veronesi" post-doc fellowship from 2018 at the present in UOSD Modelli Preclinici e Nuovi Agenti Terapeutici, IRCCS Istituto Nazionale Tumori "Regina Elena" of Rome. Title of the project: " Novel miRNAs as therapeutics to fight drug resistance in metastatic melanoma".
- Recipient of biennial AIRC post-doc fellowship "*Giovanna Ciani*" from 2015 to 2017 in National Institute of Tumors “Fondazione G. Pascale” of Naples. Title of the project: "Involvement of miRNAs in the development of drug resistance in melanoma".
- Recipient of annual AIRC post-doc fellowship "*Fabrizio Ansuini*" from 2014 to 2015 in National Institute of Tumors “Fondazione G.Pascale” of Naples. Title of the project:" Study microRNAs interplay in the development of drug resistance to targeted terapies in mestastatic melanoma".
- Oral Communication at SiBBM Meeting "*Frontiers in Molecular Biology, From Single Cells to 3-D Cell Culture*", Milano 2017
- Oral Communication at SiBBM Meeting "*From Single Analysis to Precision Medicine*", Napoli 2016.
- Oral Communication at 55th Annual Meeting of the Italian Cancer Society, Catanzaro, 2013.
- Oral Communication at Melanoma Bridge in Naples, 2013.
- First Name in many poster presentations (EACR-AACR-SIC 2015 Special Conference in Firenze, AACR Annual Meeting 2016 in New Orleans).

Rome, 12/01/2023