

Matteo Cassandri

WORKING EXPERIENCES

(11/2018 – Today)

Post-Doctoral fellowship at Bambino Gesù Pediatric Hospital

Department of Oncohematology, Bambino Gesù Pediatric Hospital Rome, Italy.
Head Prof. Franco Locatelli, tutor Dr. Rossella Rota

- Laboratory methods application: Tumor cell irradiation, Clonogenic assay, Whole Genome CRISPR screening, 2D and 3D cancer cell culture, cell transfection, generation of stable cell lines with lentivirus, western blot, protein, RNA and DNA extraction from cultured cells, immunofluorescence, confocal microscopy, Flow cytometry analysis, ChIP and CoIP assays, luciferase reporter assay, CRISPR/CAS9 system, Proximity ligation assay, High-throughput drug screening, proteomic and phospho-proteomic samples preparation, Bioinformatic dataset analysis (ChIP-seq, RNA-seq, copy number alteration, patients survival, cell dependency analysis, DNA-methylation).

Theme of projects: 1) Role of the protein SKP2 in rhabdomyosarcoma and myogenic differentiation. 2) Targeting CDKs as a combination strategy in pediatric PAX3-FOXO1 rhabdomyosarcoma.

(05/2021 – Today)

Post-Doctoral fellowship at Sapienza University of Rome

Department of Radiotherapy, Policlinico Umberto I, "Sapienza" University of Rome.
Prof. Francesco Marampon's Group

- Laboratory methods application: 2D and 3D cancer cell culture, cell transfection, generation of stable cell lines with lentivirus, western blot, protein, RNA and DNA extraction from cultured cells, Plasmid DNA extraction (miniprep, maxiprep), immunofluorescence, confocal microscopy, Flow cytometry analysis, ChIP and CoIP assays, luciferase reporter assay, CRISPR/CAS9 system, Proximity ligation assay, High-throughput drug screening, proteomic and phospho-proteomic samples preparation, Bioinformatic dataset analysis (ChIP-seq, RNA-seq, copy number alteration, patients survival, cell dependency analysis, DNA-methylation).

Theme of project: Targeting pathways involved in radio-resistance in pediatric rhabdomyosarcoma

(04/2018 – 10/2018)

Post-Doctoral fellowship at European Institute of Oncology (IEO)

Department of experimental oncology, European Institute of Oncology (IEO) Milan, Italy.
Prof. Pier Paolo Di Fiore's Lab.

- Laboratory methods application: Cancer cell culture, cell transfection, generation of stable cell lines with lentivirus, western blot, protein, RNA and DNA extraction from cultured cells and mice tissues, Plasmid DNA extraction (miniprep, maxiprep), immunofluorescence, confocal microscopy, mice handling, breast cancer and bladder cancer patient derived xenograft, human and murine tumour digestion, determination of sphere forming efficiency, in vivo bladder carcinogenesis.

Theme of projects: 1) Role of the tumour suppressor NUMB in bladder cancer. 2) Role of the cyclin dependent kinase CDK12 in breast cancer.

- (11/2014 – 01/2018) **PhD in Biochemistry and Molecular Biology**
 Department of Experimental Medicine and Surgery, University of Rome “Tor Vergata”, Prof G. Melino’s (gm89@le.ac.uk) Laboratory. Supervisor: Prof. Massimiliano Agostini (M.Agostini@med.uniroma2.it)
- Laboratory methods application: Cancer cell culture, human and murine primary keratinocytes culture, cell transfection, migration and proliferation assays, cloning techniques, PCR, RT-PCR, qRT-PCR, western blot, protein, RNA and DNA extraction from cultured cells and mice tissues, Plasmid DNA extraction (miniprep, maxiprep), immunofluorescence, confocal microscopy, Flow cytometry analysis (PI, EdU, ROS), ChIP and CoIP assays, luciferase reporter assay, CRISPR/CAS9 system, subcellular protein fractionation, mice handling, genotyping and weaning, colonies management, in vivo skin carcinogenesis, biotin tracer assay, transdermal diffusion assay.
- Theme of thesis:** ZNF750 represses breast cancer cell migration by inhibiting the expression of LAMB3 and CTNNAL1. Phenotypic characterization of ZNF750 KO mouse.

- (07/2011 – 08/2011) **Stage**
 Farnigea Farmaceutici s.r.l., R&D laboratory
- Good manufacturing practice in pharmaceutical industry, standard operating procedures of the research laboratory, good laboratory practice related to pharmaceutical laboratory technologies and development, standard operating procedures relating to the formulation activities and documentation; basics of laboratory equipment for analysis and development of formulations (viscometer, HPLC, pH meter, technical and analytical scales); regulatory affairs training.
- Type of business or sector:** Pharmaceutical company

EDUCATION AND TRAINING

- (12/2012 – 10/2014) **Master’s Degree in “Genetic and Molecular Biology (110/110 cum laude)**
 University of Rome “La Sapienza”
 Department of Biology and Biotechnology C. Darwin, Prof. Paolo Costantino’s Lab.
 Supervisor: Prof. Giovanna Serino (giovanna.serino@uniroma1.it)
- Master’s thesis Laboratory activities: cloning techniques, PCR, PCR colony, RT-PCR, yeast two hybrid system, western blot, DNA and RNA from plant, protein extraction from plant and *S. Cerevisiae*, plasmid DNA extraction(miniprep), site directed mutagenesis
- Theme of thesis:** 1) Molecular substrate identification of F-box protein CFK1 of *Arabidopsis thaliana*; 2) Molecular interactors identification of subunit 6 of CSN complex of *Arabidopsis thaliana*.
- (10/2007 – 12/2012) **Bachelor’s Degree in Biological sciences**
 University of Rome “La Sapienza”
 Department of Biology and Biotechnology C. Darwin, Prof. Paolo Costantino’s laboratory.
 Supervisor: Prof. Giovanna Serino
- Bachelor’s thesis Laboratory activities: PCR, RT-PCR, genomic DNA extraction from Plant tissues, Plasmid DNA extraction, electrophoresis on agarose gel, cloning techniques, E.Coli transformation, GUS assay for histochemical analysis.
- Theme of thesis:** Genotypic analysis of mutant plants for genes DAG3 and DOF24 in *Arabidopsis thaliana*.

PERSONAL COMPETENCES

Native language Italian

Other language	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken Production	
English	B2	B2	B2	B2	B2
Trinity College, Watford, Ireland and Berlitz English School, Boston, USA					

Communication skills High aptitude for teamwork, gained during university laboratory work. Ability to relate and integrate into new reality in a very short time. High reliability, strong willingness to listen and in helping others.

Organizational and management skills Good skills of collaboration and project management. Capacity in analysis and organization of data and information. Excellent mediation skills, problem solving and group organization.

Professional skills Technical skills and competences:

- **Molecular biology and biochemical techniques:** PCR, RT-PCR, qRT-PCR, electrophoresis on agarose gel, Western blot, protein extraction (from Plant tissues, cancer cell culture, primary human e murine keratinocytes and mice tissues), DNA extraction (from Plant tissues, cancer cell culture, primary human e murine keratinocytes and mice tissues), RNA extraction (from Plant tissues, cancer cell culture, primary human e murine keratinocytes and mice tissues) Plasmid DNA extraction (miniprep, midiprep and maxiprep), cloning techniques, site directed mutagenesis, yeast two hybrid system, ChIP assay, CoIP assay, CRISPR/CAS9 system, subcellular protein fractionation, immunofluorescence, luciferase reporter assay.
- **Cellular biology techniques:** cancer cell culture, primary human and murine keratinocytes culture, keratinocytes differentiation in vitro, murine keratinocytes isolation from mice skin, human and murine tumour digestion, flow cytometry analysis (PI, EdU, ROS), optical microscopy, stereomicroscopy, confocal microscopy, trans-well migration/invasion assay, clonogenic assay, cell transfection, gene silencing, generation of stable cell lines with lentivirus, E.Coli and Agrobacterium transformation.
- **Transgenic model:** mouse handling, colonies management, mice weaning, genotyping, dissection, biotin tracer assay, transdermal diffusion assay, In vivo skin carcinogenesis, in vivo bladder carcinogenesis, breast cancer and bladder cancer patient derived xenograft, *Arabidopsis thaliana* manipulation and growth, seed germination assay, plant transformation with Agrobacterium tumefaciens, genotyping of *Arabidopsis thaliana* mutant plants, GUS assay for histochemical analysis.
- **Bioinformatics:** SerialCloner, Geneious, CBioportal for cancer genomics, Oncomine, Chemoprofiling, UALCAN, David for geneontology, UCSC Genome Browser (ChIP-Seq, RNA-Seq analysis), GEO Datasets, Geo Profile, Matinspector, IGV, UCSC Xena, GEPIA 2, GSEA, R² platform, KMplotter, ImageJ.

Digital skills Excellent knowledge of Windows and MAC/OS operating system, Microsoft Office (Access, Excel, PowerPoint, Word), Internet Explorer, Safari and Mail Browser. Good knowledge of Adobe Photoshop and Illustrator.

Other skills Amateur musicians of classic and acoustic guitar.

Driving licence B

Further informations

Publications

* Equal contribution

- Clara Perrone*, Silvia Pomella*, **Matteo Cassandri***, Cristina Cossetti, Michele Pezzella, Marta Colletti, Giulia Pericoli, Angela Di Giannatale, Emmanuel Andre Albert De Crespín De Billy, Maria Vinci, Stefania Petrini, Francesco Marampon, Concetta Quintarelli, Riccardo Taulli, Josep Roma, Soledad Gallego, Simona Camero, Paolo Mariottini, Manuela Cervelli, Roberta Maestro, Lucio Miele, Biagio De Angelis, Franco Locatelli, Rossella Rota. MET Inhibition Sensitizes Rhabdomyosarcoma Cells to NOTCH Signaling Suppression. Under revision at *Frontier in Oncology* (Manuscript ID: 835642).
- Silvia Pomella*, **Matteo Cassandri***, Maria Rita Braghini*, Francesco Marampon, Anna Alisi, Rossella Rota. New Insights on the Functions and Targeting of FAK in Cancer. Under revision at *Int. J. Mol. Sci.* (2022).
- Simona Camero, Giulia Vitali, Paola Pontecorvi, Simona Ceccarelli, Eleni Anastasiadou, Francesca Cicchetti, Elisabetta Flex, Silvia Pomella, **Matteo Cassandri**, Rossella Rota, Francesco Marampon, Cinzia Marchese, Amalia Schiavetti, Francesca Megiorni. DNMT3A and DNMT3B targeting as an effective radiosensitizing strategy in embryonal rhabdomyosarcoma. *Cells.* (2021)
- **Matteo Cassandri***, Silvia Pomella*, Alessandra Rossetti*, Francesco Petragnano*, Luisa Milazzo, Francesca Vulcano, Simona Camero, Silvia Codenotti, Francesca Cicchetti, Roberto Maggio, Claudio Festuccia, Giovanni Luca Gravina, Alessandro Fanzani, Francesca Megiorni, Cinzia Marchese, Vincenzo Tombolini, Franco Locatelli, Rossella Rota, Francesco Marampon. MS-275 (Entinostat) Promotes Radio-sensitivity in PAX3-FOXO1 Rhabdomyosarcoma cells. *Int. J. Mol. Sci.* (2021).
- Rossetti A., Petragnano F., Milazzo L., Vulcano F., Macioce G., Codenotti S., **Cassandri M.**, Pomella S., Cicchetti F., Fasciani I., Antinozzi C., Di Luigi L., Maggio R., Festuccia C., De Felice F., Vergine M., Fanzani A., Rota R., Polimeni A., Tombolini V., Gravina G.L., Marampon F. Romidepsin (FK228) fails in counteracting the transformed phenotype of rhabdomyosarcoma cells but efficiently radiosensitizes, *in vitro* and *in vivo*, the alveolar phenotype subtype. *Int. J. Radiat. Biol.* (2021).
- Tiago T., Hummel B., Galli V., Vinet J., Morelli F., Basile V., Mediani L., Antoniani F., Pomella S., **Cassandri M.**, Garone MG, Silvestri B., Cimino M., Mouly V., Poser I., Rosa A., Alberti S., Rota R., Ben-Zvi A., Sawarkar A., Carra S. HSPB3 is a specialized nuclear chaperone engaged in muscle cell differentiation by acting on LBR and gene expression. *Cell Death Dis.* (2021).
- Pomella, S., Sreenivas, P., Gryder, B.E., Wang, L., **Cassandri, M.**, Baxi, K., Hensch, N.R., Carcarino, E., Song, Y., Yohe, M., Amadio, B., Caruana, I., De Stefanis, C., De Vito, R., Locatelli, F., Chen, Y., Chen, E.Y., Houghton, P., Khan, J., Rota, R., and Ignatius, M.Y.. Interaction between SNAI2 and MYOD enhances oncogenesis and suppresses differentiation in Fusion-Negative Rhabdomyosarcoma. *Nat. Commun.* (2021).
- Perrone, C.*, Pomella, S.*, **Cassandri, M.***, Braghini, M.R., Pezzella, M., Locatelli, F., Rota, R. FAK signalling in Rhabdomyosarcoma. *Int. J. Mol. Sci* (2020).
- **Cassandri, M.**, Fioravanti, R., Pomella, S., Valente, S., Rotili, D., Del Baldo, G., De Angelis, B., Rota, R., and Mai, A.. CDK9 as a Valuable Target in Cancer: From Natural Compounds Inhibitors to Current Treatment in Pediatric Soft Tissue

Sarcomas. *Front. Pharmacol.* 11 (2020).

- Butera A., **Cassandri M.**, Rugolo F., Agostini M., Melino G. The ZNF750-RAC1 axis as potential prognostic factor for breast cancer. *Cell Death Discovery* (2020).
- **Cassandri, M.**, Butera, A., Amelio, I., Lena, A.M., Montanaro, M., Mauriello, A., Anemona, L., Candi, E., Knight, R.A., Agostini, M., and Melino G. ZNF750 represses breast cancer invasion via epigenetic control of prometastatic genes. *Oncogene* (2020).
- **Cassandri, M.**, Smirnov, A., Novelli, F., Pitolli, C., Agostini, M., Malewicz, M., Melino, G., and Raschellà, G. Zinc-finger proteins in health and disease. *Cell Death Discovery*. (2017).

Conferences

- Oral presentation at AACR annual meeting 2022, New Orleans (LO) USA.
Talk title: A MYOD-SKP2 axis boosts oncogenic properties of Fusion-negative rhabdomyosarcoma and is counteracted by neddylation inhibition *in vitro* and *in vivo*. Silvia Pomella*, **Matteo Cassandri***, Doris Phelps, Clara Perrone, Michele Pezzella, Marco Wachtel, Benjamin Sunkel, Antonella Cardinale, Zoe Walters, Cristina Cossetti, Sonia Rodriguez, Nadia Carlesso, Janet Shipley, Lucio Miele, Beat Schafer, Enrico Velardi, Peter Houghton, Berkley Gryder, Benjamin Stanton, Concetta Quintarelli, Biagio De Angelis, Franco Locatelli, Rossella Rota
- Poster at ACC 6th annual meeting: New technologies and strategies to fight cancer 23-25 September 2021 Virtual mode.
Poster Title: SMOX induction sensitizes Fusion-Negative Rhabdomyosarcoma cells to radiation. Clara Perrone, Silvia Pomella, **Matteo Cassandri**, Stefano Giuliani, Concetta Quintarelli, Franco Locatelli, Biagio De Angelis, Paolo Mariottini, Francesco Marampon, Manuela Cervelli, Rossella Rota.
- Poster at ACC 4th annual meeting: New technologies and strategies to fight cancer 20-22 November 2019 Aula Magna Palazzo del Rettorato, University of Rome "Sapienza".
Poster Title: NOTCH inhibition leads to MET activation in Rhabdomyosarcoma cells. Clara Perrone, Michele Pezzella, Giulia Pericoli, Antonio Camera, Biancamaria Cembrola, Silvia Pomella, **Matteo Cassandri**, Cristina Cossetti, Maria Vinci, Emmanuel de Billy, Concetta Quintarelli, Franco Locatelli, Biagio De Angelis, Rossella Rota
- Poster at AACR Special Conference on the Advances in Pediatric Cancer Research; September 17-20, 2019; Montreal, QC, Canada
Poster Title: Liaison between *SNAI2* and *MYOD* enhances oncogenesis and suppresses differentiation in fusion-negative rhabdomyosarcoma. Silvia Pomella, Prethish Sreenivas, Berkley E. Gryder, Long Wang, **Matteo Cassandri**, Kunal Baxi, Nicole R. Hensch, Elena Carcarino, Young Song, Marielle Yohe, Bruno Amadio, Ignazio Caruana, Cristiano De Stefanis, Rita De Vito, Franco Locatelli, Yidong Chen, Eleanor Y. Chen, Peter Houghton, Javed Khan, Rossella Rota and Myron S. Ignatius
- Speaker at the "10th Tuscany retreat on cancer research and apoptosis: genetic profiling, resistance mechanisms and novel treatment concepts in cancer". Palazzo di Piero, Chiusi, Tuscany, Italy, 5th-12th of August 2017
Talk Title: Role of ZNF750 in Breast cancer

Certificates and Courses

- EORTC-PAMM Educational course "(Pre)-clinical pharmacology of anticancer drugs made (amusingly) simple". Palazzo della Gran Guardia, Verona, February 2019.
- Third edition of the course of access to use the service facilities for animal

sperimentation, University of Rome "Tor Vergata".

- State exam for Biologist

Reviewer activity

- PloS one (Reviewer)
- Cell Death Discovery (reviewer)
- International journal of molecular sciences (Special Issue Guest Editor)