

PERSONAL INFORMATION

Alberto Marini

Nationality Italian

CURRENT POSITION

Researcher BIO/17 (Histology) at the Saint Camillus International University of Health and Medical Sciences, Rome

WORK EXPERIENCE

April 2021-present

Postdoctoral research fellow

Catholic University of Sacred Heart – IRCCS Fondazione Policlinico Universitario Agostino Gemelli, Rome, Italy

- Studying the dysregulation of splicing in Group 3 medulloblastoma and exploiting the co- and post-transcriptional regulation of gene expression as therapeutic tool. The work aims at detecting events of non canonical splicing (e.g., circular RNAs, and chimeric RNAs) and their role in tumorigenesis, and at identifying the molecular players involved in their biogenesis in medulloblastoma
- Identification of cell free SMN (Survival of Motor Neuron) circular RNAs in body fluids as biomarkers of response to therapy in Spinal Muscular Atrophy patients

June 2015-September 2020

Research scientist

Medical Research Council (MRC) Toxicology Unit, University of Cambridge, Cambridge, UK

- Understanding the role of the eukaryotic initiation factor 4B (eIF4B) in the pathogenesis of diffuse large B cell lymphoma (DLBCL). The study aims at uncovering the mechanisms underlying the translational dysregulation driven by eIF4B overexpression during lymphomagenesis by identifying the eIF4B interactome (RNAs and proteins) in DLBCL-derived cell lines
- Investigating the contribution of the mRNA translation dysregulation to the pathogenesis of malignant pleural mesothelioma and its impact in modulating the metabolic features of mesothelioma cells. The study took advantage of *in vitro* and *ex vivo* models of pleural mesothelioma and revealed a dysregulated signalling through the mTOR axis that specifically drives the translation of mRNAs encoding the protein synthesis machinery and components of mitochondria
- Unravelling a novel role of the transcription factor TAp73, a member of the p53 family, in preserving redox homeostasis by regulating mRNA translation. The study identified TAp73 as an important factor for maintaining nuclear encoded mitochondrial transcripts actively translated in response to oxidative stress, thus promoting adequate levels of oxidative phosphorylation and energy production that contribute to cope with the stress conditions
- Studying the functional and synergistic interplay between p53 mutants and Hypoxia Inducible Factor (HIF 1) in tumour progression
- Characterising an important and novel role of the previously poorly understood transcription factor ZNF281 in the DNA repair process

May 2014-June 2015

Postdoctoral research fellow

University of Rome "Tor Vergata", Italy.

- Investigating the role of a sub class of long non coding RNAs (lncRNAs) containing ultraconserved regions (UCRs) in the epithelial differentiation and breast cancer progression. In particular, two transcripts were characterised:
 - 1) the lncRNA uc.63, which promotes breast cancer cell survival *in vitro* and it is a negative prognostic factor in breast cancer patients;
 - 2) the lncRNA uc.291, which fosters chromatin remodelling of the epidermal differentiation complex, thus promoting the expression of late differentiation genes.

November 2010-February 2014

PhD candidate in Biomolecular and Biotechnological Sciences

University of Sassari, Italy

- Investigating the role of the tumour microenvironment and the metabolic reprogramming in prostate carcinoma (PCa) progression, highlighting potential metabolic vulnerabilities of PCa cells able to be exploited as new therapeutical opportunities

EDUCATION AND TRAINING

- 2010-2014 **PhD in Biomolecular and Biotechnological Sciences**
University of Sassari, Italy
- 2008-2010 **MSc in Medical Biotechnology**
University of Florence, Italy. Score: 110/110 with honours
- 2004-2008 **BSc in Biotechnology**
University of Florence, Italy. Score: 110/110 with honours

FELLOWSHIPS AND AWARDS

- 2024 Postdoctoral Fellowship 2024 “Fondazione Umberto Veronesi”: “Investigating the circular RNA biogenesis mediated by RNA binding proteins in high-risk Group 3 medulloblastoma”
- 2023 Postdoctoral Fellowship 2023 “Fondazione Umberto Veronesi”: “Investigating the functional relevance of circularization of RNA-binding protein transcripts in Group 3 medulloblastoma”
- 2022 GR-2021-12374579 funded by Italian Ministry of Health: “MAP THE SMA: a Machine-learning based Algorithm to Predict THERapeutic response in Spinal Muscular Atrophy”

PERSONAL SKILLS

Technical skills

Cell biology: extensive cell culture experience (primary cells and cell lines); DNA and siRNA transfection (chemical and physical); production of viral particles and transduction; *ex vivo* cultures of tumour explants; isolation and sub culturing of primary fibroblasts from surgical specimens; cell migration/invasion assays; cell proliferation and viability assays; flow cytometry (cell cycle, apoptosis, detection of reactive oxygen species).

Molecular biology: molecular cloning; CRISPR Cas9; isolation of DNA and RNA from cells; design of primers; PCR; qPCR; genotyping of mouse tissues; chromatin immunoprecipitation (ChIP). RNA protein interactions: RNA immunoprecipitation (RIP); orthogonal organic phase separation (OOPS).

Biochemistry: western blot; immunoprecipitation and co immunoprecipitation; sucrose gradient ultracentrifugation/polysome profiling; two dimensional polyacrylamide gel electrophoresis; enzyme assays.

Imaging: immunofluorescence; analysis of histopathological samples.

In vivo techniques: experience in animal work (routine handling, and dissection of mice)

IT and bioinformatic tools: Windows OS, macOS, Microsoft Office, ImageJ, GraphPad Prism. Familiarity with public databases (e.g. NCBI, UniProt, Ensembl, UCSC Genome Browser and Xena Browser TCGA). Interpretation and visualization of RNAseq data

Certifications

- 2022: Good Clinical Practice (GCP) certification for working on clinical research studies
- 2021: Qualification as a Professional Biologist at University of Rome “Tor Vergata”, IT (AA_093190)
- 2016: UK Personal Licence (PIL: I966D0D79) for performing regulated procedures on living animals

Transferable skills	<ul style="list-style-type: none"> ▪ Planning, leading, and managing projects ▪ Teamwork and collaborative attitude ▪ Time management ▪ Designing of experiments and troubleshooting ▪ Ability to work in a multicultural and multidisciplinary environment ▪ Effective in reporting data, communicating science, and writing scientific publications ▪ Data analysis and databases handling ▪ Training and supervision of junior staff ▪ Record keeping of experiments ▪ Lab equipment responsibility ▪ Peer-reviewing for scientific journals
Teaching	Basics of lab work for medical students
Presentations	<ul style="list-style-type: none"> ▪ Attending and delivering talks to a variety of international scientific conferences ▪ Organizing internal seminars and department wide events
Mother language	Italian
Other languages	English (proficient in writing and speaking)

PUBLICATIONS

- Guerra M.*, **Marini A.***, Pagliarini V., Pitolli C., Coratti G., Bonvissuto D., Bravetti C., Pane M., Mercuri E., Sette C., Pera M.C. (2024) SMN circ4-2b-3 is expressed in nusinersen treated SMA I children and correlates with motor outcomes. (*Under revision on Molecular Neurobiology*).
- Quintas A., Harvey R.F., Horvilleur E., Garland G.D., Schmidt T., Kalmar L., **Marini A.**, Dezi V., Fulton A.M., Turner M., Sawarkar R., Chapman M.C., Bushell M., Willis A.E. Eukaryotic Initiation factor 4B is a multi-functional RNA binding protein that regulates histone mRNAs. *Nucleic Acids Res* 2024 Sep 3:gkae767.doi: 10.1093/nar/gkae767
- Pitolli C., **Marini A.**, Guerra M., Pieraccioli M., Marabitti V., Palluzzi F., Giacobè L., Tamburrini G., Cecconi F., Nazio F., Sette C., Pagliarini V. (2023) MYC up-regulation confers vulnerability to dual inhibition of CDK12 and CDK13 in high-risk Group 3 medulloblastoma. *J Exp Clin Cancer Res* 21;42(1):214. doi: 10.1186/s13046-023-02790-2.
- Pitolli C.*, **Marini A.***, Sette C., Pagliarini V. (2022) Non-Canonical Splicing and Its Implications in Brain Physiology and Cancer. *Int J Mol Sci* Mar 4;23(5):2811 doi: 10.3390/ijms23052811.
- Grosso S., **Marini A.**, Gyuraszova K., Voorde J.V., Sfakianos A., Garland G.D., Tenor A.R., Mordue R., Chernova T., Morone N., Sereno M., Smith C.P., Officer L., Farahmand P., Rooney C., Sumpton D., Das M., Teodósio A., Ficken C., Martin M.G., Spriggs R.V., Sun X.M., Bushell M., Sansom O.J., Murphy D., MacFarlane M., Le Quesne J.P.C., Willis A.E. (2021) The pathogenesis of mesothelioma is driven by a dysregulated translatome. *Nat Commun* Aug 13;12(1):4920. doi: 10.1038/s41467-021-25173-7.
- Panatta E., Lena A.M., Mancini M., Smirnov A., **Marini A.**, Delli Ponti R., Botta-Orfila T., Tartaglia G.G., Mauriello A., Zhang X., Calin G.A., Melino G., Candi E. (2020) Long non-coding RNA uc.291 controls epithelial differentiation by interfering with the ACTL6A/BAF complex. *EMBO Rep.* Mar 4;21(3):e46734. doi:10.15252/embr.201846734.
- Nicolai S., Mahen R., Raschella G., **Marini A.**, Pieraccioli M., Malewicz M., Venkitaraman A.R., Melino G. (2020). ZNF281 is recruited on DNA breaks to facilitate DNA repair by non-homologous end joining. *Oncogene.* 2020 Jan;39(4):754-766. doi: 10.1038/s41388-019-1028-7.
- Amelio I., Mancini M., Petrova V., Cairns R.A., Vikhrev P., Nicolai S., **Marini A.**, Antonov A.A., Le Quesne J., Baena Acevedo J.D., Dudek K., Sozzi G., Pastorino U., Knight R.A., Mak T.W., Melino G. (2018). p53 mutants cooperate with HIF-1 in transcriptional regulation of extracellular matrix components to promote tumour progression. *Proc Natl Acad Sci USA* 115(46):E10869-E10878. doi: 10.1073/pnas.1808314115.
- **Marini A.**, Rotblat B., Sbarrato T., Niklison-Chirou M.V., Knight J.R.P., Dudek K., Jones C., Bushell M., Knight R.A., Amelio I., Willis A.E., Melino G. (2018) Tap73 contributes to the oxidative stress response by regulating protein synthesis. *Proc Natl Acad Sci USA* 115(24):6219-6224. doi: 10.1073/pnas.1718531115.
- **Marini A.**, Lena A.M., Panatta E., Ivan C., Han L., Liang H., Annicchiarico-Petruzzelli M., Di Daniele N., Calin G.A., Candi E., Melino G. (2017) Ultraconserved long non-coding RNA uc.63 in breast cancer. *Oncotarget* 8(22): 35669-35680. doi: 10.18632/oncotarget.10572.
- Ippolito L., **Marini A.**, Cavallini L., Morandi A., Pietrovito L., Pintus G., Giannoni E., Schrader T., Pühr M., Chiarugi P., Taddei M.L. (2016) Metabolic shift toward oxidative phosphorylation in docetaxel resistant prostate cancer cells. *Oncotarget* 7(38): 61890-61904. doi: 10.18632/oncotarget.11301.
- Taddei M.L., Cavallini L., Comito G., Giannoni E., Folini M., **Marini A.**, Gandellini P., Morandi A.,

Pintus G., Raspollini M.R., Zaffaroni N., Chiarugi P. (2014) Senescent stroma promotes prostate cancer progression: the role of miR-210. *Mol Oncol* 8(8): 1729-1746. doi: 10.1016/j.molonc.2014.07.009.

- Fiaschi T., Giannoni E., Taddei M.L., Cirri P., **Marini A.**, Pintus G., Nativi C., Richichi B., Scozzafava A., Carta F., Torre E., Supuran C.T., Chiarugi P. (2013) Carbonic anhydrase IX from cancer-associated fibroblasts drives epithelial-mesenchymal transition in prostate carcinoma cells. *Cell Cycle* 12(11): 1791–1801. doi: 10.4161/cc.24902.
- Fiaschi T., **Marini A.**, Giannoni E., Taddei M.L., Gandellini P., De Donatis A., Lanciotti M., Serni S., Cirri P. and Chiarugi P. (2012) Reciprocal metabolic reprogramming through lactate shuttle coordinately influences tumor-stroma interplay. *Cancer Res* 72(19), 5130-5140. doi: 10.1158/0008-5472.CAN-12-1949.

* Joint first authorship

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