Curriculum Vitae

Beatrice Biferali

PRESENT POSITION

PhD Student

EDUCATION AND TRAINING

March 2019-October 2019 Research fellowship:

SSD BIO / 09 - Physiology, title "Study of the differentiation process of stem cells in response to in vivo treatment with epigenetic drugs in the skeletal muscle"
in the laboratory directed by Dr. Chiara Mozzetta at the Department of Biology and Biotechnology "Charles Darwin" - Sapienza University of Rome (Italy).

January 2019 – February 2019 Research fellowship:

SSD BIO / 09 - Physiology, title "Role of histone H3 lysine 9 methyltransferases (H3K9 KMTs) in epigenetic regulation of Fibro-Adipogenic Progenitors (FAPs) during Duchenne Muscular Dystrophy" in the laboratory directed by Dr. Chiara Mozzetta at the Department of Biology and Biotechnology "Charles Darwin" - Sapienza University of Rome (Italy).

August 2018- October 2018 Hosted in Prof. Stricker's lab at Freie University of Berlin (Germany)

January 2018 - Mobility Projects Fellowship for Research Doctorates of Sapienza University of Rome,
hosted for three months in Prof. Stricker's lab at Freie University of Berlin (Germany) for study the impact of *in vivo* inhibition of Histone H3 lysine 9 (H3K9) methyltransferases G9a/GLP on the cellular fate of Fibro-Adipogenic Progenitors (FAPs), taking advantage of their reporter mice Osr1-CreERt2.

January 2018- December 2018: Research fellowship:

SSD BIO / 09 - Physiology, title "Role of histone H3 lysine 9 methyltransferases (H3K9 KMTs) in epigenetic regulation of Fibro-Adipogenic Progenitors (FAPs) during Duchenne Muscular Dystrophy" in the laboratory directed by Dr. Chiara Mozzetta at the Department of Biology and Biotechnology "Charles Darwin" - Sapienza University of Rome (Italy).

January 2017-December 2017: Research fellowship:

SSD BIO / 09 - Physiology, title "Role of histone H3 lysine 9 methyltransferases (H3K9 KMTs) in epigenetic regulation of Fibro-Adipogenic Progenitors (FAPs) during Duchenne Muscular Dystrophy" in the laboratory directed by Dr. Chiara Mozzetta at the Department of Biology and Biotechnology "Charles Darwin" - Sapienza University of Rome (Italy).

September 2016: PhD students in "Cell Biology and Development" at the Department of Biology and Biotechnology "Charles Darwin" - "Sapienza University of Rome" (Italy).

May 2016 - September 2016: Post-graduate training in the laboratory directed by Dr. Chiara Mozzetta at the Department of Biology and Biotechnology "Charles Darwin" - Sapienza University. of Rome (Italy). “Epigenetic regulation of Fibro-Adipogenic Progenitors (FAPs) fate determination by histone H3 Lysine 9 methyltransferases during Duchenne Muscular Dystrophy progression”.

June 2016 - July 2016: Qualification to practice biologist profession at University “Tor Vergata”, Rome.

January 2016 - May 2016: Post-graduate training in the laboratory of "Epigenetics and Stem Cells", directed by Dr. Chiara Lanzuolo (CNR-IBCN-National Research Council - Via del Fosso di Fiorano, 64-00143 Rome, Italy) under the supervision of Dr. Chiara Mozzetta. “Epigenetic regulation of Fibro-Adipogenic Progenitors (FAPs) fate determination by histone H3 Lysine 9 methyltrasferases during Duchenne Muscular Dystrophy progression”.

October 2015: Master degree in “Cell and Molecular Biology”, University “Tor Vergata”, Rome, Italy with 110/110. Thesis: "AMBRA1, at the base of a dialogue between mitophagy and apoptosis" under the supervision of Dr. Strappazzon Flavie, and Prof. Francesco Cecconi.

October 2014 - October 2015: I worked in the laboratory “Neuroembryology Unit” directed by Prof. Francesco Cecconi (“Fondazione Santa Lucia”, Rome) under the supervision of Dr. Flavie Strappazzon. During this period, I worked at identifying the molecular mechanisms that regulate Ambra1- induced mitophagy.

During my Master Degree, I participated as a research assistant to a work on mitophagy recently publicated on Current Biology Journal (see “Acknowledgement session” and Fig. 2), "Iron starvation-induced mitophagy mediates lifespan extension upon mitochondrial stress in C. Elegans". (Curr Biol. Schiavi et al., 2015.). During my Master Degree, in addiction, I participated as a research assistant to a work on mitochondrial apoptosis, published in the journal "Autophagy" (see "Acknowledgement session") "Prosurvival AMBRA1 turns into a proapoptotic BH3-like protein during mitochondrial apoptosis". (Strappazzon et al., 2016).

May 2013: I level degree in Biology, University “Tor Vergata”, Rome, Italy. Thesis: “Effects of insulin on changes of calcium and intracellular pH in human monocytes.” Under the supervision of Prof. P. Luly and Dr. P. De Vito.

October 2012-March 2013: Training as university student in the laboratory of "Human Physiology" under the supervision of Prof. P. Luly and Dr. P. De Vito at the University of Rome "Tor Vergata" (Via Orazio Raimondo, 18 -00 173, Rome, Italy).

July 2009: High school leaving qualification in classical studies, "Liceo Padre Alberto Guglielmotti", Civitavecchia (RM) Italia.

Full-time research activities and study: setting and preparation at Department of Biology and Biotechnology "Charles Darwin" - "Sapienza University of Rome" p. Le Aldo Moro, 5 - 00185 ROMA (Italy); "Fondazione Santa Lucia" - Via del Fosso di Fiorano, 64 - 00143 Roma, Italia; “Institute of Cell Biology and Neurobiology” (IBCN-CNR) and at Department of Biology, University “Tor Vergata”.

FIELDS OF INTEREST

Skeletal muscle differentiation and regeneration; muscular dystrophies.

FOREIGN LANGUAGES

English: Fluent understanding, speaking and writing.
Certified for "Upper Intermediate 1 Level" from British Centre –Via L. Magnifico, 40 - 00162 Rome - Italy.

TECHNIQUES ACQUIRED

CELL BIOLOGY: Cell cultures, isolation of cell populations from skeletal muscle and isolation of muscle fibers from skeletal muscle, FACS Sorting.

MOLECULAR BIOLOGY: extraction and purification of DNA, RNA, proteins; RT-PCR and Real Time PCR, Western blot, DNA transfection, Lentivirus Production and Lentivirus infection; Bacterial transformation; Immunoprecipitation, ChIP, Production of recombinant proteins, Mitochondrial isolation, fractionation Nucleus/Cytosol/Mitochondria.

HISTOLOGY: use of cryostat and staining of cryo-sections and cell culture staining (Hematoxylin/Eosin, Red Oil O staining); immunofluorescence and immunohistochemistry; light and confocal microscopy.

ANIMAL MODELS: skilled in the manipulation of mice *in vivo* experiments (animal dissection) and use of procedure for orbital sinus blood sample collection.

COMPUTER SKILLS

- Operating systems
- Very good knowledge of Office, Adobe Photoshop, Image J.
- Software for molecular analysis (Primer 3, Ensembl).
- Software for image analysis (IAS, Delta Systems Italy).
- Software for protein interaction analysis (Cell Designer and Cytoscape).
- Basic knowledge of R-Studio.

PUBBLICATIONS

- **B. Biferali**, D. Proietti, C. Mozzetta, L. Madaro (2019) "Fibro-Adipogenic Progenitors (FAPs) cross-talk in skeletal muscle: the social network". Review Frontiers Physiology- Striated Muscle *doi: 10.3389/fphys.2019.01074*
- **Biferali B**. and Mozzetta C. (2019) Chapter 13- "Skeletal muscle regeneration in physiological and pathological conditions". Volume on "Epigenetics and Regeneration" for the series "Translational Epigenetics" Elsevier. *https://doi.org/10.1016/B978-0-12-814879-2.00013-3*
- A. Cirigliano, A. Amelina, **B. Biferali**, A. Macone, C. Mozzetta, M. M. Bianchi, M. Mori, B. Botta, E. Pink, R. Negri, T. Rinaldi. (2019) "Statins interfere with the attachment of S.cerevisiae mtDNA to

the inner mitochondrial membrane". Journal of Enzyme Inhibition and Medicinal Chemistry (IENZ) *https://doi.org/10.1080/14756366.2019.1687461*

- **B. Biferali**, V. Bianconi, D. Fernandez. Perez, S. Vom Hofe-Schneider, F. Marullo, R. Maggio, T. Santini, P. Diego, F. Chiacchiera, S. Stricker, G. Peruzzi, C. Mozzetta. "H3K9 methylation controls Fibro-Adipogenic Progenitors identity and skeletal muscle repair". *Manuscript in preparation*
- Bianconi V., **Biferali. B**, Fernandez Perez D., Maggio R., Pasini D., Peruzzi G., Mozzetta C. "Inhibition of G9a/GLP promotes skeletal muscle regeneration and morphological recovery of dystrophic muscles". *Manuscript in preparation*
- A. Cipriano, M. Macino, G. Buonaiuto, **B. Biferali**, T. Santini, G. Peruzzi, C. Mozzetta and M. Ballarino. "Regulation of Wnt7b expression by a novel cis-acting long non-coding RNA in muscle stem cells". *Manuscript in preparation*
- Publication of the abstracts presented during XV IIM-MYOLOGY Meeting 11-14 October 2018 Assisi (PG) Italy in a special issue of the journal "European Journal of Translational Myology" – "H3K9 methylation controls Fibro-Adipogenic Progenitors identity and skeletal muscle repair" **Biferali B**., Bianconi V., Maggio R., Santini T., Peruzzi G., Mozzetta C. *Eur J Transl Myol 28 (4): 404-464, 2018*
- Publication of the abstracts presented during XV IIM-MYOLOGY Meeting 11-14 October 2018 Assisi (PG) Italy in a special issue of the journal "European Journal of Translational Myology" – "Histone 3 Lysine 9 methyltransferases G9a and GLP as potential pharmacological targets in skeletal muscle regeneration and Duchenne Muscular Dystrophy"-Valeria Bianconi, **Beatrice Biferali** and Chiara Mozzetta. *Eur J Transl Myol 28 (4): 404-464, 2018*
- Publication of the abstracts presented during XIV IIM-MYOLOGY Meeting 12-15 October 2017 Assisi (PG) Italy in a special issue of the journal "European Journal of Translational Myology" – "Histone H3 Lysine 9 methyltrasferases G9a and GLP as potential pharmacological targets in skeletal muscle regeneration and Duchenne Muscular Dystrophy". Valeria Bianconi, **Biferali B.**, C. Mozzetta. *Eur J Transl Myol 27 (4): 185-224*
- Publication of the abstracts presented during the "XIII IIM-Myology Meeting " 13-16 October 2016 Assisi (PG) Italy in a special issue of the journal "European Journal of Translational Myology"- "Role of Histone H3 lysine 9 methyltransferases during Duchenne Muscular Dystrophy progression" – **B. Biferali,** V. Bianconi, and C. Mozzetta. *Eur J Transl Myol 2017;27(1):4-32*
- Publication of the abstracts presented during the "XIII IIM-Myology Meeting " 13-16 October 2016 Assisi (PG) Italy and publication of abstract in the journal "European Journal of Translational Myology" entitled: "Role of Histone H3 Lysine 9 (H3K9) methyltrasferases G9a and GLP in the epigenetic regulation of Fibroadipogenic progenitors (FAPs) differentiation during Duchenne Muscular Dystrophy (DMD) progression"- Valeria Bianconi, **Biferali B.**, C. Mozzetta. *Eur J Transl Myol 2017;27(1):4-32*

MEETINGS

CONFERENCE ORAL PRESENTATIONS

- Oral Presentation at "2019 Myogenesis Gordon Research Seminar" 8-9 June 2019 Renaissance Tuscany Il Ciocco Lucca (Barga), Italy "H3K9 Methylation Controls Fibro-Adipogenic Progenitors Identity and Skeletal Muscle Repair".
- Oral Presentation at "XIII IIM-Myology Meeting " 13-16 October 2016 Assisi (PG) Italy "Role of Histone H3 lysine 9 methyltransferases during Duchenne Muscular Dystrophy progression ".

CONFERENCE COMMUNICATIONS

- Poster Presentation at "2019 Myogenesis Gordon Research Seminary" 8-9 June 2019 Renaissance Tuscany Il Ciocco Lucca (Barga), Italy "H3K9 Methylation Controls Fibro-Adipogenic Progenitors Identity and Skeletal Muscle Repair" - **Beatrice Biferali,** V. Bianconi, R. Maggio, T. Santini, G. Peruzzi, C. Mozzetta.
- Poster Presentation at "2019 Myogenesis Gordon Research Conference" 9-14 June 2019 Renaissance Tuscany Il Ciocco Lucca (Barga), Italy "H3K9 Methylation Controls Fibro-Adipogenic Progenitors Identity and Skeletal Muscle Repair" - **Beatrice Biferali,** V. Bianconi, R. Maggio, T. Santini, G. Peruzzi, C. Mozzetta.
- Poster Presentation at "2017 Myogenesis Gordon Research Conference" 11-16 June 2017 Renaissance Tuscany Il Ciocco Lucca (Barga), Italy "Epigenetic regulation of Fibro-Adipogenic Progenitors' plasticity during skeletal muscle regeneration and disease" - **Beatrice Biferali,** V. Bianconi, and C. Mozzetta.
- V Conference Facio-scapulo-humera muscular dystrophy (FSHD) - 16 June 2018, organized by FSHD Onlus Italy- Centro Congressi Europa- Cattolica University- Policlinico Gemelli IRCCS- Largo Francesco Vito, 1 – Rome.
- Poster Participation at "Muscle Developmental Regeneration and Disease 2018" 22-27 April 2018 Berlin - "H3K9 methylation controls Fibro-Adipogenic Progenitors identity and skeletal muscle repair". **Biferali Beatrice**, Bianconi Valeria, Maggio Roberta, Santini Tiziana, Peruzzi Giovanna, Mozzetta Chiara.
- Poster Participation at "Muscle Developmental Regeneration and Disease 2018" 22-27 April 2018 Berlin - "Histone 3 Lysine 9 methyltransferases G9a and GLP as potential pharmacological targets in skeletal muscle regeneration and Duchenne Muscular Dystrophy" Bianconi Valeria, **Biferali Beatrice**, Chiara Mozzetta.
- XVI International Conference Duchenne Muscular Dystrophy and Becker - 16-18 February 2018 at The Ergife Palace Hotel, Rome-Italy "Parent Project Onlus".
- Participation at "EPI1° Novel Drugs, Chromatin Modulators from basic Research to Human disease". September 25, 2017 Sapienza University of Rome.
- Participation at RNAseq analysis workshop, Torino – Italy 28-31 March 2017 organized by Bx2M (Associazione Culturale per la medicina Molecolare, Via Saorgio 105, 10147 Torino).
- XV International Conference Duchenne Muscular Dystrophy and Becker 17-19 February 2017 at The Ergife Palace Hotel, Rome-Italy "Parent Project Onlus".
- Participation at Symposium "The ubiquitin-proteasome system in yeast, plant and Human. Hypotheis for new anti-cancer therapies". At Sapienza University of Rome 13 February 2017.
- Training workshop organized by the A-ParaDDisE consortium "Epigenetic Drug Discovery for Neglected Parasitic Diseases" in Rome, Italy on November 30$_{th}$ and December 1$_{st}$, 2016.
- XIV International Conference Duchenne Muscular Dystrophy and Becker 12-14 February 2016 at The Church Palace, Rome-Italy "Parent Project Onlus".
- Poster Participation "BCL-2 family proteins regulate AMBRA1 mediated mitofagy" Di Rita A., **B. Biferali**, S. El Alaoui, Nazio F., F. and F. Cecconi Strappazzon presented at the 23rd Conference of the European Cell Death Organization, Entitled 'Death pathways and beyond', Geneva, Switzerland, on October 7-10, 2015.
- Poster Participation "BCL-2 family proteins regulate AMBRA1 mediated mitofagy" Di Rita A., **B. Biferali**, S. El Alaoui, Nazio F., F. and F. Cecconi Strappazzon presented at 'EMBO Conference 9-12 September 2015 Chia, Italy "Autophagy signaling and progression in health and disease."

ADDITIONAL INFORMATION

Organizer of the 10th BeMM Symposium 2019 as PhD student for Cellular and Developmental Biology PhD Course - Rome 22/11/2019 Aula Pocchiari -Istituto Superiore di Sanità Viale Regina Elena, 299