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## BIOGRAPHICAL SKETCH

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NAME: Molinari, Susanna

eRA COMMONS USER NAME (agency login):

UNIVERSITA DI MODENA E REGGIO EMILIA MODENA, ITALY 41121

POSITION TITLE: ASSISTANT PROFESSOR

### EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE	Completion Date	FIELD OF STUDY
University, Modena	MS	11/1990	Pharmaceutical Chemistry and Technology
University, Modena	MS	07/1991	Pharmaceutical Sciences
Medical Research Council, Molecular Neuroscience Group, Laboratory director: Prof. Piers C. Emson AFRC Babraham Institute, Cambridge (UK)	Visiting Student	09/1991	Three months stage. Manipulation of mouse Embryonal Stem (ES) cells
University, Modena	PhD in Cellular and Molecular Biology and Pathology.	11/1994	Study of the role played by CalbindinD28K in central Nervous system. Transcriptional regulation in differentiating skeletal muscle cells.
Department of Developmental Biology, Laboratory director: Margaret Buckingham, Pasteur Institute, Paris (FR)	Postdoctoral Fellow	11/1999	Transcriptional regulatory mechanisms in skeletal muscle development

### B. POSITIONS AND HONORS

#### Positions and Employment

1999 - ASSISTANT PROFESSOR, University of Modena and Reggio Emilia, Modena, Italy

#### Other Experience and Professional Memberships

2013 - Member, Associazione di Biologia Cellulare e del Differenziamento

2010 - Operative Unit of the Consorzio Italiano Biotecnologie (CIB)

#### Honors

1991 National Award for the best graduation thesis in Pharmaceutical Sciences, Bracco Pharmaceutical company

### C. PEER-REVIEWED PUBLICATIONS

1. Ferrari S, **Molinari S**, Battini R, Cossu G, Lamon-Fava S. Induction of Calbindin-D28K by 1,25-dihydroxyvitamin D3 in cultured chicken intestinal cells. Exp Cell Res. 1992 Jun;200(2):528-31. PubMed PMID: [1572413](#).
2. Ferrari S, Battini R, **Molinari S**. Specific binding to vitamin D response elements of chicken intestinal DNA-binding activity is not related to the vitamin D receptor. Mol Endocrinol. 1994 Feb;8(2):173-81. PubMed PMID: [8170473](#).

3. Cusella-De Angelis MG, **Molinari S**, Le Donne A, Coletta M, Vivarelli E, et al. Differential response of embryonic and fetal myoblasts to TGF beta: a possible regulatory mechanism of skeletal muscle histogenesis. *Development*. 1994 Apr;120(4):925-33. PubMed PMID: [7600968](#).
4. **Molinari S**, Battini R, Ferrari S, Pozzi L, Killcross AS, et al. Deficits in memory and hippocampal long-term potentiation in mice with reduced calbindin D28K expression. *Proc Natl Acad Sci U S A*. 1996 Jul 23;93(15):8028-33. PubMed PMID: [8755597](#); PubMed Central PMCID: [PMC38869](#).
5. Ferrari S, **Molinari S**, Melchionna R, Cusella-De Angelis MG, Battini R, et al. Absence of MEF2 binding to the A/T-rich element in the muscle creatine kinase (MCK) enhancer correlates with lack of early expression of the MCK gene in embryonic mammalian muscle. *Cell Growth Differ*. 1997 Jan;8(1):23-34. PubMed PMID: [8993831](#).
6. Borghi S, **Molinari S**, Razzini G, Parise F, Battini R, et al. The nuclear localization domain of the MEF2 family of transcription factors shows member-specific features and mediates the nuclear import of histone deacetylase 4. *J Cell Sci*. 2001 Dec;114(Pt 24):4477-83. PubMed PMID: [11792813](#).
7. **Molinari S**, Relaix F, Lemonnier M, Kirschbaum B, Schäfer B, et al. A novel complex regulates cardiac actin gene expression through interaction of Emb, a class VI POU domain protein, MEF2D, and the histone transacetylase p300. *Mol Cell Biol*. 2004 Apr;24(7):2944-57. PubMed PMID: [15024082](#); PubMed Central PMCID: [PMC371105](#).
8. Relaix F, **Molinari S**, Lemonnier M, Schäfer B, Buckingham M. The in vivo form of the murine class VI POU protein Emb is larger than that encoded by previously described transcripts. *Gene*. 2004 May 26;333:35-46. PubMed PMID: [15177678](#).
9. Razzini G, Parise F, Calebiro D, Battini R, Bagni B, et al. Low-density lipoprotein (LDL) receptor/transferrin fusion protein: in vivo production and functional evaluation as a potential therapeutic tool for lowering plasma LDL cholesterol. *Hum Gene Ther*. 2004 Jun;15(6):533-41. PubMed PMID: [15212712](#).
10. Angelelli C, Magli A, Ferrari D, Ganassi M, Matafora V, et al. Differentiation-dependent lysine 4 acetylation enhances MEF2C binding to DNA in skeletal muscle cells. *Nucleic Acids Res*. 2008 Feb;36(3):915-28. PubMed PMID: [18086704](#); PubMed Central PMCID: [PMC2241889](#).
11. Magli A, Angelelli C, Ganassi M, Baruffaldi F, Matafora V, et al. Proline isomerase Pin1 represses terminal differentiation and myocyte enhancer factor 2C function in skeletal muscle cells. *J Biol Chem*. 2010 Nov 5;285(45):34518-27. PubMed PMID: [20801874](#); PubMed Central PMCID: [PMC2966067](#).
12. Ganassi M, Badodi S, Polacchini A, Baruffaldi F, Battini R, et al. Distinct functions of alternatively spliced isoforms encoded by zebrafish *mef2ca* and *mef2cb*. *Biochim Biophys Acta*. 2014 Jul;1839(7):559-70. PubMed PMID: [24844180](#); PubMed Central PMCID: [PMC4064114](#).
13. Badodi S, Baruffaldi F, Ganassi M, Battini R, **Molinari S**. Phosphorylation-dependent degradation of MEF2C contributes to regulate G2/M transition. *Cell Cycle*. 2015 Mar 19; 14(10):1517-28 PubMed PMID: 25789873.
14. Basile V, Baruffaldi F, Dolfini D, Belluti S, Benatti P, Ricci L, Artusi V, Tagliafico E, Mantovani R, **Molinari S\***, Imbriano C. NF-YA splice variants have different roles on muscle differentiation. *Biochim Biophys Acta*. 2016 Apr;1859(4):627-38. PubMed PMID: 26921500.  
\*: Corresponding author
15. Baruffaldi F, Montarras D, Basile V, De Feo L, Badodi S, Ganassi M, Battini R, Nicoletti C, Imbriano C, Musarò A, **Molinari S**. Dynamic Phosphorylation of the MEF2C $\alpha$ 1 Splice Variant Promotes Skeletal Muscle Regeneration and Hypertrophy. *Stem Cells*. 2017 Mar;35(3):725-738. PubMed PMID: [27612437](#).
16. Imbriano C, **Molinari S**. Alternative Splicing of Transcription Factors Genes in Muscle Physiology and Pathology. *Genes (Basel)*. 2018 Feb 19;9(2). pii: E107. doi: 10.3390/genes9020107. Review. PMID: 29463057
17. Rigillo G, Basile V, Belluti S, Ronzio M, Sauta E, Ciarrocchi A, Latella L, Saclier M, **Molinari S**, Vallarola A, Messina G, Mantovani R, Dolfini D, Imbriano C. The transcription factor NF-Y participates to stem cell fate decision and regeneration in adult skeletal muscle. *Nat Commun*. 2021 Oct 14;12(1):6013. doi: 10.1038/s41467-021-26293-w.
18. Maretti E, **Molinari S**, Battini R, Rustichelli C, Truzzi E, Iannuccelli V, Leo E. Design, Characterization, and In Vitro Assays on Muscle Cells of Endocannabinoid-like Molecule Loaded Lipid Nanoparticles for a Therapeutic Anti-Inflammatory Approach to Sarcopenia. *Pharmaceutics*. 2022 Mar 16;14(3):648. doi: 10.3390/pharmaceutics14030648. PMID: 35336022
19. **Molinari Susanna**; Maretti, Eleonora; Battini, Renata; Leo, Eliana Grazia. Linking Endocannabinoid System, Palmitoylethanolamide and Sarcopenia in view of therapeutic outcomes. Chapter of the book: *Cannabis, Cannabinoids, and Endocannabinoids* 1st Edition. Editors: Colin R Martin, Vinood Patel, Victor R Preedy. Volume III. Neurological, psychological and behavioural aspects. Fascicle VI: Comparative studies in non neurological systems n. 43. 2023 June 24, pp. 220-230. Elsevier. ISBN code: 9780443187599.

20. **Molinari S**, Imbriano C, Moresi V, Renzini A, Belluti S, Lozanoska-Ochser B, Gigli G, Cedola A. Histone deacetylase functions and therapeutic implications for adult skeletal muscle metabolism. *Front Mol Biosci.* 2023 Mar 15;10:1130183. doi: 10.3389/fmolb.2023.1130183. Erratum in: *Front Mol Biosci.* 2023 Apr 20;10:1201886. PMID: 37006625; PMCID: PMC10050567.
21. Imbriano C, Moresi V, Belluti S, Renzini A, Cavioli G, Maretti E, **Molinari S**. Epitranscriptomics as a New Layer of Regulation of Gene Expression in Skeletal Muscle: Known Functions and Future Perspectives. *Int J Mol Sci.* 2023 Oct 13;24(20):15161. doi: 10.3390/ijms242015161. PMID: 37894843; PMCID: PMC10606696.

#### D. RESEARCH SUPPORT

- Bando FAR (Fondo Ateneo per la Ricerca) 2022 ongoing.

Title: Optimization of nanoparticle-mediated delivery to skeletal muscle tissue of an endocannabinoid-like molecule as N-palmitoylethanolamide (PEA) for the treatment of sarcopenia.

- Bando FAR (Fondo Ateneo per la Ricerca) 2019 (start January 2019 One year grant.)

Title: Nuovi approcci farmacologici per proteggere il muscolo scheletrico dalla sarcopenia con N-Palmitoil Etanolamina (PEA) e acido all-trans retinoico (ATRA): effetti della stimolazione dei recettori PPAR $\alpha$  sulla biogenesi mitocondriale nel muscolo scheletrico. (New pharmacological approaches to protect skeletal muscle from sarcopenia with N-Palmitoil Ethanolamine (PEA) and all-trans retinoic acid (ATRA): effects of stimulation of PPAR $\alpha$  receptors on mitochondrial biogenesis in skeletal muscle.). Role: PI

- 2017/03/11-2018/03/11. 21031, AFM, Susanna Molinari (PI)

PIN1: a new potential target to induce slow fiber conversion in Duchenne Muscular Dystrophy, Role: PI

- Bando FAR (Fondo Ateneo per la Ricerca) 2015.

MEF2C: a potential target for the treatment of Rhabdomyosarcoma, Role: Co-Investigator

- 2014/10/01-2015/09/30. 2014, Fondazione di Vignola. Susanna molinari (PI)

Role played by MEF2C in colo-rectal tumorigenesis, Role: PI

- 2013/08/01-2014/07/31. 16880, AFM, Susanna Molinari (PI)

Investigation of the role played by Pin1 in regulating SCs function and skeletal muscle regeneration, renewal, Role: PI

- 2009/01/01-2013/12/31. HEALTH-2007-1.4-6, European Community. Coordinator: Prof. Giulio Cossu, PI: Stefano Ferrari (PI) Optistem, Role: Co-Investigator

- 2012/08/01-2013/07/31, 16252, AFM, Association Francaise contre les Myopathies, Susanna Molinari (PI)

Investigation of the role played by Pin1 in regulating SCs function and skeletal muscle regeneration, Role: PI

- 2010/11/01-2012/10/31, PI 2010, Fondazione Cassa di Risparmio di Modena, Molinari, Susanna (PI)

"In vivo functional characterization of the splicing isoforms of the transcription factors Mef2ca and Mef2cb during the development of cardiac and skeletal muscle in Zebrafish". Fondazione Cassa di Risparmio di Modena, progetto internazionale bando 2010, Role: PI

#### E. TEACHING ACTIVITY

Academic years 1999/00, 2000/01, 2001/02:

Integrated course of "Cellular Biochemistry", modules: Cellular Biochemistry and Biochemical Methodologies II (100 hours/year) held for students of the Degree Course in Biotechnology, Pharmaceutical Biotechnology specialization (University of Modena and Reggio Emilia).

Academic years 2002/03, 2003/04, 2004/05:

Laboratory of biochemistry and microbiology held for students of medical and industrial biotechnology.

Years 2002-2008:

Course of "Biomolecular Methodologies", module of Biochemistry (2 CFU) held for students of Biotechnology (second year).

Years 2004/2005:

Supplementary lessons given to students of Medical Biotechnology (first year) and Pharmaceutical Biotechnology (first year) within the course of "Protein Engineering".

Years 2005-2010:

"Laboratory of Cellular, Genetic and Biomolecular Methodologies" course, Biochemistry module (2 credits) held for students of Biological Sciences (third year).

Years 2006-2008:

"Cell Cultures Laboratory" course, Biochemistry module (2 credits) held for Industrial Biotechnology students (second year).

Academic year 2013/14:

"Chemistry and Biochemistry" course (2 CFU) for students of the specialist degrees in Dental Hygiene, Obstetrics, Radiologist Technicians.

Years 2005-2014:

professor at the Doctoral School in Molecular and Regenerative Medicine of the University of Modena and Reggio Emilia, where he has held numerous seminars and lectures.

2010-present

"Protein Engineering" course held for students of the 1st year of the Medical and Pharmaceutical Biotechnology course.

2020-present

"General and inorganic chemistry" module within the "Chemistry and biochemical preparatory" course at the Faculty of Medicine and Dentistry (1 year).

Dr. Susanna Molinari has also assisted numerous students in the preparation and elaboration of the degree thesis and has been supervisor or co-supervisor of numerous experimental theses of students of the three-year and specialist degree courses in Biotechnology.

19th november 2023

A handwritten signature in black ink, appearing to read 'Susanna Molinari', written in a cursive style.