CURRICULUM VIT*A*E

PERSONAL INFORMATION

Name: Roberta Besio
Year of birth: 1984
Current address: via Taramelli 3b Pavia (PV), Italy
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CURRENT POSITION

April 2022-present:
Associate Professor of Biochemistry (BIO10)

PREVIOUS POSITIONS

December 2019-March 2022:
Researcher (RTD-B) at the Molecular Medicine Department at the University of Pavia (PV, ITA).
June 2017-November 2019:
Postdoctoral Fellowship granted by Fondazione Cariplo at the Molecular Medicine Department at the University of Pavia (PV, ITA). "Pathogenesis of Osteogenesis Imperfecta: the emerging role of intracellular collagen retention".

June 2014-May 2017:
Postdoctoral Fellowship at the Molecular Medicine Department at the University of Pavia (PV, ITA). "Molecular bases of hereditary skeletal diseases".

January 2013-May 2014:
Postdoctoral Fellowship at the Physiology and Biophysics Department at the University of Arkansas for Medical Sciences (Little Rock, AR, USA). "Sc65 and its role in bone homeostasis". Supervisor: Dr R. Morello

November 2011-December 2012:
Postdoctoral Fellowship at the Molecular Medicine Department at the University of Pavia (PV, ITA). "Molecular bases of connective tissue disorders".

EDUCATION

22nd December 2011:
PhD in Biomolecular Sciences and Biotechnologies at the "Institute for Advanced Study (IUSS)" of Pavia (PV; ITA). "Insight on structural and kinetic properties of human prolidase and its pathological variants".

November 2008:
Biologist License

17th July 2008:
Master's Degree in Industrial Biotechnology at the University of Pavia (PV, ITA).
"*In utero* transplantation of stem cells to treat Osteogenesis Imperfecta in the murine model BrtlIV".
Final grade: **110/110 *cum Laude***

18th October 2006:

Bachelor's Degree in Biotechnology at the University of Pavia (PV, ITA).
"Proteomic approach for the study of the phenotype in a knock-out murine model of Smith-Lemli-Opitz syndrome". Final grade: **110/110** ***cum Laude***

TEACHING ACTIVITIES

Academic year 2022-2023:
Biochimica cellulare - Medicine and Surgery
Biology of aging: from basic science to clinical implications – Lifelong and well-being and healthy aging
Organic chemistry and principles of biochemistry - Medicine and Surgery (odontoiatry)
Biochemistry - Master's degree in Medical and Pharmaceutical Biotechnology

Academic year 2020-2021 and 2021-2022:
Organic chemistry and principles of biochemistry - Medicine and Surgery (odontoiatry)
Pathological biochemistry - Master's degree in Biotechnology

Supervisor for the Master's Degree thesis in Biotechnology "A low bone mass phenotype in the murine model with bone conditional inactivation of *TMEM38B"* by Giada Accusani

Academic year 2019-2020:
Co-supervisor for the Master's Degree thesis in Biotechnology "Generation and characterization of a murine model with a conditional inactivation of TMEM38B in the bone tissue: a new tool to study Osteogenesis Imperfecta type XIV" by Barbara Contento

Supervisor for the Master's Degree thesis in Biotechnology "La caratterizzazione di un modello murino knock out evidenzia la funzione di JNK3 nell'osso" by Criastiana Lipari

Supervisor of the PhD thesis in Biomolecular Sciences and Biotechnology - cycle XXXIII. PhD student: Nadia Garibaldi. Impaired osteoblasts homeostasis and matrix quality in Osteogenesis Imperfecta are rescued by 4-phenylbutyrate.

Academic year 2018-2019:
"**Toward precision medicine: an integrated biomedical approach through genomic and proteomic databases**". Medicine and Surgery (Harvey course) degree

Seminars in Human Systematic Biochemistry and Pathology (503958) for the Master's Degree in Medical and Pharmaceutical Biotechnology (37400) at the University of Pavia

23-27 April 2018:
European Erasmus Teaching+ KA103 Outgoing Teaching Mobility 2017/08 (Erasmus CODE: PLBIALYST02). Teaching activity of 8 hours on "Extracellular matrix and collagen type I disorders". Students: PhD (third cycle) Isced 8 of Faculty of Farmacy of the Medical University of Bialystock, Poland

Academic year 2017-2018:
"**Toward precision medicine: an integrated biomedical approach through genomic and proteomic databases**". Medicine and Surgery (Harvey course) degree

Academic year 2016-2017:

"**Toward precision medicine: an integrated biomedical approach through genomic and proteomic databases**". Medicine and Surgery (Harvey course) degree

Co-supervisor for the Master's Degree thesis in Molecular Biology and Genetics "Chemical chaperone treatment ameliorates the cellular phenotype of patients with recessive osteogenesis imperfecta" by Linda Ofori Atta

Academic year 2015-2016:
Co-supervisor for the Master's Degree thesis in Molecular Biology and Genetics "Impaired cellular function due to mutant collagen intracellular retention in osteogenesis imperfecta fibroblasts represents a promising target for therapy" by Giusy Iula

Academic year 2014-2015:
Co-supervisor for the Master's Degree thesis in Molecular Biology and Genetics "Mutant collagen retention affects multiple intracellular pathways in *in vitro* and *in vivo* models of Osteogenesis Imperfecta: new targets for therapeutic approaches" by Eleonora Fucci

Academic year 2011-2012:
Supervisor of laboratory activities for the Chemistry and Biochemistry course of Medicine and Surgery (Harvey course).

Academic year 2010-2011:
Chemistry students supervision in the Saudi Arabia project "Foundation Year"

Chemistry and Biochemistry students supervision (Sport Sciences Degree)

Laboratory activities for the Chemistry and Biochemistry course of Medicine and Surgery (Harvey course).

Co-supervisor for the Master's Degree thesis in Biotechnology "Expression and characterization of a pathological forms of human prolidase in *E.coli*" by Domenico Savarino

Academic year 2009-2010:
Supervisor of laboratory activities for the Biochemistry course of Biotechnology Degree.

Co-supervisor for the Bachelor's Degree thesis in Biology "Molecular and biochemical characterization of patients with Prolidase Deficiency" by Laura Caramati

MEMBERSHIP

-Member of the International Society for Children's Bone Health
-Member of the Italian Society of Biochemistry (SIB)
-Member of the Italian Society for the Study of the Connective Tissue (SISC)
-Member of the Arkansas Stem Cells Coalition (ASCC)
-Member of the National Council of Biologists

INSTITUTIONAL RESPONSABILITIES

-2014-2016 and 2016-2018 Member of the Molecular Medicine Departmental Committee as Postdoctoral fellow representative
-Since 30-1-2018 Expert in chemistry and biochemistry ("Cultore della materia"), Faculty of Medicine, Degree in Physical Education
-Since 19-3-2018 Expert in human systematic biochemistry and pathology ("Cultore della materia"), Faculty of Medicine, Master's Degree in Medical and Pharmaceutical Biotechnology

GRANTS

-2023: PRIN2022 ERWJKZ. Targeting impaired cellular homeostasis to treat rare skeletal diseases: development of a new therapeutic approach.. Decreto Direttoriale n. 977 del 3-07-2023 - LS4

-2023: Telethon Grant GMR22T1024 by Telethon Foundation "The mechanism behind trimeric intracellular cation channel B function in Osteogenesis Imperfecta skeleton". https://www.telethon.it/cosa-facciamo/ricerca/ricercatori/roberta-besio

-2017: Cariplo Giovani 2016-0417 by Fondazione Cariplo "Pathogenesis of Osteogenesis Imperfecta: the emerging role of intracellular collagen retention". A PhD student in Biomolecular Sciences and Biotechnologies at the "Institute for Advanced Study (IUSS)" of Pavia, supported by the grant, has been enrolled for the project. https://www.fondazionecariplo.it/it/contributi/delibere/2016.html

AWARDS

-Young Investigator SIB regional meeting award for best oral presentation, Gargnano 23-25 June 2019

- **PhD ITalents** granted by Fondazione Crui, Confindustria and Ministero dell'Istruzione Università e Ricerca. February 2017

- **SISC (Italian society for the study of the connective tissue) award for the best oral presentation** at the XXXIV Italian National Meeting SISC, Modena (ITA) October 3-4 2014

- **Nomination for the Dick Heinegard European Young Investigator Award** at the 1st Matrix Biology Europe Conference (XXIVth FECTS), Rotterdam (Netherlands) June 21st-24th, 2014.

- **Fellowship granted by "Collegio Ghislieri**" (PV, ITA) 2010 and 2011

- **Fellowships granted by Provincia di Sondrio** (SO, ITA) from 2004 till 2010

SKILLS

Technical skills

*Molecular biology***:** DNA and RNA extraction, PCR, RT-PCR, qPCR, cloning, manipulation of bacteria (E. coli), gene silencing and gene editing with CRISPR
Biochemistry: expression and purification of recombinant proteins from prokaryotic host, enzymatic assay, SDS page, western blot, circular dichroism, ICP-MS, co-immunoprecipitation, yeast two hybrid, collagen extraction and analyses, western blot
Cellular biology: cell culture (fibroblasts, osteoblasts, adipocytes, osteoclasts, mesenchymal stem cells)
Histology: sections of soft and hard tissue, staining (H&E, Masson's, Toluidine blue), immuno-histochemistry
Murine model generation and manipulation: generation of ko mice and conditional and tissue specific ko mice.
Zebrafish model characterization and manipulation: molecular, biochemical and phenotypic characterization of zebrafish model for skeletal dysplasia
Bioinformatic analyses: NCBI, protein data bank, David, MetaCore protein database
Computer skills: Microsoft Office (ECDL patent 2002), Adobe Photoshop, VersaDoc imaging system (Biorad), MxPRO QPCR software (Stratagene), LEICA Application Suite (LEICA)

Language skills
Italian: mother language
English: fluent written and spoken

PUBLICATIONS

1) Panaroni C, Gioia R, Lupi A, **Besio R**, Goldstein SA, Kreider J, Leikin S, Vera JC, Mertz EL, Perilli E, Baruffaldi F, Villa I, Farina A, Casasco M, Cetta G, Rossi A, Frattini A, Marini JC, Vezzoni P, Forlino A. In utero transplantation of adult bone marrow decreases perinatal lethality and rescues the bone phenotype in the knock-in murine model for classical, dominant osteogenesis imperfecta. **Blood**. 2009. 114(2):459-68. doi: 114(2):459-68. 10.1182/blood-2008-12-195859.

2) **Besio R***, Alleva S*, Forlino A, Lupi A, Meneghini C, Minicozzi V, Profumo A, Stellato F, Tenni R, Morante S. Identifying the structure of the active site of human recombinant prolidase. **Europian Biophysic J.** 2010 May;39(6):935-45. doi: 10.1007/s00249-009-0459-4. *= co-first.

3) **Besio R**, Monzani E, Gioia R, Nicolis S, Rossi A, Casella L, Forlino A. Improved prolidase activity assay allowed enzyme kinetic characterization and faster prolidase deficiency diagnosis. **Clinica Chimica Acta**. 2011 Sep 18;412(19-20):1814-20. doi: 10.1016/j.cca.2011.06.011.

4) Caselli D, Cimaz R, Forlino A, **Besio R**, Rossi A, De Lorenzi E, Colombo R, Cantarini L, Riva S, Spada M, Aricò M. Partial rescue of biochemical parameters after hematopoietic stem cell transplantation in a patient with Prolidase Deficiency due to two novel PEPD mutations. **J. Inherited Metabolic Disease** 2011 3: 71–77. doi: 10.1007/8904_2011_62.

5) Gioia R, Panaroni C, **Besio R**, Palladini G, Merlini G, Giansanti V, Scovassi IA, Villani S, Villa I, Villa A, Vezzoni P, Tenni R, Rossi A, Marini JC, Forlino A. Impaired osteoblastogenesis in a murine model of dominant osteogenesis imperfecta: a new target for osteogenesis imperfecta pharmacological therapy. **Stem Cells**. 2012 Jul;30(7):1465-76. doi: 10.1002/stem.1107.

6) Bianchi L, Gagliardi A, Gioia R, **Besio R**, Tani C, Landi L, Cipriano M, Gimigliano a, Rossi A, Marini JC, Forlino A, Bini L. Differential response to intracellular stress in the skin from Osteogenesis Imperfecta Brtl mice with lethal and non lethal phenotype: a proteomic approach. **Journal of Proteomics**. 2012 75(15):4717-33. doi: 10.1016/j.jprot.2012.01.038.

7) **Besio R**, Baratto C, Gioia R, Monzani E, Nicolis S, Cucca L, Profumo A, Casella L, Basosi R, Tenni R, Rossi A, Forlino A. A Mn(II)-Mn(II) center in human prolidase. **BBA Proteins and Proteomics.** 2012 1834(1):197-204 doi: 10.1016/j.bbapap.2012.09.008.

8) **Besio R,** Gioia R, Cossu F, Monzani E, Nicolis S, Cucca L, Profumo A, Casella L, Tenni R, Bolognesi M, Rossi A, Forlino A. Kinetic and structural evidences on human prolidase pathological mutants suggest strategies for enzyme functional rescue. **PLoS One**. 2013;8(3):e58792. doi: 10.1371/journal.pone.0058792. Epub 2013 Mar 13.

9) Ciccocioppo R, Vanoli A, Klersy C, Imbesi V, Boccaccio V, Betti E, Cagemi GC, **Besio R**, Rossi A, Falcone C, Ardizzone F, Fociani P, Danelli P, Corazza GR. Role of the advanced glycation end products receptor in Crohn's disease inflammation. **World J Gastroenterology.** 2013 Dec 7. 19(45):8269-8281. doi: 10.3748/wjg.v19.i45.8269.

10) Gruenwald K, Castagnola P, **Besio R**, Dimori M, Chen Y, Akel NS, Swain FL, Skinner RA, Eyre DR, Gaddy D, Suva LJ, Morello R. Sc65 is a novel endoplasmic reticulum protein that regulates bone mass homeostasis. **J Bone Miner Res**. 2013 29(3):666-75. doi: 10.1002/jbmr.2075.

11) Bianchi L, Gagliardi A, Maruelli S, **Besio R**, Landi C, Gioia R, Kozloff KM, Khoury BM, Coucke PJ, Symoens S, Marini JC, Rossi A, Bini L, Forlino A. Altered cytoskeletal organization characterized lethal but not surviving Brtl+/- mice: insight on phenotypic variability in osteogenesis imperfecta. **Hum Mol Genet**. 2015 Nov 1;24(21):6118-33. doi: 10.1093/hmg/ddv328.

12) **Besio R***, Maruelli S*, Gioia R, Villa I, Grabowski P, Gallagher O, Bishop N, Foster S, Diaz JLD, Haether MB, Aydin HI, Tokatli A, Kwiek B, Kasapkara CS, Adisen EO, Gurer MA, Di Rocco M, Phang JM, Gunn TM, Tenni R, Rossi A, Forlino A. Lack of prolidase causes a bone phenotype both in human and in mouse. **Bone**. 2015 Mar; 72:53-64. doi: 10.1016/j.bone.2014.11.009. *= co-first.

13) **Besio R**, Forlino A. Treatment options for osteogenesis imperfecta. **Expert Opinion on orphan drug**. 2015 3(2), pp. 165-181. doi: 10.1517/21678707.2015.1006197.

14) **Besio R**, Forlino A. New frontiers for dominant osteogenesis imperfecta treatment: gene/cellular therapy approaches. **Advances in Regenerative Biology** 2015, 2: 27964 - 10.3402/arb.v2.27964.

15) Adışen E, Erduran FB, Ezgü FS, Kasapkara ÇS, **Besio R**, Forlino A, Gürer MA. A Rare Cause of Lower Extremity Ulcers: Prolidase Deficiency. **Int J Low Extrem Wounds**. 2016 Mar;15(1):86-91. doi: 10.1177/1534734615619550.

16) **Besio R***, Heard ME*, Weis MA, Rai J, Dimori M, Zimmerman S, Kamykowski AJ, Hogue WR, Swain FL, Burdine MS, Mackintosh SG, Tackett AJ, Suva LJ, Eyre DR, and Morello R. *Sc65*-null mice provide evidence for a novel endoplasmic reticulum complex regulating collagen lysyl hydroxylation. **Plos Genetics** 2016 27;12(4):e1006002. doi: 10.1371/journal.pgen.1006002. *= co-first.

17) **Besio R***, Gagliardi A*, Carnemolla C, Landi C, Armini A, Aglan M, Otaify G, Temtamy SA, Forlino A, Bini L, Bianchi L. Cytoskeleton and nuclear lamina affection in recessive osteogenesis imperfecta: a functional proteomics perspective. **Journal of Proteomics** 2017 Sep 7;167:46-59. doi: 10.1016/j.jprot.2017.08.007. *= co-first.

18) Woodcock TM, Frugier T, Nguyen TT, Semple BD, Bye N, Massara M, Savino B, **Besio R,** Sobacchi C, Locati M, Morganti-Kossmann MC. The scavenging chemokine receptor ACKR2 has a significant impact on acute mortality rate and early lesion development after traumatic brain injury. **PLoS One** 2017 12(11):e0188305. doi.org/10.1371/journal.pone.0188305.

19) Zimmerman S, **Besio R**, Heard-Lipsmeyer ME, Dimori M, Castagnola P, Swain FL, Gaddy D, Diekman AB and Morello R. Expression characterization and functional implication of the collagen-modifying Leprecan proteins in mouse gonadal tissue and mature sperm. **AIMS Genetics**, 5(1): 24–40. 2018

20) Paganini C, Monti L, Costantini R, **Besio R**, Lecci S, Biggiogera M, Tian K, Marc-Schwartz M, Huber c, Cormier-Daire V, Gibson B, Pirog KA, Forlino A, Rossi A. Calcium activated nucleotidase 1 (CANT1) is critical for glycosaminoglycan biosynthesis in cartilage and endochondral ossification. **Matrix Biol.** 2018 Nov 12. pii: S0945-053X(18)30397-4. doi: 10.1016/j.matbio.2018.11.002.

21) **Besio R**, Iula G, Garibaldi N, Cipolla L, Sabbioneda S, Biggiogera M, Marini JC, Rossi A, Forlino A. 4-PBA ameliorates cellular homeostasis in fibroblasts from osteogenesis imperfecta patients by enhancing autophagy and stimulating protein secretion. **BBA Molecular Bases of Disease**. 2018 Feb 10;1864(5 Pt A):1642-1652. doi: 10.1016/j.bbadis.2018.02.002.

22) Fiedler IAK, Schmidt FN, Wölfel EM, Plumeyer C, Milovanovic P, Gioia R, Tonelli F, Bale HA, Jähn K, **Besio R**, Forlino A, Busse B. Severely impaired bone material quality in Chihuahua zebrafish resembles classical dominant human osteogenesis imperfecta. **J Bone Miner Res**. 2018 Apr 17. doi: 10.1002/jbmr.3445.

23) **Besio R**, Maruelli S, Battaglia S, Leoni L, Villani S, Layrolle P, Rossi A, Trichet V, Forlino A. Early fracture healing is delayed in the Col1a2+/G610C osteogenesis imperfecta murine model. **Calcif Tissue Int.** 2018 Dec;103(6):653-662. doi: 10.1007/s00223-018-0461-x. Epub 2018 Aug 3.

24) Tonelli F, Forlino A, **Besio R.** Steady-State and Pulse-Chase Analyses of Fibrillar Collagen. **Methods in molecular biology** (Clifton, N.J.). 2019 doi: 10.1007/978-1-4939-9133-4_4 1952, pp. 45-53.

25) **Besio R**, Garibaldi N, Leoni L, Cipolla L, Sabbioneda S, Biggiogera M, Mottes M, Aglan M, Otaify GA, Temtamy SA, Rossi A, Forlino A. Cellular stress due to impairment of collagen prolyl hydroxylation complex is rescued by the chaperone 4-phenylbutyrate. **Dis Model Mech.** 2019 Jun 20;12(6). pii: dmm038521. doi: 10.1242/dmm.038521

26) **Besio R**, Chow CW, Tonelli F, Marini JC, Forlino A. Bone biology: insights from osteogenesis imperfecta and related rare fragility syndromes. **FEBS J.** 2019 Jun 20. doi: 10.1111/febs.14963

27) Insolia V, Priori EC, Gasperini C, Coppa F, Cocchia M, Iervasi E, Ferrari B, **Besio R**, Maruelli S, Bernocchi G, Forlino A, Bottone MG. Prolidase enzyme is required for extracellular matrix integrity and impacts on postnatal cerebellar cortex development. **J Comp Neurol.** 2019 Jun 27. doi: 10.1002/cne.24735.

28) Menale C, Robinson LJ, Palagano E, Rigoni R, Erreni M, Almarza AJ, Strina D, Mantero S, Lizier M, Forlino A, **Besio R**, Monari M, Vezzoni P, Cassani B, Blair HC, Villa A, Sobacchi C. Absence of Dipeptidyl Peptidase 3 increases oxidative stress and causes bone loss. **J Bone Miner Res.** 2019 Jul 11. doi: 10.1002/jbmr.3829.

29) Maruelli, S*, **Besio, R***, Rousseau, J, ...Trichet, V, Forlino, A. Osteoblasts mineralization and collagen matrix are conserved upon specific Col1a2 silencing. **Matrix Biology Plus**, 2020, 6-7, 100028.

30) Tonelli F, Cotti S, Leoni L, **Besio R,** ...Witten PE, Forlino A. Crtap and p3h1 knock out zebrafish support defective collagen chaperoning as the cause of their osteogenesis imperfecta phenotype. **Matrix Biology**, 2020, 90, pp. 40–60

31) Tonelli F*, Willem B*, **Besio R*,** De Clercq A, Leoni L, Salmon P, Coucke PJ, Willaer A, Forlino A. Zebrafish: A Resourceful Vertebrate Model to Investigate Skeletal Disorders. **Frontiers in Endocrinology** 2020, 31;11:489

32) Garibaldi N, Contento BM, Babini G, ...Forlino A, **Besio R**. Targeting cellular stress in vitro improves osteoblast homeostasis, matrix collagen content and mineralization in two murine models of osteogenesis imperfecta. **Matrix Biology**, 2021, 98:1-20

33) Bini L, Schvartz D, Carnemolla C, **Besio R**, ...Forlino A, Bianchi L. Intracellular and extracellular markers of lethality in osteogenesis imperfecta: A quantitative proteomic approach. **International Journal of Molecular Sciences**, 2021, 22(1), pp. 1–23, 429

34) Garibaldi N*, **Besio R*,** Dalgleish R, Villani S, Barnes Aileen M, Marini JC and Forlino A. Dissecting the phenotypic variability of Osteogenesis Imperfecta. **Disease Models and Mechanism**. *Dis Model Mech* (2022) 15 (5): dmm049398

35) Nizioł M, Ościłowska I, Baszanowska W, Pałka J, **Besio R**, Forlino A and Miltyk W. Recombinant Prolidase Activates EGFR-Dependent Cell Growth in an Experimental Model of Inflammation in HaCaT Keratinocytes. Implication for Wound Healing. **Front. Mol. Biosci**., 30 March 2022 | https://doi.org/10.3389/fmolb.2022.876348

36) Leoni L, Tonelli F, **Besio R**, Gioia R, Moccia F, Rossi A, Forlino A. Knocking out *TMEM38B* in human foetal osteoblasts hFOB 1.19 by CRISPR/Cas9: a model for recessive OI type XIV. **International journal of molecular sciences.** 2022 doi.org/10.1371/journal.pone.0257254

37) Czyrko-Horczak J, Nizioł M, Forlino A, **Besio R** and Miltyk W. The Highly Efficient Expression System of Recombinant Human Prolidase and the Effect of N-Terminal His-Tag on the Enzyme Activity. **Cells**. 2022 doi: 10.3390/cells11203284

38) Tonelli F, Leoni L,Daponte V, Gioia R, Cotti S, Fiedler IA, Willaert A, Coucke PJ, Villani S, Busse B, **Besio R**, Rossi A, Witten PE and Forlino A. Zebrafish Tric-b is required for skeletal development and bone cells differentiation. **Frontiers in Endocrinology.** 2022

39) Ahmed Qaed Ahmed A, **Besio R**, Xiao L and Forlino A. Outer membrane vesicles (OMVs) as biomedical tools and their relevance as immune-modulating agents against *H. pylori* infections: current status and future prospects. **International journal of molecular sciences**. 2023

40) **Besio R**, Contento BM, Garibaldi G, Filibian M, Sonntag S, Shmerling D, Tonelli F, Biggiogera M, Brini M, Salmaso A, Jovanovic M, Marini JC, Rossi A, Forlino A. et al. CaMKII inhibition due to TRIC-B loss-of-function dysregulates SMAD signalling in osteogenesis imperfecta. **Matrix Biology**. 2023

41)Etich J, Semler O, Stevenson NL, Stephan A, **Besio R**, Garibaldi N, Reintjes N, Dafinger C, Liebau MC, Baumann U, Mörgelin M, Forlino A, Stephens DJ, Netzer C, Zaucke F, Rehberg M. TAPT1-at the crossroads of extracellular matrix and signaling in Osteogenesis imperfecta. **EMBO** Mol Med. 2023 Jul 10;15(7):e17528. doi: 10.15252/emmm.202317528. Epub 2023 Jun 9. PMID: 37292039.

42) Jovanovic M, Mitra A, **Besio R**, Contento BM, Wong KW, Derkyi A, To M, Forlino A, Dale RK, Marini JC. Absence of TRIC-B from type XIV Osteogenesis Imperfecta osteoblasts alters cell adhesion and mitochondrial function - A multi-omics study. **Matrix Biol.** 2023 Jun 20:S0945-053X(23)00075-6. doi: 10.1016/j.matbio.2023.06.004. Epub ahead of print. PMID: 37348683.

ORAL CONTRIBUTIONS AND POSTERS

- **Besio R**. TRIC-B mutations cause CaMKII inhibition and dysregulation of TGF-beta/SMAD signalling in osteogenesis imperfecta type XIV. Joint Meeting of the German Society for Matrix Biology and the Italian Society for the Study of Connective Tissues, Münster, Germany, 26.09.-29.09.2023

- Barbara Maria Contento, **Besio R**, Nadia Garibaldi, Marta Filibian, Stefan Sontagg, Doron Shmerling, Antonella Forlino. Osteoblast specific *Tmem38b* knock-out: a tool to study osteogenesis imperfecta type XIV" ICCBH 2-5 July 2022 Dublin, Ireland

- Barbara Maria Contento, Nadia Garibaldi, Marta Filibian, Stefan Sontagg, Doron Shmerling, **Besio R**, Antonella Forlino, *Tmem38b* osteoblast specific knock out mouse resembles osteogenesis imperfecta type XIV, ECTS 7-10 May 2022, Helsinki, Finland

- **Roberta Besio**, Barbara Contento, Nadia Garibaldi, Marta Filibian, Stefan Sontagg, Doron Shmerling, Antonella Forlino, Conditional trimeric intracellular cation channel B knockout mouse: a tool to study osteogenesis imperfecta type XIV. 14th International Conference on Osteogenesis Imperfecta 2022- £0 August-2Septeember 2022 Sheffield, UK
Contento BM, Garibaldi N, Tonelli F, Daponte V, Paganini C, Gramegna C, **Besio R**, Rossi A, Forlino A. **Generation and characterization of a murine model of osteogenesis imperfecta type XIV**, *XXXX Meeting of the Italian society for the study of connective tissues*, April 16-17 2021 (oral presentation)

Garibaldi N., Tonelli F, Contento B, Daponte V, Cotti S, Gramegna C, Rossi A., Forlino A., **Besio R**. **4-PBA ameliorates cell homeostasis and osteoblast matrix deposition in OI in vitro models**, *Skeleton Congress 2021*, online, January 27th-28th 2021 (oral presentation)

Besio R., Contento B, Garibaldi N., Tonelli F, Daponte V, Cotti S, Gramegna C, Rossi A., Forlino A., **Generation and characterization of *Tmem38B* conditional knock out murine model: a tool to understand OI type XIV,** *Skeleton Congress 2021*, online, January 27th-28th 2021 (oral presentation)

Garibaldi N., Leoni L., Cipolla L., Sabbioneda S., Biggiogera M., Marini J.C., Rossi A., Forlino A., **Besio R**. **Collagen retention perturbs homeostasis in Osteogenesis Imperfecta cells and can be rescued by a chemical chaperone**, *ICCBH Virtual Forum*, online, November 18th-20th 2020. Winner of Best Poster Prize.

Garibaldi N., **Besio R**., Lipari C., Contento B, Biggiogera M., Rossi A., Forlino A. **4-phenylbutyrate promotes osteoblasts activity in murine models of Osteogenesis Imperfecta**, *Matrix Biology Europe (MBE) 2020 Conference*, Florence May 24th-28th 2020. Postponed to 2022 due to COVID-19 pandemic (selected for oral presentation)

Besio R, Garibaldi N, Giannini NG, Bendahhou S, Forlino A, **Fate of intracellular retained mutant collagen**, European Calcified Tissue Society (ECTS) Congress 2020, Marseille, France, May 11th-14th 2020. Postponed due to COVID-19 pandemic.

Besio R., Garibaldi N., Leoni L., Tonelli F., Daponte V., Sabbioneda S., Biggiogera M., Mottes M., Aglan M., Otaify G. A., Temtamy S. A., Rossi A., Forlino A., **4-Phenylbutyrate rescues cellular stress in recessive Osteogenesis Imperfecta**. *XXXIX Meeting of the Italian Society for the Study of Connective tissues (SISC),* Alghero, Italy, November 8th-9th 2019 (oral presentation)

Besio R, Garibaldi N., Leoni L., Cipolla L., Sabbioneda S., Biggiogera M., Aglan M., Otaify G., Temtamy S., Rossi A., Forlino A., **Insight into 4-phenylbutyrate action in recessive osteogenesis imperfecta**. *The 14th International Skeletal Dysplasia Society (ISDS) Meeting*, Oslo, Norway, September 11th-14th 2019 (oral presentation)

Besio R, Tonelli F, Garibaldi N, Leoni L, Forlino A. **Endoplasmic Reticulum stress in osteoblasts**. International conference on children's bone health ICCBH, Salzburg, Austria, June 22nd-25th, 2019 (oral presentation)

Besio R, Garibaldi N., Rossi A., Forlino A., **Pathogenesis of osteogenesis imperfecta: the emerging role of intracellular collagen retention**. *Incontro dei Giovani Biochimici dell'Area Lombarda*, 5° edizione, Gargnano, Italy, June 23rd-25th 2019 (oral presentation)

Besio R, Tonelli F, Garibaldi N, Leoni L, Forlino A. **Endoplasmic Reticulum stress in osteoblasts.** *International conference on children's bone health ICCBH* Salzberg, AUT. June 22nd-25th, 2019 (oral)

Garibaldi N, **Besio R,** Forlino A. **Cellular homeostasis in murine osteoblasts from two osteogenesis imperfecta models is rescued by phenylbutyric acid.** *XXXI PhD in biochemistry national meeting*, Brallo di Pregola, *ITA* 3-7 June 2019 (poster)

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Tonelli F, Leoni L, Cotti S, **Besio R**, Gioia R, Busse B, Fieder I, Rossi A, Forlino A. **Generation and characterization of zebrafish models for recessive osteogenesis imperfecta type VII and VIII.** *Interdisciplinary Approaches in Fish Skeletal Biology (IAFSB), 5th Conference, Tavira,* Algarve, Portugal - April 16 to 19, 2018 (oral)

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