

**BIOGRAPHICAL SKETCH**

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NAME: Brandi, Maria Luisa

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POSITION TITLE: Full Professor of Endocrinology

**EDUCATION/TRAINING**

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
Classical Lyceum, Orvieto, Italy	Licenza Liceale	06/1972	Classic Studies
University of Florence, Italy	MD	07/1977	Medicine/Surgery, 1 <sup>st</sup> Class Honors
University of Florence, Italy	Specialty	07/1980	Endocrinology, 1 <sup>st</sup> Class Honors
National Institutes of Health (NIH), USA	NIH Training	1984/1988	Endocrinology
University of Rome, Italy	Ph.D	10/1988	Cell Biology

**A. Personal Statement**

I made a series of key contributions in the fields of molecular and cellular endocrinology and of bone diseases that have had major impact on the taxonomy, diagnosis and clinical management of bone and mineral disorders. I developed over 10 permanent cell lines that made possible the understanding of key mechanisms of action for calci-phospho-tropic hormones. I developed in the early years genetic tests that made possible the translation of molecular discoveries into clinical practice. I established a solid group of research in Florence, Italy, where we span from basic science to clinical studies on bone and mineral disorders. Clinical Studies from Phase 1 to observational analyses have been carried out in Florence in the past three decades. We serve as reference Center in Italy for patients suffering for common and rare disorders of the parathyroid glands, with a great interest on hereditary endocrine tumors. I have initiated and maintain clinical databases and a biological repository of Multiple Endocrine Neoplasia Type 1 (MEN1). In the past decade our interest was extended to rare metabolic bone disorders in the adult and soon we became a leading Center for the diagnosis and therapy of these difficult diseases. This prompted the development of international registries, whose we are active participants, sitting also in the steering committee of three different repositories. These contributions have facilitated the development of clinical guidelines, encompassing MEN 1, hyperparathyroidism, hypoparathyroidism, osteoporosis, and phosphate wasting disorders.

## B. Positions and Honors

### Positions and Employment

- 2006-present President Fondazione Italiana di Ricerca sulle Malattie dell'Osso (F.I.R.M.O. Foundation)
- 1999-2020 Full Professor of Endocrinology at the University of Florence and Director of the Complex Clinical Unit on Bone and Mineral Disorders at the Careggi Hospital, Florence, Italy
- 1990-2020 Director of the Regional Referral Center for Hereditary Endocrine Tumors, Careggi Hospital, Florence, Italy
- 1988-1999 Associate Professor of Endocrinology at the University of Florence, Florence, Italy
- 1984-1988 Visiting Associate at the Metabolic Diseases Branch , NIH, Bethesda, MD, USA
- 1986-1988 PhD Program at the University of Rome, Italy
- 1977-1980 Clinical Training Fellow at the University of Florence, Florence, Italy
- 1980-1984 Clinical Scientist at the University of Florence, Florence, Italy

### Other Experience and Professional Memberships

#### University of Florence

- 2016-2020 Delegate of the Rector for Health Education in the City of Florence
- 2007-2010 Delegate of the Rector for Italy/USA Academic Interactions
- 2004-2010 Scientific Director of the DeGene Spin-off
- 2004-2014 Coordinator of the Master on Metabolic Bone Diseases: From the Gene to the Cure
- 2000-2003 Representative functions for USA Academic Institutions
- 1998-2020 Member of PhD Evaluation Boards

#### National, Italy

- 2023-present President of the Observatory on Fragility Fractures Italia (OFF Italia)
- 2023-present Professor of Endocrinology and Metabolic Diseases at the University of Florence, Italy
- 2023-present Member of the Faculty of the Master on Osteoporosis and Metabolic Bone Diseases, Università Vita e Salute San Raffaele, Milan
- 2023-present Member of the SIOT Committee on Bone Fragility
- 2022-present Member of the Board of the Italian Guidelines of Bone Pain in Vertebral Fragility Fractures, developed by the Istituto Superiore di Sanità
- 2022-present Consultant at the Istituto Europeo di Oncologia (IEO)
- 2022-present Clinical Associate at the University Vita-Salute, San Raffaele Milano, Italy
- 2021-present Member of the Community "Donne Protagoniste in Sanità"
- 2021-present Member of the International Advisory Board of the Glucocorticoid Induced Osteoporosis Skeletal Endocrinology Group
- 2021-present Professor of Endocrinology and Metabolic Diseases at the University Tor Vergata, Roma, Italy
- 2020-present Professor of Endocrinology and Metabolic Diseases at the University Vita-Salute, San Raffaele, Milano, Italy
- 2020-present Member of Bracco Foundation
- 2020-2023 President of the Italian Observatory on Fragility Fractures
- 2020-present Director of the Donatello Bone Clinic of Florence
- 2019-present Scientific Director of the Stabilimento Chimico Farmaceutico Militare of Italy
- 1990-2020 Director of the Regional Center on Hereditary Endocrine Tumors
- 2019-2021 Member of the Board of the Italian Guidelines of Fragility Fractures, developed by the Istituto Superiore di Sanità
- 2019-2020 President of the Italian FRAME Project for the secondary prevention of fragility fractures
- 2019-2020 Member of the Group on Fragility Fractures of the Tuscany Region
- 2018-present 100donne Contro gli Stereotipi
- 2017-2018 Member of the Steering Committee for the Position Paper of the Italian Ministry of Health on Osteoporosis
- 2016-present TWIS Board Member of the Top Italian Women in Science
- 2015-present Scientific Attaché for the City of Florence
- 2010-present Executive Director of the OrtoMed Society 1991-present Coordinator of the Italian Group of Study on Multiple Endocrine Neoplasia Type 1

- 2010-present Member of the Scientific Committee of the Observatory on Rare Diseases (OMAR)
- 2009-2010 Member of the Steering Committee for the Position Paper of the Italian Ministry of Health on Osteoporosis
- 2008-present Consultant for the Tuscany Region on Osteoporosis
- 2007-present Member of the Commission on Osteoporosis of the Italian Society on Orthopaedic (SIOT)
- 2005-2007 President of the Italian Society on Osteoporosis (SIOMMMS)
- 2005 Member of the Working Group on Endocrine Disruptors, Italian Ministry of Health
- 2004-2014 Promoter of the DeGene Spin-off srl at the University of Florence
- 2004-present Reviser for Continuous Education in Medicine
- 2002-present Member of the Scientific Committee of the InChianti Project
- 2002-present Member of the Scientific Committee of the AILA Foundation
- 2001 President of the First International Workshop on the Genetics of Bone Diseases, Florence
- 1997-1999 Member of the Scientific Committee of the Italian Society of Endocrinology
- 1996-1999 Chairman of the Italian Group of Study on Hypoparathyroidism

## **International**

- 2023-present International Coordinator of "Capture the Fracture" of the International Osteoporosis Foundation
- 2023-present Member of the Expert Group of WHO on Bone Health and Ageing
- 2023-present Member of the Steering Committee on Capture The Fracture, IOF
- 2023-present Chair World MEN Conferences Committee
- 2022-present Member of the Editorial Board of Cells
- 2022-present Member of the Editorial Board of Nutrigenetics and Nutrigenomics
- 2022-present Member of the Editorial Board of Nutrients
- 2022-present Member of the Editorial Board of JCEM Case Reports
- 2022-present Member of the Board of the European Society for Clinical and Economic Aspects of Osteoporosis, Osteoarthritis and Musculoskeletal Diseases (ESCEO)
- 2021-present Elected as Representative of the Global Medical Committee of the Advancing Patient Evidence in XLH
- 2021-present International Visiting Professor, McMaster University, Toronto, Canada
- 2019 Chairman of the First International Conference on Biominerilization in Health and Disease: From the Ocean to the Stars to the Land, Florence, Italy
- 2019-present Editor in Endocrinology of Orphanet Journal
- 2019-2021 Member of the Editorial Board of Journal of the Endocrine Society
- 2019-present Scientific Director of the Italian Association on Hypophosphatasia (API)
- 2019-present Scientific Director of the Italian Association on Phosphate Metabolic Disorders (AIFOSF)
- 2017 Chairman of the Third International Symposium on the Calcium Sensing Receptor, Florence, Italy
- 2017-present Scientific Director of the Italian Association for Patients with Hypoparathyroidism (APPI)
- 2016-present Member Steering Committee of the European Reference Centers Network on Rare Bone Diseases
- 2015 Chairman of the First International Consensus Conference on Hypoparathyroidism, Florence, Italy
- 2015-present Member of the Board of the International Osteoporosis Foundation (IOF)
- 2013-present Member of the Editorial Board of Calcified Tissue International
- 2013 Chairman of the 4<sup>th</sup> International workshop on the Management of Asymptomatic Primary Hyperparathyroidism, Florence, Italy
- 2008-2021 General Secretary of the European Society for Clinical and Economic Aspects of Osteoporosis, Osteoarthritis and Musculoskeletal Diseases (ESCEO)
- 2004-2019 Editor-in Chief of Clinical Cases in Mineral and Bone Metabolism
- 2004-2008 Member of the Editorial Board of Journal of Bone and Mineral Research
- 2004-2007 Member of the Editorial Board of Endocrinology

2002-present	Scientific Director of the Italian Association on Multiple Endocrine Neoplasia (AIMEN)
2002-present	Member of the Editorial Board of Expert Opinion in Investigational Drugs
2001	UICC Fellow, Mount Sinai Medical Center, New York, NY, USA
1999-present	Member of the International Multiple Endocrine Neoplasia Committee
1999-present	Member of the Committee of the Scientific Advisors of the International Osteoporosis Foundation
1998	UICC Fellow, NIDDK, NIH, Bethesda, MD, USA
1998	Member of the Scientific Committee of the VIIth European Congress of Endocrinology
1997	President of the Second International Conference on Steroids and Bone, Siena, Italy
1997	Member of the International Advisory Board of the 3 <sup>rd</sup> International Symposium on Women's Health and Menopause, Washington DC, USA
1997	Recipient of an International Cancer Technology Transfer Fellowship, NIH, Bethesda, MD, USA
1996	UICC Fellow, NIDDK, NIH, Bethesda, MD, USA
1995-1998	President of the European Association for Women's Health
1995	Member of the Scientific Committee of the Steroids and Bone ICCRH Satellite Meeting, Melbourne, Australia
1995	President of the First International Meeting on New Developments in Nitric Oxide, Orvieto, Italy
1994	Member of the Scientific Committee of the IIIrd European Congress of Endocrinology, Amsterdam, The Netherlands
1993-1994	Visiting Scientist at the William Harvey Research Institute, London, UK
1991	Chairman of the First International Conference on Hereditary Endocrine tumors, Florence, Italy
1991	President of the First International Conference on Steroids and Bone, Florence, Italy
1990-1994	Member of the Editorial Board of Journal of Endocrinological Investigations
1990-1998	Member of the Editorial Board of Diabetes, Nutrition and Metabolism
1988-1993	Member Board of Directors of the International Conferences on Calcium Regulating Hormones (ICCRH)
1984-1990	Reader in Endocrinology, Georgetown and Charlottesville University Schools of Medicine, USA

## Honors

2023	Premio Albero d'Oro of SIOT
2023	Premio "Fiorino d'Oro", from the City of Florence
2023	Premio "Bel San Giovanni", from the City of Florence
2023	ESE European Hormone Medal
2022	Fellow of the American Society for Bone and Mineral Research
2021	Boy Frame Award for Excellence in Clinical Research
2019	The 9 <sup>th</sup> world most cited author in the field of osteoporosis
2016	The "Pinocchio di Carlo Lorenzini Grillo Parlante" Award
2016	The Top Italian Scientist Award
2013	The Pierre Delmas IOF/ESCEO Prize
2008	Inner Wheel Tuscany Women Award
2004	The International AILA Award
2003	The Senior Award of the Italian Society of Endocrinology
1998	The Helena Rubinstein Award "Women in Science"
1991	The Sandoz Award for Gerontological Research
1990	The Shering Award of the Italian Society of Endocrinology
1989	The European Foundation Award
1988	Roussel Italia Award

## C. Contributions to Science

My research has resulted in the production of novel cell models in cell biology, today available to several Laboratories around the world, and through these to the elucidation of basic mechanisms that control the bone and mineral metabolism. Treasuring my clinical experience I promoted the preparation of clinical guidelines in the area of bone and mineral metabolism, today used by clinicians worldwide (selected list of publications from a total of **930** peer-reviewed original research articles):

- Händel MN, Cardoso I, von Bülow C, Rohde JF, Ussing A, Nielsen SM, Christensen R, Body JJ, Brandi ML, Diez-Perez A, Hadji P, Javaid MK, Lems WF, Nogues X, Roux C, Minisola S, Kurth A, Thomas T, Prieto-Alhambra D, Ferrari SL, Langdahl B, Abrahamsen B. Fracture risk reduction and safety by osteoporosis treatment compared with placebo or active comparator in postmenopausal women: systematic review, network meta-analysis, and meta-regression analysis of randomised clinical trials. *BMJ*. 2023 May 2;381:e068033. doi: 10.1136/bmj-2021-068033. PMID: 37130601; PMCID: PMC10152340.
- Jan de Beur SM, Minisola S, Xia WB, Abrahamsen B, Body JJ, Brandi ML, Clifton-Bligh R, Collins M, Florenzano P, Houillier P, Imanishi Y, Imel EA, Khan AA, Zillikens MC, Fukumoto S. Global guidance for the recognition, diagnosis, and management of tumor-induced osteomalacia. *J Intern Med*. 2023 Mar;293(3):309-328. doi: 10.1111/joim.13593. Epub 2022 Dec 13. PMID: 36511653; PMCID: PMC10108006.
- Marini F, Giusti F, Palmini G, Brandi ML. Role of Wnt signaling and sclerostin in bone and as therapeutic targets in skeletal disorders. *Osteoporos Int*. 2023 Feb;34(2):213-238. doi: 10.1007/s00198-022-06523-7. Epub 2022 Aug 18. PMID: 35982318.
- Alsarraf F, Ali DS, Almonaei K, Al-Alwani H, Khan AA, Brandi ML. Hypophosphatasia: presentation and response to asfotase alfa. *Osteoporos Int*. 2023 Nov 23. doi: 10.1007/s00198-023-06943-z. Epub ahead of print. PMID: 37993691.
- Khan AA, Brandi ML, Rush ET, Ali DS, Al-Alwani H, Almonaei K, Alsarraf F, Bacrot S, Dahir KM, Dandurand K, Deal C, Ferrari SL, Giusti F, Guyatt G, Hatcher E, Ing SW, Javaid MK, Khan S, Kocijan R, Linglart A, M'Hiri I, Marini F, Nunes ME, Rockman-Greenberg C, Roux C, Seefried L, Simmons JH, Starling SR, Ward LM, Yao L, Brignardello-Petersen R, Lewiecki EM. Hypophosphatasia diagnosis: current state of the art and proposed diagnostic criteria for children and adults. *Osteoporos Int*. 2023 Nov 20. doi: 10.1007/s00198-023-06844-1. Epub ahead of print. PMID: 37982857.
- Brandi ML, Khan AA, Rush ET, Ali DS, Al-Alwani H, Almonaei K, Alsarraf F, Bacrot S, Dahir KM, Dandurand K, Deal C, Ferrari SL, Giusti F, Guyatt G, Hatcher E, Ing SW, Javaid MK, Khan S, Kocijan R, Lewiecki EM, Linglart A, M'Hiri I, Marini F, Nunes ME, Rockman-Greenberg C, Seefried L, Simmons JH, Starling SR, Ward LM, Yao L, Brignardello-Petersen R, Roux C. The challenge of hypophosphatasia diagnosis in adults: results from the HPP International Working Group Literature Surveillance. *Osteoporos Int*. 2023 Nov 20. doi: 10.1007/s00198-023-06859-8. Epub ahead of print. PMID: 37982856.
- Rush E, Brandi ML, Khan A, Ali DS, Al-Alwani H, Almonaei K, Alsarraf F, Bacrot S, Dahir KM, Dandurand K, Deal C, Ferrari SL, Giusti F, Guyatt G, Hatcher E, Ing SW, Javaid MK, Khan S, Kocijan R, Lewiecki EM, Linglart A, M'Hiri I, Marini F, Nunes ME, Rockman-Greenberg C, Roux C, Seefried L, Starling SR, Ward L, Yao L, Brignardello-Petersen R, Simmons JH. Proposed diagnostic criteria for the diagnosis of hypophosphatasia in children and adolescents: results from the HPP International Working Group. *Osteoporos Int*. 2023 Nov 20. doi: 10.1007/s00198-023-06843-2. Epub ahead of print. PMID: 37982855.
- Porcu G, Biffi A, Ronco R, Adami G, Alvaro R, Bogini R, Caputi AP, Frediani B, Gatti D, Gonnelli S, Iolascon G, Lenzi A, Leone S, Michieli R, Migliaccio S, Nicoletti T, Paoletta M, Pennini A, Piccirilli E, Rossini M, Tarantino U, Cianferotti L, Brandi ML, Corrao G. Refracture following vertebral fragility fracture when bone fragility is not recognized: summarizing findings from comparator arms of randomized clinical trials. *J Endocrinol Invest*. 2023 Nov 3. doi: 10.1007/s40618-023-02222-0. Epub ahead of print. PMID: 37921990.

- Landi L, Leali PT, Barbato L, Carrassi AM, Discepoli N, Muti PCM, Oteri G, Rigoni M, Romanini E, Ruggiero C, Tarantino U, Varoni E, Sforza NM, Brandi ML. Anti-resorptive therapy in the osteometabolic patient affected by periodontitis. A joint position paper of the Italian Society of Orthopaedics and Traumatology (SIOT) and the Italian Society of Periodontology and Implantology (SIdP). *J Orthop Traumatol*. 2023 Jul 15;24(1):36. doi: 10.1186/s10195-023-00713-7. PMID: 37453950; PMCID: PMC10349795.
- Kamenicky P, Briot K, Brandi ML, Cohen-Solal M, Crowley RK, Keen R, Kolta S, Lachmann RH, Lecoq AL, Ralston SH, Walsh JS, Rylands AJ, Williams A, Sun W, Nixon A, Nixon M, Javaid MK. Benefit of burosumab in adults with X-linked hypophosphataemia (XLH) is maintained with long-term treatment. *RMD Open*. 2023 Feb;9(1):e002676. doi: 10.1136/rmdopen-2022-002676. PMID: 36854566; PMCID: PMC9980374.
- Miglietta F, Iamartino L, Palmini G, Giusti F, Marini F, Iantomasi T, Brandi ML. Endocrine sequelae of hematopoietic stem cell transplantation: Effects on mineral homeostasis and bone metabolism. *Front Endocrinol (Lausanne)*. 2023 Jan 12;13:1085315. doi: 10.3389/fendo.2022.1085315. PMID: 36714597; PMCID: PMC9877332.
- Tarantino U, Greggi C, Visconti VV, Cariati I, Bonanni R, Gasperini B, Iundusi R, Gasbarra E, Tranquilli Leali P, Brandi ML. Fracture liaison service model: project design and accreditation. *Osteoporos Int*. 2023 Feb;34(2):339-348. doi: 10.1007/s00198-022-06600-x. Epub 2022 Nov 24. PMID: 36422656; PMCID: PMC9852196.
- Romagnoli C, Zonefrati R, Lucattelli E, Innocenti M, Civinini R, Iantomasi T, Brandi ML. In Vitro Effects of PTH (1-84) on Human Skeletal Muscle-Derived Satellite Cells. *Biomedicines*. 2023 Mar 27;11(4):1017. doi: 10.3390/biomedicines11041017. PMID: 37189637; PMCID: PMC10135589.
- Corrao G, Biffi A, Porcu G, Ronco R, Adami G, Alvaro R, Bogini R, Caputi AP, Cianferotti L, Frediani B, Gatti D, Gonnelli S, Iolascon G, Lenzi A, Leone S, Michieli R, Migliaccio S, Nicoletti T, Paoletta M, Pennini A, Piccirilli E, Rossini M, Tarantino U, Brandi ML. Executive summary: Italian guidelines for diagnosis, risk stratification, and care continuity of fragility fractures 2021. *Front Endocrinol (Lausanne)*. 2023 Apr 18;14:1137671. doi: 10.3389/fendo.2023.1137671. PMID: 37143730; PMCID: PMC10151776.
- Migliaccio S, Moretti A, Biffi A, Ronco R, Porcu G, Adami G, Alvaro R, Bogini R, Caputi AP, Cianferotti L, Frediani B, Gatti D, Gonnelli S, Lenzi A, Leone S, Nicoletti T, Paoletta M, Pennini A, Piccirilli E, Michieli R, Tarantino U, Rossini M, Corrao G, Brandi ML, Iolascon G. Medication holidays in osteoporosis: evidence-based recommendations from the Italian guidelines on 'Diagnosis, risk stratification, and continuity of care of fragility fractures' based on a systematic literature review. *Ther Adv Musculoskelet Dis*. 2023 Jun 19;15:1759720X231177110. doi: 10.1177/1759720X231177110. PMID: 37359175; PMCID: PMC10286165.
- Guasti L, Cianferotti L, Pampaloni B, Tonelli F, Martelli F, Iantomasi T, Brandi ML. Evaluation of food and nutrient intake in a population of subjects affected by periodontal disease with different levels of bone mineral density. *Front Endocrinol (Lausanne)*. 2023 Feb 14;14:1098366. doi: 10.3389/fendo.2023.1098366. PMID: 36864837; PMCID: PMC9971598.
- Marini F, Giusti F, Palmini G, Aurilia C, Donati S, Brandi ML. Parathyroid carcinoma: molecular therapeutic targets. *Endocrine*. 2023 May 9. doi: 10.1007/s12020-023-03376-w. Epub ahead of print. PMID: 37160841.
- Marini F, Giusti F, Palmini G, Brandi ML. Role of Wnt signaling and sclerostin in bone and as therapeutic targets in skeletal disorders. *Osteoporos Int*. 2023 Feb;34(2):213-238. doi: 10.1007/s00198-022-06523-7. Epub 2022 Aug 18. PMID: 35982318.
- Bergen DJM, Maurizi A, Formosa MM, McDonald GLK, El-Gazzar A, Hassan N, Brandi ML, Riancho JA, Rivadeneira F, Ntzani E, Duncan EL, Gregson CL, Kiel DP, Zillikens MC, Sangiorgi L, Höglér W, Duran I, Mäkitie O, Van Hul W, Hendrickx G. High Bone Mass Disorders: New Insights From Connecting the Clinic and the Bench. *J Bone Miner Res*. 2023 Feb;38(2):229-247. doi: 10.1002/jbmr.4715. Epub 2022 Oct 21. PMID: 36161343.

- Sordi B, Vanderwert F, Crupi F, Gesullo F, Zanotti R, Bonadonna P, Crosera L, Elena C, Fiorelli N, Ferrari J, Grifoni F, Sciumè M, Parente R, Triggiani M, Palterer B, Mecheri V, Almerigogna F, Santi R, Di Medio L, Brandi ML, Iorno ML, Ciardetti I, Bencini S, Annunziato F, Mannarelli C, Pieri L, Guglielmelli P, Mannelli F, Vannucchi AM. Disease correlates and clinical relevance of hereditary αryptasemia in patients with systemic mastocytosis. *J Allergy Clin Immunol*. 2023 Feb;151(2):485-493.e11. doi: 10.1016/j.jaci.2022.09.038. Epub 2022 Oct 27. PMID: 36309122.
- Kanis JA, Cooper C, Rizzoli R, Abrahamsen B, Al-Daghri NM, Brandi ML, Cannata-Andia J, Cortet B, Dimai HP, Ferrari S, Hadji P, Harvey NC, Kraenzlin M, Kurth A, McCloskey E, Minisola S, Thomas T, Reginster JY; European Society for Clinical and Economic Aspects of Osteoporosis, Osteoarthritis and Musculoskeletal Diseases (ESCEO). Identification and management of patients at increased risk of osteoporotic fracture: outcomes of an ESCEO expert consensus meeting. *Osteoporos Int*. 2017 Jul;28(7):2023-2034. doi: 10.1007/s00198-017-4009-0. Epub 2017 Apr 27. Erratum in: *Osteoporos Int*. 2017 Aug 7;: PMID: 28451733; PMCID: PMC5483332.
- Kamenicky P, Briot K, Brandi ML, Cohen-Solal M, Crowley RK, Keen R, Kolta S, Lachmann RH, Lecoq AL, Ralston SH, Walsh JS, Rylands AJ, Williams A, Sun W, Nixon A, Nixon M, Javaid MK. Benefit of burosumab in adults with X-linked hypophosphataemia (XLH) is maintained with long-term treatment. *RMD Open*. 2023 Feb;9(1):e002676. doi: 10.1136/rmdopen-2022-002676. PMID: 36854566; PMCID: PMC9980374.
- Pisani P, Conversano F, Muratore M, Adami G, Brandi ML, Caffarelli C, Casciaro E, Di Paola M, Franchini R, Gatti D, Gonnelli S, Guglielmi G, Lombardi FA, Natale A, Testini V, Casciaro S. Fragility Score: a REMS-based indicator for the prediction of incident fragility fractures at 5 years. *Aging Clin Exp Res*. 2023 Feb 8. doi: 10.1007/s40520-023-02358-2. Epub ahead of print. PMID: 36752950.
- Borsoi L, Armeni P, Brandi ML. Cost-minimization analysis to support the HTA of Radiofrequency Echographic Multi Spectrometry (REMS) in the diagnosis of osteoporosis. *Glob Reg Health Technol Assess*. 2023 Feb 6;10:1-11. doi: 10.33393/grhta.2023.2492. PMID: 36789180; PMCID: PMC9923405.
- Hassan N, Gregson CL, Tang H, van der Kamp M, Leo P, McInerney-Leo AM, Zheng J, Brandi ML, Tang JCY, Fraser W, Stone MD, Grundberg E; Anglo-Australasian Genetics Consortium; Brown MA, Duncan EL, Tobias JH. Rare and Common Variants in GALNT3 May Affect Bone Mass Independently of Phosphate Metabolism. *J Bone Miner Res*. 2023 Feb 23. doi: 10.1002/jbmr.4795. Epub ahead of print. PMID: 36824040.
- Marini F, Giusti F, Marasco E, Xumerle L, Kwiatkowska KM, Garagnani P, Biver E, Ferrari S, Iolascon G, Iantomas T, Brandi ML. High frequency of heterozygous rare variants of the SLC34A1 and SLC9A3R1 genes in patients with atypical femur fracture. *Eur J Endocrinol*. 2023 Jan 10;188(1):lvad001. doi: 10.1093/ejendo/lvad001. PMID: 36762943.
- Adami G, Biffi A, Porcu G, Ronco R, Alvaro R, Bogini R, Caputi AP, Cianferotti L, Frediani B, Gatti D, Gonnelli S, Iolascon G, Lenzi A, Leone S, Migliaccio S, Nicoletti T, Paoletta M, Pennini A, Piccirilli E, Tarantino U, Brandi ML, Corrao G, Rossini M, Michieli R. A systematic review on the performance of fracture risk assessment tools: FRAX, DeFRA, FRA-HS. *J Endocrinol Invest*. 2023 Apr 9. doi: 10.1007/s40618-023-02082-8. Epub ahead of print. PMID: 37031450.
- Pérez-Castrillón JL, Dueñas-Laita A, Gómez-Alonso C, Jódar E, Del Pino-Montes J, Brandi ML, Cereto Castro F, Quesada-Gómez JM, Gallego López L, Olmos Martínez JM, Alhambra Expósito MR, Galarraga B, González-Macías J, Neyro JL, Bouillon R, Hernández-Herrero G, Fernández-Hernando N, Chinchilla SP. Long-Term Treatment and Effect of Discontinuation of Calcifediol in Postmenopausal Women with Vitamin D Deficiency: A Randomized Trial. *J Bone Miner Res*. 2023 Jan 20. doi: 10.1002/jbmr.4776. Epub ahead of print. PMID: 36661855.
- Bilezikian JP, Khan AA, Silverberg SJ, Fuleihan GE, Marcocci C, Minisola S, Perrier N, Sitges-Serra A, Thakker RV, Guyatt G, Mannstadt M, Potts JT, Clarke BL, Brandi ML; International Workshop on Primary Hyperparathyroidism. Evaluation and Management of Primary Hyperparathyroidism: Summary Statement and Guidelines from the Fifth International Workshop. *J Bone Miner Res*. 2022 Nov;37(11):2293-2314. doi: 10.1002/jbmr.4677. Epub 2022 Oct 17. PMID: 36245251.
- Collins MT, Marcucci G, Anders HJ, Beltrami G, Cauley JA, Ebeling PR, Kumar R, Linglart A, Sangiorgi L, Towler DA, Weston R, Whyte MP, Brandi ML, Clarke B, Thakker RV. Skeletal and extraskeletal

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#### **D. Additional Information: Research Support and No Profit Experience**

##### **Ongoing/Recent Research Support**

- Brandi (OFF Italia) 2023-to present  
CCM Project of the Italian Ministry of Health Development of a service for the prevention and reduction of fragility fractures "(SVOLTA)"
- Brandi (PI) 2021-2023  
Alexion – Hypophosphatasia: Clinical and morphological Characterization of the skeletal muscle tissue.
- Brandi (PI) 2020-2023  
Kyowa Kirin – X-linked hypophosphatemia: Role of FGF23 and phosphate in the skeletal muscle.
- Brandi (PI) 2020-2023  
Banca d'Italia – Sviluppo di un complesso RNA antagonista anti miR24-3p umano, coniugato con nanoparticelle paramagnetiche, per la terapia molecolare della neoplasia endocrina multipla di tipo 1".
- Brandi (PI) 2020-2023  
Alexion – Biochemical screenings and genetic testing for patients with suspected of hypophosphatasia
- Brandi (PI) 2021-2022  
Monte Rosa – Molecular Analysis of Mechanisms that Control Parathyroid Cell Function and Differentiation
- Brandi (PI) 2020-2022  
Regione Toscana – The Omics Sciences Against Osteosarcoma (TOSCANO).
- Brandi (co-applicant) 2019-2022  
MIUR-PRIN - Physiopathology, Epidemiology and Genetics of primary pArathyroid hormone deficiency and reSistance: a mUlticenter Italian Study (PEGASUS).
- Brandi (PI) 2019-2021  
Abiogen Pharma – Effects of bisphenol A on vitamin D metabolism.
- Brandi (PI) 2019-2020  
Fondazione Cassa di Risparmio di Firenze - Development of an in vitro bioassay system for cannabinoids.
- Brandi (PI) 2018-2022  
Faes Farma - Effect of the administration of different Hidroferol® Soft Gelatine Capsules (calcifediol) and cholecalciferol (Dibase®) regimens on 25(OH)D levels and markers of bone remodelling in postmenopausal women with 25(OH)D deficiency. Influence of clinical and genetic factors in the osteoporotic and nonosteoporotic population.
- Brandi (PI) 2018-2022  
Kyowa Kirin - A Phase 3b Open-label Study of the Anti-FGF23 Antibody, Burosumab (KRN23) in Adult Patients with X-linked Hypophosphatemia (XLH).

- Brandi (PI) 2018-2022  
Shire International - A Randomized, Double-blind, Placebo-controlled, Adaptive Study to Evaluate Symptom Improvement and Metabolic Control Among Adult Subjects With Symptomatic Hypoparathyroidism Treated With Recombinant Human Parathyroid Hormone[rhPTH(1-84)].
- Brandi (PI) 2018-2022  
Alexion – Hypophosphatasia and atypical skeletal fractures
- Brandi (PI) 2018-2022  
Kyowa Kirin - X-linked Hypophosphatemia Registry Protocol.
- Brandi (co-applicant) 2018-2020  
Regione Toscana - Development of an antagonir complex against human miR24-1, conjugated with magnetic nanoparticles, for molecular therapy of multiple endocrine neoplasia type 1 (DANTE).
- Brandi (PI) 2018-2019  
Banca d'Italia - FirmoLab: development and implementation of the research activity of a specialized laboratory for the study of the cellular and molecular bases of mineralization disorders in rare bone diseases.
- Brandi (PI) 2018  
The Rotary Foundation - Distretto 2071 - New possibilities for the treatment of mineralization disorders in rare diseases.
- Brandi (PI) 2017-2022  
Fondazione Cassa di Risparmio di Firenze- Establishment and characterization of cell cultures obtained from human musculoskeletal biopsies for the study of muscle regeneration.
- Brandi (PI) 2017-2018  
Shire international – Observational study on hypoparathyroidism in the Tuscany Region.
- Brandi (PI) 2016-2020  
Fondazione Cassa di Risparmio di Firenze - Establishment of stable parathyroid cellular models to study the disorders of the parathyroid glands.
- Brandi (PI) 2016-2020  
Alexion - An observational, longitudinal, prospective, long-term registry of patients with hypophosphatasia.
- Brandi (PI) 2016-2020  
MIUR-PRIN - Complex signatures of circulating miRNAs as novel biomarkers for osteoporosis and fracture risk.
- Brandi (PI) 2016-2017  
Banca d'Italia - In vitro study on the effects of parathyroid hormone (PTH) on bone mineralization process.
- Brandi (PI) 2016-2017  
Banca Ifigest (fondazione Biagioli-Borgogni ONLUS) - In vitro study of the role of APC gene mutations on osteoblastic differentiation and mineralisation in mesenchimal stem cells of patients with family adenomatosis polyposia.
- Brandi (PI) 2016-2017  
Ultragenyx Pharmaceutical - A Randomized, Double-Blind, Placebo-Controlled, Phase 3 Study with Open-Label Extension to Assess the Efficacy and Safety of KRN23 in Adults with X-linked Hypophosphatemia (XLH).
- Brandi (PI) 2016-2017  
Shire Italia – Bone metabolism in Gaucher disease.
- Brandi (co-applicant) 2015-2020

EU - CaSR Biomedicine - Calcium-Sensing Receptor (CaSR): Therapeutics for Non-Communicable Diseases.

Brandi (PI) 2015-2017

Fondazione Cassa di Risparmio di Firenze - Next-generation sequencing in hereditary endocrine tumors.

Brandi (PI) 2014-2017

MIUR-PRIN – Skeletal Musclecrinology.

Brandi (PI) 2014-2015

Bruno Farmaceutici - The effect of a daily and weekly administration of different doses of calcidiol on 25(OH)D<sub>3</sub> serum levels and on mineral and bone metabolic markers in postmenopausal female subjects and in male subjects, both over 55 years of age with inadequate levels or deficit of 25(OH)D<sub>3</sub>.

Brandi (PI) 2013-2015

Agenzia Italiana del Farmaco (AIFA) - Recombinant human parathyroid hormone (rhPTH (1-34): Teripatide) as therapy for refractory hypoparathyroidism code MRAR08E003.

Brandi (PI) 2013-2016

Regione Toscana - MicroRNA codes in osteosarcoma cancer stem cells.

Brandi (PI) 2013-2016

EU - CREDITS4HEALTH - Credits-based, people-centric approach for the adoption of healthy life-styles and balanced Mediterranean diet in the frame of social participation and innovation for health promotion.

Brandi (PI) 2011-2016

University of Edinburgh - Randomised trial on hereditary Paget disease of bone.

## No Profit Experience

2006-present President and Found Raiser for Fondazione Italiana Ricerca sulle Malattie dell'Osso (F.I.R.M.O.)  
(see website: [www.fondazionefirmo.com](http://www.fondazionefirmo.com))

2023-present President of the Observatory on Fragility Fractures Italia (OFF Italia)  
(see website: [www.osservatoriofrattureitalia.it](http://www.osservatoriofrattureitalia.it))

Firenze, 10/04/2024