

Stéphane BLOUIN, Ph.D

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Nationality: French

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Education

National Conservatory of Arts and Crafts, France (2010)

Vocational certificate- Technician in computer application development

University of Angers, France (2004-2006)

Ph.D., Animal physiopathology and biomaterials. Angers district grant.

Thesis title: “*Animal models of benign and malignant bone loss usable in biomaterial studies*”.

University of Paris 7, France (2003)

M.Sc., Bone and joint biology and biomaterials of calcified tissues

Project: “*Injectable biomaterials assay in a rat model of bone loss*”

University of Angers, France (1998-2002)

B.Sc. & M.Sc., Cellular and molecular biology

Project: “*Bisphosphonate effects in a combined model of bone loss*”

Research experience

Ludwig Boltzmann Institute of Osteology, Vienna, Austria (since 2007)

Post-doctoral fellow and staff scientist

- Development of new bone analysis methods such as the acoustic measurement of the bone mechanical properties at tissue level or the assessment of osteocyte lacunae size and number
- Characterisation of the bone quality at tissue level (bone mineral content, cell activity) and organ level (bone volume, porosity) in bone pathologies such as osteoporosis and osteogenesis imperfecta
- Expertise in methods for bone tissue analysis: scanning acoustic microscopy, confocal laser scanning microscopy, quantitative backscattered electron microscopy, microCT, histomorphometry

INSERM EMI 0335, Angers. France (2001-2006)

Post graduate & Ph.D. student

- Assessment of the bone cells activities and bone tissue changes in different rat model of induced bone loss (orchidectomy or bone metastases). Evaluation of calcium/phosphate biomaterials and bisphosphonate to treat local or systemic bone loss.
- Acquired skills & techniques: rodent handling and small surgery, cell culture, bone histology & histomorphometry, microCT, image analysis, electron microscopy preparation and observation, statistical analyses, programming (Visual Basic, Matlab).

Teaching activity

Lecture “*Microcomputed tomography-X: a research tool*” 2003-2006.

University diploma « Calcified tissues, biomaterials and implantology » organized by Pr. CHAPPARD.

Lecture & course “*Bone Mechanical Properties from Organ to Material Level*” 2015-2021
PhD Program N790 “Bones and Joints Regeneration” organized by Pr. Pietschmann

Grants and awards

Alice L. Jee Young Investigator Awards (\$800) from University of Iowa to support the travel to the XXXIVth International Sun Valley Workshop On Skeletal Tissue Biology.

Young Investigator Travel Award (300 €) from the Austrian society for endocrinology and metabolism (ÖGES) to support the travel to the 16th annual congress of the Austrian society for endocrinology and metabolism (2011).

Travel award (600€) from the Austrian Society for Bone and Mineral Research to support the travel to the ECTS 2015 in Rotterdam.

Travel award (1000 US\$) from ICCBMT conference in Postdam, 2017.

Book / e-book chapters

Blouin S., Libouban H., Moreau M.F., Chappard D. Orchidectomy Models Of Osteoporosis. In: Osteoporosis: Methods And Protocols. Eds: Westendorf Jennifer J., Springer, 2008, Pages 125-134.

Roschger P., Blouin S., Paschalis E., Gamsjaeger S., Klaushofer K., Misof B. (2017) Bone Material Quality. In: Pietschmann P. (Eds) Principles Of Bone And Joint Research. Learning Materials In Biosciences. Springer, Cham

10 most important peer-reviewed publications (from 41 publications)

- 1 Hartmann MA, Blouin S, Misof BM, Fratzl-Zelman N, Roschger P, Berzlanovich A., Gruber GM, Brugger PC Zwerina J, Fratzl P. Quantitative Backscattered Electron Imaging of Bone Using a Thermionic or a Field Emission Electron Source Calcif Tissue Int. 2021 Apr 10. doi: 10.1007/s00223-021-00832-5
- 2 Kuroda Y., Kawaai K., Hatano N., Wu Y., Takano H., Momose A., Ishimoto T., Nakano T., Roschger P., Blouin S., Matsuo K. Hypermineralization of Hearing-Related Bones by a Specific Osteoblast Subtype J Bone Miner Res. 2021 Apr 27. doi: 10.1002/jbmr.4320
- 3 Fratzl-Zelman N, Gamsjaeger S., Blouin S. Kocijan R., Plasenzotti P., Rokidi S., Nawrot-Wawrzyniak K., Roetzer K., Uyanik G., Haeusler G., Shane E., Cohen A., Klaushofer K., Paschalis E.P., Roschger P., Fratzl P., Zwerina J., Zwettler E. Alterations of bone material properties in adult patients with X-linked hypophosphatemia (XLH). J Struct Biol. 2020 Sep 1;211(3):107556. doi: 10.1016/j.jsb.2020.107556.
- 4 Blouin S., Fratzl-Zelman N., Cabral Wa., Klaushofer K., Marini J.C., Fratzl P., Roschger P. Cortical Bone Properties In The Brl/+ Mouse Model Of Osteogenesis Imperfecta As Evidenced By Acoustic Transmission Microscopy. J Mech Behav Biomed Mater. 2019 Feb;90:125-132
- 5 Blouin S., Fratzl-Zelman N., Glorieux F.H., Roschger P., Klaushofer K., Marini J.C., Rauch F. Hypermineralization And High Osteocyte Lacunar Density In Osteogenesis Imperfecta Type V Bone Indicate Exuberant Primary Bone Formation. J Bone Miner Res. 2017 Sep;32(9):1884-1892.

- 6 Misof B.M., Blouin S., Lueger S., Paschalis E.P., Phipps R., Klaushofer K., Roschger P. Baseline Bone Turnover Determines The Magnitude Of The Bisphosphonate Effect On Cortical Bone Mineralization In Postmenopausal Osteoporotic Patients. *J Musculoskelet Neuronal Interact.* 2017 Sep 1;17(3):183-191.
- 7 Windpassinger C., Piard J., Bonnard C., Alfadhel M., Lim S., Bisteau X., Blouin S. Et Al. Cdk10 Mutations In Humans And Mice Cause Severe Growth Retardation, Spine Malformations, And Developmental Delays. *Am J Hum Genet.* 2017 Sep 7;101(3):391-403.
- 8 Blouin S., Puchegger S., Roschger A., Berzlanovich A., Fratzl P., Klaushofer K., Roschger P. Mapping Dynamical Mechanical Properties of Osteonal Bone by Scanning Acoustic Microscopy in Time-of-Flight Mode. *Microsc Microanal.* 20(3):924-36, 2014.
- 9 Blouin S., Basle M.F., Chappard D. Interactions between microenvironment and cancer cells in two animal models of bone metastasis. *British Journal of Cancer*, 98: 809-815, 2008.
- 10 Blouin S., Basle M.F., Chappard D. Rat models of bone metastases. *Clin Exp Metastasis*, 22(8):605-14, 2005.

EDITORIAL ACTIVITIES

Review editor from journal "Frontiers in Endocrinology"
Reviewer for PlosOne, Peptides, Bone, JBMR