

Jean-Marie Delaisse CV

Jean-Marie Delaissé, Professor
Pathology
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FINAL DIPLOMA

PhD (1976), Université Catholique de Louvain, Belgium (basic education: biochemistry)

EMPLOYMENT

PhD student

Faculty of Agronomy of the Université Catholique de Louvain, Belgium
1971-1976

Professor of Biochemistry

Faculty of Medicine, Department of Experimental Biology of the Universidad Nacional Autonoma de Mexico
1976-1979

Professor of Enzymology

“Biomedicas” Institute, Universidad Nacional Autonoma de Mexico
1978-1979

Associate Investigator

International Institute of Cellular and Molecular Pathology (ICP), Université Catholique de Louvain, Belgium
1979-1994

Consultant

Dept. of Basic Research, Center for Clinical and Basic Research, Ballerup, Denmark
1994-1996

Research Director

Dept. of Basic Research, Center for Clinical and Basic Research, Ballerup, Denmark
1996-1999

Chief Scientific Officer

Osteopro/Nordic Bioscience, Herlev, Denmark
1999-2003

Research leader

Dept. of Clinical Cell Biology, Vejle Hospital
2003-2006

Professor

Clinical Cell Biology, IRS, Lillebælt Hospital, University of Southern Denmark
2006-2018

Professor

Clinical Cell Biology, Pathology, KI, University of Southern Denmark
2019 → present

RESEARCH FOCUS

- special dedication to “human” bone biology and pathophysiology
- bone remodeling with special attention for bone loss
- mechanism reversing resorption to formation during bone remodeling
- osteoprogenitor recruitment during bone remodeling
- the resorption machinery of osteoclasts
- bone proteolysis.

KEY FEATURES OF MY RESEARCH

- My research aims to increase knowledge in human biology and pathophysiology. It starts by listening to the concerns of the clinicians. I want to help the patient by performing the basic research that clinicians can often not do.
- Accordingly, my research starts at the bedside of the patients, and I do every effort to make primary observations on human material. This is in contrast with most academic translational research which starts with “model” systems (rats/mice, cell cultures in plastic wells), whose relevance to human pathophysiology is often uncertain. There should also be awareness that some of the important clinical-relevant questions can be addressed only on human material, and are therefore usually not addressed.

•We are in a period where most research tends to be analytical (i.e. focused on molecules, for instance aiming at identifying critical genes or signalling pathways), generating thereby isolated packages of knowledge. This is of great interest, but there is an increasing need for complementary research aiming at establishing how the many identified signals are integrated, and how this integration results in the coordination of distinct physiological processes, such as bone resorption and formation during bone remodelling, or osteoclast resorption and migration during bone erosion. For this reason, I prioritize “macroscopic” research taking into account distinct physiological entities and the organization of supra-cellular structures in the tissue environment. Examples are the interaction between capillaries, osteoclasts, and bone marrow envelop cells, which results in the generation of mature bone forming osteoblasts, or the likely relation between initiation of bone remodelling and the activation of endosteal stem cell niches (i.e. events occurring at the marrow-bone interface and usually considered to belong to distinct scientific disciplines).

SELECTED PUBLICATIONS

Jean-Marie Delaissé is author of 117 peer-reviewed publications. The average number of citations per publication is 68. Below is a list of selected publications.

1. Delaisse JM, Eeckhout Y, Vaes G. 1984. In vivo and in vitro evidence for the involvement of cysteine proteinases in bone resorption. *Biochem. Biophys. Res. Commun.* 125, 441-447
2. Delaisse JM, Boyde A, Ali NN, Maconnachie E, C. Sear, Y. Eeckhout, Vaes G, Jones SJ. 1987. The effects of inhibitors of cysteine proteinases and collagenase on the resorptive activity of isolated osteoclasts. *Bone* 8, 305-313.
3. Everts V, Delaisse JM, Korper W, Niehof A, Vaes G, Beertsen W. 1992. Degradation of collagen in the bone-resorbing compartment underlying the osteoclast involves both cysteine-proteinases and matrix metalloproteinases. *J. Cell. Physiol.* 150, 221-231.
4. Blavier L & Delaisse JM. 1995. Matrix metalloproteinases are obligatory for the migration of (pre)osteoclasts to the developing marrow cavity of primitive long bones. *J. Cell. Sci.* 108, 3649-3659.
5. Garnero P, Borel O, Byrjalsen I, Ferreras M, Drake FH, Mc Queney MS, Foged NT, Delmas PD, Delaisse JM. 1998 The collagenolytic activity of cathepsin K is unique amongst mammalian proteinases. *J. Biol. Chem.*, 273, 32347-32352
6. Engsig MT, Chen QJ, Vu TH, Pedersen AC, Therkildsen B, Lund LR, Henriksen K, Lenhard T, Foged NT, Werb Z, Delaissé JM. 2000 MMP-9 and VEGF are Essential for Osteoclast Recruitment into Developing Long Bones *J. Cell Biol.* 151, 879-889.
7. Ferreras M, Felbor U, Lenhard T, Olsen BR, Delaisse JM. 2000 Generation and degradation of endostatin-proteins by various proteinases. *FEBS Lett.*, 486, 247-251.
8. Everts V, Delaissé JM, Korper W, Jansen DC, Tigchelaar-Gutter W, Saftig P, Beertsen W. 2002. The bone lining cell: its role in cleaning Howship's lacunae and initiating bone formation. *J Bone Min Res* 17, 77-90
9. Garnero P, Ferreras M, Karsdal MA, NicAmhlaoibh R, Risteli J, Borel O, Qvist P, Delmas PD, Foged NT, Delaissé JM. 2003. The type I collagen fragments ICTP and CTX reveal distinct enzymatic pathways of bone collagen degradation. *J Bone Miner Res*, 18, 859-867.
10. Delaisse JM, Andersen TL, Engsig MT, Henriksen K, Troen T, Blavier L. 2003. Matrix metalloproteinases (MMP) and cathepsin K contribute differently to osteoclastic activities. *Microsc Res Techniq*, 61:504-513.
11. Andersen TL, Sondergaard TE, Skorzynska KE, Dagnaes-Hansen F, Plesner TL, Hauge EM, Plesner T, Delaissé JM. 2009. A physical mechanism for coupling bone resorption and formation in adult human bone. *Am J Pathol* 174:239-247
12. Søe K, Delaissé JM (2010). Glucocorticoids maintain human osteoclasts in the active mode of their resorption cycle. *J Bone Min Res*, 25: 2184-2192.
13. Harbo M, Bendix M, Bay-Jensen A-C, Graakjaer J, Søe K, Andersen TL, Kjaersgaard-Andersen P, Koelvraa S, Delaisse JM (2012). The distribution pattern of critically short telomeres in human osteoarthritic knees. *Arthritis Research and Therapy*, 14, R12.
14. Kristensen HB, Andersen TL, Marcussen N, Rolighed L, Delaisse JM (2013). Increased presence of capillaries next to remodeling sites in adult human cancellous bone. *J Bone Miner Res*, 28, 574-85.
15. Andersen TL, Abdelgawad ME, Kristensen HB, Hauge EM, Rolighed L, Bollerslev J, Kjærsgaard-Andersen P, Delaisse JM (2013). Understanding coupling between bone resorption and formation: Are reversal cells the missing link? *Am J Pathol*, 183:235-246
16. Søe K, Merrild DMH, Delaissé JM (2013). Steering the osteoclast through the demineralization-collagenolysis balance. *Bone*, 56, 191-198.
17. Kristensen HB, Andersen TL, Marcussen N, Rolighed L, Delaisse JM. (2014) Osteoblast Recruitment Routes in Human Cancellous Bone Remodeling. *Am J Pathol*, 184:778-789
18. Delaisse JM (2014). The reversal phase of the bone remodeling cycle: cellular prerequisites for coupling resorption and formation. *BoneKEey Reports*, 3: 561
19. Søe K, Hobolt-Pedersen A-S, Delaissé JM (2015). The elementary fusion modalities of osteoclasts. *Bone*, 73:181-189.
20. Lassen NE, Andersen TL, Pløen GG, Søe K, Hauge EM, Harving S, Eschen GET, Delaisse JM (2017). Coupling of bone resorption and formation in real time: new knowledge gained from human Haversian BMUs. *J Bone Miner Res.*, 32:1395-1405
21. Søe K. and Delaisse JM (2017). Time-lapse reveals that osteoclasts can move across the bone surface while resorbing. *J Cell Sci.* 2017 Jun 15;130(12):2026-2035..