Biographical Sketch

NAME CÉLINE COLNOT	POSITION TITLE DIRECTOR OF RESEARCH INSERM-DR2

EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training).

INSTITUTION AND LOCATION	DEGREE (IF APPLICABLE)	YEAR(S)	FIELD OF STUDY
University Pierre & Marie Curie, Paris, France	Bachelors' Degree	06/1993	Molecular and Cellular Biology
University Pierre & Marie Curie, Paris, France	Masters' Degree	06/1994	Molecular and Cellular Biology
University Pierre & Marie Curie, Paris, France	PhD	05/1998	Molecular and Cellular Biology
University of California, San Francisco, USA	Postdoctoral	10/1998-12/2004	Orthopedics-Basic Science

RESEARCH AND PROFESSIONAL EXPERIENCE:

Personal statement

I am a Director of Research at INSERM. I am leading a research group at INSERM U955, Mondor Biomedical Research Institute (IMRB) on the role of skeletal stem cells in bone repair and diseases. Prior to this position, I was leading a research group at Imagine Institute of Genetic Diseases in Paris since 2011 and I was a group leader at University of California, San Francisco from 2004-2010. My laboratory has a strong expertise in mouse models of bone repair, primary skeletal stem cell cultures, cellular and molecular analyses of skeletal lineages in bone development and repair. I have a long experience in supervising large research projects founded through NIH and ANR (French National Research Agency). Recently, my laboratory has characterized skeletal stem/progenitor cells within periosteum and skeletal muscle that contribute to bone regeneration, and we have developed scRNAseq technology to understand the heterogeneity of the diverse cell populations involved in bone repair and bone diseases.

Positions and Honors

Positions and Employment

10/98-01/04 Postdoctoral Fellow-Postgraduate Researcher, Department of Orthopaedic Surgery, University of California, San Francisco (UCSF), USA
02/04-09/08 Assistant Researcher (Junior Faculty), Department of Orthopaedic Surgery, UCSF
10/08-05/10 Assistant Professor in Residence, Department of Orthopaedic Surgery, UCSF, USA
06/10-12/15 Assistant Adjunct Professor, Department of Orthopaedic Surgery, UCSF, USA
06/10-12/15 CR1 INSERM- ATIP-AVENIR Team Leader- INSERM UMR1163 -Institut Imagine-Paris

01/16-11/20	INSERM DR2 - INSERM UMR1163-Hopital Necker Enfants Malades-Institut Imagine-Université Paris Descartes, France
12/20-	INSERM Research Director (DR2) – INSERM U955-Mondor Biomedical Research Institute Paris Est Creteil University, Créteil, France

Scientific prizes and awards

2011	INSERM ATIP-AVENIR award
2008	Finalist for New Investigator Award, Orthopaedic Research Society, San Francisco, USA
2007	Young Investigator Attendee at the NIH-American Academy of Orthopaedic Surgeons Research Symposium "Fracture Repair: Challenges and Opportunities", USA
2007-09	Academic Senate Individual Investigator Award, UCSF
2004-10	Research Evaluation and Allocation Committee Award, UCSF
2005	New Investigator Award, Orthopaedic Research Society, Washington, DC, USA
2003	The paper Colnot et al., *Development*, 2003, 130:4123-4133 was highlighted in *Nature News and Views* ("*Take a Break*", 2003, 424: 507)
2001	Finalist for New Investigator Award, Orthopaedic Research Society, San Francisco, USA
2001	New Investigator Award, First International Conference on the Growth Plate, San Antonio, USA
1998-99	Postdoctoral Fellowship from INSERM (French NIH)
1998	Ph.D. received with « Congratulations from the Jury »
1997-98	Fellowship from Ligue Nationale contre le Cancer, France
1993-96	PhD Fellowship from French Education and Research Ministry

Professional organizations

Memberships

2007-present	The American Society for Bone and Mineral Research
2004-present	Orthopaedic Research Society

Service to professional organizations

2018-	Member of French National Research Agency (ANR) committee
2013	Grant Reviewer for European Calcified Tissue Society
2012-present	Grant Reviewer for Research Foundation-Flanders, Austrian Science Foundation, Leuven University
2012	Grant Reviewer for Temple University, USA
2012	Grant Reviewer for ANR
2009	Grant Reviewer for the US Department of Defense Peer Reviewed Orthopaedic Research Program, Cell and Molecular Biology Panel
2008-2009	Grant Reviewer for the Medical Research Council, UK and for the Israel Science Foundation
2007-present	National Institutes of Health, Grant Reviewer for the Dental-related SBIR/STTR, NIAMS R03 and R01 Special Emphasis Panels.
2007-2010	UCSF Department of Orthopaedic Surgery Service: Interviewer for Fellowship and

	Residency Programs; Member of the Research Committee
2006-2012	Reviewer and Session Moderator for the Orthopaedic Research Society
2005-2006	Grant Reviewer, Musculoskeletal Transplant Foundation

Service to professional publications

2015-2019	Member of the JBMR editorial board
1998-present	Reviewer for JBMR, Nature Medicine, Nature Communications, Communications Biology, Development, Cell Stem Cell, Cell Death&Disease, Stem Cell International, Stem Cell Reviews and Reports, Stem Cells Translational Medicine, Bone, Journal of Clinical Investigation, Matrix Biology, Clinical Orthopaedic Related Research, PNAS, Journal of Orthopaedic Trauma, Journal of Orthopaedic Research, Cell Transplantation, Journal of Cell Science, PLoS Genetics, FEBS journal, Disease Models and Mechanisms, Molecular Biology of the Cell, Acta Biomaterialia

Publications (from a total of 62 Publications from Web of Science Core Collection)

H-index: 33
Average citations per item: 49
Sum of Times cited without self citations: 2,898

1. Julien, A, Perrin S, Abou-Khalil R, **Colnot C**. Renal capsule transplantation to assay angiogensis in skeletal development. Methods Mol Biol 2021;2230:151-165. PMID:33197014
2. Julien, A, Perrin S, Duchamp de Lageneste O, Carvalho C, Bensidhoum M, Legeai-Mallet L, **Colnot C.** FGFR3 in periosteal cells drives cartilage-to-bone transformation in bone repair. Stem Cell Reports, 2020 Oct 13;15(4):955-967. PMID:32916123
3. O'Keefe, RJ, Tuan, RS, Lane, NE, Awad, HA, Barry, F, Bunnell, BA, Colnot, C, Drake, MT, Drissi, H, Dyment, NA, Fortier, LA, Guldberg, RE, Kandel, R, Little, DG, Marshall, MF, Mao, JJ, Nakamura, N, Proffen, BL, Rodeo, SA, Rosen, V, Thomopoulos, S, Schwarz, EM, Serra, R. American Society for Bone and Mineral Research-Orthopaedic Research Society Joint Task Force Report on Cell-Bases Therapies-Secondary Publication. J Orthop Res, 2020 Jan 29. PMID:31994782
4. O'Keefe, RJ, Tuan, RS, Lane, NE, Barry, F, Bunnell, BA, **Colnot, C,** Drake, MT, Drissi, H, Fortier, LA, Guldberg, RE, Little, DG, Marshall, MF, Mao, JJ, Nakamura, N, Robey, PG, Rosen, V, Rowe, DW, Schwarz, EM. American Society for Bone and Mineral Research-Orthopaedic Research Society Joint Task Force Report on Cell-Bases Therapies. J Bone Miner Res, 2020 Jan; 35(1): 3-17. PMID:31545883
5. Duchamp de Lageneste and **Colnot, C**. Periostin in Bone Regeneration. Adv Exp Med Biol., 2019;1132:49-61. PMID:31037624
6. Duchamp de Lageneste, O, Julien, A, Abou-Khalil, R, Frangi, G, Carvalho, C, Cagnard, N, Cordier, C, Conway, SJ and **Colnot, C**. Periosteum contains skeletal stem cells with high bone regenerative potential controlled by Periostin. Nature Communications, 2018 Feb 22;9(1):773. Rai M and Duan X: F1000Prime Recommendation, 22 May 2018. PMID:29472541
7. Stantzou A, Schirwis E, Swist S, Alonso-Martin S, Polydorou I, Zarrouki F, Mouisel E, Beley C, Julien A, Le Grand F, Garcia L, **Colnot C**, Birchmeier C, Braun T, Schuelke M, Relaix F, Amthor H. BMP signaling regulates satellite cell-dependent postnatal muscle growth. Development, 2017 Aug

1:144(15): 2737-47. PMID: 28694257
8. Abou-Khalil, R, Yang, F, Lieu, S, Julien, A, Perry, J, Pereira, C, Relaix, F., Miclau, T, Marcucio, R and Colnot, C. Role of muscle stem cells during skeletal regeneration, Stem Cells, 2015 May; 33(5): 1501-11. PMID: 25594525
9. Wang L, Hsiao EC, Lieu S, Scott M, O'Carroll D, Urrutia A, Conklin BR, **Colnot C**, and Nissenson RA. (2015) Loss of Gi G-Protein-Coupled Receptor Signaling in Osteoblasts Accelerates Bone Fracture Healing. J Bone Miner Res **30**(10): 1896-904 PMID:25917236
10. Abou-Khalil, R and **Colnot, C.** Genetically modified models for bone repair in *Experimental Research Methods* (eds. H. Simpson and P. Augat) Thieme Stuttgart-New York, 2015.
11. Abou-Khalil, R, Yang, F, Mortreux, M, Lieu, S, Yu, YY, Wurmser, M, Pereira, C, Miclau, T, Marcucio, R and **Colnot, C**. Delayed bone regeneration is linked to chronic inflammation in murine muscular dystrophy, JBMR, 2014 Feb;29(2):304-15. PMID: 23857747; PMCID: PMC3893315
12. Abou-Khalil, R and **Colnot, C**. Cellular and Molecular Bases of skeletal regeneration: what can we learn from genetic mouse models? Bone, 2014 Jul;64:211-21. PMID: 24709685
13. Abou-Khalil, R and **Colnot, C**. Renal Capsule Transplantations to Assay Skeletal Angiogenesis in Skeletal Development: Methods and Protocols (ed. MJ Hilton) Springer Science, New York, 2014;1130:99-110. PMID:24482168
14. Evans, S, Docheva, D, **Colnot, C**, Richter, R and Knothe Tate, ML "Solid-Supported Lipid Bilayers to Drive Stem Cell Fate and Tissue Architecture using Periosteum Derived Progenitor Cells." Biomaterials. 2013;34(8):1878-87. PMID:23237517
15. Wang, X., Yu, YY, Lieu, S, Yang, F,Lang, J, Lu, C., Werb, Z, Hu, D, Miclau, T, Marcucio, R.A. and **Colnot, C**. MMP9 regulates the cellular response to inflammation after skeletal injury. Bone, 2013, 52(1):111-19. PMID: 23010105; PMCID: PMC3513654
16. **Colnot, C**., Zhang, X. and Knothe-Tate, M. Current Insights on the Regenerative Potential of the Periosteum: Molecular, Cellular and Endogenous Engineering Approaches. Journal of Orthopaedic Research, 2012, 30(12):1869-78. PMID: 22778049; PMCID: PMC4620732
17. Yu, YY, Lieu, S., Hu, D., Miclau, T. and **Colnot, C**. Site Specific effects of zoledronic acid during tibial and mandibular fracture repair. PLoS One. 2012;7(2):e31771. Epub 2012 Feb 16. PMID:22359627
18. **Colnot, C.** Cell Sources for Bone Tissue Engineering: Insights from Basic Science. Tissue Engineering, Part B-Reviews. 2011 Dec:17(6):449-57. Epub 2011 Sep 27. PMID:21902612
19. Lieu S, Hansen E, Dedini R, Behonick D, Werb Z, Miclau T, Marcucio R, **Colnot C**. Impaired remodeling phase of fracture repair in the absence of matrix metalloproteinase-2. Disease Models and Mechanisms. 2011 Mar;4(2):203-11. PMID: 21135956; PMCID: PMC3046093
20. Lu C, Saless N, Hu D, Wang X, Xing Z, Hou H, Williams B, Swartz HM, **Colnot C**, Miclau T, and Marcucio RS. (2011) Mechanical stability affects angiogenesis during early fracture healing. J Orthop Trauma **25**(8): 494-9. PMID:21738063
21. Yu, Y.Y., Lieu, S, Lu, C, and **Colnot, C**. Bone morphogenetic protein 2 stimulates endochondral ossification by regulating periosteal cell fate during bone repair, Bone. 2010 Jul;47(1):65-73. PMID: 20348041; PMCID: PMC2891074
22. Yu, Y.Y., Lu, C, Lieu, S, Marcucio, R, Miclau, T and **Colnot, C**. Immunolocalization of BMPs, BMP antagonists, receptors and effectors during fracture repair. Bone, 2010 Mar, 46(3):841-851. PMID: 19913648
23. Lu, C, Xing, Z, Yu, YY, Colnot, C, Miclau, T and Marcucio RS. Recombinant human bone morphogenetic protein-7 enhances fracture healing in an ischemic environment. Journal of Orthopaedic Research, 2010 May;28(5):687-96. PMID:19918910

24. Xing, Z, Lu, C, Hu, D, Yu, YY, **Colnot, C,** Nakamura, M, Wu, Y, Miclau, T and Marcucio, R. Multiple roles of CCR2 during Fracture Healing. Disease Models and Mechanisms, 2010 Jul-Aug;3(7-8):451-8. Epub 2010 Mar 30. PMID:20354109
25. Pape HC, Marcucio R, Humphrey C, **Colnot C**, Knobe M, Harvey EJ. Trauma-induced inflammation and fracture healing. Journal of Orthopaedic Trauma. 2010 Sep;24(9):522-5. PMID:20736786
26. **Colnot, C** and Alliston, T. Tissue Interactions in Long Bone Development in Topics in Bone Biology 6, Bone and Development (eds. F. Bronner, H. Roach and C. Farach-Carson), Springer-Verlag London, UK. 2010:25-37.
27. Lu, C, Buckley, JM, **Colnot, C**, Marcucio, R, Miclau, T. Basic Research in Orthopaedic Surgery: Current Trends and Future Directions. Indian Journal of Orthopaedics, 2009 Oct, 43(4):318-23.
28. Colnot, C. Skeletal cell fate decisions within periosteum and bone marrow during bone regeneration. Journal of Bone and Mineral Research, 2009, 24:274-282. PMID: 18847330; PMCID: PMC3276357

Research support

Current

2018-23 R01AR057344-01A1 NIH/NIAMS (PI Colnot, co PI T. Miclau, UCSF, Department of Orthopaedic Surgery) *"Mechanisms of skeletal stem cell dysfunctions in traumatic bone injuries"*

2019-22 ANR-18-CE14-0033 (PI Colnot, Partners P. Topilko and B. Parfait) *"Target skeletal stem cells in periosteum for skeletal regeneration and diseases"*

2018-19 Research grant from Fondation de l'Avenir (PI Colnot) *"Periosteum and muscle as alternative sources of cells for bone repair"*

2018-19 Research grant from Association Neurofibromatoses et Recklinghausen (PI Colnot C. and Parfait B.)

Past (last 5 years)

2015-17 Research Grant from Orthopaedic Trauma Care (OTC) Foundation (PI) "Regenerative potential of periosteum in mouse and human"

2014-17 ANR-13-BSV1-001 (PI Colnot, Partner Relaix F.) "Bone-muscle cross talks in musculoskeletal regeneration"

2011-14 Research Grant from OTC Foundation (PI Colnot) "Targeting the FGF pathway to enhance fracture repair"

2011-15 INSERM ATIP-AVENIR award "Origins and Functions of Skeletal Stem Cells in Bone Repair" (co-sponsored by Aviesan/Sanofi-Aventis)

2010-15 R01AR057344-01A1 NIH/NIAMS (PI Colnot, co PI T. Miclau, UCSF, Department of Orthopaedic Surgery) "Functional Roles of Muscle in Bone Repair"