
BIOGRAPHICAL SKETCH

Provide the following information for the key personnel and other significant contributors in the order listed on Form Page 2.
Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME Roberta Faccio, Ph.D.		POSITION TITLE Assistant Professor	
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
College of Chemistry and Pharmaceutical Technologies, University of Bari, Bari, Italy	B.S.	1995	Chemistry, Pharmaceutical Technologies
School of Medicine, University of Bari, Bari, Italy	Ph.D.	1999	Cell Science and Biotechnologies

A. Positions and Honors

Positions

- 2004-present Assistant Professor in the Department of Orthopedics, Washington University, St. Louis MO
- 2001 – 2004 Assistant Professor in Histology, School of Medicine, University of Bari, Italy
- 2000 – 2004 Research Associate, Department of Pathology and Immunology, Barnes-Jewish Hospital, St. Louis, MO
- 1996 Research Fellow, The Scripps Research Institute, La Jolla, CA

Awards

- 2001 Young Investigator Award, ASBMR
- 2005 John Haddad Young Investigator Award, AIMM-ASBMR
- 2005 ASBMR Career Enhancement Award
- 2006 Arthritis Investigator Award
- 2006 NIRA Award, ORS

Professional Societies and Organizations

- 2000 – present American Society for Bone and Mineral Research
- 2005 – present member of DBBS PhD program Washington University
- 2007 - 2010 member of Subcommittee Endocrinology-B Scientific Merit Review Board

B. Selected peer-reviewed publications (in chronological order)

1. M Grano, R Faccio, S Colucci, R Paniccia, N Baldini, A Zambonin Zallone, A Teti: Extracellular Ca²⁺-sensing is modulated by pH in human osteoclast-like cells in vitro. Am J Physiol 1994, 267:C961C968. PMID: 7943292.
2. S Colucci, G Giannelli, M Grano, R Faccio, V Quaranta, A Zambonin Zallone: Human Osteoclast-like cells selectively recognize laminin isoforms, an event that induces migration and activates Ca²⁺ mediated signals. J Cell Science 1996, 109:1527-1535. PMID: 8799839
3. R Faccio, M Grano, S Colucci, A Zambonin Zallone, V Quaranta, AJ Pelletier: Activation of $\alpha v \beta 3$ integrin on

human osteoclast-like cells stimulates adhesion and migration in response to osteopontin. *Biochem & Biophys Res Comm* 1998, 249 2:522-525. PMID: 9712729

4. A Zallone, R Faccio, G Zambonin: I Bisfosfonati: gruppi di molecole con diversi effetti intracellulari e applicazioni cliniche. *Update on Bisfosfonati* 1999 6,1:3-7.
5. R Monno, G Grandaliano, R Faccio, E Ranieri, C Martino, L Gesualdo, FP Schena: Activated Coagulation Factor X: a novel mitogenic stimulus for human mesangial cells. *J Am Soc Nephrol.* 2001, 12: 891-9. PMID: 11316847
6. X Feng, DV Novack, R Faccio, DS Ory, K Aya, MI Boyer, KP McHugh, FP Ross, SL Teitelbaum: A Glanzmann's mutation in beta3 integrin specifically impairs osteoclast function. *J Clin Invest* 2001, 107:1137-44. PMID: 11342577
7. R. Faccio, M. Grano, S. Colucci, A. Villa, G. Giannelli, V. Quaranta and A. Zallone. Localization and possible role of two different $\alpha v \beta 3$ integrin conformations in resting and resorbing osteoclasts. *J Cell Science* 2002, 115:2919-2929. PMID: 12082152
8. R Faccio, S Takeshita, A Zallone, FP Ross, SL Teitelbaum. c-Fms and the alpha(v)beta(3) integrin collaborate during osteoclast differentiation. *J Clin Invest.* 2003, 111(5):749-58. PMID: 12618529
9. R Faccio, DV Novack, A Zallone, FP Ross, SL Teitelbaum. Dynamic changes in the osteoclast cytoskeleton in response to growth factors and cell attachment are controlled by $\beta 3$ integrin. *J Cell Biol* 2003, 162(3):499-509. PMID: 12900398
10. R Faccio, W Zou, G Colaianni, SL Teitelbaum, FP Ross. High dose M-CSF partially rescues the Dap12-/- osteoclast phenotype. *J Cell Biochem*, 2003 90 (5): 871-883. PMID: 14624447
11. K Fujikawa, AV Miletic, FW Alt, R Faccio, T Brown, J Hoog, J Fredericks, S Nishi, S Mildiner, SL Moores, J Brugge, FS Rosen, W Swat. Vav1/2/3-null mice define an essential role for Vav Family Proteins in Lymphocyte development and activation but a differential requirement in MAPK signaling in T and B cells. *J Exp Med*, 2003 198(10):1595-1608. PMID: 14623913
12. MWH Wang, S Wei, R Faccio, S Takeshita, P Tebas, WG Powderly, SL Teitelbaum, FP Ross. The HIV protease inhibitor Ritonavir inhibits osteoclast differentiation and function by impairing RANKL-induced NF- κ B and AKT signaling. *J Clin Invest* 2004 114(2):206-13. PMID: 15254587
13. S Colucci, G Brunetti, R Rizzi, A Zonno, G Mori, G Colaianni, D Del Prete, R Faccio, A Liso, S Capalbo, V Liso, A Zallone, M Grano. T cells support osteoclastogenesis in an in vitro model derived from human multiple myeloma bone disease: the role of the OPG/Trail interaction. *Blood.* 2004 104(12):3722-30. PMID: 15308561
14. R Faccio, SL Teitelbaum, K Fujikawa, J Chappel, A Zallone, V L Tybulewicz, FP Ross and W Swat. Vav3 regulates osteoclast function and bone mass. *Nature Medicine* 2005 11(3):284-90. PMID: 15711558
15. S Tehrani, R Faccio, I Candrasekar, FP Ross, JA Cooper. Cortactin has an essential and specific role in osteoclast actin assembly. *Mol Biol Cell.* 2006 17(7):2882-95. PMID: 16611741
16. Y Yamanaka, Y Abu-Amer, R Faccio, J Clohisy. The MAP-kinase c-Jun N terminal kinase mediates PMMA-induction of osteoclasts. *J Orthop Res.* 2006 24(7):1349-57. PMID: 16732613
17. J Clohisy, Y Yamanaka, R Faccio Y Abu-Amer. Inhibition of IKK activation through sequestering NEMO, blocks PMMA-induced osteoclastogenesis and calvarial inflammatory osteolysis. *J Orthop Res.* 2006 24(7):1358-65. PMID: 16705717

18. LK Myers, SD Bhattacharya, PA Herring, Z Xing, S Goorha, RA Smith, SK Bhattacharya, L Carbone, R. Faccio, AK Kang, LR Ballou. The isozyme-specific effects of cyclooxygenase-deficiency on bone in mice. *Bone*. 2006 39(5):1048-52. PMID: 16875891
19. D. Mao, H. Epple, B. Uthgenannt, D.V. Novack, R. Faccio. PLC γ 2 regulates osteoclastogenesis via its interaction with ITAM proteins and GAB2. *JCI* 2006 116(11):2869-79. PMID: 17053833
20. Y. Feng, H. Zhao, H. F. Luderer, H. Epple, R. Faccio, F. P. Ross, S. L. Teitelbaum, and G. D. Longmore. The LIM protein, Limd1, regulates AP-1 activation through an interaction with Traf6 to influence osteoclast development. *J Biol Chem*. 2007 282(1):39-48. PMID: 17092936
21. N. Napoli, R. Faccio, V. Shrestha, S. Bucchieri, G.B. Rini, R. Armamento-Villareal. Estrogen metabolism modulates bone density in men. *Calcif Tissue Int*. 2007 80(4):227-32. PMID: 17406768
22. R. Faccio, S. Takeshita, G. Colaianni, J. Chappel, A. Zallone, S.L. Teitelbaum, and F.P. Ross. M-CSF regulates the cytoskeleton via recruitment of a multimeric signaling complex to c-Fms Y559/697/721. *J Biol Chem*. 2007 Jun 29;282(26):18991-9. PMID: 17420256
23. S. Takeshita, R. Faccio, J. Chappel, L. Zheng, X. Feng, J.D. Weber, S.L. Teitelbaum, and F.P. Ross. c-Fms Y559 is a major mediator of M-CSF induced proliferation of primary macrophages. *J Biol Chem*. 2007 Jun 29;282(26):18980-90. PMID: 17420255
24. D.B. Graham, C.M Robertson, J. Bautista, F. Mascarenhas, M.J. Diacovo, V. Montgrain, S.K. Lam, V. Cremasco, W.M. Dunne, R. Faccio, C.M. Coopersmith, W. Swat. Neutrophil-mediated oxidative burst and host defense are controlled by a Vav-PLC γ 2 signaling axis in mice. *J Clin Invest*. 2007 Nov;117(11):3445-52. PMID: 17932569
25. D. Daria, M.D. Filippi, E.S. Knudsen, R. Faccio, Z. Li, T. Kalfa, H. Geiger. The retinoblastoma tumor suppressor is a critical intrinsic regulator for hematopoietic stem and progenitor cells under stress. *Blood* Dec 2007 – on line.
26. D. Daria, M.D. Filippi, E.S. Knudsen, R. Faccio, Z. Li, T. Kalfa, H. Geiger. The retinoblastoma tumor suppressor is a critical intrinsic regulator for hematopoietic stem and progenitor cells under stress. *Blood*. 2008 Feb 15;111(4):1894-902.
27. S. Vaira, T. Johnson, A.C. Hirbe, M. Alhawagri, I. Anwisyte, B. Sammut, J. O'Neal, W. Zou, K.N. Weilbaecher, R. Faccio, and D.V. Novack. RelB is the NF- κ B subunit downstream of NIK responsible for osteoclast differentiation. *Proc. Natl. Acad. Sci* (2008)., 105:3897-3902. PMID: 18322009.
28. S. Vaira, M. Alhawagri, I. Anwisyte, H. Kitaura, R. Faccio, and D.V. Novack. RANKL activates an apoptotic JNK pathway opposed by RelA/p65. *J Clin Invest* (2008), in press.
29. H. Epple, V. Cremasco, K. Zhang, D. Mao, G.D. Longmore, and R. Faccio. PLC γ 2 modulates integrin signaling in the osteoclast by affecting the localization and activation of Src kinase. *MCB* (2008) in press.

Invited publications:

1. Abu-Amer Y and Faccio R. Therapeutic approaches in bone pathogenesis: targeting the IKK/NF- κ B axis. Future Rheumatology 1:133-146, 2006
2. DV Novack, R. Faccio. Jawing about TNF: new hope for cherubism. Cell. 2007 Jan 12;128(1):15-7. PMID: 17218248

C. Research Support

Ongoing Research Support

Arthritis Investigator Award FACCIO (PI) 07/01/06-06/30/08
Arthritis Foundation
\$75,000/year 3.6 calendar
Role of PLC γ 2 in rheumatoid arthritis
The major goals of this project are to determine the role of PLC γ 2 in the development of inflammation and bone erosion in the model of antigen induced arthritis .
Role: PI

R01 AR 52921 FACCIO (PI) 09/01/06-08/31/10
NIH/NIAMS
\$198,000/year 7.2 calendar
Regulatory mechanisms of osteoclast differentiation and function
The major goals of the project are to generate PLC γ 2 mutants to clarify the role of the catalytic activity and the adapter function of PLC γ 2 during regulation of OC differentiation using in vivo and in vitro models.
Role: PI

Completed Research Support

ASBMR Career Enhancement Award FACCIO (PI) 05/01/05 – 04/30/07
\$35,000
Inhibition of osteolytic lesions due to breast cancer by mutein RANKL R223A
The major goal of this project is to identify the role of the mutated form of RANKL in an in vivo model of breast cancer.
Role: PI