

# CURRICULUM VITAE

**Thomas L. Clemens, Ph.D.**

## 1. PERSONAL DATA:

### Business Address and Telephone:

Research Service  
Baltimore VAMC  
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10 North Greene Street,  
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## 2. EDUCATION

	<b>Year</b>	<b>Degree</b>	<b>Institution</b>	<b>Discipline</b>
Undergraduate	1973	B.A.	Goshen College, Goshen, IN	Biology
Graduate	1975	M.S.	Pennsylvania State University College of Medicine, Hershey, PA	Pharmacology (Advisors: Richard Hill and Elliot Vessel)
Doctoral	1980	Ph.D.	University of London, England	Biochemistry (Advisor: J.L.H. O'Riordan)

## 3. POSTDOCTORAL TRAINING

1980-1982  
Massachusetts General Hospital,  
Boston, MA  
Sponsor: M.F. Holick

## 4. APPOINTMENTS

### a. VA:

2002-2009      Research Career Scientist      VA Research and Development, Birmingham VA Medical Center,  
Birmingham, AL  
2010-present    Senior Research Career                      Baltimore VA, Baltimore, MD  
Scientist

### b. University:

1973-1976      Research Assistant                      Pennsylvania State University College of Medicine, Hershey, PA  
1976-1980      Research Assistant                      Middlesex Hospital, London, England  
1980-1982      Research Fellow in Medicine          Massachusetts General Hospital, Boston, MA  
1982-1989      Research Scientist V                      Helen Hayes Hospital, New York State Department of Health  
1982-1989      Assistant Professor,                      Clinical Pathology, College of Physicians and Surgeons, Columbia  
University, New York, NY  
1989-1995      Research Scientist III                      Cedars-Sinai Medical Center, Los Angeles, CA  
1989-1995      Associate Professor                      Medicine, UCLA, Los Angeles, CA  
1995-2003      Professor (Tenure)                      Medicine and Molecular and Cellular Physiology, Division of  
Endocrinology and Metabolism, Department of Molecular and Cellular  
Physiology, University of Cincinnati, Cincinnati, OH  
2009-present    Professor (Tenure)                      Department of Orthopaedic Surgery, Johns Hopkins University,  
Baltimore, MD

## 5. PROFESSIONAL AFFILIATIONS AND MEMBERSHIPS

### Affiliations:

2000-2003	Core Laboratory Director	General Clinical Research Center, University of Cincinnati
2000-2002	Director	Pathobiology and Molecular Medicine Graduate Program University of Cincinnati
2006-2008	Senior Scientist,	Center for Aging, School of Medicine, UAB.
2006-2008	Director	UAB Hughes Med-Grad Fellowship Program. UAB
2010-present	Member	Cell and Molecular Medicine Graduate Program, Johns Hopkins University School of Medicine

### Memberships:

1986-present	American Society for Bone and Mineral Research
1980-present	The Endocrine Society (USA)
2010-present	Orthopaedic research Society

## 6. SERVICE TO LOCAL VA:

1991-1998	Research Service Space Committee, Cincinnati Veterans Affairs Medical Center
1996-1999	Research & Development Committee, Cincinnati Department of Veterans Affairs Medical Center
2002-2005	Research & Development Committee, Birmingham Veterans Affairs Medical Center
2008-present	Research and Development Committee, Baltimore Veterans Affairs Medical Center

## 7. SERVICE TO NATIONAL VA:

1987	Ad Hoc Reviewer for VA Merit Review Program
1994	Ad Hoc Reviewer, VA Merit Review Program
1995-1998	Member, VA Merit Review Study Section (ENDB), Chair: 1997-1998
2007-2009	Member, VA Merit Review Study Section (ENDB) Chair: 2008-2009
2012-present	Member BLRDCSRD VA Eligibility Committee
2013-present	Member BLRDCSRD Research Career Scientist Review Committee, Chair: 2016-present

## 9: SERVICE TO UNIVERSITY

1987-1989	Chairperson, I.A.C.U.C., Helen Hayes Hospital
1987-1989	Radiation Safety Officer, Helen Hayes Hospital
1988-1989	Administrative Quality Assurance Committee Member
1990-1992	Professional Appointments Committee Member, Cedars-Sinai Medical Center
1993-1995	Facilities Advisory Committee. Cedars-Sinai Medical Center
1993-1995	Strategic Planning Committee (Academic Affiliations/Education) Cedars-Sinai Medical Center
1994-1995	Director, Graduate Research Education, Cedars-Sinai Research Institute
1989-1991	Development Committee, American Society for Bone and Mineral Research
1996-2002	Pathobiology and Molecular Medicine Graduate Committee (Chair 2000-2002)
1996-1999	Department of Internal Medicine Research Committee, University of Cincinnati College of Medicine
2004-2005	IACUC, University of Alabama at Birmingham
2005-2008	Joint Health Sciences Faculty Status Committee, UAB School of Medicine and Dentistry
2006-present	Director, UAB Hughes Med-Grad Fellowship Program
2007-present	Member, Faculty Council, UAB School of Medicine and Dentistry
2007-present	Chair, Training Institute Committee, UAB Center for Clinical and Translational Science
2008-2010	Distinguished Faculty Lecturer Committee, UAB School of Medicine
2008-present	Member, Graduate Biomedical Sciences (GBS) Steering and Oversight Committee
2011-present	School of Medicine Space Committee, Johns Hopkins
2011-present	Department of Orthopaedics Research Committee
2013-present	Research Council, Johns Hopkins School of Medicine

## 9. SERVICE TO PROFESSIONAL ORGANIZATIONS:

### *Committees and Councils:*

1999-2002	Council Member American Society for Bone and Mineral Research
2000-2002	Board Member, Advances in Mineral Metabolism
2002	Co-chair, Program Committee American Society for Bone and Mineral Research Annual Meeting
2006-2007	Chair, Ancillary Program Committee, American Society for Bone and Mineral Research
2006-2009	Member, Ethics Advisory Committee, American Society for Bone and Mineral Research
2015-	Secretary-Treasurer Elect, American Society for Bone and Mineral Research

### *Scientific Review Committees:*

1988	Ad Hoc Member for NIH Physiology Study Section
1991	Special Reviewer, NIH-General Medicine B Study Section
1992	Reviewer, Program Project Grant, PI, Saulo Klahr, Washington University, St. Louis
1992	Special Reviewer, American Heart Association Investigative Group Study Section.
1992	Reviewer, Program Project Grant, PI:Hector Deluca, Madison, Wisconsin.
1993	Special Reviewer, NCI, Nutrition and Cancer IRGA Study Section
1993	Special Reviewer, NIH-Endocrinology Study Section
1995	Ad Hoc Reviewer, NIH-General Medicine B Study Section
1996-1999	Standing Member, General Medicine B Study Section
1999	Reviewer for program project grant, PI: Barbara Kream, University of Connecticut
2002-2003	Ad Hoc Reviewer, NIH Oral Biology 2 Study Section
2006	Special Reviewer, Skeletal Biology Development and Disease Study Section
2006	Special Reviewer, NIH- Diabetes and Digestive and Kidney Diseases Section
2007	Special Reviewer, Skeletal Biology Structure and Regeneration Study Section
2007	Ad Hoc Member, VA Career Development Study Section
2007	Secretarial Appointee, VA Joint Biomedical Laboratory Research and Development and Clinical Science Research and Development Scientific Merit Review Board,
2007	Subcommittee Member, VA Advisory Committee, Endocrinology-B.
2008	NIH/NIAMS Roundtable on Bone Biology and Diseases
2011	Member, NIA Special Emphasis Panel "Mechanisms Mediating Central regulation of Bone Mass
2013	Chair, NIAMS roundtable on anabolic therapy
2013	Ad Hoc Reviewer, Strategic Awards Committee, The Wellcome Trust, London.
2014-present	Standing member, NIH Molecular and Cellular Endocrinology Study Section

### *Editorial Board Memberships:*

1987_1991	Editorial Board Member- <i>Endocrinology</i>
1994-1998	Editorial Board Member, <i>Journal of Clinical Endocrinology and Metabolism</i>
1994-2002	Editorial Board Member, <i>Journal of Bone and Mineral Research</i>
1996-2013	Editorial Board Member, <i>Endocrine</i>
2000-2002	Editorial Board Member, <i>Endocrinology</i>
2008-2013	Editor-In-Chief, <i>Journal of Bone and Mineral Research</i>
2009-present	Editorial Advisory Board, <i>Trends in Endocrinology</i>
2010-present	Editorial Board Member, <i>Journal of Clinical Investigation</i>
2011-2013	Editorial Board Member- <i>Journal of Bone Metabolism</i>
2013-present	Executive Editor in Chief- <i>Bone Research</i>

### *Symposium Organization and Miscellaneous:*

2000	Organized symposium "Modern Approaches for the Diagnosis and Treatment of Metabolic Bone Disease" University of Cincinnati, Kingsgate Marriot Hotel
2001	Organized symposium "Modern Approaches for the Diagnosis and Treatment of Osteoporosis" University of Cincinnati, Kingsgate Marriot Hotel
2001	Organized symposium "The Parathyroid Hormone-related Proteins-Basic and Clinical Aspects" University of Cincinnati, Kingsgate Marriot Hotel
2001	Represented the American Society for Bone and Mineral Research at the Federation of American

2002 Societies for Experimental Biology to develop FASEB response to the USDA request for comments on animal welfare; Definitions for and reporting of pain and distress  
 2002 Testified before Congressional sub-committee for Health and Human Services on behalf of the National Coalition for Osteoporosis and related Bone Diseases  
 2011 Member, NIAMS roundtable on new strategies to build bone.  
 2011 Special guest: NIAMS internal strategic planning committee,  
 2013 Invited speaker, ORS/OREF/AAOS New Investigator Workshop, Baltimore, MD.

## 10. PROFESSIONAL HONORS AND AWARDS

1984 The Mallinckrodt Award for Investigative Research  
 1992 Established Investigatorship of the American Heart Association  
 2006 Henry M. Middleton VA Research Excellence Award (Birmingham VA)  
 2009 Lewis Cass Spencer Endowed Chair in Orthopaedic Surgery  
 2013 Louis Avoli Founders Award-American Society for Bone and Mineral Research

## 11: FUNDED RESEARCH PROJECTS

### *Active:*

Source of Funding	Grant No.	Title	Role	Dates	Annual Direct	Total Direct
VA	Merit BX001234	Role of IGFs in Bone	PI	04/01/15-03/31/20	150,000	650,000
VA	Senior Research Career Scientist	Salary	PI	10/01/2012-09/30/2019		
NIH	T32AR067708	Training in Orthopaedic Team Science	PI	07/01/15-06/30/20	132,211	925,475
NIH	R01AR068934	Neuronal Regulation of Skeletal Development and Repair	PI	06/01/2015-05/31/2020	223,411	1,107,366
NIH	R01AR057759	Discovery of Bone Formation Genes Through Integrative Genomics	Invest.	07/11/2011-31/05/2016	238,926	1,194,630

### *Pending:*

NIH	1P30AR069623-01	P30 Research Core Center Baltimore Center for Musculoskeletal Science:	MPI	04/01/15-03/31/20	348,474	1,742,370
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**Past ten years:**

Source of Funding	Grant No.	Title	Role	Dates	Annual Direct	Total Direct
VA	Merit BX001234	Role of IGF in Bone	PI	01/01/2011-12/31/14	150,000	650,000
VA	Research Career Scientist	Salary	PI	10/01/2007-09/30/2012		
NIH	R01AR057868	The Growth Hormone/IGF-1 Axis in Skeletal Muscle	PI	07/01/15-06/30/20	221,946	1,141,816
NIH	R01AR049410	Oxygen Sensing and Osteogenesis	PI	09/25/2009-07/31/2014	226,800	1,134,000
NIH	R01AR052746	Defining Growth Hormone Actions in Bone	PI	08/01/2005-07/31/2009	204,428	817,712
NIH	R01AR053293	Analyzing the Role of Wnt Signaling in Bone Development	Invest.	08/10/17-17/31/12	250,000	1,250,000

## 12. TRAINING AND MENTORING RELATIONSHOPS

### Teaching and Graduate Education:

#### *University of Cincinnati*

##### Courses taught:

- Molecular Endocrinology (Molecular and Cellular Physiology)
- Pathobiology of Disease (Pathobiology and Molecular Medicine)
- Journal Club (Pathobiology and Molecular Medicine)

#### *University of Alabama at Birmingham*

##### Courses taught:

- Integrative Biomedical Sciences – II (Overview of Skeletal Homeostasis)
- Pathology 704

#### *Johns Hopkins University*

##### Courses taught:

- Introduction to Orthopaedic Residents

### Mentoring (pre- and post-doctoral)

Graduate students mentored who have obtained PhD or are in training:

#### *University of Cincinnati:*

1. Mei Zheng, Ph.D. Thesis title: “Genetically Manipulated Mouse Models for the Study of Insulin-like Growth Factor in Bone” Postdoctoral position: University of Michigan (Laboratory of Alan Saltiel) Current Position: Wyeth Pharmaceuticals
2. Guisheng Zhao, Ph.D. (secondary mentor with James Fagin) Thesis title: “Paracrine/Autocrine Actions of Insulin-like Growth Factor in Bone and Smooth Muscle Cells in Vivo”. Postdoctoral position: University of Michigan (Laboratory of Ronald Koneig)
3. Aditi Mukherjee, Ph.D. Thesis title: “Growth Factor Control of Chondrocyte Differentiation”

Postdoctoral position: Oregon Health and Science University (Laboratory of Peter Rotwein)

*University of Alabama at Birmingham:*

1. Douglas DiGirolamo, Ph.D. Thesis title: "Growth Hormone Signaling and Action in Osteoblasts"  
Postdoctoral Position: University of Alabama at Birmingham (Laboratory of Thomas Clemens); Current position: Senior Lab Manager, Bone Biology Group, Department of Orthopedic Surgery, Johns Hopkins University and Managing Editor of the *Journal of Bone and Mineral Research*
2. Keertik Fulzele, Ph.D. candidate, University of Alabama at Birmingham Thesis title: "Insulin Signaling and Action in Osteoblasts"
3. Ying Wang, Ph.D. candidate, University of Alabama at Birmingham Thesis title: "The Role of the Hypoxia-Inducible Factor Pathway in Bone Development and Repair"
4. Mahendra Mavalli, Ph.D. candidate, University of Alabama at Birmingham Thesis title: "Mechanisms of Growth Hormone Action in Skeletal Muscle"

*Johns Hopkins University:*

1. Rosiland Bogan, graduate student, 2011-2012, Cell and Molecular Medicine
2. Brian Goh, current MSTP/Cell and Molecular Medicine graduate student
3. Meredith Zoch, current graduate student, Cell and Molecular Medicine

**Postdoctoral Fellows Mentored:**

*University of Cincinnati:*

1. Jin Qian, Post-doctoral fellow, 1995-1998, Project title, "PTHrP in Vasculature Smooth Muscle" Current Position, Chief Science Officer, Esense Biolab
2. Zhongyu Liu, M.D., Ph.D., Postdoctoral fellow 2005-2007, University of Alabama at Birmingham Thesis title: "Biology of IGF-1 in Bone"
2. Ryan C. Riddle, Postdoctoral Fellow, University of Alabama at Birmingham, 2006-2009 Project title: "Biophysical Regulation of Mesenchymal Stem Cell Proliferation"
3. Douglas DiGirolamo, Postdoctoral fellow, Johns Hopkins University, Project title: "GH/IHG-1 Axis in Skeletal Muscle"
4. Ryan Tomlinson, Postdoctoral fellow, Johns Hopkins University 2013-present, Project title: Role of Sensory Nerves in Bone"
5. Qian Zhang, Postdoctoral fellow, Johns Hopkins University, 2014-present. Project title: Fuel Metabolism in Osteoblasts"

**Thesis Committees:**

*University of Cincinnati:*

1. Paul Conrad, Ph.D. Molecular and Cellular Physiology
2. Amy Bendixen, Ph.D. Molecular and Cellular Physiology
3. Mei Liang, Ph.D. Pathobiology and Molecular Medicine
4. Valeri Wheat, Ph.D. Pathobiology and Molecular Medicine
5. Traci Deem, Ph.D. candidate, Pathobiology and Molecular Medicine

*University of Alabama at Birmingham:*

6. Melissa Talbert, Ph.D. candidate, Molecular and Cellular Pathology
7. John Wang, Ph.D. candidate, Molecular and Cellular Pathology
8. Tony Filiano, Ph.D. candidate, Molecular and Cellular Pathology
9. Hyeonju Yeo, Ph.D. candidate, Department of Pathology
10. Chang Hyun Byon, Ph.D. candidate, Department of Pathology
11. Joel Anderson, Ph.D. candidate, Department of Biomedical Engineering

*Johns Hopkins University:*

1. Adam Moyer, Cell and Molecular Medicine
2. Okhee Jeon, Biomedical Engineering

**Graduate Committees:**

- 1995-present University of Cincinnati, Graduate Committee for Pathobiology and Molecular Medicine (Chair 2000-2002)
- 2000-2002 University of Cincinnati College Committee for Graduate Education
- 2007-2009 University of Alabama at Birmingham Graduate Education Representation Committee
- 2007-2009 University of Alabama at Birmingham Molecular and Cellular Pathology Graduate Program Steering Committee Member
- 2011-present Johns Hopkins University Cell and Molecular Medicine Graduate Steering and Policy Committee

**Educational Program Building / Leadership****Graduate Programs Developed:**

1. Cedars Sinai Medical Center:1994-Founded a Masters degree-granting program in association with the Cal State University system.
2. University of Cincinnati: 1999-Established a summer internship in drug discovery with Proctor and Gamble
3. University of Alabama at Birmingham: 2006. Founded the Howard Hughes Med into Grad PhD training program in Translational Research and Drug Discovery (1 of only 13 programs funded by HHMI, nationwide)
4. Johns Hopkins University, Developed a T32 Training grant "Training in Orthopaedic Team Science"

**13. EXTRAMURAL ACTIVITIES****Presentations (last ten years)**

1. January 2006, Invited Speaker. Main State Symposium in Osteoporosis, Bangor, Maine. "Oxygen Sensing and Osteogenesis."
2. March 2006, Invited Speaker. Medical College of Georgia, Augusta, Georgia. "Defining IGF-1 and Growth Hormone Actions in Bone."
3. May 2006, Invited Speaker. Emory University School of Medicine, Atlanta, Georgia. "Oxygen Sensing and Osteogenesis."
4. May 2006, Invited Speaker. KUMC Renal Research Conference, Kansas City, Kansas. "Oxygen Sensing and Osteogenesis"
5. May 2006, Invited Speaker. Van Andel Research Institute, Han-Mo Koo Memorial Seminar Series, Grand Rapids, Michigan. "Oxygen Sensing and Osteogenesis". October 2006, Hershey/Penn State "Oxygen Sensing and Osteogenesis"
6. November 2006, University of Missouri Kansas City "Oxygen Sensing and Osteogenesis"
7. March 2007, Invited Speaker, Ventura, California Gordon Research Conference "Defining insulin action in bone"
8. April 2007, Invited Speaker, New York Academy of Science "Oxygen Sensing and Osteogenesis"
9. June 2007, Invited Speaker, Shehezu University "Oxygen Sensing and Osteogenesis"
10. June 2007, Invited Speaker, Rejing Hospital Shanghai, China. "Hypoxia inducible factor pathway"
11. July 2007, Invited Speaker, PPP-10 Pittsburgh Parathyroid Conference. "Activation of the HIF-pathway for bone repair"
12. October 2007, Invited Speaker, MD Anderson. "Oxygen Sensing and Osteogenesis". October 2007, Invited Speaker, Baylor College of Medicine. "Oxygen Sensing and Osteogenesis"
13. November 2007, Invited Speaker, Maine Medical Center Research Institute. "Angiogenic-Osteogenic Coupling"
14. February 2008, Invited Speaker Wyeth Research, Women's Health and Musculoskeletal Biology Department. "Mechanism Controlling Angiogenic-Osteogenic Coupling"
15. March 2008, Invited Speaker, IBMS Davos Workshops: Bone Biology & Therapeutics, Davos Switzerland. "Osteogenic-Angiogenic Coupling"
16. March 2008, Invited Speaker University of Rochester, "Angiogenic-Osteogenic Coupling"
17. March 2008, Invited Speaker Shiners Hospital for Children, " HIF-1 $\alpha$  in Angiogenic-Osteogenic Coupling"
18. April 2008, Invited Speaker University of Pennsylvania, Mini-Symposium, Osteoimmunology: Bone and Beyond. "Angiogenic-Osteogenic Coupling"
19. April 2008, Washington University, The Louis Avioli Seminar Series. "Angiogenic-Osteogenic Coupling"
20. September 2008, American Society for Bone and Mineral Research, 30<sup>th</sup> Annual Meeting on State-of-the-Art Lecture A: Role of Oxygen Sensing Pathways, "Role of HIF-1 $\alpha$  in Angiogenic-Osteogenic Coupling"
21. October 2008, 2nd AO Biotechnology and Bioengineering Symposium, Lausanne, Switzerland. "Targeting the

- HIF-1 Pathway for Bone Repair”.
22. November 2008, Shanghai Institute of Traumatology & Orthopedics 50<sup>th</sup> anniversary. “Targeting the HIF-1 Pathway for Bone Repair”.
  23. February 2009, Endocrine Grand Rounds, University of Arkansas for Medical Sciences at Little Rock, Division of Endocrinology and Metabolism and the Osteoporosis and Metabolic Bone Diseases Center. “Role of Hypoxia Inducible Factor-1 $\alpha$  in Skeletal Angiogenesis”.
  24. March 2009, 13<sup>th</sup> Annual Hilton Head Workshop, “Regenerative Medicine: Advancing Next Generation Therapies”, Hilton Head Island, South Carolina. “Targeting the HIF-1 Pathway for Bone Repair”.
  25. March 2009, "Insulin-like Growth Factors in Physiology & Disease" Gordon Research Conference, Ventura, California. “Bone remodeling and repair”.
  26. April 2009, University of Cincinnati Bone Health and Osteoporosis Center 10th Annual UC Bone Day. “Bone Biology for Clinicians: The Wnt Signaling Pathway”.
  27. April 2009, AIMM ASBMR John Haddad Meeting in Snowmass, Colorado. “Angiogenic Osteogenic Coupling”.
  28. April 2009, ASBMR Topical Meeting on New Frontiers in Skeletal Research: Bone, Fat and Brain Connections. “Insulin receptor signaling in osteoblasts regulates bone and body composition”.
  29. April 2009, Mount Sinai School of Medicine, The 3rd New York Skeletal Biology and Medicine Conference. “Skeletal Regeneration With Hypoxia”.
  30. June 2009, ADA Annual Symposium, Inter-Organ Communication with Beta Cells. “Bone Cells Talking to Beta Cells”.
  31. June 2009, The Endocrine Society, “Secret World of the Osteocyte”.
  32. June 2009, Bone Research Society and the British Orthopaedic Research Society, Manchester, UK. “Targeting the HIF-1 Pathway for Bone Repair”.
  33. July 2009 PTH/PTHrP Program, Strasbourg. “Targeting the HIF-1 Pathway for Bone Repair”.
  34. July 2009 Gordon Research Conference on Bones and Teeth, University of New England, Biddeford, Maine. “Insulin signaling in osteoblasts regulates bone and body composition”.
  35. November 2009 The American Diabetes Association and the Sociedad Mexicana de Nutrición y Endocrinología, XLIX Congress, Inter-Organ Communication with the Beta Cell. “Insulin signaling in osteoblasts regulates bone and body composition”.
  36. March 2010 Annual Meeting of the Orthopaedic Research Society, New Orleans, Louisiana. “Insulin signaling in osteoblasts regulates bone and body composition”
  37. March 2010 Children's Hospital/Brigham and Women's Hospital Endocrine Grand rounds, Anast Lecturer, Boston Massachusetts. “Insulin signaling in osteoblasts regulates bone and body composition
  38. April 2010 P.S. Middlesex Hospital, MUHC RI Endocrinology/Diabetes/ Nutrition/ Renal Diseases Axis Research Seminar Series. “Insulin signaling in osteoblasts regulates bone and body composition”.
  39. April 2010 University of Michigan Medical School, Center for Organogenesis Seminar Series. “Insulin signaling in osteoblasts regulates post-natal bone acquisition and body composition”.
  41. June 2010 The Research Division of the Hospital for Special Surgery, New York, Distinguished Lecture Series. “Targeting the HIF-1 pathway for bone repair”.
  42. November 2010, University of Hong Kong, Keynote Speaker, Biomedical Engineering International Conference. “Targeting Angiogenesis For Bone Repair”.
  43. November 2010, St. Etienne, France, Grand Rounds Faculty of Medicine. “Insulin signaling in osteoblasts regulates postnatal bone acquisition and body composition”.
  44. November 2010, Paris, France, Annual Meeting of Rheumatologists, “Insulin signaling in osteoblasts regulates postnatal bone acquisition and body composition”.
  45. December 2010, Massachusetts General Hospital, Endocrine Grand Rounds Speaker, “The Osteoblast: An insulin target cell controlling glucose homeostasis”.
  45. January 2011, NIH, Washington DC, Extracellular Matrix and Skeletal Biology Data Club Meeting, NHGRI “The Osteoblast: An insulin target cell controlling global glucose homeostasis”.
  46. February 2011, University of Maryland, Baltimore Maryland, “Targeting Angiogenesis for bone repair”.
  47. March 2011, ASBMR Forum on Aging and Skeletal Health, “Mechanisms of Bone Loss Based on Animal and Human Studies”.
  48. April 2011, FDA Bone Seminar Presentation, “Bone Formation and Fracture Repair Regulation”.
  49. April 2011, NIH Matrix Biology Club, “The osteoblast: An insulin target cell controlling global glucose



- homeostasis”.
50. April 2011, National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS).
  51. May 2011, Washington Bone Club, Georgetown University, Washington DC, “Osteoblasts and Insulin Action”.
  52. June 2011, Gordon Research Conference on “Bones and Teeth”, Les Diablerets, Switzerland, Biological basis of Bone Therapies, “Insulin signaling in osteoblasts regulates bone and body composition”.
  53. July 2011, Stowers Institute, Kansas City, Missouri, “The osteoblast as a global regulator of energy homeostasis”.
  54. July 29, 2011, University of Missouri, Kansas City, “The growth hormone/IGF-1 axis in skeletal muscle”.
  55. August 2, 2011, Sun Valley Idaho, Targeting angiogenesis for bone repair”
  56. September 16, ASBMR Annual Meeting, “The growth hormone/IGF-1 axis in skeletal muscle”.
  57. September 21, 2011, University of California, San Francisco, CA, Endocrine Grand Rounds, “Integration of glucose metabolism by the osteoblast”
  58. September 21, 2011, University of California, San Francisco, CA, IBS Grad Program Lecture. “Integration of glucose metabolism by the osteoblast”
  59. September 28, 2011, University of Kentucky, Department of Physiology, “Insulin signaling in the osteoblast couples bone acquisition global energy homeostasis”
  60. November 4, 2011, Invited Speaker, American College of Rheumatology Annual Meeting “Osteoblast development”
  61. February 7, 2012 Invited Speaker, University of Maryland, Endocrine Grand Rounds “Insulin Signaling in the osteoblast couples bone formation to glucose metabolism”
  62. April 23, 2012, Invited Speaker, American Association of Anatomists, San Diego, CA. “Targeting angiogenesis for bone repair”
  63. April 24, 2012, Invited Speaker, American Physiological Society, Annual Meeting, San Diego, CA, “The IGF/Growth hormone axis in skeletal muscle”
  64. May 7, 2012, Invited Speaker, International Congress of Endocrinology, Florence Italy, “Insulin-bone axis”
  65. June 17, 2012, Invited Speaker, 4<sup>th</sup> International Conference on Osteoimmunology, Corfu, Greece. “Insulin signaling in bone”.
  66. July 17, 2012, Invited Speaker, ASBMR Topical Meeting, Muscle Bone Interactions, Kansas City, MO “ IGF-1 and GH in bone and skeletal muscle”.
  67. September 20, 2012, Invited Speaker, International Conference on Osteoporosis and Bone Research, Xi’an China, “Bone-Muscle Interactions”.
  68. October 2, 2012, Endocrine Grand Rounds, The Washington Hospital, Washington DC, “Insulin signaling through the skeleton controls global glucose metabolism”.
  69. October 5, 2012, Invited Speaker, University of Texas Southwestern, Department of Pharmacology, Dallas TX, “Insulin regulates glucose metabolism through the skeleton”.
  70. October 25, 2012, Invited Speaker, The Burnam Institute, Orlando, FL., “Insulin signaling in bone regulates global glucose homeostasis”.
  119. November 2, 2012, Invited Speaker, 10<sup>th</sup> Annual World Congress on Insulin Resistance, Diabetes & CVD Universal City Hotel, Los Angeles, CA, “A bone-pancreas axis”.
  71. November 16, 2012, Invited speaker, Korean Society for Bone and Mineral Research, Seoul, Korea, “New actions for insulin in bone”.
  72. March 1, 2013, Invited Speaker, Department of Cell and Molecular Biology, Tulane University, New Orleans LO, “Insulin signaling through the skeleton controls energy metabolism”.
  73. March 29, 2013, Invited speaker, Prestige Seminar on Orthopedics Publication. Shanghai, China.
  74. April 10-12, 2013, Invited Speaker, Osteogenesis Imperfecta Foundation meeting Chicago, IL: "Mouse models for dominant and recessive OI".
  75. June 3, 2013, Invited Speaker, Department of Molecular and Cellular Physiology, Penn State University at Hershey, Hershey, PA. “Insulin signaling through the skeleton controls global glucose metabolism”.
  76. June 24, 2013, Invited Speaker, KU Leuven, Leuven, Belgium. “Insulin signaling through the skeleton controls glucose metabolism”.
  77. October 17, 2013, Invited Speaker, 9<sup>th</sup> Annual Biomedical Symposium, St. Jude Children’s Research Hospital, “The skeleton as an endocrine organ”.
  78. June 4, 2014, Invited speaker, Key Symposium: Molecular and clinical prediction of the risk for osteoporotic

- fractures, Clarion Sign, Stockholm, “Bone and the regulation of global energy balance”
79. June 17, 2014, Invited speaker, The Berlin-Brandenburg School for Regenerative Therapies. “Insulin, osteoblasts and energy homeostasis: why bone counts calories”
  80. October 14, 2014, Invited Keynote Speaker, Harold Hamm Diabetes Center, Annual Research Symposium, University of Oklahoma, Oklahoma City “Insulin, osteoblasts and energy homeostasis: why bone counts calories”
  81. January 6, 2015, Invited Speaker, EMBO Workshop on Integrative perspectives on musculoskeletal development, Ein Gedi, Israel, “Role of sensory nerves in bone”
  82. January 16, 2015, Georgia Regents University, Department of Neuroscience and Regenerative Medicine, Augusta Georgia, “Insulin, osteoblasts and energy homeostasis: why bone counts calories”
  84. February 5, 2015, Invited Speaker, Department of Physiology, University of Maryland. “Role of the Osteoblast in Global Energy Homeostasis”
  85. May 14, 2015, Key Note Speaker, 8th Annual Research Symposium, Texas Tech Health Sciences Center in El Paso, Texas. “Insulin, Osteoblasts and Energy Metabolism: Why Bone Counts Calories”
  86. September 25, 2015, Invited Speaker, Department of Molecular, Cellular and Developmental Biology, University of Michigan. “Insulin, Osteoblasts and Energy Metabolism: Why Bone Counts Calories”
  87. October 9, 2015, Invited Speaker, Society for Bone and Mineral Research Annual Meeting, Seattle Washington. “The Bioenergetics of Bone”
  88. November 8, 2015, Invited Speaker, American Society for Nephrology, Annual Meeting, San Diego. “Bone and Energy Balance: Relevance for CKD”
  89. February 15, 2016, Invited Speaker, Gordon Research Conference on Bones and Teeth, Galveston TX. “Role of Peripheral nerves in Bone”
  90. August 7-12, 2016, Invited Speaker, Gordon Research Conference on Musculoskeletal Biology and Bioengineering. “Peripheral Nerves regulate Bone Development”

#### 14. BIBLIOGRAPHY (last ten years highlighted)

<b>Citation indices</b>	All	Since 2010
Citations	12178	5736
h-index	64	40
i10-index	128	88

#### Peer Reviewed

1. Hill RN, **Clemens TL**, Liu DK, Vessel ES, Johnson WD. Genetic control of chloroform toxicity in mice. *Science* 1975;190:159-161.
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