

Christina Maria Lee, PhD

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RESEARCH EXPERIENCE

Orthopaedic Research Center, Fort Collins, CO **December 2007 – Present**
Postdoctoral Research Associate, Clinical Sciences, College of Veterinary Medicine and Biomedical Sciences

Dr. C. Wayne McIlwraith

- Development of in vitro models of in vivo joint pathology to test novel and existing therapeutic modulators of disease
- Provide assistance with data collection and analysis for clinical trials
- Manuscript and grant preparation and review

University of California, Davis, CA **August 2003 – December 2007**
Graduate Student Research, Anatomy, Physiology and Cell Biology, School of Veterinary Medicine

Dr. Clare Yellowley

- Investigated the effects of oxygen tension and mechanical stimulation on bone cell expression of proteins associated with bone remodeling
- Prepared grants and manuscripts
- Responsible for the training of students and assisted with lab management

University of California, Davis, CA **September 2000 – December 2003**
Undergraduate Research, Anatomy, Physiology and Cell biology, School of Veterinary Medicine

Dr. Susan Stover

- Designed a technique to identify correlations between external equine hoof morphology and internal anatomical hoof structures
- Collected data to study correlations of ligament injury with metacarpal condylar fracture

EDUCATION

- ***Ph.D., Molecular, Cellular and Integrative Physiology*** **December 2007**
University of California, Davis
Dissertation title: *The effects of hypoxia on osteoblastic cells: Regulation of prostaglandins and prostaglandin receptor expression*
Advisor: *Dr Clare Yellowley, VM: Anatomy, Physiology and Cell Biology*
- ***Certificate, Clinical Research Conduct and Management*** **May 2007**
University of California, Berkeley Extension

- **Business Development Intensive Program** **September 2006**
Graduate School of Management, University of California, Davis
 Dr Andrew Hargadon
- **Bachelor's of Science, Animal Science, Specialization in Physiology** **December 2002**
University of California, Davis

TECHNICAL SKILLS

Primary cell extraction and culture, organ culture, mechanical loading, RNA/DNA extraction, real-time PCR, ELISA, Western blot, RNA silencing, immunohistochemical staining, laser capture microdissection, cryosectioning, histologic staining and grading, expression vector constructs and cloning, Fluorescence Activated Cell Sorting (FACS), Radiography, cadaveric dissection, pathologic evaluation, statistical analysis, Microsoft software (PowerPoint, Excel, Word)

PUBLICATIONS

John D. Kisiday, Benjamin Hale, **Christina M. Lee**, Wayne McIlwraith, David D. Frisbie. "Expansion of mesenchymal stem cells on fibrinogen-rich protein surfaces" *Journal of Tissue Engineering and Regenerative Medicine*. (In Press)

John D. Kisiday, **Christina M. Lee**, Wayne McIlwraith, David D. Frisbie. "Induction of bone marrow mesenchymal stem cell chondrogenesis following short-term suspension culture" *Journal of Orthopedic Research*. (In Press)

Christina M. Lee, Damian C. Genetos, Alice Wong, Clare E. Yellowley. "Prostaglandin expression profile in hypoxic osteoblastic cells" *Journal of Bone and Mineral Metabolism*. 28(1):8-16. January 2010

Damian C. Genetos and **Christina M. Lee**, Alice Wong, Clare E. Yellowley. "HIF-1 α regulates hypoxia-induced EP1 expression in osteoblastic cells" *Journal of Cellular Biochemistry*. 107(2):233-9. May 2009

Christina M. Lee, Damian C. Genetos, Zongbing You, Clare E. Yellowley. "Hypoxia regulates PGE2 release and EP1 receptor expression in osteoblastic cells" *Journal of Cellular Physiology*. 212 (1):182-8. July 2007

Lucy A. Anthenill, Susan M. Stover, Ian A. Gardner, Ashley E. Hill, **Christina M. Lee**; Mark L. Anderson, Bradd C. Barr, Deryck H. Read, Bill J. Johnson, Leslie W. Woods, Barbara M. Daft, Hailu Kinde, Janet D. Moore, Cynthia A. Farman, Jenee S. Odani, Patricia A. Pesavento, Francisco A. Uzal, James T. Case, Alex A. Ardans. "Association between findings on palmarodorsal radiographic images and detection of a fracture in the proximal sesamoid bones of forelimbs obtained from cadavers of racing Thoroughbreds" *American Journal of Veterinary Research*. 67(5):858-68. May 2006

MANUSCRIPTS SUBMITTED FOR PUBLICATION

Christina M. Lee, John D. Kisiday, C. Wayne McIlwraith, Alan J. Grodzinsky, David D. Frisbie. "Development of an in vitro model of injury induced osteoarthritis in adult equine cartilage using single impact compressive overload" Manuscript submitted

Rachel E. Miller, Alan J. Grodzinsky, Eric J. Vanderploeg, **Christina M. Lee**, Dora J. Ferris, Myra F. Barrett, John D. Kisiday, David D. Frisbie. "Repair of Full-Thickness Articular Cartilage Defect Using Self-Assembling Peptide, Growth Factors, and Bone Marrow Derived Stromal Cells" Manuscript submitted

ABSTRACTS AND PRESENTATIONS

Kisiday, J.D, Hale, B, **Lee, C.M**, McIlwraith, C.W, Frisbie, D.F. Expansion of adult equine bone marrow mesenchymal stem cells on fibrinogen-rich protein surfaces derived from blood plasma. Orthopedic Research Society, New Orleans, Louisiana 2010 (Poster)

Kisiday, J.D, **Lee, C.M**, McIlwraith, C.W, Frisbie, D.F. Induction of Mesenchymal Stem Cell Chondrogenesis During Short-Term Suspension Culture. Orthopedic Research Society, Las Vegas, Nevada 2009 (Poster)

Lee, C.M, Genetos, D.C. and Yellowley, C.E. Hypoxia-induced EP1 expression via HIF-1 alpha in osteoblast cells. Orthopedic Research Society, San Francisco, California 2008 (Poster)

Wadum, M.T, Wade, J.M, **Lee, C.M**, Weber, T.J, Karin, N.J, Yellowley, C.E. Annexin 2 plays a role in flow-induced PGE₂ release, is phosphorylated during flow and colocalizes with raft-like structures in osteoblasts. Orthopedic Research Society, San Francisco, California 2008 (Oral)

Lee, C.M, Genetos, D.C. and Yellowley, C.E. Regulation of EP-1 receptor expression under hypoxic conditions by hypoxia-inducible factor. American Society for Bone and Mineral Research, Philadelphia, Pennsylvania 2006 (Poster)

Lee, C.M, Genetos, D.C. and Yellowley, C.E. Low oxygen modulates PGE₂ levels, EP-1 and EP-4 receptor expression and proliferation in osteoblastic cells. Orthopedic Research Society, Chicago, Illinois 2006 (Poster)

Lee, C.M, Genetos, D.C. and Yellowley, C.E. Low oxygen modulates PGE₂ levels, EP-1 and EP-4 receptor expression and proliferation in osteoblastic cells. Keystone Symposia: Hypoxia and Development, Physiology and Disease, Breckenridge, Colorado 2006 (Poster)

Lee, C.M. and Yellowley, C.E. Hypoxia Induces PGE₂ and OPG Release from MC3T3-E1 Osteoblastic Cells. American Society for Bone and Mineral Research, Nashville Tennessee 2005 (Poster)

Lee, C.M. and Yellowley, C.E. Hypoxia regulates proteins associated with bone turnover in Osteoblastic cells. International Union of Physiological Societies, San Diego, California 2005 (Poster)

Lee, C.M. and Yellowley, C.E. Hypoxia-induced cox-2 protein levels and PGE₂ release in osteoblastic cells. Orthopedic Research Society, Washington DC 2005 (Poster and short talk)

Lee, C.M. and Yellowley, C.E. Hypoxia regulates proteins associated with bone turnover in Osteoblastic cells. Society for Physical Regulation in Biology and Medicine, Lake Tahoe, California 2005 (Oral)

Lee, C.M. and Stover, S.M. Is there a relationship between the position of the frog apex on the sole of the hoof with the distal phalanx in Thoroughbred racehorses. Annual Biomedical Research Conference for Minority Students, New Orleans, Louisiana 2002 (Poster)

Lee, C.M. and Stover, S.M. Correlations between horseshoe toe grabs and hoof angle with the prevalence of laminitis. Annual Biomedical Research Conference for Minority Students, Orlando, Florida 2001 (Poster)

FELLOWSHIPS AND FINANCIAL SUPPORT

- Gene Expression in Mechanically Injured Osteochondral Plugs, David Frisbie PI, Christina Lee Co-PI; CVBMS College Research Council, 2008 (\$21,000)
- National Research Service Award, National Institutes of Health, National Institute of Arthritis and Musculoskeletal and Skin Diseases, 1 F31 AR053467-01, 2006 (\$90,039)
- UC Davis Alliance for Graduate Education and the Professoriate Advantage Fellow (AGEP), 2006-2007, Funded by NSF
- Minority Supplement to NIH 5-R01-AG-22305-5, 2005
- Eugene Cota-Robles Fellowship, 2003- 2005 (\$52,594)
- National Institutes of Health- Initiative for Minority Student Development Graduate Student Fellowship, 2003-2004 (\$5,600)
- Biology Undergraduate Scholars Program- Honors Research (BUSP-HR), June 2001 to December 2002, Funded by the Howard Hughes Medical Institute and the National Institutes of Health – IMSD (\$5,800)
- President's Undergraduate Fellowship, 2002 (\$500)
- Transfer Students Fellows Program, 2000-2001 (\$4,500)

TEACHING EXPERIENCE

- Teaching Assistant, University of California, Davis, Spring 2005
Cell and Neural Physiology laboratory
Dr Lauren Liets
Duties: Lead laboratory exercises and discussions, prepare laboratory lectures, prepare quizzes, grading
- Teaching Assistant, University of California, Davis, Fall 2004
Systemic Physiology laboratory
Dr Jack Goldberg and Dr Erwin Bautista
Duties: Lead laboratory exercises and discussions, prepare laboratory lectures and quizzes, grading

ACADEMIC AND COMMUNITY SERVICE

Seminar Coordinator

Veterinary Orthopedic Research Laboratory research seminar

Duties: Coordinate and schedule weekly research seminar series with participants from the schools of veterinary medicine, medicine and the college of engineering, UC Davis School of Veterinary Medicine, 1-06 to 8-07

Hiring Committees

Laboratory manager, laboratory technician, diversity program coordinator

Graduate Student Recruiter

Sandia National Lab 2006

SACNAS 2006

Mentor

- Transfer student fellows program (TSFP)
Role: Mentor new transfer students from groups underrepresented in science
UC Davis
- Biology Undergraduate Scholars Program (BUSP)
Role: Mentor to students from groups underrepresented in science by promoting graduate education
UC Davis
- Alliance for Graduate Education and the Professoriate (AGEP)
Role: Mentor to new graduate and undergraduate students from groups underrepresented in science
UC Davis and Colorado State University

Volunteer

Susan G. Koman Breast Cancer Foundation

Role: Contributions committee, race committee, graphics committee

American Cancer Society, Sacramento, 5-05 to 8-07

Supervisor

Undergraduate research assistants and veterinary students, UC Davis, 3-04 to 8-07

PROFESSIONAL AFFILIATIONS

- American Society for Bone and Mineral Research, member since 2005
- Orthopedic Research Society, member since 2003
- Arthritis Foundation, member since 2003

HONORS AND AWARDS

- Keystone symposium travel scholarship, January 2006
- 2005 ASBMR MARC travel award, September 2005
- IUPS travel award, San Diego April 2005
- Outstanding student presentation award, SPRBM January 2005