

Curriculum Vitae: September 2011

**Julia Thom Oxford**

Distinguished Professor Biological Sciences  
Co-Director, Musculoskeletal Research Institute  
Director, Biomolecular Research Center  
Boise State University  
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**Degrees:**

<b>Doctor of Philosophy</b> , Biochemistry and Biophysics Washington State University, Pullman, WA Dissertation: "Export of Protein in <u>Escherichia coli</u> " Advisor: Prof. Linda L. Randall Department of Biochemistry and Biophysics Washington State University	1986
<b>Master of Sciences</b> , Biochemistry and Biophysics Washington State University, Pullman, WA	1985
<b>Bachelor of Arts</b> , Chemistry and Biology (cum Laude) Linfield College, McMinnville, OR	1981

**Positions Held:**

Professor, Department of Biological Sciences, Boise State University, 2008-present  
Affiliate Faculty, University of Washington, School of Medicine, Department of Biochemistry, 2003-present  
Affiliate Faculty, University of Idaho, Dept of Microbiology, Molecular Biology and Biochemistry, 2002-present  
Associate Professor, Department of Biology, Boise State University, 2003-2008  
Assistant Professor of Biology, Boise State University, 2000-2003.  
Affiliate Faculty, Oregon Health Sciences University, School of Dentistry, 2000-2002.  
Research Assistant Professor, Integrative Biosciences Department (formerly Oral Molecular Biology), School of Dentistry, Biochemistry and Molecular Biology, School of Medicine, Oregon Health Sciences University, 1995-2000.  
Visiting Assistant Professor of Clinical Sciences, Equine Orthopaedics, Colorado State University, 1996-1998.  
Senior Research Associate, Shriners Hospital for Crippled Children, Portland, 1992-1996.  
Postdoctoral fellow, Shriners Hospital for Crippled Children and Department of Biochemistry and Molecular Biology, Oregon Health Sciences University, 1988-1992.  
Postdoctoral fellow, Biochemistry/Biophysics Program, Washington State University, 1988.  
Postdoctoral fellow, Dept of Cellular Biology, Swiss Institute for Experimental Cancer Research, 1987-1988.  
Graduate Research Assistant, Dept of Biochemistry/Biophysics, Washington State University, 1982-1986.  
Graduate Teaching Assistant, Department of Chemistry, Washington State University, 1982-1982.

**Honors and Awards:**

C. Glenn King Fellowship, Chemistry Dept. Washington State University, 1981-1982.  
Graduate Student Travel Award, Washington State University, 1984.  
Phi Lambda Upsilon, Washington State University, 1986.  
ISREC Postdoctoral Fellowship, 1987 and 1988.  
Arthritis Investigator Award, Arthritis Foundation, 1996.  
Gerlinger Research Foundation Award, 1999.  
Oregon Medical Research Foundation Award, 2000.  
Boise State University Foundation Scholar Award, Research and Creative Activity, 2006.  
Lori and Duane Steuckle Dean's Distinguished Faculty Award, 2005-2009  
MMACHS Distinguished Lecture Series February 10, 2011  
Boise State University Distinguished Professor 2011

# Teaching

## *Undergraduate Courses:*

### Boise State University

Biology/Materials Science/Mechanical&Biomedical Engineering 477 Biomaterials Science  
Biology 497 Biochemistry of Cell Signaling  
Biology 497 Introduction to Bioinformatics  
Biology 191 General Biology  
Biology 493 Internship in Laboratory Research  
Biology 451 Developmental Biology, lecture and laboratory  
Biology 443 Advances Developmental Biology  
Biology 301 Cell Biology  
Biology 202 General Zoology lecture and laboratory  
Chem 405 Research in Chemistry

### Portland State University (adjunct professor)

Chemistry 450 Biochemistry, 1991-1994.  
Chemistry 250 Nutrition, 1991.

### Lewis and Clark College, Portland, Oregon (adjunct professor)

Chemistry 335 and 336, Biochemistry lecture and laboratory, 1992.

## *Graduate Courses:*

### Boise State University

Biology/Materials Science/Mechanical&Biomedical Engineering 577 Biomaterials Science  
Biology 598 Biomaterials Graduate Seminar  
Biology 597 Biochemistry of Cell Signaling  
Biology 597 Introduction to Bioinformatics  
Biology 465/565 Advanced Topics in Molecular Biology Techniques  
Biology 466/566 Advanced Topics in Cancer and Developmental Biology  
Biology 567 Extracellular Matrix  
Biology 596 Directed Research, Boise State University  
Biology 551 Developmental Biology, lecture and laboratory  
Biology 543 Advances Developmental Biology  
Biology 650 Scientific Writing for publication

### Oregon Health Sciences University

Oral Biology 513, Bone Physiology; endochondral and intramembranous ossification, 1998-2000.

### Colorado State University (visiting professor)

PS 796, Grant writing course, Department of Physiology, 1996.  
VS630, Molecular biology applications in Orthopaedic research, Veterinary Teaching Hospital, 1996.

*Other:* Item Writer for Medical College Admission Test, American College Testing Program, 1989-present.

## Directed research, independent study and internships

### *Undergraduate Student Research Projects:*

**Kelci Burgess**, 2010-present

Oncostatin M in Osteoarthritis

**Neda Shefa**, 2009 –present

Chondrocyte model systems for regenerative medicine

Abdominal aortic aneurysms

Posters on the Hill Presentation, 2011

**Stephanie Frahs**, 2009-present

Mechanotransduction in bone cells; biomaterials; PTHrP signaling

Recipient of the NASA Microgravity University Award, 2011

Sigma Xi Grant in Aid of Research Award, 2011

**Dawn Mikelonis**, 2009-present

Zebrafish as model system for eye development

Recipient of the NASA Microgravity University Award

**Jonathan Reeck**, 2009-1010

Molecular biology analysis of Col11a1DVR transgenic mouse

Recipient of Sigma Xi Grant in Aid of Research, 2011

**Benjamin Davis**, 2006-2011, LC-Mass spectrometry, Proteomics

Recipient of INBRE Summer Undergraduate Research Fellowship, 2009

Recipient of the NASA Microgravity University Award, 2011

**Luke Woodbury**, 2006-2011, Histological characterization of the Col11a1deltaVR mouse model for osteoarthritis; Protein: carbohydrate interactions, protein purification, monomer-dimer equilibrium analysis by AUC, SEC-MALS

Undergraduate Research Symposium Presentation, 2006, 2007, 2008, 2009

AAAS Pacific Division poster presentation, 2007

INBRE Biomedical Research Fellow, 2009

**Jonathan Hendersen**, 2006-2009, Atomic Force Microscopy

Undergraduate Research Symposium Presentation 2007,2008, 2009

INBRE Summer Undergraduate Research Fellowship 2008, 2009

**Tamara Kelly**, 2007-2008

INBRE Summer Research Fellow, 2006

Undergraduate Research Symposium Presentation , 2007

Award recipient of the MSMRI research fellowship, 2007-2008

Began Medical School 2008

**Amber Pedracini**, 2007, Micro-CT analysis of bone density in mouse model of chondrodysplasia

Award recipient of Pre-med student research summer fellowship

Contributing author on peer-reviewed manuscript

**Chelsea Sonius**, 2007

INBRE Summer Research Fellow

**Erik Linn**, 2006-2007, Targeted deletion of Col11a1 variable region (VR); a model for osteoarthritis, Boise State University

Award recipient of the MSMRI research fellowship, 2006-2007

Undergraduate Research Symposium Presentation, 2007  
 Began Medical school, University of Utah, 2007

**Kaci Bloxam**, 2006-2007, Atomic Force Microscopy characterization of early intermediates in collagen fibrillogenesis, Contributing author on peer reviewed published manuscript

**Jeremiah Maschmann**, 2006-2007, Genomic analysis of the collagen gene family in zebrafish  
 Undergraduate Research symposium Presentation, 2006  
 Graduated from Washington State University, 2011

**Rohn McCune**, 2004-2005, Protein purification and refolding, Boise State University  
 BRIN Summer Research Fellow, 2004  
 Recipient of First Place in BRIN Undergraduate Student Poster Competition  
 Award recipient of NASA Idaho Space Consortium Undergraduate Team Research Grant, 2005  
 Undergraduate Research Symposium Presentation, 2005  
 Began Medical School, University of Utah, 2006

**Desiree Hansen**, 2005, Analysis of the microenvironment of chondrosarcoma cells, Boise State University  
 Award recipient of NASA Idaho Space Consortium Undergraduate Team Research Grant, 2005  
 Undergraduate Research Symposium Presentation, 2005

**Arzhang Fallahi**, 2003-2004 Homology modeling of the amino propeptide domain of collagen XI alpha 1 chain, Boise state University and Albertson College of Idaho  
 Began Medical School University of Washington, 2004

**Becky Kroll**, 2002-2004, Surface plasmon resonance measurements of molecular interactions, Boise State University  
 Began Medical School, University of Utah, 2004

**Joeli Adrian**, 2003-2004, Post-translational modifications of collagen type XI in the vitreous of the eye, Boise State University  
 Top Ten Scholar, 2004, Boise State University

**Katey Irwin**, 2002-2005, Molecular modeling of the amino propeptide of collagen XI alpha 1 chain, Proteomics, Boise State University  
 BRIN Summer Research Fellow, 2002 and 2003  
 Poster presentation at NCUR Meeting, 2003, Salt Lake City  
 McNair Scholar, 2004-2005  
 Award recipient of NASA Idaho Space Consortium Undergraduate Team Research Grant, 2005  
 Began Graduate School, 2005

**Pernilla Stridh-Igo**, 2001, 2004 Fetal Alcohol Syndrome, Proteomics, Boise State University.  
 Top Ten Scholar, 2004  
 Began Graduate School, Karolinska Institute, Sweden, 2004

**Holli Shultz**, 2002-2003, Endochondral ossification; Recombinant expression of collagen XI isoforms, Boise State University  
 Poster presentation at NCUR Meeting, 2003, Salt Lake City  
 Pre-med Research Fellow, 2002, Boise State University

**Theresa Jenkins**, 2001-2002, Fetal Alcohol Syndrome, Boise State University

**Kristy Trent**, 2001-2002, The Biochemistry of vitreous humor liquefaction with aging, Boise State University.

**Jenifer Barry**, 2001, Chondrocyte cell culture and protein expression, Boise State University.  
 Pre-Med Research Fellow, 2001

Top Ten Scholar, 2001, Boise State University  
 Began Medical School, University of Washington, 2002.

**Stephen Edwards**, 2001, Fetal Alcohol Syndrome, Boise State University.  
 Began Dental School, 2002

**Brian Spangler**, 1999, Cartilage regeneration in culture and recapitulation of chondrocyte phenotype. Summer student, Oregon State University.  
 Began Dental School, 2001.

**Kristen Jones**, 1999, Optimization of culture conditions for bacterial expression of recombinant  $\alpha 1(XI)$  collagen amino terminal domain isoforms. Summer student, Concordia University.

**Stephanie Kristovich**, 1999 and 2000, Affinity, chelation and ion exchange chromatography for purification of vitreous-specific isoforms of  $\alpha 1(XI)$  collagen; potential involvement in high myopia and retinal detachment. Summer student, Linfield College.  
 Began Dental School, Oregon Health Sciences University, School of Dentistry, 2000.

**Lauri (Wood) Hausafus**, 1991-92. Cloning and expression of isoforms of collagen type XI.  
 Summer student, University of Oregon.  
 Began Dental School, Oregon Health Sciences University, School of Dentistry, 2001

### ***Graduate Student Research Projects:***

**Jonathon Reeck**, 2010-present Zebrafish model system for osteogenesis  
 Recipient of Sigma Xi Grant-in-aid of research, 2011

**Ming Fang**, 2007-2010 Zebrafish Craniofacial Development  
 Recipient of ISU Molecular Core Facility Grant for DNA Sequencing  
 First author on Gene Expression Pattern 2010  
 Began doctoral program at Cincinnati Children's Hospital, 2010.

**Kendra Coonse**, 2006-2010, Master of Science, Collagen-Biglycan interactions  
 Began Medical School 2010

**Katey Anderson**, 2005-2011 Proteomic analysis of cartilage extracellular matrix

**Kelly Willius**, 2005-2006 Bone regeneration in the zebrafish  
 Recipient of NASA-ISGC Graduate Student Fellowship, 2006-2007  
 Began Nursing school, 2007.

**Nathan Hoskins** 2007-2009, Master of Science, Col11a1 regulates bone microarchitecture

**Jason Adams**, 2005-2008 Master of Science, Axial skeletal development in the zebrafish  
 Recipient of NASA-ISGC Graduate Student Fellowship, 2006-2007  
 Began doctoral program at Brigham Young University, 2008.

**Prarthana Kashikar**, 2004-2007, Master of Arts, Quantitative Real Time Polymerase Chain Reaction for the analysis of alternative splicing, Boise State University  
 Research Technician, Boise State University.

**Lisa Warner**, 2004-2006 Biomechanical characterization of laboratory generated cartilage, vitreous and cornea. Materials Science Program, Boise State University  
 Recipient of Sigma Xi Grant-In -Aid of Research, 2004  
 Podium presentation at Materials Research Society Meeting, 2005  
 Contributing author on six papers.  
 Entered PhD program, University of Colorado, Boulder, CO

**Ryan Medeck**, 2000-2003, Master of Science, Morphogenetic messages in the extracellular matrix: The role of bone morphogenetic proteins (BMPs) and collagens.  
 Recipient of Sigma Xi Grant-In -Aid of Research, 2001, 2002.  
 Contributing author on three papers.

Employed by the Center for Disease Control.

**Sorcha (Cusack) Yingst**, 2000-2004, Master of Science, MeCP2 and gene silencing in neuronal differentiation; possible cause of Rett Syndrome. Boise State University.

Recipient of Sigma Xi Grant-In-Aid of Research, 2001, 2002.

Recipient of MSMRI Grant-In-Aid of Research, 2003-04

Contributing author on six papers.

Physician's Assistant program, Idaho State University.

Physician's Assistant, Twin Falls, moved to St Luke's Boise, ID.

**David Frisbie**, 1997-1999. The treatment of osteoarthritis in exercised horses using interleukin-1 receptor antagonist delivered using gene therapy. Doctor of Philosophy, Colorado State University, Thesis committee.

**Troy Trumble**, 1998-1999. Matrix metalloproteinase and cytokine tissue expression and synovial fluid protein levels in naturally occurring joint disease in horses Master of Science, Colorado State University, Thesis committee.

**Joanne Ingle Fehr**, 1996-1997. Comparison of Northern blot hybridization and a reverse transcriptase polymerase chain reaction technique for measurement of mRNA expression of metalloproteinases and matrix components in articular cartilage and synovial membrane from horses with osteoarthritis. Master of Sciences, Colorado State University.

**Mary L. Taylor**, 1994. *Trichinella spiralis* collagens of the cuticle. Master of Sciences, Portland State University, Thesis committee.

### ***Grants for Educational Purpose:***

Microarray analysis of gene expression for developmental studies, Course Development grant, 2002, Boise State University, \$980.

Enhancement of Developmental Biology Laboratory Course, 2004, Boise State University, \$650.

Merck/AAAS grant for undergraduate research at the interface of Chemistry and Biology, November 2, 2007, \$60,000 funded for three years, Co-P.I.s; Cornell, Jorcyk, McDougal, Charlier, Tinker, Oxford.

## **Research**

### ***Refereed Publications:***

1. Akihiro Iida, James Groarke, Soonheuy Park, Julia Thom, Jaime Zabicky, Gerald Hazelbauer and Linda Randall. "A signal sequence mutant defective in export of ribose-binding protein and a corresponding pseudorevertant isolated without imposed selection." (1985) **The EMBO Journal**, 4, 1875-80.
2. Simon J. S. Hardy, Julia R. Thom and Linda L. Randall. "Export of Protein." (1987) **Annual Reviews of Microbiology**, 41, 507-541
3. Julia R. Thom and Linda L. Randall. "The Role of the Leader Peptide of Maltose-Binding Protein in Two Steps of the Export Process." (1988) **Journal of Bacteriology**, 170, 5645-5661.
4. Julia R. Thom, Kurt Doege, Walter Horton and Nicholas P. Morris. "A stably transformed line of rat chondrocytes synthesize type XI but not type II collagen." (1990) **Journal of Cell Biology**, 111, 23a.

5. Julia R. Thom and Nicholas P. Morris. "Biosynthesis and proteolytic processing of Type XI collagen in embryonic chick sterna." (1991) **Journal of Biological Chemistry**, 266, 7262-7269.
6. Julia Thom Oxford, Kurt J. Doege, Walter E. Horton, Jr. and Nicholas P. Morris. "Characterization of type II and type XI collagen synthesis by an immortalized rat chondrocyte cell line (IRC) having a low level of type II collagen mRNA expression." (1994) **Experimental Cell Research**, 213, 28-36.
7. Morris, N.P., Keene, D.R. and Oxford, J.R.T., "Ultrastructural localization of type XI collagen in human growth plate cartilage." (1994) **Transactions Orthopaedic Research**, 19, 423.
8. Y. Li, D.A. Lacerda, M.L. Warman, D.R. Beier, H. Yoshioka, Y. Ninomiya, J.T. Oxford, N.P. Morris, K. Andrikopoulos, F. Ramirez, B.B. Wardell, G. D. Lifferth, C. Teuscher, S.R. Woodward, B.A. Taylor, R.E. Seegmiller, and B.R. Olsen. "A Fibrillar collagen gene, Col11a1, is essential for skeletal morphogenesis." (1995) **Cell**, 80, 423-430.
9. Julia Thom Oxford, Kurt J. Doege and Nicholas P. Morris. "Alternative exon splicing within the amino terminal-nonhelical domain of the rat pro $\alpha$ 1(XI) collagen chain generates multiple forms of the mRNA transcript which exhibit tissue dependent variation." (1995) **Journal of Biological Chemistry**, 270:9478-9485.
10. Douglas R. Keene, Julia Thom Oxford and Nicholas P. Morris. "Ultrastructural localization of collagen types II, IX and XI in the growth plate of human rib and fetal bovine epiphyseal cartilage: type XI collagen is restricted to thin fibrils." (1995) **Journal of Histochemistry and Cytochemistry**, 43:967-979.
11. GBM Davis, JRT Oxford, and NP Morris. "Expression of  $\alpha$ 1(XI) variants in developing cartilage." (1996) **Transactions Orthopaedic Research**, vol. 21.
12. GBM Davis, JRT Oxford, LC Hausafus, BF Smoody and NP Morris. "Temporal and spatial expression of spliceforms of the  $\alpha$ 1(XI) collagen gene in fetal rat cartilage" (1998) **Developmental Dynamics**, 213:13-26.
13. Oxford, J., Frisbie, D., Trotter, G., Rodkey, W., Steadman, J., McIlwraith, C. "Enhancement of Articular cartilage repair of the femoral condyle using subchondral plate microfracture: early expression of cartilage-specific markers indicating chondrogenesis" (1999) **Transactions Orthopaedic Research**, vol 24, p. 678.
14. Gregory, K., Chen, Y., Mechling, D., Smoody, F., Oxford, J., Morris, N. "Structure of the amino terminal domain of the alpha-1(XI) collagen chain" (1999) **Transactions Orthopaedic Research**, vol 24, p. 812.
15. Gregory, K.E., Oxford, J.T., Chen, Y., Gambee, J. and Morris, N.P. "Structural organization of distinct domains within the non-collagenous N-terminal region of collagen type XI" (2000) **Journal of Biological Chemistry**, 275: 11498-506.
16. Chen, Y., Sumiyoshi, H., Gregory, K., Smoody, B., Oxford, J., Morris, N., "Regulation of alternative splicing of the amino terminal domain of alpha-1(XI) collagen". (2000), **Transactions Orthopaedic Research**, vol 25, p. 9768.
17. Oxford, J., Taylor, M., DeScala, J. "Osteoprotegerin is expressed in degenerative joint disease". (2000) **Transactions Orthopaedic Research**, vol 25, p. 1019.
18. Morris, N.P , Oxford, J.T., Davies, G.B.M., Smoody, B.F., Keene, D.R . "Developmentally regulated alternative splicing of the alpha 1 (XI) collagen chain: spatial and temporal segregation of isoforms in the cartilage of fetal rat long bones" (2000) **J Histochemistry and Cytochemistry**, 48: 725-41.
19. Fehr, J., Trotter, G.W., Oxford, J.T. "Comparison of Northern blot hybridization and a reverse transcriptase-polymerase chain reaction technique for measurement of mRNA expression of metalloproteinases and matrix components in articular cartilage and synovial membrane from horses with osteoarthritis." (2000) **American Journal of Veterinary Research**, 61:900-5.

20. Lampi, K.J., Oxford, J.T., Shearer, T.R., David, L.L., Bachinger, H.P. and Kapfer, D., "Deamidation of human bB1 alters the elongated structure of the dimmer" (2001) **Experimental Eye Research**, 72(3):279-88.
21. Trumble, T.N., Trotter, G.W., Oxford, J.T., McIlwraith, C.W., Billinghamurst, R.C., Frisbie, D.D. "Synovial fluid gelatinase concentrations and matrix metalloproteinase and cytokine expression in naturally occurring joint disease in horses".(2001) **American Journal of Veterinary Research**, 62(9):1467-77.
22. Chen Y, Sumiyoshi H, Oxford JT, Yoshioka H, Ramirez F, P Morris N." Cis-acting elements regulate alternative splicing of exons 6A, 6B and 8 of the alpha1(XI) collagen gene and contribute to the regional diversification of collagen XI matrices". (2001) **Matrix Biology** 20(8):589-99.
23. Frisbie, DD, Oxford, JRT, Southwood, L., Trotter, GW, Rodkey, WG, Steadman, JR, Goodnight, J.L., McIlwraith, CW. "Early events in cartilage repair after subchondral bone microfracture" (2003) **Clinical Orthopaedics and Related Research**, 407:215-227.
24. Irwin, K., Doan, Phuong, Schimpf, Martin, Oxford, Julia Thom "Studies of type XI collagen interaction" (2003) **Proceedings of the National Conference on Undergraduate Research (NCUR)**, pp 1-8.
25. Medeck, RJ, Sosa, S., Morris, NP, Oxford, JT. " BMP-1-mediated proteolytic processing of alternatively spliced isoforms of collagen type XI."(2003) **Biochemical Journal**, 376: 361-8.
26. Oxford JT, DeScala J, Morris N, Gregory K, Medeck R, Irwin K, Oxford R, Brown R, Mercer L, Cusack S., " Interaction between amino propeptides of type XI procollagen alpha1 chains (2004) **J Biol Chem**. 279:10939-10945.
27. Rohn TT, Cusack SM, Kessinger SR, Oxford JT "Caspase activation independent of cell death is required for proper cell dispersal and correct morphology in PC12 cells". (2004) **Experimental Cell Research**, 295: 215-225.
28. Cusack SM, Rohn TT, Medeck RJ, Irwin KM, Brown RJ, Mercer LM, Oxford JT " Suppression of MeCP2beta expression inhibits neurite extension in PC12 cells" (2004) **Experimental Cell Research** 299: 442-53.
29. Fallahi, A., Kroll, B., Warner, L., Oxford, R., Irwin, K., Mercer, L., Shadle, S., Oxford, JRT. "Structural model of the amino propeptide of collagen XI alpha 1 chain with similarity to the LNS domains" (2005) **Protein Science**, 14(6) 1526-1537.
30. Warner, L.R., Fallahi, A., Irwin, K., Yingst, S., Shadle, S., Oxford, J.T., "Modeling and characterization of the amino propeptide of collagen  $\alpha 1(XI)$ , a regulatory domain in collagen fibrillar architecture" (2005) **Proceedings of the Materials Science Research Society**, L.4.9.1-L.4.9.6.
31. Gerritsen, M., Hampikian, J., Knowlton, W., Oxford, J., Warner, L., Araujo, D., and Clark, Z. "Collagen fibrillogenesis on Ti-6Al-4V-ELI" in **Coatings, Materials Science and Technology**, (2005) pp. 97-100.
32. Warner, L., Brown, R., Yingst, S and Oxford, J "Isoform-specific heparan sulfate binding within the amino terminal noncollagenous domain of collagen  $\alpha 1(XI)$ " , (2006) **Journal of Biological Chemistry**, 281:39507-16.
33. Warner, L., Blasick, C., Brown, R., Oxford, J. "Expression, purification and refolding of recombinant collagen  $\alpha 1(XI)$  amino terminal domain splice variants", (2007) **Protein Expression and Purification**, 52:403-409.
34. Dufty, BM, Warner, LR, Hou, ST, Jiang, SX, Gomez-Isla, T, Leenhouts, KM, Oxford, JT, Feany, MB, Masliah, E, Rohn TT, "Calpain-cleavage of a-synuclein; connecting proteolytic processing to disease-linked aggregation" (2007) **Neurobiology** 170:1725-38.

35. Takata, T, Oxford JT, Brandon, TR, Lampi KJ, "Deamidation alters the structure and decreases the stability of human lens betaAlpha3-crystallin" (2007) **Biochemistry**, 46:8861-71.
36. Gerritsen, M, Oxford, J.T., Frary, M., Henderson, J., Hampikian, J.M. "Immuno-SEM characterization of developing bovine cartilage", (2008) **Materials Science and Engineering: C**, 28:341-346.
37. Kahler, R., Yingst, S., Krawczak, D., Oxford, J., and Westendorf, J. "Collagen 11a1 is indirectly activated by Lymphocyte Enhancer-binding factor 1 (Lef1) and negatively regulates osteoblast maturation" (2008) **Matrix Biology**, 27(4):330-8. PMCID: PMC2431459 [Available on 05/01/09].
38. Bowen, KB, Reimers, AP, Luman, S, Kronz, JD, Fyffe, WE, Oxford, JT "Immunohistochemical localization of collagen type XI alpha 1 and alpha 2 chains in human colon tissue" (2008) **Journal of Histochemistry and Cytochemistry**, 56:275-283. PMCID: PMC2324180 [Available on 03/01/09]
39. Halsted, KC, Bowen, KB, Bond, L, Jorcyk, CJ, Fyffe, WE, Kronz, JD, Oxford, JT "Collagen XI  $\alpha$ 1 in normal and malignant breast tissue", (2008) **Modern Pathology**. 21:1246-54. NIHMS# 77903.
40. Takumi Takata, Julie T Oxford, Borries Demeler, and Kirsten J Lampi, "Deamidation destabilizes and triggers aggregation of a lens protein, A3-crystallin", (2008) **Protein Science**. 17:1565-75. PMCID: PMC2525517 [Available on 09/01/09]
41. Yingst, S, Cole, J., Warner, L., Bloxham, K., Brown, R., Kenoyer, L., Knowlton, B., Oxford, JRT., "Characterization of Collagenous Matrix Assembly in a Chondrocyte Model System" (2009) **Journal of Biomedical Materials Science**, 90:247-55.
42. Toumpoulis IK, Oxford JT, Cowan DB, Anagnostopoulos CE, Rokkas CK, Chamogeorgakis TP, Angouras DC, Shemin RJ, Navab M, Ericsson M, Federman M, Levitsky S, McCully JD. "Differential expression of collagen type V and XI alpha-1 in human ascending thoracic aortic aneurysms", (2009), **Ann Thorac Surg**. 88:506-13.
43. Fang M, Adams JS, McMahan BL, Brown RJ, Oxford JT. The expression patterns of minor fibrillar collagens during development in zebrafish **Gene Expr Patterns** 2010 Oct-Dec;10(7-8):315-22. Epub 2010 Jul 18, PMC2956583 [Available on 2011/10/1]
44. Jeff P. Gorski, Nichole T. Huffman, Sridar Chittur, Ronald J. Midura, Claudine Black, Julie Oxford, and Nabil G. Seidah Inhibition of SKI-1 proprotein convertase and caspase-3 blocks transcription of key extracellular matrix genes regulating osteoblastic mineralization, **J Biol Chem**. 2010 Nov 13. [Epub ahead of print]
45. Tawara, Kenneth, Oxford, Julia Thom, Jorcyk, CL. "Clinical significance of interleukin (IL)-6 in cancer metastasis to bone: potential of anti-IL-6 therapies." (2011) **Cancer Management Research**, 2011;3:177-89. Epub 2011 May 18
46. Brown, R., Mallory, C., McDougal, O.M., Oxford, J.T. "Proteomic analysis of Col11a1-associated protein complexes". (2011) **PROTEOMICS**, in press.
47. Mallory, C., McDougal, O.M., Oxford, J.T. "Collagen Type XI alpha 1 Chain Amino Propeptide Structural Model and Glycosaminoglycan Interactions in Silico" (2011) **BIOCOMP Proceedings**, in press.
48. McDougal, O.M., Mallory, C., Warner, L.R., Oxford, J.T. "Predicted structure and binding motifs of alpha 1 (XI) collagen" submitted, 2011, ACS J. Med. Chem.

## ***Research Funding:***

### **Current funding:**

1. TITLE: Regulation of cell signaling by Col11a1 during craniofacial development in the zebrafish  
DURATION: 09/01/09 to 08/31/12  
AGENCY (FUNDING SOURCE): NIH (NICHD)  
ROLE ON PROJECT: Principal Investigator  
TOTAL AWARD: \$211,500  
Objective: To investigate the role of minor fibrillar collagens in craniofacial development using a zebrafish model system. To provide research opportunities for undergraduate students.
2. TITLE: Molecular Mechanisms of Cellular Mechanoreception in Bone  
DURATION: 9/1/2010 – 8/30/13  
AGENCY: NASA  
ROLE ON PROJECT: Principal Investigator  
TOTAL AWARD: \$716,733  
Objective: To investigate the mechanism of cellular response to changes in gravitational force. Information will inform the health concerns of individuals with osteoporosis as well.
3. TITLE: Idaho INBRE Program (PI: Carolyn Hovde Bohach)  
DURATION: 7/15/04 to 6/31/14  
FUNDING SOURCE: Funding Source: NIH (NCRR)  
ROLE ON PROJECT: Co-PI  
TOTAL AWARD: \$16.2M (\$2.6 M to Boise State University for INBRE 1, \$4.1 M to Boise State University for INBRE 2, \$443,751 for ARRA supplement)  
Objective: To build a lasting change in biomedical research in Idaho in the form of new research opportunities and an increase in research infrastructure at Idaho Universities. To create and sustain jobs and accelerate the pace of research discovery.
4. TITLE: Acquisition of a Liquid Chromatography - Tandem Mass Spectrometer (LC/MS)(P.I.: Ken Cornell)  
DURATION: Sept 2009 – August 2012  
AGENCY: NSF  
ROLE ON PROJECT: Co-PI  
AMOUNT REQUESTED: \$597,877  
Objective: Instrument acquisition
5. TITLE: NSF Engineering Education Research to Practice (E2R2P) (Don Pumlee, Linda Huglin, Steve Villachica, P.I.)  
DURATION: 10/01/2010 – 9/30/2013  
AGENCY: NSF  
ROLE ON PROJECT: Sounding board member,  
AWARD AMOUNT: \$150,000  
Objective: To discover how to improve the process by which engineering education research is brought into practice.

## **Previous funding:**

1. Topoisomerase II and the regulation of gene expression by higher-ordered chromatin structure; January 1987-December 1988, Postdoctoral fellowship, Funded by ISREC, Swiss Institute for Experimental Cancer Research, SF 45,000.
2. Cartilage Matrix Proteins; 1989-1995, Postdoctoral Fellowship, Funded by Shriners Hospital.
3. The role of type XI collagen in the functional integrity of normal and osteoarthritic cartilage; July 1996-June 1999, Principal Investigator, Funded by Arthritis Foundation, Biomedical Science Grant, \$225,000.
4. Biological resurfacing of large articular cartilage defects; July 1996-September 1998 Co-Investigator, (P.I. C.W. McIlwraith) Funded by Steadman-Hawkins Sports Medicine Foundation and National Football League Charities (NFL) \$60,000.
5. Application of a small sample extraction technique and quantitative polymerase chain reaction in the analysis of mRNA, DNA and protein from normal and osteoarthritic equine articular cartilage; July 1996-June 1997 Co-Investigator, (P.I. Gayle Trotter) Funded by CSU College Research Council, \$9,400.
6. Synovial fluid and tissue expression of degradative enzymes, inflammatory mediators and cytokines in naturally occurring joint disease in horses; July 1997-June 1998 Co-Investigator, (P.I. Gayle Trotter) Funded by CSU College Research Council, \$34,000.
7. Synovial fluid and tissue expression of degradative enzymes, inflammatory mediators and cytokines in naturally occurring joint disease in horses--equipment; September 1997, Co-Investigator, (P.I. Gayle Trotter) Funded by Southern California Equine Foundation, \$11,095.
8. The treatment of osteoarthritis in exercised horses using interleukin-1 receptor antagonist delivered using gene therapy; January 1998 Principal Investigator, Funded by Southern California Equine Foundation, \$49,306.
9. Collagen Type XI in skeletal development and disease; February 1999, Principal Investigator, Funded by Gerlinger Foundation, \$24,988.
10. X-ray diffraction studies of protein structures, 1998, Collaborator (P.I. Oren Anderson) Funded by Research Corporation, \$25,000.
11. Type XI collagen in extracellular matrix assembly; March 1, 2000 to February 28, 2001 Principal Investigator, MRF, OHSU, \$25,000.
12. Biomedical Optics for Medical Research and Clinical Care; June 1, 2000 to May 31, 2005, NIH, Investigator (P.I. Steven Jacques) \$3,115,625 total, of which \$210,000 is designated for "Biomechanical and Optomechanical characterization of laboratory-generated cartilage" subproject-JTO).
13. NSF-EPSCOR "Acquisition of a peptide synthesizer" duration: 1 year, 2002, amount requested: \$15,000.
14. NSF MRI/RUI "Acquisition of an EPR Spectrometer for Collaborative Research and Materials Science Education", \$338,795 09/01/03 to 08/31/06.
15. Biomedical Research Infrastructure Network for Idaho, October 1, 2001 to June 30, 2004, NIH Co-Investigator (Michael Laskowski, PI), \$6,000,000 total of which \$1,383,947 was designated for BSU.
16. Supplement to Biomedical research infrastructure Network for Idaho, \$2,000,000 total, of which \$496,583 was designated for BSU.
17. MSMRI "Role of MeCP2 in neuronal cell differentiation and Rett syndrome", \$5,000, June, 2003-May, 2004.
18. Molecular regulation of bone density and trabecular structure. 10/2005 to 6/2005, NASA Idaho EPSCoR, \$4000.
19. NSF MRI/RUI "Acquisition of a Transmission Electron Microscope for Multidisciplinary Research and Education" 09/01/05 to 08/31/07, Co-PI, \$691,910.
20. Collaborative Grant Improvement Initiative, 07/01/05 to 06/30/07, Boise State University, Principal Investigator, \$150,000.
21. Investigating the role of collagen type XI in the structural integrity of cartilage tissue, 03/15/05 to 03/14/07, NASA Idaho Space Grant consortium, Principal Investigator, \$30,000.
22. Type XI collagen isoforms in skeletal biology, February 1, 2001 to January 31, 2008, NIH RO1, Principal Investigator, \$1,349,811.
23. Type XI collagen isoforms in skeletal biology-Independent Scientist Award, Career Development Grant, September 1, 2002 to August 31, 2007, NIH, Principal Investigator, \$385,516.
24. NSF MRI/RUI:Acquisition of a Confocal Microscope for Multidisciplinary Research &Education, 09/01/06 to 08/31/10, NSF, Principal Investigator, \$348,000.

25. MJ Murdock Charitable Trust, Investigating mechanisms of alcohol-induced liver fibrosis using a zebrafish model system (P.I.: Kristen Mitchell), 5/17/10 to 12/31/11, Collaborator, \$15,000
26. Musculoskeletal Research Center, 07/01/07 to 06/30/11, Idaho State Board of Education, HERC, Principal Investigator, \$1,000,000.

### ***Invited Lectures and Presentations:***

- “Export of Protein in Escherichia coli.” Linfield College, McMinnville, OR, 1983.
- “Export of Protein.” Biocenter, Basel, Switzerland, 1985.
- “Export of Protein.” European Molecular Biology Laboratory, Heidelberg, Germany, 1985.
- “Export of Maltose-binding Protein in Escherichia coli.” University of Utrecht, Biochemistry Department, Utrecht, the Netherlands, 1985.
- “Export of Protein in Escherichia coli.” University of Munich, Department of Physiology and Biochemistry, Munich, Germany, 1986.
- “The Role of the Leader Peptide in Two Steps of the Export Process.” Department of Cell Biology, Battelle Pacific Northwest Laboratories, Richland, WA, 1988.
- “Intermediates in the Biosynthesis of Type XI Collagen.” Western Connective Tissue Society, Santa Cruz, CA, 1990.
- “A Stably Transformed Line of Chondrocytes Synthesizes Type XI but not Type II Collagen.” Western Connective Tissue Society, Portland, OR, 1991.
- “The Export of Protein in E. coli and into the Extracellular Matrix of Eukaryotic cells”, Department of Microbiology, Colorado State University, Fort Collins, CO, 1995.
- “The role of Type XI Collagen in the functional integrity of Normal and Osteoarthritic Cartilage”, Equine Orthopaedic Research Program, Colorado State University, Fort Collins, CO, 1996.
- “Type XI Collagen in the functional integrity of Normal and Osteoarthritic Cartilage”, Department of Orthopaedic Research, University of New Mexico School of Medicine, Albuquerque, NM 1997.
- “Maintenance of Structural Integrity in Cartilage”, Department of Oral Molecular Biology, Oregon Health Sciences University, Portland, OR 1998.
- “The molecular mechanism of type XI collagen function. ” Arthritis Research Conference, Atlanta, GA August, 1999.
- “The role of extracellular matrix molecules in skeletal development” University of Idaho, Department of Microbiology, Molecular Biology and Biochemistry, Moscow, ID November, 2001.
- “Extracellular matrix molecules in development and disease” Boise State University, Chemistry Department, January 2002.
- “Role of extracellular matrix molecules in development and disease” Mountain States Medical Research Institute, Board of Directors, February 5, 2002.
- “Computational Methods in the structural analysis of the Npp domain of Collagen XI, a TSPN domain”, Bioinformatics, BRIN, August, 2002, Moscow, Bioinformatics in Idaho.
- “Extracellular matrix molecules in skeletal development” Idaho State University, Department of Pharmacology, Pocatello, ID 2002
- “BMP-1 Mediated proteolytic processing of collagen type XI”; Medeck, Sosa and Oxford; Northwest Regional Developmental Biology Conference, March 2003
- “Role of MeCP2 in neuronal differentiation and Rett Syndrome”; Cusack and Oxford; Northwest Regional Developmental Biology Conference, March 2003
- “Rett Syndrome, MeCP2 in neuronal differentiation” Rett Syndrome Symposium, April, 2004.
- “Type XI collagen in skeletal development” Brigham Young University, Provo, Utah, 2004.
- “Collagen XI isoforms in skeletal biology” Boise State University, Department of Materials Science and Engineering, September 24, 2004.
- “Collagen XI isoforms in skeletal biology” Washington State University, Vancouver, WA September 28, 2004.

- “Collagen type XI and the structural integrity of cartilage” Materials Research Society, San Francisco, March, 2005
- “Neuronal differentiation is blocked in the absence of MeCP2; rescued by caspase inhibitor” International Rett Syndrome Consortium, Victoria, British Columbia, August, 2005
- “Collagen XI in bone trabeculae formation” NASA ISGC Moscow, Idaho, October 24, 2005
- “Development of a model system for Rett syndrome”, University of Idaho, Neuroscience Program, October 27, 2005
- “Collagen XI isoforms in skeletal biology” University of Idaho, Department of Biological Sciences October 28, 2005
- “Characterization of Recombinant Isoforms of the Amino Propeptide Globular Domain of Type XI Collagen by SRCD and cCD”, Lisa Warner, Raquel Brown, Christina Blasick, Sorchia Yingst, Rohn McCune, Julia Thom Oxford, Daresbury, UK, September 2005
- “Collagen XI isoforms in skeletal biology” November 3, 2005, Julia Thom Oxford, College of Idaho
- “Collagen Fibrillogenesis on Ti-6Al-4V-ELI”, MS&T conference in Pittsburg, Michelle Gerritsen, Bill Knowlton, Janet Hampikian, Julie Oxford, 9/27/2005
- “Modeling and characterization of the amino propeptide of collagen  $\alpha 1(XI)$ , a regulatory domain in collagen fibrillar architecture”, in Structure and Mechanical Behavior of Biological Materials, edited by Rizhi Wang Lisa Rose Warner, Arzhang Fallahi, Becky Kroll, Sorchia Yingst, Susan Shadle, Julia Thom Oxford: (Mater. Res. Soc. Symp. Proc. 874E, Warrendale, PA, 2005), L4.9.
- “Molecular interactions of the extracellular matrix”, INBRE Annual Research Conference, Julia Thom Oxford, Moscow ID, 2007.
- “The role of extracellular matrix in cell signaling”, *INBRE Research Network*, Oxford JRT, Jorcyk CL, McDougal O. Boise, Idaho, June 22, 2010.
- “Biom mineralization Foci”. *AADR Annual Meeting*, Pernoud D, Gorski J, Oxford JRT. Washington, DC USA March 3-6, 2010. “Extracellular Matrix modulates cell signaling”. INBRE Annual Research Conference, Julia Oxford, Cheryl Jorcyk, Owen McDougal, Moscow ID, 2010. “Molecular Mechanisms of mechanoreception in bone”. NASA ISGC, Julia Thom Oxford, Troy Rohn, Cheryl Jorcyk, Kristen Mitchell, August 18-19, 2010.
- “Rotating Wall Bioreactor for investigations into the molecular mechanisms of mechanoreception in bone”. Benjamin Davis, Stephanie Frahs, Jake Goyden, Lindsey Catlin, Julia Thom Oxford, Troy Rohn, Cheryl Jorcyk, Kristen Mitchell, Idaho National Laboratories, CAES, NASA ISGC, May 26-27, 2011

### ***Contributed papers and posters at professional meetings:***

- Julia R. Thom and N. P. Morris, “Biosynthesis and proteolytic processing of type XI collagen.” Third International Conference of Molecular Biology and Pathology of Matrix. June, 1990.
- Julia R. Thom, K. J. Doege, W. Horton and N.P. Morris, “A stably transformed line of rat chondrocytes synthesizes type XI but not type II collagen.” *J. Cell. Biol.* 111:23a, 1990.
- Julia Thom Oxford, K.J. Doege, W. E. Horton, Jr. and N.P. Morris, “Characterization of type II and type XI collagen synthesis by an immortalized rat chondrocyte cell line deficient in  $\alpha 1(II)$  mRNA.” Keystone Symposium, 1993.
- Julia Thom Oxford, K.J. Doege, and N.P. Morris, “Analysis of the structure of the amino propeptide of  $\alpha 1(XI)$  collagen” *Molec. Biol. Cell*, 4:65a, 1993.
- Y. Li, D. Lacerda, M. Warman, D. Beier, J.T. Oxford, N.P. Morris, K. Andrikopoulos, F. Ramirez, B. Taylor, R. Seegmiller, and B.R. Olsen. “An abnormality in  $\alpha 1(XI)$  collagen causes autosomal recessive chondrodysplasia (cho) in mice. *Mol. Biol. Cell*, 4:7a, 1993.
- D. R. Keene, J.T. Oxford and N. P. Morris, “Immunolocalization of collagen types II, IX and XI in the growth plate of human rib cartilage by electron microscopy.” *Mol. Biol. Cell*, 4:289a, 1993.
- Julia Thom Oxford and N.P. Morris, “Characterization of collagen synthesized by IRC cells.” *J. Cell Biochem.*, 17E:156, 1993.
- N.P. Morris, D.R. Keene and J.T. Oxford, “Ultrastructural localization of type XI collagen in human growth plate cartilage.” *Transactions, Orth. Res. Soc.*, 19: 423, 1994.

- N.P. Morris, K.J. Doege and J.T. Oxford, "Alternative structure of the pro  $\alpha 1(XI)$  amino terminal domain." Western Connective Tissue Soc., 1994.
- N.P. Morris, J.T. Oxford and K.J. Doege, "Alternative splicing in the amino-terminal domain of pro  $\alpha 1(XI)$  generates polymorphic structures which show tissue specific expression." Fifth International Conference on the Molecular Biology and Pathology of Matrix, 1994.
- N. Morris, J. Thom Oxford and K. Doege Alternative splicing in the N-terminal domain of Pro $\alpha 1(XI)$  generates polymorphic structures which show tissue-specific expression, *Matrix Biology, Volume 14, Issue 5, September 1994, Pages 361-362*
- J. Oxford, D. Frisbie, L. Southwood, L. Hausafus, J. Goodnight, S. Cammarata, G. Trotter, W. Rodkey, W. McIlwraith, "Early events in articular cartilage repair--an equine model for enhancement of repair". Keystone Symposium on Wound repair, 1998.
- J. Oxford, D. Frisbie, G. Trotter, W. Rodkey, J. Steadman, W. McIlwraith, "Enhancement of articular cartilage repair of the femoral condyle using subchondral plate microfracture: Early expression of cartilage specific markers indication chondrogenesis". Orthopaedic Research Society Meeting, February, 1999.
- Gregory, K.E., Chen, Y., Mechling, D.E., Smoody, B.F., Oxford, J.T., Morris, N.P., "Structure of the amino terminal domain of the alpha-1(XI) collagen chain." Orthopaedic Research Society Meeting, February, 1999.
- Oxford, J., "The molecular mechanism of type XI collagen function." Arthritis Research Conference, August, 1999.
- Oxford, J.T., Descala, J.A., Morris, N.P., Gregory, K.E., Topping, T.B., and Randall, L.L. "Interaction between type XI pro-collagen molecules via the amino propeptides of  $\alpha 1(XI)$  chains is coupled to proteolytic processing." Molecular Biology of the Cell, 11:265a.
- Kristovich, SR and Oxford, JRT. "Effects of  $\alpha 1(XI)$  collagen isoforms on the structural and functional properties of the vitreous humor." , 221st National Meeting of the American Chemical Society.
- Oxford, JRT and Lampi, KJ, "Deamidation of human  $\alpha B1$  crystallin alters the dimer structure" International Light Scattering Colloquium 2001, October 22 and 23, 2001
- Medeck, R., Sosa, S. and Oxford, J., "BMP-1 processing of collagen type XI isoforms" American Society for Matrix Biology, November, 2002.
- Cusack, S., Rohn, T., Oxford, J., "A PC12 cell model for Rett syndrome caused by MeCP2 mutations" American Society for Cell Biology, December, 2002.
- Medeck, R., Sosa, S., and Oxford, J., "BMP-1 mediated proteolytic processing of collagen type XI", American Society for Cell Biology, December, 2002.
- Medeck, R., Sosa, S., and Oxford, J., "BMP-1 mediated proteolytic processing of collagen type XI", Society for Developmental Biology, Northwest Region, March, 2003.
- Cusack, S., Rohn, T., Oxford, J., "A PC12 cell model for Rett syndrome caused by MeCP2 mutations" Society for Developmental Biology, Northwest Region, March, 2003.
- Lisa Warner, Arzhang Fallahi, Becky Kroll, Linda Mercer, Katey Irwin, Julia Thom Oxford, "Structural model of the amino propeptide of collagen XI alpha1chain, LNS Collagens- Structure and Mechanistic Insights" American Society for Matrix Biology, San Diego, CA, November, 10, 2004.
- Lisa Rose Warner, Arzhang Fallahi, Becky Kroll, Sorchia Yingst, Susan Shadle, Julia Thom Oxford: Modeling and characterization of the amino propeptide of collagen  $\alpha 1(XI)$ , a regulatory domain in collagen fibrillar architecture, in Structure and Mechanical Behavior of Biological Materials, edited by Rizhi Wang (Mater. Res. Soc. Symp. Proc. 874E, Warrendale, PA, 2005), L4.9.
- Cui, C., Henderson, E., Keightley, A., Oxford, J., Rowe, P., Midura, S., and Gorski, J. "Characterization of proteins enriched in mineralized biomineralization foci supports their role in mineral crystal nucleation", American Society for Bone and Mineral Research, Philadelphia, PA, September, 2006.
- Oxford, Julia, Lisa Warner, Noriko Hazeki-Taylor, Raquel Brown, Christina Blasick, "Heparan sulfate binding sites within the amino terminal noncollagenous domain of Collagen type XI", International Growth Plate Workshop, Stevenson, WA, 2006.
- Oxford, J.T., L.R. Warner, R.J. Brown and C. Blasick "Heparan sulfate binding sites within collagen  $\alpha 1(XI)$  NTD" *Matrix Biology, Volume 25, Supplement 1, November 2006, Page S69* American Society for Matrix Biology, Nashville, TN, 2006.

- Hazeki\_Taylor, K.M. Irwin, R.J. Brown and J.T. Oxford, "Collagen interacting proteins in fetal bovine cartilage", *Matrix Biology, Volume 25, Supplement 1, November 2006, Pages S73-S74*, American Society for Matrix Biology, Nashville, TN, 2006.
- Gerritsen, Michelle, Julia T. Oxford, Megan Frary, Jonathan Henderson, Janet M. Hampikian, "Immuno-SEM Characterization of Developing Bovine Cartilage", *Materials Science and Engineering*, 2006.
- Knowlton, William B, David Araujo, Patrick Price, Jason Brotherton, Kendra Coonse, Richard G. Southwick III, Amy J. Moll, Julia Thom Oxford "Development of Biomolecular Nanostructure Sensor Arrays", AAAS Pacific Division, Boise, ID, 2007.
- Oxford, JT, Raquel Brown, Noriko Hazeki-Taylor "Molecular Interactions within the Extracellular Matrix of Cartilage", AAAS Pacific Division, Boise, ID, 2007.
- Brown, Raquel, Julia Thom Oxford, "Identification of Proteins that Interact with the Surface of Collagen Fibrils" American Society for Bone and Mineralization Research, Honolulu, HI, 2007.
- Adams, Jason , Raquel Brown, Jeremiah Maschmann, Katey Irwin, Luke Woodbury, Linda Mercer, Julia Thom Oxford "Developmental Expression of Collagen Type XI in Zebrafish (*Danio rerio*)", AAAS Pacific Division, Boise, ID, 2007.
- Woodbury, Luke, Dawn Muhlestein, Julia Thom Oxford "Characterization of the Collagen type XI Isoforms using Analytical Ultracentrifugation and Circular Dichroism Spectropolarimetry", AAAS Pacific Division, Boise, ID, 2007.
- Maschmann, Jeremiah M., Julia Thom Oxford, Jason S. Adams "Identification of Collagen Gene Loci in *Danio rerio*", AAAS Pacific Division, Boise, ID, 2007.
- Muhlestein, Dawn, T.S. Broyles, James Cole, Julia Thom Oxford, Susan E. Shadle "The Effects of Trifluoperazine on Calsequestrin Structure and Protein Aggregation", AAAS Pacific Division, Boise, ID, 2007.
- Brown, Raquel, Julia Thom Oxford, "Identification of Proteins that Interact with the Surface of Collagen Fibrils", AAAS Pacific Division, Boise, ID, 2007.
- Knowlton, William B., Kaci Bloxham, Jen Cole, Zach Heuman, Lisa Warner, Sorchia Yingst, Linda Kenoyer, Julia Thom Oxford, "A nanometer scale perspective on cartilage genesis", AAAS Pacific Division, Boise, ID, 2007.
- Hoskins, Nathan, Amber Pedracini, Linda Mercer, Julia Thom Oxford, "Bone microarchitecture is dependent upon Collagen  $\alpha 1(XI)$  expression during development", American Society for Bone and Mineral Research, Montreal, 2008
- Huffman, NT, C. Chaoying, SV Chittur, JT Oxford, JA Keightley, RJ Midura, JP Gorski, "Enrichment of type XI collagen and 6b N-terminal domain at sites of mineral nucleation within osteoblastic cultures" American Society for Bone and Mineral Research, Montreal, 2008
- S.R. Simonson, G. Hynes, J. Galanter, S. Price, J. Oxford, and K.G. Shea The effect of treadmill walking exercise with a partial reduction of body weight on knee osteoarthritis disease progression. *Arthritis Symposium, St. Alphonsus Regional Medical Center, May 1, 2009* Luke Woodbury and Julia Oxford, Interactions between Collagen and Chondroitin Sulfate. *Arthritis Symposium, St. Alphonsus Regional Medical Center, May 1, 2009*
- Anthony R. Hafez, Nathan J. Hoskins, Linda M. Mercer, Robert E. Seegmiller, Julia T. Oxford, Analysis of Craniofacial Skeletal Mineralization in a Mouse model of Stickler syndrome. *Arthritis Symposium, St. Alphonsus Regional Medical Center, May 1, 2009*
- Ming Fang, Jason Adams, Lane McMahon, Julia Oxford, Craniofacial Skeletal Development: Zebrafish model system for human development, *Arthritis Symposium, St. Alphonsus Regional Medical Center, May 1, 2009*
- Julie Oxford, Department of Biological Sciences, Biomarkers of Joint development: Potential Biomarkers for Osteoarthritis? Boise State University, *Arthritis Symposium, St. Alphonsus Regional Medical Center, May 1, 2009*
- Kristen Mitchell, Cheryl Jorcyk, Troy Rohn, Julie Oxford, Molecular Mechanisms of Cellular Mechanoreception in Bone Department of Biological Sciences, Boise State, *Arthritis Symposium, St. Alphonsus Regional Medical Center, May 1, 2009*
- McMahon, Lane, Jason Adams, Raquel Brown, Jeremiah Maschmann, Linda Mercer, Julia T. Oxford. Seminar. Developmental Expression and Function of Collagen Type XI in Zebrafish (*Danio rerio*). Western

- Student Medical Research Forum, Carmel California. Awarded - WAFMR/WSCI/WSPR Outstanding Student Research Award. (2009)
- Jeffrey Gorski, Nichole Huffman, Sridar Chittur, Sharon Midura, Ronald Midura, Julie Oxford, Nabil Seidah. Mineralization of Osteoblastic Cultures Requires SKI-1 (site-1) Protease. American Society for Bone and Mineral Research, September 11-15, 2009, Denver, CO.
- Jeff P. Gorski<sup>1</sup>, Nichole T. Huffman<sup>1</sup>, Oxford, J.T.<sup>2</sup>, Seidah, N.G.<sup>3</sup>, and Midura, R.J. PROCESSING OF BONE SIALOPROTEIN DURING BONE BIOMINERALIZATION. FASEB Summer Research Conference; Osteopontin Biology, Steamboat Springs, Colorado, August 2010
- Jeffrey P. Gorski, Nichole Huffman, Sridar Chittur, Ronald J. Midura, Dina Black, Julia RT Oxford, Nabil G. Seidah, Transcription of Collagens I and XI, Phex, Dmp1, and Fibronectin by Osteoblastic/Osteocytic Cells is Co-ordinately Regulated. American Society for Bone and Mineral Research, Toronto, Canada, October 15-19, 2010
- Mikelonis D, Fang M, Brown RJ, Oxford JRT. Analyzing Collagen Alpha 1(XI) Using a Zebrafish Model System, presented at the 2010 Undergraduate Research Conference, Boise State University, April, 2010.
- Oxford JRT, Biomarkers of Joint development: Potential Biomarkers for Osteoarthritis? *Arthritis Symposium, St. Alphonsus Regional Medical Center*, June 18, 2010. Frahs S, Mitchell K, Jorcyk CL, Rohn TT, Oxford JRT, Molecular Mechanisms of Cellular Mechanoreception in Bone, *Arthritis Symposium, St. Alphonsus Regional Medical Center*, June 18, 2010.
- Oxford JRT, Jorcyk CL, McDougal O. The role of extracellular matrix in cell signaling, *INBRE Research Networking meeting*, Boise, Idaho, June 22, 2010.
- Simonson SR, Hynes G, Galanter J, Price S, Oxford JRT, Shea KG. The effect of treadmill walking exercise with a partial reduction of body weight on knee osteoarthritis disease progression. *Arthritis Symposium, St. Alphonsus Regional Medical Center*, June 18, 2010.
- Woodbury L, Oxford JRT, Interactions between Collagen and Chondroitin Sulfate. *Arthritis Symposium, St. Alphonsus Regional Medical Center*, June 18, 2010.
- Hafez AR, Hoskins NJ, Mercer LM, Seegmiller RE, Oxford JRT. Analysis of Craniofacial Skeletal Mineralization in a Mouse model of Stickler syndrome. *Arthritis Symposium, St. Alphonsus Regional Medical Center*, June 18 2010.
- Julie Oxford, Troy Rohn, Cheryl Jorcyk, Kristen Mitchell Molecular Mechanisms of mechanoreception in bone. NASA Idaho Space Grant Consortium meeting, College of Idaho, Caldwell, ID
- Julia Oxford, Cheryl Jorcyk, Owen McDougal Extracellular Matrix modulates cell signaling. Idaho INBRE Conference, Moscow, ID, 08-03-2010
- Pernoud D, Gorski J, Oxford JRT. Biomineralization Foci AADR Annual Meeting, Washington, DC USA 03-03-2010
- Julia Thom Oxford, Proteomic analysis of Col11a1-associated protein complexes, Gordon Research Conference, Cartilage Biology & Pathology 03-06-2011
- Jonathon Reeck, Julia Thom Oxford, Collagen type XI is essential for craniofacial skeletal formation in the zebrafish Idaho Academy of Sciences 04-02-2011
- Benjamin Davis, Stephanie Frahs, Kristen Mitchell, Troy Rohn, Cheryl Jorcyk, Julia Thom Oxford, Molecular Mechanisms of Cellular Mechanoreception in Bone, Idaho Academy of Sciences. 04-02-2011
- Anthony Hafez, Ryan Squires, Robert Seegmiller, Julia Thom Oxford, 3-D reconstruction and analysis of embryonic skeleton, Idaho Academy of Sciences 04-02-2011
- Stephanie Frahs, Dawn Mikelonis, Benjamin Davis, Julia Thom Oxford, Gravitational Modulation of Calcium Signaling in Bone Idaho Academy of Sciences 04-02-2011
- Anthony Hafez, Ryan Squires, Robert Seegmiller, Julia Thom Oxford, 3-D reconstruction and analysis of embryonic skeleton, Boise State University Undergraduate Research Conference. 04-11-2011
- Stephanie Frahs, Dawn Mikelonis, Benjamin Davis, Julia Thom Oxford, Gravitational Modulation of Calcium Signaling in Bone Boise State University Undergraduate Research Conference, 04-11-2011
- Neda Shefa, Julia Thom Oxford, Role of minor fibrillar collagens in the progression of arthritis Posters on the Hill, Council on Undergraduate Research poster Undergraduate Research Meeting 05-13-2011
- Molecular mechanisms of cellular mechanoreception in bone, NASA EPSCoR Annual Meeting 05-26-2011

Collagen type XI alpha 1 chain amino propeptide structural model and glycosaminoglycan interactions in silico, International Conference on Bioinformatics and Computational Biology BIOCOMP'11, 07-18-2011

Bone mechanobiology: parabolic flight and molecular mechanisms of regulation International Bone and Mineralization Society Musculoskeletal Biology Workshop, 07-31-2011

Optimization of collagen-alginate biomimetic scaffolds for in vitro investigation of osteoblast phenotype International Bone and Mineralization Society Musculoskeletal Biology Workshop, 07-31-2011

Establishing the developmental role of collagen type XI alpha 1 chain (COL11A1) in ciliated trabecular meshwork cells and otoliths using zebrafish, Annual INBRE Conference, 08-02-2011

Development of immunohistochemical methods for investigation of the role of caspase activity in bone Annual INBRE Summer Research Conference, 08-02-2011

Synergistic effects of oncostatin M and IL-1 beta in an arthritic chondrocyte model, American Society for Bone and Mineral Research Annual meeting, 09-16-2011

Bones in Microgravity: Understanding Cellular Signaling, NASA Day at Boise State University, 09-20-2011

## Service

### ***Professional service:***

Membership in professional societies: American Society for Bone and Mineral Research,  
Mountain States Tumor and Medical Research Institute, Affiliate Member  
Sigma Xi  
American Society for Matrix Biology

Grant Application Review: arc (Arthritis Research Council, UK)  
Burroughs Wellcome Trust  
NSF Merit Review of grant applications for Graduate Student fellowships and for Major Research Instrumentation  
Study Section (ad hoc) National Institute of Arthritis, Musculoskeletal and Skin Diseases, NIH, Skeletal Biology, Structure and Regeneration, 2001, 2004, 2005.

Manuscript Peer Review for the following journals:

International Journal of Cell Biology  
Brain Research  
Journal of Histochemistry  
Journal of Neurochemistry  
BMC Developmental Biology  
Journal of Dentistry  
Journal of Biomedical Materials Research  
Gene Expression Patterns  
Acta Biochimica Biophysica  
Journal of Cell Biology  
Journal of Histochemistry and Cytochemistry

### ***Institutional service:***

Faculty Advisor for Mu Delta student organization (March of Dimes) 2010-2011  
Boise State Research Scholars group 2008-2009 STEM Education  
Director, Biomolecular Research Center, 2004-present

Co-director, Musculoskeletal Research Institute, 2007- present  
Department of Biological Sciences Graduate Student Oversight Committee member, 2007-present  
Department of Biological Sciences Tenure and Promotion Committee member, 2008-present  
INBRE Senior Research Advisory Committee member, 2004-present  
University Foundations Scholars Awards Committee Member, 2007-2008  
College of Arts and Sciences Honors and Awards Committee Member, Fall 2007  
Biology Department Research Committee member 2005-2007  
Advising Freshmen in Express Program, June 2005  
"NIH Funding" presented by Julie Oxford, Thursday, September 22, 2005  
Biotechnology Legislative Task Force presentation, Idaho State Capitol Building, September 7, 2005  
President of Boise State chapter of Sigma Xi, 2003-2005  
Pre-Dental School review Committee member, 2002  
Science Day, Boise State University, 2001

### ***Community service:***

Adaptive skiing program, Shriners Hospital, 1990-1995  
Career Mentor Program, Linfield College, 1993-2006  
Advocates for Women in Science, Engineering and Mathematics, 1995-2000  
Expanding Your Horizons (Youth science career program), Yakima, WA, 1995  
Advisory Board, BSU Children's Center, 2001-2002  
Alumni Mentor Program, Washington State University, 1989-2006  
Medical Advisory Board, BioLogic Aqua, Rogue Valley Natural Springs 1998-present  
Discovery Center, 2004, 2005  
Biology Outreach Workshop: DNA Fingerprinting; Mountain Cove High School, Boise, Idaho, 2005  
Treasure Valley Arthritis Awareness Campaign member, 2006; Idaho Arthritis in Motion, 2006-2008  
Computer Lab, Riverside Elementary School, 2004-2007  
DNA isolation activity, Riverside Elementary, Oct 19, 2007  
Treasure Valley Arthritis In Motion (I-AIM) Arthritis Symposium with St Alphonsus Regional Medical Center, April, 2009  
Volunteer for local chapter of the National Arthritis Foundation, Wahooz Family Fun Center JA Family Day for families of children with juvenile rheumatoid arthritis, September, 2009  
Volunteer for local chapter of the National Arthritis Foundation, Discovery Center JA Family Day for families of children with juvenile rheumatoid arthritis, October 2010  
Treasure Valley Arthritis In Motion (I-AIM) Arthritis Symposium with St Alphonsus Regional Medical Center, June, 2010