

Curriculum Vitae: December 2008

Department of Biological Sciences  
Boise State University  
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## Julia Thom Oxford

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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:

Associate Professor, Department of Biology, Boise State University, 2003-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  
Affiliate Faculty, Oregon Health Sciences University, School of Dentistry, 2000-2002.  
Assistant Professor of Biology, Boise State University, 2000-2003.  
Visiting Assistant Professor of Clinical Sciences, Colorado State University, 1996-1998.  
Research Assistant Professor of Oral Molecular Biology, School of Dentistry, Biochemistry and Molecular Biology, School of Medicine, Oregon Health Sciences University, 1995-2000.  
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, Department of Biochemistry/Biophysics, Washington State University, 1982-1986.  
Graduate Teaching Assistant, Department of Chemistry, Washington State University, 1982-1982.

### Honors and Awards:

Phi Kappa Gamma, Mortar Board, Linfield College, McMinnville, Oregon, 1981.  
Who's Who Among Students in American Colleges and Universities, 1981.  
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.  
Lori and Duane Stueckle Dean's Distinguished Faculty Award, 2005-2008.  
Boise State University Foundation Scholar Award, 2006.

# Teaching

## *Undergraduate Courses:*

### Boise State University

**Biology 301 Cell Biology 2007, 2008**

**Biology/Materials/Mechanical and Biomedical Engineering 477** Biomaterials Science, 2005, 2006, 2008

**Biology 497** Biochemistry of Cell Signaling, 2004.

**Biology 497/597** Introduction to Bioinformatics, 2002.

**Biology 497** Reading and Laboratory Studies in Embryology, Spring 2002.

**Biology 497/597** Fetal Alcohol Syndrome Study, Spring 2002.

**Biology 191** General Biology, select lectures and laboratory, 2001- 2008.

**Biology 497**, Advanced Developmental Biology, lecture and laboratory, 2001, 2007.

**Zoology 351** Developmental Biology, lecture and laboratory, 2001-2008.

**Biology 493**, Internship in Laboratory Research, 2001-2008.

**Biology 202**, General Zoology lecture and laboratory, 2000.

### Portland State University

**Chemistry 450** Biochemistry, 1991-1994.

**Chemistry 250** Nutrition, 1991.

### Lewis and Clark College, Portland, Oregon

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

## *Graduate Courses:*

### Boise State University

**Biology/Materials/ Mechanical and Biomedical Engineering 577** Biomaterials Science, 2005, 2008

**Biology 598** Biomaterials Graduate Seminar, 2004

**Biology 597** Biochemistry of Cell Signaling, 2004.

**Biology 497/597** Introduction to Bioinformatics, 2002.

**Biology 465/565** Advanced Topics in Molecular Biology Techniques, 2002-present.

**Biology 497/597** Fetal Alcohol Syndrome Study, Spring 2002.

**Biology 466/566** Advanced Topics in Cancer and Developmental Biology, 2001-present.

**Biology 595** Reading and Discussion in Extracellular matrix, 2001-08.

**Biology 597** Grant Writing for Biomedical Science, Fall 2001.

**Biology 596** Directed Research, Boise State University, 2001, 2002.

**Biology 598**, Graduate Seminar, Writing grant proposals, 2001.

**Zoology 551** Developmental Biology, lecture and laboratory, 2001-2008.

**Biology 597 (550)** Scientific Writing for publication, 2003-2008.

### Oregon Health Sciences University

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

### Colorado State University

**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, 1989-91.

## Directed research, independent study and internships

### *Undergraduate Student Research Projects:*

- Joeli Adriany**, 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
- Kaci Bloxam**, 2006-2007, AFM characterization of early intermediates in collagen fibrillogenesis, Contributing author
- Ben Davis**, 2006-2007, LC-Mass Spectrometry  
ThermoElectron Proteomics/Mass Spectrometry training workshop, 2007
- 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,  
First author on Protein Science article  
Began Medical School University of Washington, 2004
- 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  
Graduated May 2005, continued to work in lab summer 2005
- Jonathan Hendersen**, 2006-2008, AFM  
INBRE Summer Research Fellow, 2008  
Contributing author
- 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  
Contributing author on three papers  
Award recipient of NASA Idaho Space Consortium Undergraduate Team Research Grant, 2005  
Began Graduate School, 2005
- Tamara Kelly**, 2007, 2008  
INBRE Summer Research Fellow, 2006  
Undergraduate Research Symposium Presentation, 2007  
Award recipient of the MSMRI research fellowship, 2007-2008
- Becky Kroll**, 2002-2004, Surface plasmon resonance measurements of molecular interactions, Boise State University,  
Contributing author  
Began Medical school University of Utah, 2004
- Erik Linn**, 2006-2007, Targeted deletion of Col11a1 variable region (VR); a model for osteoarthritis, Boise State University  
Award recipient of the MSTMRI research fellowship, 2006-2007  
Undergraduate Research Symposium Presentation, 2007  
Began Medical school, University of Utah, 2007
- Jeremiah Maschmann**, 2006-2007, Genomic analysis of the collagen gene family in zebrafish  
Undergraduate Research symposium Presentation, 2006, 2007  
AAAS Pacific Division poster presentation, 2007
- 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

Graduated May 2005, continued to work in lab summer 2005.

**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

**Pernilla Stridh-Igo**, 2001, 2004 Fetal Alcohol Syndrome, Boise State University

Top Ten Scholar, 2004

Began Graduate School, Karolinska Institute, Sweden, 2004

**Chelsea Sonius**, 2007

INBRE Summer Research Fellow, 2007

**Luke Woodbury**, 2006-2007, Histological characterization of the Col11a1deltaVR mouse model for osteoarthritis; Protein purification, monomer-dimer equilibrium analysis by AUC, SEC-MALS

Undergraduate Research Symposium Presentation, 2006, 2007, 2008

AAAS Pacific Division poster presentation, 2007

INBRE Summer Research Fellow, 2008

### *Graduate Student Research Projects:*

**Jason Adams**, 2005-2008, Graduate advisor, Axial skeletal development in the zebrafish

Recipient of NASA-ISGC Graduate Student Fellowship, 2006-2007

Master of Science in Biology, 2008

**Kendra Coonse**, 2007-2008, Graduate advisor, Biology, Signaling pathways in Osteoblast differentiation

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

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

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

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

Contributing author on six publications

Entered Physicians Assistant Program, 2007

**Nathan Hoskins**, 2007-2008, Graduate advisor, Biology, Osteoblast differentiation

**Katey Irwin**, 2005- 2008, Graduate advisor, Matricellular proteins of cartilage extracellular matrix

Contributing author on three publications

**Prarthana Kashikar**, 2004-2007, Masters Project, M.A. Quantitative Real Time Polymerase Chain

Reaction for the analysis of alternative splicing, Boise State University

**Ryan Medeck**, 2000-2003, Morphogenetic messages in the extracellular matrix: The role of bone morphogenetic proteins (BMPs) and collagens, Master of Science, 2003.

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

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

Contributing author on three publications

**Lisa Warner**, 2004-2007, Graduate advisor, 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

Attended the "BioCD-2005 Workshop, National Synchrotron Light Source, Brookhaven National Laboratories

Contributing author on six papers

Entered PhD program, University of Colorado, Boulder, CO

### ***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, for Spring 2005, 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-PI.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. 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.
3. 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.
4. 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.
5. 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.
6. 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.
7. 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.
8. 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.
9. 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.
10. GBM Davis, JRT Oxford, and NP Morris. "Expression of  $\alpha$ 1(XI) variants in developing cartilage." (1996) **Transactions Orthopaedic Research**, vol. 21.
11. 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.

12. 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.
13. Gregory, K., Chen, Y., Mechling, D., Smoody, B.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.
14. Gregory, K.E., Oxford, J.T., Chen, Y., Gambia, 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.
15. 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.
16. Oxford, J., Taylor, M., DeScala, J. "Osteoprotegerin is expressed in degenerative joint disease". (2000) **Transactions Orthopaedic Research**, vol 25, p. 1019.
17. 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..
18. 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.
19. 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.
20. Trumble, T.N., Trotter, G.W., Oxford, J.T., McIlwraith, C.W., Billingham, 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.
21. 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.
22. Frisbie, DD, Oxford, J.T., 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
23. 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.
24. Medeck, RJ, Sosa, S., Morris, NP, Oxford, J.T. " BMP-1-mediated proteolytic processing of alternatively spliced isoforms of collagen type XI." (2003) **Biochemical Journal**, 376: 361-8.
25. 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.
26. 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.

27. 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.
28. 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.
29. 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.
30. 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.
31. Warner L, Brown R, Yingst S, Oxford J. Isoform-specific heparan sulfate binding within the N-terminal noncollagenous domain of collagen  $\alpha 1(XI)$  (2006) **J Biol Chem**. 281:39507-16.
32. Warner L, Blasick C, Brown R, Oxford J. "Expression, purification and refolding of recombinant collagen  $\alpha 1(XI)$  N-terminal domain splice variants", (2007) **Protein Expr Purif**. 52, 403-409.
33. Dufty BM, Warner LR, Hou ST, Jiang SX, Gomez-Isla T, Leenhouts KM, Oxford JT, Feany MB, Masliah E, Rohn TT "Calpain-Cleavage of  $\alpha$ -synuclein; Connecting proteolytic processing to disease-linked aggregation" (2007) **Neurobiology** 170, 1725-1738.
34. Takata, T, Oxford J.T., Brandon, T.R., Lampi K.J. "Deamidation Alters the Structure and Decreases the Stability of Human Lens betaAlpha3-Crystallin" (2007) **Biochemistry**, 46:8861-71.
35. 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.
36. 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. PMID: PMC2431459 [Available on 05/01/09].
37. 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. PMID: PMC2324180 [Available on 03/01/09]
38. Halsted, KC, Bowen, KB, Bond, L, Jorcyk, CJ, Fyffe, WE, Kronz, JD, Oxford, JT "Collagen XI  $\alpha 1$  in normal and malignant breast tissue" accepted with minor revision, (2008) **Modern Pathology**. 21:1246-54. NIHMS# 77903.
39. 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" in press,(2008) **Journal of Biomedical Materials Science**.
40. Takumi Takata, Julie T Oxford, Borries Demeler, and Kirsten J Lampi, Deamidation destabilizes and triggers aggregation of a lens protein,  $\beta A3$ -crystallin, (2008) **Protein Science**. 17:1565-75. PMID: PMC2525517 [Available on 09/01/09]
41. Toumpoulis, Ioannis K., Oxford, Julia Thom, Cowan, Douglas B., Anagnostopoulos, Constantine E., Angouras, Dimitrios C., Shemin, Richard J., Navab, Mohanad, Ericsson, Maria, Federman, Micheline, Levitsky, Sidney, McCully, James, D., "Differential expression of Collagen type V and XI alpha-1 in human ascending thoracic aortic aneurysms" in review.

## ***Review Publications:***

Simon J. S. Hardy, Julia R. Thom and Linda L. Randall. "Export of Protein." (1987) **Annual Reviews of Microbiology**, 41, 507-541

## ***Contributed papers 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  $\alpha 1(\text{II})$  mRNA." Keystone Symposium, 1993.
- Julia Thom Oxford, K.J. Doege, and N.P. Morris, "Analysis of the structure of the amino propeptide of  $\alpha 1(\text{XI})$  collagen" *Molec. Biol. Cell*, 4:65a, 1993.
- Y.Li, D. Lacerda, M. Warman, D. Beier, J.T. Oxford, N.P. Morris, K. Andridopoulos, F. Ramirez, B. Taylor, R. Seegmiller, and B.R. Olsen. "An abnormality in  $\alpha 1(\text{XI})$  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 $\alpha 1(\text{XI})$  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 $\alpha 1(\text{XI})$  generates polymorphic structures which show tissue specific expression." Fifth International Conference on the Molecular Biology and Pathology of Matrix, 1994.
- 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.
- Oxford, J., 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  $\alpha 1(\text{XI})$  chains is coupled to proteolytic processing." *Molecular Biology of the Cell*, 11:265a.
- Kristovich, SR and Oxford, JRT. "Effects of  $\alpha 1(\text{XI})$  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  $\beta \text{B1}$  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.
- Warner, Lisa, Arzhang Fallahi, Becky Kroll, Linda Mercer, Katey Irwin, Julia Thom Oxford, “Structural model of the amino propeptide of collagen XI alpha 1 chain, LNS Collagens- Structure and Mechanistic Insights” American Society for Matrix Biology, San Diego, CA, November, 10, 2004.
- Warner, Lisa, Arzhang Fallahi, Becky Kroll, Sorcha 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, JT, 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, Sorcha 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

## ***Research Funding:***

### **Current and pending funding:**

1. TITLE: Idaho INBRE Program (PI: Michael B. Laskowski)  
DURATION: 7/15/04 to 6/31/09  
FUNDING SOURCE: Funding Source: NIH (NCRR)  
ROLE ON PROJECT: Co-PI  
TOTAL COSTS: \$16.2M (\$2.6 M to Boise State University)
2. TITLE: NSF MRI/RUI:Acquisition of a Confocal Microscope for Multidisciplinary Research and Education  
DURATION: 07/01/06 to 06/30/09  
FUNDING SOURCE: NSF  
ROLE ON PROJECT: Principal Investigator  
TOTAL COSTS: \$348,000
3. TITLE: Musculoskeletal Research Center  
DURATION: 07/01/07 to 06/30/10  
AGENCY (FUNDING SOURCE): Idaho State Board of Education, HERC  
ROLE ON PROJECT: Principal Investigator  
TOTAL COSTS: \$1,000,000
4. TITLE: Regulation of cell signaling by Col11a1 during craniofacial development in the zebrafish  
DURATION: 02/01/09-01/31/12  
AGENCY (FUNDING SOURCE): NIH (NICHD)  
ROLE ON PROJECT: Principal Investigator  
AMOUNT REQUESTED: \$211,500  
OUTCOME: PENDING

### **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; 1989-1998 Postdoc, Sr. Research Associate, Collaborator, 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 is designated for BSU.
16. Supplement to Biomedical research infrastructure Network for Idaho, \$2,000,000 total, of which \$496,583 is 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.  
Funding source: NASA Idaho EPSCoR, \$4000.
19. Type XI collagen isoforms in skeletal biology. February 1, 2001 to January 31, 2008, NIH, Principal Investigator, \$1,349,811.
20. 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.
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. NSF MRI/RUI "Acquisition of a Transmission Electron Microscope for Multidisciplinary Research and Education" 09/01/05 -- 08/31/07 NSF, Co-PI, \$691,910
23. Collaborative Grant Improvement Initiative 07/01/05 to 06/30/07 Boise State University, VP Research, Principal Investigator, \$150,000.

### ***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" October 24, 2005 NASA ISGC Moscow, Idaho

"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, Sorcha Yingst, Rohn McCune, Julia Thom Oxford, September, 2005, Daresbury, UK

"Collagen XI isoforms in skeletal biology" November 3, 2005, Albertson College of Idaho

"Collagen Fibrillogenesis on Ti-6Al-4V-ELI", MS&T conference in Pittsburg, 9/27/2005 Michelle Gerritsen, Bill Knowlton, Janet Hampikian, Julie Oxford

Lisa Rose Warner, Arzhang Fallahi, Becky Kroll, Sorcha 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.

"Molecular Interactions of the Extracellular Matrix", Julie Oxford, INBRE Annual Research Conference, Moscow ID, 2007.

## 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

Study Section (ad hoc) National Institute of Arthritis, Musculoskeletal and Skin Diseases, NIH,  
Skeletal Biology, Structure and Regeneration, 2004.

Editorial Review for the following journals:

Journal of Cell Biology, International Journal of Cell Biology, Brain Research, Journal of  
Histochemistry and Cytochemistry, Journal of Biomedical Materials Research, Part A

### *Institutional service:*

Department of Biological Sciences Graduate Student Oversight Committee member, 2007-present

Department of Biological Sciences Tenure and Promotion Committee member, 2008-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

V.P. for Research search committee, co-chair, 2005-2006

Faculty Member Search Committees (Bioinformatics, Biophysics, Biomaterials, Biomedical) 2002-2006

Biotechnology Legislative Task Force presentation, Idaho State Capitol Building, September 7, 2005

Biomedical Research Infrastructure Network for Idaho, Steering Committee member, 2001-2008

BRIN/INBRE BSU Director, 2001-2008

INBRE Senior Research Advisory Committee member, 2004-2008

BRIN/INBRE Undergraduate Student Summer Research Fellowship Program, 2002-2008

President of Boise State chapter of Sigma Xi, 2003-2005

BRIN/INBRE Summer Scholars Program, July-August, 2005

BRIN/INBRE Seed Grant Program, 2002-2004

Pre-Dental School review Committee member, 2002

Science Day, Boise State University, 2001

### *Community service:*

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-present

Medical Advisory Board, BioLogic Aqua, Rogue Valley Natural Springs 1998-present

Consulting for Rogue Valley Natural Springs, Medical Advisory Board.

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