

CURRICULUM VITAE

Xiaojuan Sun, MD, PhD

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EDUCATION

Undergraduate: Guizhou Medical University, Guizhou, China. 1979-1984.
Major: Medicine. Degree: M.D.
Graduate: Guizhou Medical University, China. 1987 to 1990.
Major: Virology. Degree: M.S.
Doctoral: Karolinska Institute, Stockholm, Sweden. 1998-2005.
Major: Molecular Pathology. Degree: Ph.D.

POSTGRADUATE TRAINING

Postdoc. Fellowship: Departments of Orthopedics & Rehabilitation, and Cellular & Molecular Physiology, The Pennsylvania State University College of Medicine Hershey, PA. Project: Chondrocyte differentiation), 2001-2002

HONORS AND AWARDS

1997 Young Scientific Award of Hainan State, China.
2002 Young Investigator Award finalist, Rhode Island Hospital, Providence, RI
2002 New Investigator Recognition Award finalist (Orthopaedic Research Society) (Dallas, Texas, USA)
2003 New Investigator Recognition Award finalist (Orthopaedic Research Society) (New Orleans, LA, USA)
2004 Best Paper Award, ICHTS (international Chinese Hard Tissue Research Society) workshop (Beijing, China)
2004 Young Investigator Awards Finalist, Rhode Island Hospital, Providence, RI
2005 New Investigator Recognition Awards finalist (Orthopaedic Research Society) (Washington, USA).
2006 Young investigator Awards Finalist, Rhode Island Hospital, Providence, RI

ACADEMIC APPOINTMENTS

1990-1992: Lecturer/Researcher, Dept of Microbiology and Immunology, Guizhou Medical University, China. Research project: The selection of anti-Herpes Simplex Virus drugs.

- 1992-1998: Instructor, Dept. of Microbiology and Immunology, Hainan Medical College, China. Research project: rapid detection, identification and molecular sub-typing of agents causing Hainan SFG- Rickettsia infection.
- 2002-2005: Research Associate, Orthopaedic Research Laboratory, Brown Medical School/RIH, Providence, RI Research project: Chondrocyte differentiation.
- 2005-2023: Research Associate, Orthopedic Oncology Laboratory, Brown Medical School/RIH, Providence, RI Research project: Chondrosarcoma oncology and molecular target therapy.
- 2023 to present: Assistant Professor: Orthopedic Oncology Laboratory, Brown Medical School/RIH, Providence, RI Research project: Chondrosarcoma molecular target therapy.

EDITORIAL BOARD/REVIEWER:

2017-2019 Orthopaedic Research Society (ORS)-Basic Science (tumor), reviewer

MEMBERSHIP IN SOCIETIES

1986-1998: Chinese Microbiology and Immunology Association.

2003- Current: International Chinese Musculoskeletal Research Society (ICMRS), USA

2003-2017: PTO member for Barrington Public School, Barrington, RI 02806. USA

2005- Current: U.S. Orthopaedic Research Society (ORS). USA

PUBLICATIONS LIST

ORIGINAL PUBLICATIONS IN PEER-REVIEWED JOURNALS (selected from 26)

1. Sun X, Dobra K, Björnstedt M and Hjerpe M. Upregulation of 9 genes, including that for thioredoxin, during epithelial differentiation of mesothelioma cells. *Differentiation*. 2000; 66(4-5):181-8.
2. Sun X, Gulyás M, and Hjerpe A. Mesothelial differentiation as reflected by differential gene expression. *Am J Respir Cell Mol Biol*. 2004; 30(4):510-8.
3. Sun X, Wei L, Liden J, Hui G, Dahlman-Wright K, Hjerpe A, Dobra K. Molecular characterization of tumour heterogeneity and malignant mesothelioma cell differentiation by gene profiling. *J Pathol*. 2005 Jul 8;207(1):91-101.
4. Wei L, Sun X, Terek R, Chen Q. Down-Regulation of A Chemokine Receptor CXCR4 by Small Interfering RNA Inhibits MMP13 Release and Enhances TIMP 1 Expression in Articular Chondrocytes. *Osteoarthritis and Cartilage* 2005; 13: Supplement A S29.
5. Sun X¹, Gulyás M, Hjerpe A, and Dobra K. Proteasome inhibitor PSI induces apoptosis in mesothelioma. *Cancer Lett*. 2006;232(2):161-9.
6. Nilsson G., Sun X, Nystrom C., Rundlof AK, Potamitou Fernandes A, Björnstedt M, and Dobra K. Selenite induces apoptosis in sarcomatoid malignant mesothelioma cells through oxidative stress. *Free Radical Biology & Medicine*. 2006; 41(6):874-885.
7. Wei L, Sun X, Chen Q. CD95 induced osteoarthritic chondrocytes apoptosis and necrosis: dependency on p38 mitogen-activated protein kinase. *Arthritis Research & Therapy* 2006; 8(2); R37.
8. Lei Wei, Xiaojuan Sun, Zhengke Wang, Changqi Sun, Katsuaki Kanbe, Richard Terek and Qian Chen. Chondrocyte Death Induced by Pathological Concentration of Chemokine Stromal Cell-Derived Factor-1. *The Journal of Rheumatology* 2006;33(10).

9. Bluman EM, Sun X, Lin C, Coulie PG, Meitner PA., Terek RM: Lysis of human chondrosarcoma cells by cytotoxic T Lymphocytes recognizing a MAGE-A3 antigen presented by HLA-A1 molecules. *J Orthop Res.* 2007 May;25(5):678-84
10. Sun X, Wei L, Chen Q, Terek RM: HDAC4 represses vascular endothelial growth factor expression in chondrosarcoma by modulating RUNX2 activity. *J Biol Chem.* 2009 Aug 14;284(33):21881-90. PMID: PMC2755912
11. Sun X, Wei L, Chen Q, Terek RM: CXCR4/SDF1 mediate hypoxia induced chondrosarcoma cell invasion through ERK signaling and increased MMP1 expression. *Molecular Cancer* 2010, 9:17 PMID: PMC2825244
12. Wei, L., Kanbe, K., Lee, M., Pei, M., Sun, X., Terek, R.M., and Chen, Q., Stimulation of chondrocyte hypertrophy by chemokine stromal cell-derived factor 1 in the chondro-osseous junction during endochondral bone formation, *Developmental Biology*, 2010 May 1;341(1):236-45 PMID: PMC2862458
13. Wei L, Fleming BC, Sun X, Teeple E, Wu W, Jay GD, Elsaid KA, Luo J, Machan JT, Chen Q. Comparison of differential biomarkers of osteoarthritis with and without posttraumatic injury in the Hartley guinea pig model. *J Orthop Res.* 2010 Jan 27. PMID: PMC2875364
14. Sun X, Charbonneau C, Wei L, Yang W, Chen Q, and Terek RM. CXCR4-targeted Therapy Inhibits VEGF Expression and Chondrosarcoma Angiogenesis and Metastasis. *Mol Cancer Ther.* Published Online First May 17, 2013; doi: 10.1158/1535-7163.MCT-12-1092. *Mol Cancer Ther*; 12(7); 1–8. ©2013
15. Cao Kun, Wei Lei, Zhang Zhi Qiang, Guo Lli, Zhang Cong Min, Li Yong Ping, Sun Chang qi, Sun Xiaojuan, Wang Shaowei, Li pengcui and Wei xiaochun. Decreased HDAC4 is associated with human OA cartilage degeneration by releasing HDAC4 inhibition of Runx2 and increasing OA-related genes: A Novel Mechanism of Human OA Cartilage Degeneration. *Arthritis Research & Therapy.* 16:487, 2014. PMID: 25424126
16. Xiaojuan Sun, Lei Wei, Qian Chen, Richard M. Terek: MicroRNA Regulates Vascular Endothelial Growth Factor Expression in Chondrosarcoma Cells. *Clinical Orthopaedics and Related Research.* 2015 Mar; 473(3):907-13.
17. Xiaojuan Sun, Cherie Charbonneau, Lei Wei, Qian Chen, and Richard M. Terek. miR-181a Targets RGS16 to Promote Chondrosarcoma Growth, Angiogenesis, and Metastasis. *Molecular Cancer Research.* Published Online First May 26, 2015.
18. Sun X, Wei L, Chen Q, Terek R. MicroRNA Regulates VEGF Expression in Chondrosarcoma Cells. *Clin Orthop Relat Res.* 2015 Mar;473(3):907-13. PubMed PMID: 25106798; PubMed Central PMCID: PMC4317450.
19. Chen C, Wei X, Lv Z, Sun X, Wang S, Zhang Y, Jiao Q, Wang X, Li Y, Wei L: Cyclic Equibiaxial Tensile Strain Alters Gene Expression of Chondrocytes via Histone Deacetylase 4 Shuttling. *Plos One* 11(5): e0154951, 2016. PMID: 27149270
20. Sun X, Chen Y, Yu H, Machan JT, Alladin A, Ramirez J, Taliano R, Hart J, Chen Q, Terek RM. Anti-miRNA Oligonucleotide Therapy for Chondrosarcoma. *Mol Cancer Ther.* 2019 Jul 24. pii: molcanther.1020.2018. doi: 10.1158/1535-7163.MCT-18-1020. [Epub ahead of print] PubMed PMID: 31341031.

OTHER PEER-REVIEWED PUBLICATIONS

Terek RM, Sun X, Allen S: Molecular Mechanisms of Angiogenesis in Chondrosarcoma. US Musculoskeletal Review 2008; 3(1):48

BOOK CHAPTERS:

Chen, Q., Lei, W., Wang, Z., Sun, X., Luo, J., and Yang, X. Endochondral bone formation and extracellular matrix, Current Topics in Bone Biology, 145-162, Deng, H., and Liu, Y. (Eds) World Scientific Publishing Co. 2005.

PUBLICATIONS SUBMITTED OR IN PREPARATION

1. miR-34a inhibits chondrosarcoma angiogenesis by regulating VEGF and SSX1. (Manuscript in preparation.)
2. ASPH Targeted Therapy for Chondrosarcoma (In preparation)

ABSTRACTS (selected)

1. Sun X, Gulyás M, and Hjerpe A. The Differentiation of the Malignant Mesothelioma Cells into Epithelial or Mesenchymal Phenotype. XVIth FECTS Meeting. August 1-6, 1998. Uppsala, Sweden.
2. Xiaojuan Sun, Lei Wei, and Qian Chen. Molecular Molecular selection of cell lineages between intramembranous and endochondral ossification: important roles of p38 Mitogen-activated Protein Kinase. 48th Orthopaedic Research Society Annual Meeting, February 10-13, 2002, in Dallas, Texas.
3. Xiaojuan Sun, Lei Wei, Charles M. Davis, III, and Qian Chen. Anti-Fas Induction of apoptosis in human osteoarthritic chondrocytes through activating transcription factor 2 and caspase-3: dependence on p38 mitogen-activated protein kinase. 48th Orthopaedic Research Society Annual Meeting, February 10-13, 2002, in Dallas, Texas.
4. Xiaojuan Sun, Lei Wei, Kathy Cheah, Sarah Bronson, and Qian Chen. Abolition of endochondral bone formation by a dominant negative p38 MAP kinase transgene in a transgenic mouse model. 49th Orthopaedic Research Society Annual Meeting, February 2-5, 2003, in New Orleans, LA.
5. Xiaojuan Sun, Lei Wei, Katsuki Kanbe, Charles M Davis, and Qian Chen. Chemokine stromal cell-derived factor-1 induces chondrocyte death through necrosis, but not apoptosis during osteoarthritis. 49th Orthopaedic Research Society Annual Meeting, February 2-5, 2003, in New Orleans, LA.
6. Xiaojuan Sun, Wei L., Wang Z., Hopper J., and Chen Q. 1-4 mannosyltransferase I: p38 MAP Kinase Interacting Protein in Chondrocytes Identified by Yeast Two-Hybrid Screening. 50th Orthopaedic Research Society Annual Meeting, March 7-10, 2004, in San Francisco, California.
7. Xiaojuan Sun, Wei L., Hopper J., and Chen Q. Mannosyltransferase I: Regulating chondrocyte differentiation and apoptosis through interaction with p38 MAP kinase. 51st Orthopaedic Research Society Annual Meeting, February 20-23, 2005, in Washington DC, Washington.
8. Sun, X; Wei, L; Lee, J; Liu, J; Terek, R; and Qian Chen: Chemokine Stromal Cell Derived Factor-1 induces matrix degradation, chondrocyte migration, and fissure formation in articular cartilage, Orthopaedic Research Society Transactions, Vol.30, Paper No. 345. 51st Annual Meeting of the Orthopaedic Research Society, 2005

9. Wei, Lei; Sun, Xiaojuan; Wang, Zhenk; Terek, Richard; Chen, Qian. Inhibiting Chemokine SDF-1 induced cartilage degeneration by siRNA and monoclonal antibody therapy, Orthopaedic Research Society Transactions, Vol.31, Paper No. 141. Annual Meeting of the Orthopaedic Research Society, Chicago, IL, 2006
10. Sun, Xiaojuan; Wei, Lei; Block, Joel; Terek, Richard. Overexpression of HDAC4 down-regulates vascular endothelial growth factor expression in chondrosarcoma cells by modulating RunX2 Expression, Orthopaedic Research Society Transactions, Vol.32, Paper No: 00058. Annual Meeting of the Orthopaedic Research Society, Chicago, IL, 2006
11. Lei Wei, Xiaojuan Sun, Zhenk Wang, Xu Yang Richard Terek, Kanbe K, and Qian Chen Chemokine SDF-1 Stimulation of Chondrocyte Hypertrophy Involves the Transcription Factor Runx2, Orthopaedic Research Society Transactions, Vol.32, Paper No: 00063. Annual Meeting of the Orthopaedic Research Society, San Diego, CA, 2007
12. Sun, X; Wei, L; Block, JA; Chen, Q; Terek RM: Overexpression of HDAC4 down-regulates vascular endothelial growth factor expression in chondrosarcoma cells by modulating RunX2 Expression, Annual Meeting of the Orthopaedic Research Society, San Diego, CA, 2007
13. Sun, X; Wei, L; Block, JA; Chen, Q; Terek RM: Hypoxia and CXCR4 increase chondrosarcoma cell invasion. Annual Meeting of the Orthopaedic Research Society., San Francisco, CA, 2008 53. Terek RM, Tompkins M, Moore D, Crisco J: Biomechanical Analysis of Locked versus Nonlocked Plating of Large Bulk Allografts. Association of Bone and Joint Surgeons, Jackson Hole, WY, 2008
14. Terek RM, Wei L, Chen Q, Sun X: MMP-1 Expression is Regulated by CXCR4/SDF-1 in Chondrosarcoma Cells. Annual Meeting of the Orthopaedic Research Society., Las Vegas, NV 2009
15. Valdes M, Yang W, Wei L, Terek R, Appleyard D, Sun C, Sun X, Ehrlich M: Dose-dependent Naloxone Exposure Stimulates Osteoblastic Differentiation in Negatively Immunodepleted Mesenchymal Stem Cells. Annual Meeting of the Orthopaedic Research Society, Las Vegas, NV 2009
16. Valdes M, Yang W, Wei L, Terek RM, Sun C, Sun X, Ehrlich MG: Naloxone exposure of bone marrow mesenchymal stem cells promotes their osteoblastic differentiation. Annual Meeting of the American Academy of Orthopaedic Surgeons, Las Vegas, NV 2009
17. Sun, X; Terek, R: CXCR4/SDF-1 Promote Angiogenesis in Chondrosarcoma. Annual Meeting of the Orthopaedic Research Society. New Orleans, LA, 2010.
18. Wei, L; Kanbe, K; Wei, X; Sun, X; Terek, R; Chen, Q: Stimulation of Chondrocyte Hypertrophy by Chemokine Stromal Cell-Derived Factor 1 in the Chondro-osseous Junction through a Positive Feedback Loop Mediated by Runx2. Annual Meeting of the Orthopaedic Research Society. New Orleans, LA, 2010.
19. Terek R; Sun, X: Mir-126 Inhibits VEGF Expression and Proliferation in Chondrosarcoma Cells. Annual Meeting of the Orthopaedic Research Society. Long Beach, CA, 2011.
20. Terek R, Sun X, Wei L; Chen Q: CXCR4 TARGETED THERAPY FOR CHONDROSARCOMA, Combined Meeting of the Connective Tissue Oncology Society and Musculoskeletal Oncology Society, Chicago, IL, 2011

21. Terek R, Sun X, Wei L; Chen Q: CXCR4 TARGETED THERAPY FOR CHONDROSARCOMA, 4th Northeast IDeA Meeting, Newport, RI 2011
22. Terek R and Sun X: Runx2 Regulates p16 Expression in Chondrosarcoma Cells, Annual Meeting of the Orthopaedic Research Society, San Francisco, CA, 2012
23. Terek R; Charbonneau C; Sun X: AMD3100 Inhibits Angiogenesis and Metastasis in Chondrosarcoma In Vivo. Annual Meeting of the Orthopaedic Research Society, San Francisco, CA, 2012
24. Terek R, Sun X, Wei L; Chen Q: CXCR4 TARGETED THERAPY FOR CHONDROSARCOMA TREATMENT, Association of Bone and Joint Surgeons, Charleston, SC 2012
25. Terek R, Sun X: MicroRNA and Chondrosarcoma Metastasis, Annual Meeting of the Musculoskeletal Tumor Society, San Francisco, CA, October 2013.
26. Sun X, Wei L, Charbonneau C, Chen Q, Terek R: MicroRNA-181a Regulates Chondrosarcoma Metastasis by Enhancing Chemokine Receptor Signaling. Annual Meeting of the Orthopaedic Research Society, New Orleans, LA, 2014.
27. Terek RM, Charbonneau C, Sun X: ANTAGOMIR THERAPY FOR CHONDROSARCOMA. Annual Meeting, Association of Bone and Joint Surgeons, NY, NY 2014
28. Terek RM; Sun X; Chen Y; Yu H; Machan J; Hart J; Chen: Janus Base Derived Nanopieces for Delivery of Anti-miRNA Oligonucleotides in Chondrosarcoma. Annual Meeting of the Orthopaedic Research Society, Austin, TX 2019
29. Xiaojuan Sun, Jose Ramirez, Jesse Hart, Joseph Schwab, Janine Molino, Xiaoqun Dong, Rolf Carlson, Jack R. Wands, and Richard M. Terek. ASPH Targeted Therapy Inhibits Chondrosarcoma Progression. Annual Meeting of the Orthopaedic Research Society, Tampa, FL 2022.

GRANTS

1. National Nature Science Funds (Co PI 1992-1995 in China): Project was detection and identification of Hainan (South of China) Rickettsia using cell culture and molecular biology techniques.
2. National Nature Science Funds (Co PI 1996-1998 in China): Project was studying Hainan (South of China) Rickettsia variation using molecular biology techniques.
3. Hainan Nature Science Funds (PI 1997-1999 in China): Project was studying genes related to antibiotic-resistance to Gonorrhoea using molecular biology techniques.
4. COBRE for Skeletal Health and Repair. Chen (PI) 1P20RR024484-01 – NIH 9/1/2007-8/31/2012. Project 3, Terek (PI). Mechanisms of Angiogenesis in Chondrosarcoma. Role: Principal researcher
5. 1R01CA166089-01A1 (Terek, PI) 09/25/13-7/31/19. NIH/NCI. NIH 2013-2018 \$1,400,000. Targeting CXCR4 and microRNA as Therapy for Chondrosarcoma (The goals of this project are to investigate the role of mis-expressed microRNAs in chondrosarcoma metastasis and to develop targeted therapies for this disease). Role: Principal researcher

6. 1R01CA270795-01A1, Terek (PI),
Role: Principal Researcher/Co-investigator
12/22/2022 – 11/30/2027. ASPH Targeted Therapy for Chondrosarcoma

UNIVERSITY RESEARCH ADVISING and TEACHING ROLES*

PAST AND CURRENT TRAINEES:

- Carmelle Romain MD'09 Summer 2006 Effect of hypoxia on HDAC4, Runx2, VEGF in chondrosarcoma General Surgery Residency, Vanderbilt University
- Katelyn Kondra, 2012 Brown undergraduate, effect of microRNA on doxorubicin sensitivity in chondrosarcoma cells. Hofstra North Shore – LIJ School of Medicine
- Ashna Alladin, 2015 Vellore Institute of Technology, Undergraduate Thesis: Analysis of alternative miR-181a targets. EMBL, Heidelberg, Germany, PhD program
- Salomi Desai, 2016 Vellore Institute of Technology, Master's Degree Thesis: Combination microRNA therapy utilizing nanoparticles for chondrosarcoma treatment.
- Jennifer Elacio, 2017 Brown University, Research Elective: Serum microRNA as a biomarker for chondrosarcoma.
- LEI WANG, 2018 BEIJING SHIJITAN HOSPITAL. M.D. Visiting Scholar at Oncology Lab of Rhode Island Hospital/Lifespan, Brown University. MOI effect on Osteosarcoma cell proliferation *in vitro*.
- Mariah Balmaceno-Criss, 2021 Brown Alpert Medical School: ASPH inhibition improves the sensitivity of osteosarcoma cell line 143B to doxorubicin.