

CURRICULUM VITÆ

*Jean Frederic Welter, M.D., M.Sc., Ph.D.
Research Associate Professor
Skeletal Research Center, Department of Biology,
Case Western Reserve University
Millis Science Center, Room 112A
2080 Adelbert Road
Cleveland, Ohio 44106-7080
Tel.: (216) 368-1333 (Office), (216) 368-2777 (Lab),
Fax: (216) 368-4077
E-mail: jfw2@cwru.edu
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Educational Background:

- 1996 Ph.D. (Physiology & Biophysics), Case Western Reserve University, Cleveland, OH, U.S.A.
- 1990 M.Sc. (Experimental Surgery), Dean's Honors List McGill University, Montréal, Québec, Canada
- 1984 Permanent ECFMG certificate, Foreign Medical Graduate Examination in the Medical Sciences (F.M.G.E.M.S.)
- 1984 Doktor der gesamten Heilkunde (M.D.), School of Medicine, Leopold Franzens Universität, Innsbruck, Austria

Professional Experience:

- 2007 - Research Associate Professor, Department of Biology Case Western Reserve University, Cleveland, OH
- 2012 - Associate Professor, Center for Regenerative Medicine, School of Medicine, Division of General Medical Sciences, Case Western Reserve University, Cleveland, OH (Secondary Appointment)
- 2004 - Senior Research Associate, Skeletal Research Center Case Western Reserve University, Cleveland, OH
- 1998 - Assistant Professor, Department of Orthopædics, Case Western Reserve University, Cleveland, OH
- 1996 - Instructor, Department of Orthopædics, Case Western Reserve University, Cleveland, OH
- 1990 - Ph.D. Candidate, Department of Physiology & Biophysics, Case Western Reserve University, Cleveland, OH

- 1989 - Post-Doctoral Fellow, Department of Orthopædics, Case Western Reserve University,
1990 Cleveland, OH
- 1988 - PGY-1 Surgery Resident, Surgery Residency Program, Case Western Reserve University,
1989 Cleveland, OH
- 1985 - Research Fellow, Montreal Children's Hospital Research Institute
1988 (Orthopædic Research Laboratory), Montréal, PQ, Canada

Professional Affiliations:

- 2010 - Present Tissue Engineering and Regenerative Medicine International Society
- 2008 - Present Osteoarthritis Research Society International
- 2007 - Present Biomedical Engineering Society
- 2003 - Present International Cartilage Repair Society
- 2001 - Present American Society for Bone and Mineral Research
- 1998 - Present American Society for Biochemistry & Molecular Biology
- 1997 - Present Orthopædic Research Society
- 1989 - Present American Association for the Advancement of Science

Honors and Awards:

- 2006 ICRS poster award "*Cum Laude*"
- 2003,
2005 Arthritis Foundation travel ward
- 1991 - Research Fellowship, Cell Physiology Training Program. Department of Physiology &
1993 Biophysics, Case Western Reserve University, Cleveland, OH
- 1990 McGill University, Dean's Honors List
- 1989 - Research Fellowship, NIH Training Program in Musculoskeletal Research.
1990 Department of Orthopædics, Case Western Reserve University, Cleveland, OH
- 1985 - Fellow of the McGill University - Montreal Children's Hospital Research Institute
1988

Teaching Experience:

Highschool

- 2013 Jake Althans, Gilmour Academy student co-advisor
- 2012 Sarah Abdalian, Gilmour Academy student co-advisor

Undergraduate

- 2013 Joe Heebner, ENGAGE fellowship sponsor
- 2011 Marine Gu, undergraduate senior project co-advisor
- 2011 Eduardo Arellano, summer laboratory project co-advisor
- 2010 - 2011 Marcin Citak, undergraduate senior project co-advisor
- 2010 Jason Walker, undergraduate senior project co-advisor (MAE)
- 2009 Jason Walker, summer undergraduate student
- 2008 - 2009 Ashley McKee, undergraduate senior project co-advisor
- 2009 Michal Pelyak, ENGAGE fellowship sponsor (Biol)
- 2008 Michael Pelyak, ENGAGE fellowship sponsor
- 2006 - 2012 EBME 325, Introduction to Tissue Engineering, guest lecturer. Department of Biomedical Engineering, CWRU
- 2005 - 2006 Ross Anderson, undergraduate senior project co-advisor
- 2005 - 2008 Bioreactors for MSC differentiation; "Cell-Based Therapies and Tissue Engineering" (CTTE) short course
- 2002 Rabia Ahmed, summer undergraduate student.

Graduate

- 2014 Chen-Yuan Chung, PhD thesis committee member (MAE)
- 2014 - present Yi Zhong, MSc guidance committee member (BME)
- 2013 - present Kuo-Chen (May) Wang, PhD thesis committee member (Biol)
- 2012 - 2013 Mostafa Motavalli, PhD thesis committee member (MAE)
- 2013 Marine Gu, M.Sc. co-advisor and committee member
- 2012 - 2014 Alexander (Lee) Rivera, PhD thesis committee member (ChE)
- 2009 - 2013 Chi-Ling (Kate) Chou, PhD thesis committee member (ChE)

2009 - present Thesis committee for Shiv Shanmugan, Vinay Sethia, Pavan Sethia, Balambal Subramanian, Hong Wang, JT Tan, Rohit Davis, Shivam Barathi, Colin Naples, Mike Hallen, and Ryan Allison: MS in Entrepreneurial Biotechnology Program.

1991 - 1994 Introduction to Microcomputers. Department of Physiology & Biophysics, CWRU

Fellows

2003 - 2004 Mukund Deglurkar, M.B.B.S., M.S., F.R.C.S. Research Fellow, MD candidate, University of Wales

2003 - 2004 Reid Wenger, D.D.S., Research Fellow

1997 - 1998 Shmuel Tsurel, M.D.; Research Fellow

Other

2005 - 2009 Bioreactors for Cartilage Tissue Engineering; Optimizing MSC differentiation; "Cell-Based Therapies and Tissue Engineering" (CTTE) short course

Funded Research:

- * AFIRM II 2014 - 2017 subproject co-investigator.
- * NIH/NIBIB R01 EB 20367, CWRU center for multi-modal evaluation of engineered cartilage (Caplan, PI), 08/01/2014 - 07/31/2016. Project Co-director.
- * Intra-articular delivery of injectable sustained-release microsphere drug formulations. CSCRM/BRCP: 7/1/09 - 6/30/2012. Principal Investigator
- * Tissue engineered cartilage repair. (PI: Arnold Caplan) NIH/NIAMS-NIBIB P01 AR053622 7/01/08 - 06/30/10 Core director and sub-project Co-principal investigator
- * Mechanisms of chondroprotection by pomegranate fruit extract R01 AT003627-01A1 PI: Tariq Haqq i7/1/2007 - 6/30/2012 Co-investigator.
- * Engineering cartilage: an integrated approach to biological joint repair. NIH R01 AR050802. 4/5/2005 - 3/31/2010. Principal investigator.
- * Chondrogenic preconditioning of cell/scaffold constructs for the repair of large cartilage defects. Arthritis Foundation Biomedical Research Grant. 07/01/2002 - 06/30/2005. Principal investigator.
- * Clinical tissue engineering center (CTEC), BRTT, PI: George Muschler, 04/01/2005 - 03/31/2008 Co-investigator.
- * Tissue-engineered skin with built-in capillary flow networks. NIH R01 EB006203. PI: Harihara Baskaran, 03/01/2006 - 02/28/2010, Co-investigator.
- * Tissue engineering of cartilage subtypes. NIH R01 DE015322. PI: James Dennis, 08/01/2004 - 7/31/2008, Co-investigator.
- * Strength and resorption of biodegradable skull implants. NIH R01-DE13740. PI: David Dean, Co-investigator. Start date pending. Co-investigator.
- * Effects of processing techniques for tantalum trabecular bone implant surfaces. Zimmer, Inc. PI: Victor Goldberg, 07/01/2003 - 06/30/2005, Co-investigator.
- * State-of-the-Art pH Monitoring in Bioreactors. NSF STTR Phase I. PI: John Robecheck, 07/01/03 - 06/30/04, Co-investigator.
- * Tissue engineered implants for cartilage regeneration. Ohio Board of Regents/Case Western Reserve University Presidential Research Initiative. 01/01/2001 - 12/31/2002. Principal investigator
- * Gene transcription in mechanically loaded bone cells. NIH R03 AR 45777. 10/1/1998 - 9/30/2001. Principal investigator

Pending/Planned Proposals:

- * IRT/Procaps: Pre-clinical Cytogel-MSC 2015 - 2017 Co-investigator. (awarded, pending contract negotiations)
- * NIH/NIBIB P41, CWRU center for multi-modal evaluation of engineered cartilage (Caplan, PI), Project Co-director.
- * CDMRP PRORP program Osteochondral Scaffold Concept for Repair of Large Posttraumatic Arthritic Defects (Akkus, PI), Co-investigator.
- * CDRMP Lupus proposal (Jones, PI), Co-investigator
- * SBIR - Improved cartilage regeneration using concentrated bone marrow and a novel chondroitin sulfate-collagen based scaffold, (subaward).

Ongoing Collaborations:

At Case Western Reserve University:

- Davood Varghai: Cranial explant organ culture
- David Prologo: Intradisc MSC injections
- Harihara Baskaran: Mass transport studies in tissue-engineered cartilage and skin. Metabolic engineering of anaerobic bacteria.
- Hülya Bükülmez, M.D.: CNP in MSC differentiation.
- Charles Malemud: Apoptosis in OA.
- David Dean: Tissue engineering of cranial implants.
- Tariq Haqqi: Oxidative stress and MSC performance.
- C.C. Liu: Glucose consumption by differentiating mesenchymal stem cells

Off Campus:

- Tracey Richey/Mark Smith (Oakwood Labs): Sustained-release intra-articular drug delivery
- H. Michael Cheung (University of Akron): Dynamic light scattering in molecular crowding.
- Lisa Freed (Massachusetts Institute of Technology): Cartilage tissue engineering.
- John Robecheck, (Sensirox, Inc), Jay Johnson (UDRI): Development of micro-pH sensors.
- R. Tracy Ballock, (Cleveland Clinic Foundation): Investigation of Heuter-Volkman effect in vitro using a hydrostatic bioreactor.
- Dwayne Bisgrove, Ph.D., System Biosciences (SBI): Lentiviral reporter/selection vectors to report cell differentiation.

Service to Professional Community:

- 2013 *Ad hoc* member, NIH Cell Culture Bioreactor Study Section ZRG1 IDM-M (30)
- 2013 Reviewer NMRC (Singapore) Clinician Scientist Awards
- 2012 - present International Expert Panel member. National Medical Research Council (Singapore)
- 2012 Member, NIH COBRE renewal review panel
- 2011 Study section member for Arthritis Research UK
- 2010, 2011 Reviewer, NCRM pilot grant proposals
- 2009 Moderator, Progenitors and Stem Cells session, Orthopaedic Research Society meeting, Las Vegas, NV
- 2009 Member, NIH Challenge Grant Review Panel #10, ZRG1 BDA-A (58) R
- 2008, 2011 Member, Arthritis Research Campaign (U.K.) study section
- 2008 Member, Special Emphasis Panel/Scientific Review Group 2009/01 MTE
- 2008 *Ad hoc* member, NIH Special Emphasis Panel/Scientific Review Group ZAR1 EHB-H (M1)

- 2006, 2007 *Ad hoc* member, NIH Special Emphasis Panel/Scientific Review Group ZAR1 EHB-J (M1) (1)
- 2005 *Ad hoc* member, NIH Special Emphasis Panel/Scientific Review Group ZAR1 EHB-G (O1) (1)
- 2005 Judge, MTEC-2005 presentation awards
- 2004, 2006-2012 *Ad hoc* reviewer for the National Medical Research Council (Singapore) study section
- 2004, 2006, 2007 Judge, graduate student poster competition at Research ShowCASE
- 2003 Organizing committee for the 5th Bone Fluid Flow Workshop, Cleveland, OH. September 17 - 18
- 2002 - 2003 *Ad hoc* member, NIH biomedical engineering study section ZRG1 SSS-M 58
- 2001 - 2004 Member, Department of Orthopædics Research Committee
- * *Ad hoc* reviewer for Acta Biomaterialia
- * *Ad hoc* reviewer for Arthritis Research and Therapy
- * *Ad hoc* reviewer for Biomaterials
- * *Ad hoc* reviewer for BioTechniques
- * *Ad hoc* reviewer for Bone
- * *Ad hoc* reviewer for British Journal of Cancer
- * *Ad hoc* reviewer for Cells, Tissues, Organs
- * *Ad hoc* reviewer for Current Eye Research
- * *Ad hoc* reviewer for Genomics
- * *Ad hoc* reviewer for the Journal of Biological Chemistry
- * *Ad hoc* reviewer for the Journal of Biomedical Materials Research
- * *Ad hoc* reviewer for the Journal of Investigative Dermatology
- * *Ad hoc* reviewer for the Journal of Orthopædic Research
- * *Ad hoc* reviewer for the Orthopædic Research Society
- * *Ad hoc* reviewer for Tissue Engineering
- * *Ad hoc* reviewer for Yonsei Medical Journal

Patents:

- Holt, V.; Welter, J.F.; Berilla, J.A.; Harris, M.; and Caplan, A.I.: Cell capture apparatus and staining device. Provisional patent application number 61/875918 filed September 10, 2013.
- Welter, J.F.; Solchaga, L.A.; Berilla, J.A.; and Penick, K.: Apparatus and method for tissue engineering. US Patent # 8,507,266 issued August 13, 2013.

Publications:

Manuscripts Submitted/in Preparation:

1. Chou, C.-L.; Rivera, A.L.; Williams, V.; Welter, J.F.; Mansour, J.M.; Drazba, J.A.; Sakai, T.; and Baskaran, H.: Micrometer-Scale guidance of mesenchymal stem cells to form structurally-oriented large-scale cartilage constructs 2015 (*submitted*)
2. Prologo, J.D.; Duesler, L.; Berilla, J.A.; Baskaran, H.; and Welter, J.F.: Effects of high-pressure injection on MSC viability and differentiation. Journal of Vascular and Interventional Radiology 2015 (*resubmitted*)
3. Mansour, J.M.; Lee, Z.; and Welter, J.F.: Nondestructive evaluation of engineered cartilage in vitro Invited contribution to 2015 Annals of Biomedical Engineering Special Issue: "Nondestructive Characterization of Biomaterials for Tissue Engineering and Drug Delivery"
4. Larson, B.L.; Yu, S.N.; Park, H.; Estes, B.T.; Moutos, F.T.; Wu, P.B.; Guilak, F.; Welter, J.F.; Langer, R.; and Freed, L.E.: Chondrogenic and Osteogenic Plasticity of Human Mesenchymal Stem Cells. Cell Stem Cells 2014 (*submitted*)
5. Solchaga, L.A.; Penick, J.; Goldberg, V.M.; Caplan, A.I.; and Welter, J.F.: TGF- β 1 and dexamethasone regulate hypertrophy during chondrogenic differentiation of bone marrow-derived mesenchymal stem cells (*in preparation*)

6. Berilla, J.; Solchaga, L.A.; Baskaran, H.; and Welter, J.F.: Design of a cartilage tissue engineering bioreactor (*submitted*)
7. Liang, W.H.; Janakiraman, V.; Welter, J.F.; and Baskaran, H.: Composite tissue engineered skin constructs made of collagen dermal analogs and cultured keratinocyte epidermal analogs (in preparation)
8. Berilla, J. and Welter, J.F.: Image analysis algorithm for measuring local thickness (*in revision*)
9. Welter, J.F.; Baskaran, H.; Berilla, J.A.; Caplan, A.I.; Goldberg, V.M.; Penick, K.; and Solchaga, L.A.: Transient aggregate culture enables human mesenchymal stem cell-based cartilage tissue engineering (*in preparation*)
10. Welter, J.F.: Simplified color thresholding of histological images using color-space rotation. (*in preparation*)
11. Welter, J.F. and Mansour, J.M.: Evaluation of tissue engineered cartilage (*in preparation*)

Peer-Reviewed Manuscripts:

1. Mansour, J.; Lee, Z.; and Welter, J.: Nondestructive techniques to evaluate the characteristics and development of engineered cartilage. (Invited review). *Annals of Biomedical Engineering* 2015 (*Accepted*).
2. Chung, C.-Y.; Heebner, J.; Baskaran, H.; Welter, J.F.; and Mansour, J.M.: Ultrasound elastography for estimation of regional strain of multilayered hydrogels and tissue-engineered cartilage. *Annals of Biomedical Engineering* 2015 43(12):2991-2300 [Abstract](#)
3. Correa, D.; Somoza, R.; Lin, P.; Greenberg, S.; Rom, E.; Duesler, L.; Welter, J.F.; Yayon, A.; and Caplan, A.I.: Sequential exposure to fibroblast growth factors (FGF) 2, 9 and 18 enhances hMSCs chondrogenic differentiation. *Osteoarthritis & Cartilage* 2015, 23(3):443-53. [Abstract](#)
4. Mansour, J.M.; Gu, D.-W.; Chung, C.-Y.; Heebner, J.; Schluchter, M.D.; and Welter, J.F.: Towards the feasibility of using ultrasound to determine mechanical properties of tissues in a bioreactor. *Annals of Biomedical Engineering* 2014, 42(10):2190-2202. [Abstract](#)
5. Somoza, R.; Welter, J.; Correa, D.; and Caplan, A.: Chondrogenic differentiation of Mesenchymal Stem Cells: unfulfilled expectations and new challenges. *Tissue Engineering part B*, 2014 20(6):596-608 [Abstract](#)
6. Wallace, J.; Wang, M.O.; Thompson, P.; Busso, M.; Belle, V.; Mammoser, N.; Kim, K.; Fisher, J.P.; Siblani, A.; Xua, Y.; Welter, J.F.; Lennon, D.P.; Sun, J.; Mikos, A.G.; Caplan, A.I.; Dean, D.: Validating continuous digital light processing (cDLP) additive manufacturing accuracy and tissue engineering utility of a dye-initiator package. *Biofabrication* 2014 Jan 15;6(1) [Abstract](#)
7. Welter, J.F.; Penick, J.; Solchaga, L.A.: Assessing adipogenic potential of mesenchymal stem cells: a rapid three-dimensional culture screening technique. *Stem Cells International*, 2013, Article ID 806525 [Abstract](#)
8. Chou, C.-L.; Rivera, A.L.; Caplan, A.I.; Goldberg, V.M.; Welter, J.F.; and Baskaran, H.: Micrometer scale guidance of mesenchymal stem cells to form structurally oriented cartilage extracellular matrix. *Tissue Engineering, Part A* 2013, 19(9-10):1081 - 1090. [Abstract](#)
9. Mansour, J.M. and Welter, J.F.: Multimodal evaluation of tissue-engineered cartilage. *Journal of Medical and Biological Engineering* 2013, 33(1):1-16 [Abstract](#)
10. Shao, Y.; Wang, L.; Welter, J.F.; and Ballock, R.T.: Primary cilia modulate ihh signal transduction in response to hydrostatic loading of growth plate chondrocytes. *Bone* 2012, 50(1):79 - 84 [Abstract](#)
11. Walker, J.M.; Myers, A.M.; Schluchter, M.D.; Goldberg, V.M.; Caplan, A.I.; Berilla, J.A.; Mansour, J.M.; and Welter, J.F.: Nondestructive Evaluation of Hydrogel Mechanical Properties Using Ultrasound. *Annals of Biomedical Engineering* 2011, 39(10):2521 - 2530 [Abstract](#)
12. Sarkar, S.; Bustard, B.L.; Welter, J.F.; and Baskaran, H.: Combined experimental and mathematical approach for development of microfabrication-based cancer migration assay. *Annals of Biomedical Engineering* 2011, 39(9):2346 - 2359. [Abstract](#)
13. Auletta, J.J.; Zale, E.A.; Welter, J.; and Solchaga, L.: Fibroblast growth factor-2 enhances expansion of human bone marrow-derived mesenchymal stromal cells without diminishing their immunosuppressive potential. *Stem Cells International* 2011, Article ID 235176:1 - 10. [Abstract](#)
14. Abrahamsson, C.A.; Yang, F.; Park, H.; Valonen, P.K.; Langer, R.; Welter, J.F.; Caplan, A.I.; Brunger, J.; Guilak, F.; Freed, L.E.: Chondrogenesis and mineralization during in vitro culture

- of human mesenchymal stem cells on 3D-woven scaffolds. *Tissue Engineering, Part A* 2010, 16(12):3709 - 3718). [Abstract](#)
15. Liang, W.H.; Kienitz, B.L.; Penick, K.; Welter, J.F.; and Baskaran, H.: Optimizing collagen-GAG scaffolds for tissue engineering applications using centrifugation. *Journal of Biomedical Materials Research, Part A* 2010, 94(4):1050 - 1060. [Abstract](#)
 16. Valonen, P.K.; Moutos, F.T.; Kusanagi, A.; Moretti, M.; Diekman, B.O.; Welter, J.F.; Caplan, A.I.; Guilak, F.; and Freed, L.E: In vitro generation of mechanically functional cartilage grafts based on adult human stem cells and 3D-woven poly(ϵ -caprolactone) scaffolds. *Biomaterials* 2010, 31(8):2193 - 2200. [Abstract](#)
 17. Solchaga, L.A.; Penick, J.; Goldberg, V.M.; Caplan, A.I.; and Welter, J.F.: Fibroblast growth factor-2 enhances proliferation and delays loss of chondrogenic potential in human adult bone marrow-derived mesenchymal stem cells. *Tissue Engineering* 2009, (*e-Pub ahead of print*). [Abstract](#)
 18. Welter, J.F.; Solchaga, L.A.; and Penick, K.J.: Simplification of aggregate culture of human mesenchymal stem cells as a chondrogenic screening assay. *BioTechniques* 2007, 42(6):732 - 737. [Abstract](#)
 19. Henderson, J.H.; Welter, J.F.; Mansour, J.M.; Niyibizi, C.; Caplan, A.I.; and Dennis, J.E.: Cartilage tissue engineering for pediatric laryngotracheal reconstruction: Comparison of chondrocytes from three anatomic locations in the rabbit. *Tissue Engineering* 2007, 13(4):843 - 853. [Abstract](#)
 20. Deglurkar, M.; Davy, D.T.; Goldberg, V.M.; Stewart, M.C.; and Welter, J.F.: Evaluation of machining methods for porous tantalum implants in a rabbit intramedullary osseointegration model. *Journal of Biomedical Materials Research (B)* 2007, 80B(2):528 - 540. [Abstract](#)
 21. Henderson, J.H.; Mansour, J.M.; Welter, J.F.; Awadallah, A.; Ginley, N.; Caplan, A.I.; and Dennis, J.E.: Cartilage tissue engineering: comparison of chondrocytes from three anatomic locations in the rabbit. *CWRU Orthopaedic Journal* 2006, 3(1):33- 42.
 22. Solchaga, L.A.; Tognana, E.; Penick, K.; Baskaran, H.; Caplan, A.I.; Goldberg, V.G.; and Welter, J.F.: A rapid vacuum-seeding technique for the assembly of large tissue-engineered cell/scaffold composites. *Tissue Engineering* 2006, 12(7):1851 - 1863. [Abstract](#)
 23. Wenger, R.; Hans, M.G.; Welter, J.F.; Solchaga, L.A.; Sheu, Y.R.; and Malemud, C.J.: Tissue-engineered human cartilage-constructs from human osteoarthritic chondrocytes. *Frontiers in Biosciences*, 2006, 11:1690 - 1695. [Abstract](#)
 24. Penick, K.J.; Solchaga, L.A.; and Welter, J.F.: A high-throughput aggregate culture system to assess the chondrogenic potential of mesenchymal stem cells. *BioTechniques* 2005, 39(5):687 - 691. [Abstract](#)
 25. Penick, K.; Berilla, J.; Solchaga, L.A.; and Welter, J.F.: Performance of polyoxymethylene plastic (POM) as a component of a tissue engineering bioreactor. *Journal of Biomedical Materials Research* 2005, 75(1):168 - 174. [Abstract](#)
 26. Solchaga, L.A.; Penick, K.; Porter, J.; Caplan, A.I.; Goldberg, V.M.; and Welter, J.F.: FGF-2 enhances the mitotic and chondrogenic potentials of human adult bone marrow-derived mesenchymal stem cells. *J. Cellular Physiology* 2005, 203:398 - 409. [Abstract](#)
 27. Solchaga, L.A.; Penick, K.; and Welter, J.F.: A manual mosaicking approach to generating large, high resolution digital images of histological sections. *Proceedings of the Royal Microscopical Society* 2004, 39(4):313 - 320.
 28. Stewart, M.C.; Welter, J.F.; and Goldberg, V.G.: Effect of Hydroxyapatite/Tricalcium-Phosphate coating on osseointegration of plasma-sprayed titanium alloy implants. *Journal of Biomedical Materials Research* 2004, 69A(1):1 - 10. [Abstract](#)
 29. Jabbour, L.; Welter, J.F.; Kollar, J.; and Hering, T.M.: Sequence, gene structure, and expression pattern of CNTL, a minor class intron-containing gene: evidence for a role in apoptosis. *Genomics* 2003, 81(3):292 - 303. [Abstract](#)
 30. Islam, N.; Haqqi, T.M.; Jepsen, K.J.; Kraay, M.; Welter, J.F.; Goldberg, V.M.; and Malemud, C.J.: Hydrostatic pressure induces apoptosis in human chondrocytes from osteoarthritic cartilage through up-regulation of tumor necrosis factor- α , inducible nitric oxide synthase, c-myc, p53 and bax- α , and suppression of bcl-2. *Journal of Cellular Biochemistry* 2002, 87: 266 - 278. [Abstract](#)
 31. Balasubramanian, S.; Agarwal, C.; Efimova, T.; Dubyak, G.R.; Banks, E.; Welter, J.; and Eckert, R.L.: Thapsigargin suppresses phorbol ester-dependent human involucrin promoter activity by suppressing CCAAT-enhancer-binding protein alpha (C/EBP α) DNA binding. *Biochemical Journal* 2000, 350(Pt 3):791 - 796. [Abstract](#)

32. Agarwal, C.; Effimova, T.; Welter, J.F.; Crish, J.F.; and Eckert, R.L.: CCAAT/Enhancer-binding proteins. A role in regulation of human involucrin promoter response to phorbol ester. *Journal of Biological Chemistry* 1999, 274(10):6190 - 6194. [Abstract](#)
33. Effimova, T.; LaCelle, P.; Welter, J.F.; and Eckert, R.L.: Regulation of human involucrin promoter activity by a protein kinase C, RAS, MEKK1, MEK3, P38/RK, AP-1 signal transduction pathway. *Journal of Biological Chemistry* 1998, 273(38):24387 - 24395. [Abstract](#)
34. Banks, E.B.; Crish, J.F.; Welter, J.F.; and Eckert, R.L.: Characterization of human involucrin promoter distal regulatory region transcriptional activator elements - a role for SP1 and AP-1 binding sites. *Biochemical Journal* 1998, 331(Pt.1):61 - 69. [Abstract](#)
35. Robinson, N.A.; Lopic, S.; Welter, J.F.; and Eckert, R.L.: S100A11, S100A10, annexin I, desmosomal proteins, SPRs, plasminogen activator inhibitor-2, and involucrin are components of the cornified envelope of cultured human epidermal keratinocytes. *Journal of Biological Chemistry* 1997, 272(18):12035 - 12046. [Abstract](#)
36. Eckert R.L.; Crish J.F.; Banks E.B.; Welter, J.F.: The epidermis: genes on - genes off. *Journal of Investigative Dermatology* 1997, 109(4): 501 - 509. [Abstract](#)
37. Eckert, R.L. and Welter, J.F.: Keratinocyte differentiation: genes and their regulation. *Cell Death and Differentiation* 1996, 3:373 - 383. [Abstract](#)
38. Eckert, R.L. and Welter, J.F.: Transcription factor regulation of epidermal keratinocyte gene expression. *Molecular Biology Reports* 1996, 23:59 - 70. [Abstract](#)
39. Welter, J.F.; Gali, H.U.; Crish, J.F.; and Eckert, R.L.: Regulation of human involucrin promoter activity by POU domain proteins. *Journal of Biological Chemistry* 1996, 271(25):14727 - 14733. [Abstract](#)
40. Welter, J.F.; Crish, J.F.; Agarwal, C.; and Eckert, R.L.: Additions and corrections to: Fos related antigen (Fra-1), junB and junD activate human involucrin promoter transcription by binding to proximal and distal AP1 sites to mediate phorbol ester effects on promoter activity. *Journal of Biological Chemistry* 1996, 271(18):11034. PMID: 8662708
41. Welter, J.F. and Eckert, R.L.: Differential expression of the fos and jun family members c-fos, fosB, fra-1, fra-2, c-jun, junB and junD during human epidermal differentiation. *Oncogene* 1995, 11(12):2681 - 2687. [Abstract](#)
42. Welter, J.F.; Crish, J.F.; Agarwal, C.; and Eckert, R.L.: Fos related antigen (fra-1), junB and junD activate human involucrin promoter transcription by binding to proximal and distal AP1 sites to mediate phorbol ester effects on promoter activity. *Journal of Biological Chemistry* 1995, 270(21):12614 - 12622. [Abstract](#)
43. Eckert, R.L.; Yaffe, M.B.; Crish, J.F.; Murthy, S.; Rorke, E.A.; and Welter, J.F.: Involucrin - Structure and role in envelope assembly. *Journal of Investigative Dermatology* 1993, 100(5):613 - 617. [Abstract](#)
44. Welter, J.F.; Shaffer, J.W.; Stevenson, S.; Davy, D.T.; Field, G.A.; Klein L.; Li, X.Q.; Zika, J.M.; and Goldberg, V.M.: Cyclosporin A and tissue antigen matching in bone transplantation. Fibular allografts studied in the dog. *Acta Orthopædica Scandinavica* 1990, 61(6):517 - 527. [Abstract](#)

Book Chapters:

1. Lee, Z.; Dennis, J.; Welter, J.; and Caplan, A.: Imaging stem cell differentiation for cell-based tissue repair. In: *Methods in Enzymology: Imaging and Spectroscopy in Living Cells*, Elsevier Publishing 2012 506:247-63. PMID: 22341228
2. Welter, J.F.; Solchaga, L.A.; and Baskaran, H.: Chondrogenesis from human mesenchymal stem cells: Role of culture conditions. In: Hayat, E., ed.: *Stem cells and cancer stem cells: Therapeutic applications in disease and injury*, volume 5. Springer 2012:269 - 281 ISBN: 978-94-007-2899-8
3. Solchaga, L.A.; Penick, K.J.; and Welter, J.F.: Chondrogenic differentiation of bone marrow-derived mesenchymal stem cells: tips & tricks. In: Vemuri, M.C.; Rao, M.S.; and Chase, L.G., eds.: *Mesenchymal Stem Cell Assays and Applications*. Humana Press, 2011, 698:253 - 278. [Abstract](#)
4. Goldberg, V.M. and Welter, J.F.: Autografts. In: Callaghan, J.J.; Rosenberg, A.G.; and Rubash, H.E., eds.: *The adult hip*, Lippincott-Raven. 2006(23):304 - 328.
5. Welter, J.F. and Goldberg, V.M.: Bone grafting and substitutes. In: *Orthopædic knowledge update*. AAOS, 2005:241 - 248.

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Invited Presentations:

- Canine and Human Mesenchymal Stem Cells, Growth Factors, Bioreactors, and Animal Model Studies. External Advisory Board and Co-Investigators meeting of NIH Grant R01-DE013740, Strength and Resorption of Biodegradable Skull Implants. July 21, 2011
- Intra-articular delivery of injectable sustained-release drug formulations. NCRM Retreat, November 14, 2011
- X marks the spot. Spatial and temporal distribution of Type X collagen in engineered cartilage. MSCs Skeletal Research Center seminar series, Case Western Reserve University, Cleveland, OH, November 15, 2010
- Canine Mesenchymal Stem Cells, Growth Factors, Bioreactors, and Toxicity. External Advisory Board and Co-Investigators meeting of NIH Grant R01-DE013740, Strength and Resorption of Biodegradable Skull Implants. June 2, 2010

- Crowding MSCs Skeletal Research Center seminar series, Case Western Reserve University, Cleveland, OH, February 1, 2010.
- Cartilage tissue engineering. EBME 325 guest lecture, Case Western Reserve University, Cleveland, OH, November 30, 2009
- Optimizing MSC differentiation; CTTE-2009 "Cell-Based Therapies and Tissue Engineering" short course, Case Western Reserve University, Cleveland, OH, May 25, 2009
- How Thick Is That? Skeletal Research Center seminar series, Case Western Reserve University, Cleveland, OH, March 23, 2009
- Bioreactors for Cartilage Tissue Engineering; CTTE-2008 "Cell-Based Therapies and Tissue Engineering" short course, Case Western Reserve University, Cleveland, OH, May 26, 2008
- Optimizing MSC differentiation; CTTE-2008 "Cell-Based Therapies and Tissue Engineering" short course, Case Western Reserve University, Cleveland, OH, May 26, 2008
- Case study: Cartilage tissue engineering. EBME 325 guest lecture, Case Western Reserve University, Cleveland, OH, November 15, 2007
- Probing MSC differentiation. Skeletal Research Center seminar series, Case Western Reserve University, Cleveland, OH, October 29, 2007
- Heavy breathers: oxygen consumption in cartilage tissue engineering. Case Study: Cartilage Tissue engineering.
- Case study: Cartilage tissue engineering. EBME 325 guest lecture, Case Western Reserve University, Cleveland, OH, November 9, 2006
- Bioreactors for mesenchymal stem cell differentiation; CTTE-2006 Cell-Based Therapies and Tissue Engineering short course, Case Western Reserve University, Cleveland, OH, May 26, 2006
- Cartilage tissue engineering. Department of Biology seminar series. Case Western Reserve University, Cleveland, OH. May 4, 2006
- Bioreactors for mesenchymal stem cell differentiation; CTTE-2005 Cell-Based Therapies and Tissue Engineering short course, Case Western Reserve University, Cleveland, OH, June 1, 2005
- Surface characteristics of trabecular metal bone implants. Orthopædic and Related Research Seminar series, Case Western Reserve University, Cleveland, OH, May 26, 2005
- Surface characteristics of bone implants. Skeletal Research Center seminar series, Case Western Reserve University, Cleveland, OH, November 29, 2004
- More cartilage tissue engineering - Design of a hydrostatic loading bioreactor. Skeletal Research Center seminar series, Case Western Reserve University, Cleveland, OH, March 15, 2004
- Cartilage tissue engineering. Skeletal Research Center seminar series. Case Western Reserve University, Cleveland, OH. March 10, 2003
- Cartilage tissue engineering. Orthopædic grand rounds, Case Western Reserve University and University Hospitals of Cleveland, Cleveland, OH. February 22, 2003.
- Cartilage tissue engineering. Issues and approaches. CWRU/CCF musculoskeletal research seminar series. Case Western Reserve University, Cleveland, OH, December 12, 2002
- Cartilage tissue engineering: Presented to the Arthritis Foundation Board of Trustees, Cleveland, OH, October 29, 2002