

CURRICULUM VITAE

Joseph W. Brewer, PhD

*Chair, Department of Biomedical Sciences
Discipline Chair for Immunology
Professor of Immunology
Edward Via College of Osteopathic Medicine-Auburn*

CONTACT INFORMATION

910 South Donahue Drive, Office #116
Auburn, AL 36832
Office Phone: (334) 442-4008
E-mail: jbrewer01@auburn.vcom.edu

EDUCATION

College	Auburn University, Auburn, AL B.S., Molecular Biology, 1986-1990
Graduate School	Duke

COMMITTEES AND LEADERSHIP

Loyola University Chicago Stritch School of Medicine

- 2000-2007 Member, Department of Microbiology and Immunology, Graduate Program Oversight Committee, Retreat Committee, Seminar Committee
2003-2007 Member, Institutional Animal Care and Use Committee
2003-2007 Member, Awards Committee

University of South Alabama College of Medicine

- 2007-2010 Member, Biomedical Library Advisory Committee
2007-2010 Member, Medical Student Research Committee
2007-2013 Member, Research Forum Committee
2008-2009 Chair, Medical Student Research Committee
2009 Vice-Chair, Institutional Animal Care and Use Committee
2010-2011 Chair, Institutional Animal Care and Use Committee
2010 Member, LCME Self Study Task Force Training Sub-Committee
2010-2013 Member, Flow Cytometry Core Lab Advisory Committee
2011 Member, School of Medicine Action Response Team for Curriculum
2011-2013 Member, Curriculum Committee
2011-2013 Member, Assessment and Evaluation Sub-Committee of Curriculum Committee
2012-2013 Member, University Library Committee

Liberty University College of Osteopathic Medicine

- 2014-2015 Member, Curriculum Committee
2014-2016 Member, Student Progress Committee
2014-2017 Member, Scholarship Committee
2014-2017
2014-2020 Chair, Research Committee
2014-2020 Chair, Institutional Animal Care and Use Committee
2016-2018 Chair, Curriculum Committee
2017-2020 Member, Policy Review Committee
2017-2020 Member, Facilities and Needs Assessment Committee
2018-2020 Member, Executive Curriculum Committee
2018-2020 Member, Grants Policy Committee

Edward Via College of Osteopathic Medicine-Auburn

- 2021-present Member, Pre-Clinical Curriculum Committee
2021-present Member, Via Research Recognition Day Committee
2022-present Member, Peer Exam Review Committee
2022-present Member, Admissions Committee

2015, 2019 French National Cancer Institute

Other

2002-2006 Council Member, Autumn Immunology Conference, Chicago, IL
2009 Guest editor, *Proc. Natl. Acad. Sci. USA*

MENTORING ACTIVITIES

Research Mentorship

Loyola University Stritch School of Medicine

Mentor for PhD Dissertation

2000-2007 Jennifer N. Gass

2002-2006 Kathryn Gunn and Rungtawan Sriburi

2005-2008 Hemamalini Bommasamy

Thesis

2000-2002 Nicole Gifford

2004-2007

GRANTS and CONTRACTS

Completed Grants

Grant: F32 GM018443
Source: NIH
Role: PI
Dates: 08/01/1996 07/31/1998
Title: Mechanism for Cellular Responses to Physiological Stress
Total award: \$52,300

Grant: R01 GM061970
Source: NIH
Role: PI
Dates: 06/01/2000 05/31/2005
Title: Homeostasis of the ER in Differentiating B cells
Total award: \$1,058,176

Grant: R01 GM061970
Source: NIH
Role: PI
Dates: 06/01/2005 05/31/2009
Title: Homeostasis of the ER in Differentiating B cells
Total award: \$1,137,339

Grant: R01 GM061970-10S1
Source: NIH
Role: PI
Dates: 09/30/2009 01/31/2010
Title: Homeostasis of the ER in Differentiating B cells
Total award: \$58,723

Grant: R01 GM061970
Source: NIH
Role: PI years 1-2, Co-I years 3-4 after grant transfer to Barrington (PI)
Dates: 09/01/2010 06/30/2014
Title: Homeostasis of the ER in Differentiating B cells
Total award: \$1,256,368

Grant: Seed Funding for Research
Source: University of South Alabama Cancer Research Fund
Role: PI
Dates: 10/01/2011 09/30/2012
Title: MicroRNA-mediated Regulation of XBP1 and Breast Cancer Cell Fate
Total award: \$56,390

Grant: Seed Funding for Research
Source: Liberty University College of Osteopathic Medicine
Role: PI
Dates: 06/21/2016 06/30/2020
Title: MicroRNA-mediated Regulation of XBP1 and Breast Cancer Cell Fate
Total award: \$12,000

Grant: Seed Funding for Research
Source: Center for On

1993;13(7):3929-36. doi: 10.1128/mcb.13.7.3929-3936.1993. PubMed PMID: 8321200; PubMed Central PMCID: PMCPMC359931.

3. **Brewer JW**, Randall TD, Parkhouse RM, Corley RB. Mechanism and subcellular localization of secretory IgM polymer assembly. *J Biol Chem.* 1994;269(25):17338-48. PubMed PMID: 8006043.

4. Bornemann KD, **Brewer JW**, Beck-Engeser GB, Corley RB, Haas IG, Jäck HM. Roles of heavy and light chains in IgM polymerization. *Proc Natl Acad Sci USA.* 1995;92(11):4912-6. doi: 10.1073/pnas.92.11.4912. PubMed PMID: 7761423; PubMed Central PMCID: PMCPMC41817.

5. **Brewer JW**, Corley RB. Quality control in protein biogenesis: thiol-mediated retention monitors the redox state of proteins in the endoplasmic reticulum. *J Cell Sci.* 1996;109(Pt 9):2383-92. doi: 10.1242/jcs.109.9.2383. PubMed PMID: 8886987.

6. Wang XZ, Lawson B, **Brewer JW**, Zinszner H, Sanjay A, Mi LJ, Boorstein R, Kreibich G, Henderhot LM, Ron D. Signals from the stressed endoplasmic reticulum induce C/EBP-homologous protein (CHOP/GADD153). *Mol Cell Biol.* 2000;20(12):3563-3571. doi: 10.1128/MCB.20.12.3563-3571.2000. PubMed PMID: 11042043; PubMed Central PMCID: PMC4000942.

13. Lee YK, **Brewer JW**, Hellman R, Hendershot LM. BiP and immunoglobulin light chain cooperate to control the folding of heavy chain and ensure the fidelity of immunoglobulin assembly. *Mol Biol Cell*. 1999;10(7):2209-19. doi: 10.1091/mbc.10.7.2209. PubMed PMID: 10397760; PubMed Central PMCID: PMCPMC25436.

23. Sriburi R, Bommasamy H, Buldak GL, Robbins GR, Frank M, Jackowski S, **Brewer JW**. Coordinate regulation of phospholipid biosynthesis and secretory pathway gene expression in XBP-1(S)-induced endoplasmic reticulum biogenesis. *J Biol Chem*. 2007;282(10):7024-34. doi: 10.1074/jbc.M609490200. PubMed PMID: 17213183.

24. Bechill J, Chen Z, **Brewer JW**, Baker SC. Coronavirus infection modulates the unfolded protein response and mediates sustained translational repression. *J Virol*. 2008;82(9):4492-

10.1016/j.cellimm.2016.08.002. PubMed PMID: 27502364; PubMed Central PMCID: PMC5125835.

Peer-Reviewed Book Chapters and Review Articles

1. **Brewer JW**, Randall TD, Parkhouse RM, Corley RB. IgM hexamers? Immunology today. 1994;15(4):165-8. doi: 10.1016/0167-5699(94)90313-1. PubMed PMID: 8198707.
2. **Brewer JW**, Hendershot LM. Molecular chaperones in the life cycle of proteins: structure, function and mode action. New York: Marcel Dekker; c1998. Chapter 17, Early events in the biosynthesis of secretory pathway proteins: role of molecular chaperones; p. 415-34.
3. Gass JN, Gunn KE, Sriburi R, **Brewer JW**. Stressed-out B cells? Plasma-cell differentiation and the unfolded protein response. Trends Immunol. 2004;25(1):17-24. doi: 10.1016/j.it.2003.11.004. PubMed PMID: 14698280.
4. **Brewer JW**, Hendershot LM. Building an antibody factory: a job for the unfolded protein response. Nat Immunol. 2005;6(1):23-9. doi: 10.1038/ni1149. PubMed PMID: 15611778.
5. **Brewer JW**, Jackowski S. UPR-mediated membrane biogenesis in B Cells. Biochem Res Intl. 2012;2012:738471. doi: 10.1155/2012/738471. PubMed PMID: 22110962; PubMed Central PMCID: PMC3206326.
6. Byrd AE, **Brewer JW**. Intricately regulated: a cellular toolbox for fine-tuning XBP1 expression and activity. Cells. 2012;1(4):738-53. doi: 10.3390/cells1040738. PubMed PMID: 24710528; PubMed Central PMCID: PMC3901129.
7. **Brewer JW**. Phospholipids: "greasing the wheels" of humoral immunity. Biochim Biophys Acta. 2013;1831(3):642-51. doi: 10.1016/j.bbali.2012.09.018. PubMed PMID: 23051607; PubMed Central PMCID: PMC3562403.
8. Byrd AE, **Brewer JW**. Micro(RNA)managing endoplasmic reticulum stress. IUBMB Life. 2013;65(5):373-81. doi: 10.1002/iub.1151. PubMed PMID: 23554021; PubMed Central PMCID: PMC3637854.
9. **Brewer JW**. Regulatory crosstalk within the mammalian unfolded protein response. Cell Mol Life Sci. 2014;71(6):1067-79. doi: 10.1007/s00018-013-1490-2. PubMed PMID: 24135849.

PROFESSIONAL PRESENTATIONS

1. *Regulation of mammalian ER chaperone synthesis*.
Keystone Symposia: Protein Folding, Modification, and Transport in the Early Secretory Pathway. Copper, Mountain, CO. 05/14/1999.
2. *Homeostasis of the ER in differentiating B cells*. Presented in block symposium cell Responses: Germinal Cen at the American Association of Immunologists Annual Meeting. Seattle, WA. 05/16/2000.
3. *Signal transduction and the endoplasmic reticulum: meeting the needs of the cell*. Presented in the Department of Microbiology and Immunology, The Chicago Medical School. North Chicago, IL. 03/27/2001.

16. *The UPR in B cells: balancing supply and demand in the secretory pathway*. Presented in the Department of Biology, University of Alabama at Birmingham. Birmingham, AL. 04/11/2014.

17. *Building an antibody factory: the unfolded protein response at work in B cells*. Presented in the Suter Science Seminar Series, Eastern Mennonite University. Harrisonburg, VA. 03/20/2015.

18. *What are stem cells?*

Lynchburg, VA. 04/22/2017.

19. *Adipose tissue: much more than fat...an immune cell environment*. Presented in the Auburn University Microbiology Club, College of Sciences and Mathematics, Auburn University. Auburn, AL. 11/11/2022.

PUBLISHED ABSTRACTS

1. **Brewer JW**, Lawson B, Wang X-Z, Ron D, Hendershot LM. Signals from the stressed ER induce C/EBP homologous protein (CHOP/GADD153). American Association for Cancer Research Special Conference: Inducible Genomic Responses. Stevenson, WA. 1996.

2. Hendershot LM, Lawson B, Hellman R, **Brewer JW**. Control of Ig folding, assembly, and transport by molecular chaperones. Keystone Symposia: B Lymphocytes in Health and Disease. Steamboat Springs, CO. 1997.

3. Hendershot, LM, Hellman R, Lawson B, **Brewer JW**. Role of BiP and GRP94 in the folding, assembly, and transport of ER proteins. Keystone Symposia: Protein Folding, Modification and Transport in the Early Secretory Pathway. Taos, NM. 1997.

4. **Brewer JW**, Cleveland JL, Hendershot LM. Mitogenic growth factors positively regulate GRP expression. Keystone Symposia: Protein Folding, Modification, and Transport in the Early Secretory Pathway. Taos, NM. 1997.

5. **Brewer JW**, Uzcategui JA, Ma Y, Hendershot LM. Homeostasis of the ER: basal versus stress-induced synthesis of the ER chaperones. Cold Spring Harbor Symposium: Molecular Chaperones and the Heat Shock Response. Cold Spring Harbor, NY. 1998.

6. **Brewer JW**. Homeostasis of the ER in differentiating B cells. Keystone Symposia: B cell Immunobiology and Disease. Snowbird, UT. 2001.

7. **Brewer JW**, Gifford N, Nickerson J. Coordinate induction of ER chaperones and Ig in differentiating B cells. American Association of Immunologists Annual Meeting. New Orleans, LA. 2002.

8. Nickerson J, **Brewer JW**. Role of ER signaling in the induction of XBP-1 in B cells. American Association of Immunologists Annual Meeting. New Orleans, LA. 2002.

9. Gass JN, **Brewer JW**. ER signaling in plasma cells: PERK kinase and translational regulation. American Association of Immunologists Annual Meeting. Denver, CO. 2003.
10. Gunn KE, **Brewer JW**. The unfolded protein response in marginal zone and follicular zone B cells. American Association of Immunologists Annual Meeting. Denver, CO. 2003.
11. **Brewer JW**, Mori K, Gifford N. A role for the unfolded protein response in the differentiation of antibody-secreting B cells. American Association of Immunologists Annual Meeting. Denver, CO. 2003.
12. Sriburi R, Jackowski S, Mori K, **Brewer JW**. XBP1: a link between the unfolded protein response and lipid biosynthesis. Cold Spring Harbor Symposium: Molecular Chaperones and the Heat Shock Response. Cold Spring Harbor, NY. 2004.
13. Sriburi R, Jackowski S, Mori K, **Brewer JW**. Evidence that XBP1 functions as a master regulator of the exocytic pathway. Cold Spring Harbor Symposium: Molecular Chaperones and the Heat Shock Response. Cold Spring Harbor, NY. 2004.
14. Gunn KE, Gifford NM, Mori K, **Brewer JW**. A role for the unfolded protein response in optimizing antibody secretion. 12th International Congress of Immunology. Montreal, Canada. 2004.
15. Gass JN, **Brewer JW**. The role of the unfolded protein response transducer, pancreatic endoplasmic reticulum kinase, in B cell function. 12th International Congress of Immunology. Montreal, Canada. 2004.
16. Gunn KE, **Brewer JW**. Transition into antibody secretion: marginal zone and follicular B cells. Keystone Symposia: B cell Development, Function and Disease. Steamboat Springs, CO. 2005.
17. Buldak GL, Sriburi R, Jackowski S, Mori K, **Brewer JW**. Functional analysis of the exocytic pathway in XBP1-transduced fibroblasts. American Association of Immunologists Annual Meeting. Boston, MA. 2006.
18. Bommasamy H, Sriburi R, Jackowski S, **Brewer JW**. Plasma cell differentiation and lipid metabolism. American Association of Immunologists Annual Meeting. Miami, FL. 2007.
19. Bommasamy H, Sriburi R, Fagone P, Jackowski S, **Brewer JW**. Lipid biosynthesis and the unfolded protein response. American Society of Biochemistry and Molecular Biology Annual Meeting. San Diego, CA. 2008.
20. Byrd AE, **Brewer JW**. MicroRNA-mediated repression of XBP1: a novel mechanism for regulation of a UPR transcriptional activator. American Association of Immunologists Annual Meeting. San Francisco, CA. 2011.

9. Byrd AE, Aragon IV, **Brewer JW**. MicroRNA-30c-2* limits expression of prosurvival transcription factor XBP1 in the unfolded protein response. Select Biosciences Conference Genomics Research 2012: RNAi and miRNA Track, Boston, MA. 2012.
10. Makar K, Jackson KP, Lee EH, Smith KM, **Brewer JW**. Regulation of microRNA-214 expression in the mammalian unfolded protein response. LUCOM Research Day. Lynchburg, VA. January 10, 2020.
11. Rangel NA, Pownall K, Ashley D, Essman A, Landrum J, Quintana J, Judd RL, **Brewer JW**. Evidence for regulatory interactions between adipocytes and B1 lymphocytes. Via Research Recognition Day Auburn Campus. Auburn, AL. February 2022.
12. Hall A, Allman MK, Granger S, Pownall K, Rangel NA, Judd RL, **Brewer JW**. Adipocyte-mediated regulation of B cell function. Via Research Recognition Day Auburn Campus. Auburn, AL. February 2023.
13. Carroll S, Quintana J, Thomas J, Judd RL, **Brewer, JW**. B cell-mediated modulation of adipokine production. Via Research Recognition Day Auburn Campus. Auburn, AL. February 2023.
14. Pownall K, Allman MK, Carroll S, Granger S, Hall A, Hash A, Quintana J, Arellano Rangel N, Thomas J, Judd RL, **Brewer JW**. Evidence for regulatory crosstalk between B lymphocytes and adipocytes. Boshell Diabetes & Metabolic Diseases Research Programs at Auburn University 14th Annual Research Day. Opelika, AL. April 2023.

OTHER

2001-2007 Adult small group leader and
Church, Naperville, IL

2008-2013

2018-