CURRICULUM VITAE

Amy Dodd Bradshaw
Assistant Professor
Gazes Cardiac Research Institute
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Education

BA, Molecular Biology, Revelle College, UCSD, 12/86
PhD, Biochemistry and Neurobiology, UCSB, 10/95

Professional Experience

Assistant Professor, Gazes Cardiac Research Institute, Medical University of South Carolina, Charleston, SC 1/2003- present.

Adjunct Assistant Professor, Department of Cell Biology and Anatomy, Medical University of South Carolina, Charleston, SC 6/03- present.

Adjunct Assistant Professor, Department of Bioengineering, Clemson University, Clemson, SC 3/04-present.

Staff Scientist, Department of Vascular Biology, The Hope Heart Institute, Seattle, WA 7/01-12/2002.

Post-doctoral Fellow, Department of Vascular Biology, The Hope Heart Institute, Seattle, WA 4/99-7/01 (with Dr. E. Helene Sage).

Post-doctoral Fellow, Department of Biological Structure, University of Washington, Seattle, WA 11/95-4/99 (with Dr. E. Helene Sage).

Graduate Student, Neuroscience Research Institute and Department of Biological Sciences, UCSB, Santa Barbara, CA 9/88-9/95 (with Dr. Dennis O. Clegg).

Teaching Assistant, Department of Biological Sciences, UCSB, Santa Barbara, CA, 1988,90,91,92,93,94 (Introductory Biology and Cellular Biochemistry).

Research Associate, Research Institute of Scripps Clinic, La Jolla CA, 6/86-6/88 (with Dr. Georg H. Fey).

Professional Activities

Representative, Graduate Student Association, Department of Biological Sciences, 1989-94

Member, American Society of Cell Biologists, 1998- present

Member, American Society of Matrix Biology 2001- present

Awards and Scholarships

Kirin Fellowship, Section of Biochemistry and Molecular Biology, Department of Biological Sciences, UCSB, Santa Barbara, CA, 1988.

Neuroscience Biotechnology Training Fellowship, Neuroscience Research Institute, UCSB, Santa Barbara, CA, 1991.

Regents Fellowship, Department of Biological Sciences, UCSB, Santa Barbara, CA, Spring 1991.

ASCB Student Travel Award, ASCB, Bethesda, MD, 1994.

Excellence in Neuroscience Institute Award, NRI, UCSB, Santa Barbara CA, 1995.

Post-Doctoral Fellowship Award (F32), National Institutes of Health, Bethesda MD, 1997-1999.

Invited Talks

International Conference on Biology and Pathology of the Extracellular Matrix, (2000) St. Louis MO.

Advanced Tissue Sciences, (2000) La Jolla CA.

University of Washington Engineered Biomaterials (UWEB), N.S.F. site visit (2001) Seattle, WA.

Frontiers in Cardiovascular Research Conference, (2001) Seattle, WA.

Lehigh University, (2002) Bethlehem, PA.
Oregon Health Sciences University, (2002), Portland OR.

Gazes Cardiovascular Research Institute, (2002), Medical University of South Carolina, Charleston, SC.

American Society for Cell Biology Annual Meeting (2002), San Francisco, CA.

Hollings Cancer Research Center (2004), Charleston SC.

University of Missouri (2005), Columbia, MO

Gordon Research Conference: Collagen (2005), New London, NH.

American Society for Cell Biology Annual Meeting (2005), San Francisco, CA

Proteins to Proteomics Symposium (2006), Irvine, CA

American Society for Matrix Biology (2006), Nashville, TN

Publications

Abraham, L.J., **Bradshaw, A.D.,** Shiels, B.R., Northemann, W., Hudson, G., and Fey, G.H. (1990) Hepatic transcription of the acute-phase alpha-1-inhibitor III gene is controlled by a novel combination of cis-acting regulatory elements, *Mol. Cell. Biol.*, **10**, 3483-3491.

Abraham, L.J., **Bradshaw, A.D**., Fletcher, R.G., and Fey, G.H. (1990) Interleukin 6 is a negative regulator of the acute phase alpha-1-inhibitor III gene, *Mol. Biol. Med.*, **7**, 261-271.

Abraham, L.J., **Bradshaw, A.D**., Northemann, W., and Fey, G.H. (1991) Identification of a glucocorticoid response element contributing to the constitutive expression of the rat liver alpha-1-inhibitor III gene, *J. Biol. Chem.*, **266**, 18268-18275.

Orias, E., and **Bradshaw, A.D**. (1992) Stochastic developmental variation in the ratio of allelic rDNAs among newly differentiated, heterozygous macronuclei of Tetrahymena thermophila. *Dev. Genetics* **13**, 87-93

Bradshaw, A.D., McNagny, K.M., Gervin, D.B., Cann, G.C., Graf, T. and Clegg, D.O. (1995). Integrin $_{2\ 1}$ mediates interaction between developing embryonic retinal cells and collagen. *Development* **121**, 3593-3602.

Smith B.S., **Bradshaw, A.D**., Choi, E., Rouselle, P., Wayner, E.A. and Clegg, D.O. (1996). Human SY5Y neuroblastoma cell interactions with laminin isoforms: Neurite outgrowth on LN-5 is mediated by integrin $_3$ $_1$. *Cell Adhesion and Comm.* **3**, 451-462.

Cann, G.C., **Bradshaw, A.D**., Gervin, D.B. and Clegg, D.O. (1996) Widespread expression of $_1$ integrins in the developing chick retina: Evidence for a role in migration of retinal ganglion cells. *Dev. Biol.* **180**, 82-96.

Bassuk, J.A., Birkebak, T., Rothmier, J.D., Clark, J.M., **Bradshaw, A**., Muchowski, P.J., Howe, C.C., Clark, J.I., and Sage, E.H. (1999) Disruption of the *Sparc* locus in mice alters the differentiation of lenticular epithelial cells and leads to cataract formation. *Exp. Eye Res*. **68**, 321-331.

Bradshaw, A.D., Francki, A.F., Motamed, K., Howe, C. and Sage, E.H. (1999) Primary mesenchymal cells isolated from SPARC-null mice exhibit altered morphology and rates of proliferation. *Mol. Biol. Cell*, **10**, 1569-1579.

Francki, A.F., **Bradshaw, A.D**., Bassuk, J., Vernon, R.B., Howe, C. and Sage, E.H. (1999) SPARC regulates the expression of collagen type I and transforming growth factor- in mesangial cells. *J.Biol. Chem.* **274**, 32145-32152.

Bassuk, J.A., Pichler, R., Rothmier, J.D., Pippen, J., Gordon, K., Meek, R.L., **Bradshaw , A.D**., Lombardi, D., Strandjord, T.P., Reed, M., Sage, E.H., Couser, W.G., and Johnson, R. (2000) Induction of TGF- 1 by the matricellular protein SPARC in a rat model of glomerulonephritis. *Kid. Int*. **57**, 117-128.

Bradshaw, A.D., Bassuk, J., Francki, A., and Sage, E.H. (2000) Expression and purification of recombinant human SPARC produced by baculovirus. *Mol. Cell Biol. Res. Comm.* **3***,* 345-351.

Bradshaw, A.D. and Sage, E.H. (2001) SPARC, a matricellular protein that functions in cellular differentiation and tissue response to injury. *J. Clin. Invest.* **107**, 1049-1054*.*

Bradshaw, A.D., Reed, M.J., Carbon, J.G., Pinney, E., Brekken, R.A., and Sage, E.H. (2001) Increased fibrovascular invasion of subcutaneous polyvinyl alcohol sponges in SPARC-null mice. *Wound Repair Regen*. **9**, 522-530.

Bradshaw, A.D., Reed, M.J., and Sage, E.H. (2002) SPARC-Null mice exhibit accelerated cutaneous wound closure. *J. Histochem. Cytochem.* **50**, 1-10.

Puolakkainen, P., **Bradshaw, A.D.,** Kyriakides, T.R., Reed, M., Brekken, R., Wight, T., Bornstein, P., Ratner, B., and Sage, E.H. (2003) Mice that lack the matricellular protein SPARC exhibit a reduced foreign body reaction to implanted materials. *Am. J. Pathol.* **162**, 627-35.

Bradshaw, A.D., Graves, D.C., Motamed, K., and Sage, E.H. (2003) SPARC-null mice exhibit increased adiposity without significant differences in overall body weight. *Proc. Natl. Acad. Sci USA* **100**, 6045-6050.

Delaney, A.M., Kalajzic, I., **Bradshaw, A.D.**, Sage, E.H., and Canalis, E. (2003) Osteonectin-null mutation compromises osteoblast formation, maturation, and survival. *Endocrinol.* **144**, 2588-2596.

Bradshaw, A.D., Puolakkainen, P., Dasgupta, J., Davidson, J.M., Wight, T.N., and Sage, E.H. (2003) SPARC-null mice display phenotypic skin abnormalities characterized by reduced tensile strength and decreased dermal collagen fibril diameter. *J. Invest. Dermatol.* **120**, 949-55.

Brekken, R.A., Sullivan, M.M., Workman, G., **Bradshaw, A.D.,** Carbon, J., Siadek, A., Murri, C., Framson, P.E., and Sage, E.H. (2004) Expression and characterization of murine hevin (SC-1), a member of the SPARC family of matricellular proteins. *J. Histochem. Cytochem.* **52**, 735-48.

Sweetwyne, M.T., Brekken, R.A., Workman, G., **Bradshaw, A.D.,** Carbon, J., Siadek, A.W., Murri, C., and Sage, E.H. (2004) Functional analysis of the matricellular protein SPARC with novel monoclonal antibodies. *J. Histochem. Cytochem.* **52**, 723-33.

Aycock, R., **Bradshaw, A.D.,** Sage, E.H., and Starcher, B. (2004) Development of UV-Induced Squamous Cell Carcinomas is Suppressed in the Absence of SPARC. *J. Invest. Dermatol.* **123**, 592-9.

Puolakkainen PA, **Bradshaw AD**, Brekken RA, Reed MJ, Kyriakides T, Funk SE, Gooden MD, Vernon RB, Wight TN, Bornstein P, Sage EH. (2005) SPARC-thrombospondin-2-double-null Mice Exhibit Enhanced Cutaneous Wound Healing and Increased Fibrovascular Invasion of Subcutaneous Polyvinyl Alcohol Sponges. *J Histochem Cytochem.* **53**, 571-81.

Reed, M.J., **Bradshaw, A.D.,** Shaw, M., Sadoun, E., Han, N., Ferara, N., Funk, S., Puolakkainen, P., and Sage, E.H. (2005) Enhanced Angiogenesis

Characteristic of SPARC-Null Mice Disappears with Age. *J. Cell. Physiol.* 204, 800-7.

Poobalarahi, F., Baicu, C., and **Bradshaw, A.D.** (2006) Cardiac Myofibroblasts Differentiated in 3-D Culture Exhibit Distinct Changes in Collagen I Production, Processing, and Matrix Deposition. *Am. J. Physiol. Heart Circ. Res*. 291, H2924-32.

Book Chapters

Clegg, D.O., Mullick, L.H., Wingerd, K.L., Lin, H., Atienza, J.W., **Bradshaw, A.D**., Gervin, D.B., and Cann, G.M. (2000) Adhesive events in retinal development and function: the role of integrin receptors. In Results and Problems in Cell Differentiation, Vol. **31**, Vertebrate Eye Development, E.Fini, Ed. Springer-Verlag, Berlin Heidelberg, 141-156.

Bradshaw, A.D. and Sage, E.H. (2000) Regulation of cell behavior by extracellular proteins: Matricellular proteins as modulators of cell function. In Principles of Tissue Engineering, Lanza, R., Langer, R., and Vacanti, J., Eds. Academic Press, San Diego, CA, 119-127.

Bradshaw, A.D. and Sage, E.H. (2000) Regulation of vascular morphogenesis by extracellular matrix proteins. In The New Angiotherapy, T.-P. D. Fan, Ed., Humana Press, Inc., Cambridge, 51-66.

Sage, E.H., **Bradshaw, A.D.,** and Brekken, R.A. (2003) SPARC, a Matricellular Protein that Regulates Cell-Matrix Interaction: Implications for Vascular and Connective Tissue Biology. In Extracellular Matrix and The Liver – Approach to Gene Therapy, Okazaki, I., Y. Ninomiya, S.L. Friedman, and K. Tanikawa, eds., Academic Press, Tokyo, 76-85.

Abstracts

Clegg, D.O., Choi, E.S., Johnson, J.A., Snyder, J., Wayner, E.A., Carter, W.G., Gervin, D.B., **Bradshaw, A.D**., and Eckley, D.M. (1989) Evidence for involvement of the integrin $_3$ subunit in process outgrowth on laminin. Soc. Neurosci. Annual Meeting, Phoenix, AZ, #232.17.

Bradshaw, A.D., McNagny, K.M., Gervin, D.B., Cann, G.C. and Clegg, D.O. (1995) Integrin $_2$ $_1$ mediates interactions between developing embryonic retinal cells and collagen. ASCB Annual Meeting, San Francisco, CA. #1355.

Cann, G.C., **Bradshaw A.D.,** and Clegg D.O. (1995) Integrin 4 1 and VCAM-1 are expressed in the developing retina and mediate process outgrowth. ASCB Annual Meeting, San Francisco, CA. #1356.

Bradshaw, A.D., Francki, A, Motamed, K., Howe, C., and Sage, E.H. (1998) Primary mesenchymal cells isolated from SPARC-null mice exhibit altered morphology and proliferation rates relative to wild-type cells. ASCB Annual Meeting, San Francisco, CA. #1757.

Francki, A., **Bradshaw, A.D.,** Bassuk, J.A., Carbon, J.G., Howe, C., and Sage, E.H. (1998) SPARC regulates collagen type I and TGF- expression in mouse mesangial cells. ASCB Annual Meeting, San Francisco, CA. #964.

Bradshaw, A.D., Reed, M.J., and Sage, E.H. (2000) SPARC-Null Mice Exhibit Accelerated Wound Healing and Increased Cellular Invasion in the Sponge Model of Angiogenesis. Thrombospondins 2000, Madison, WI.

Bradshaw, A.D., Reed, M.J., and Sage, E.H. (2000) SPARC-null Mice Exhibit Accelerated Wound Healing, Altered Extracellular Matrix in the Dermis, and Increased Cellular Invasion in a Sponge Model of Angiogenesis. Biology and Pathology of the Extracellular Matrix, St. Louis, MO.

Bradshaw, A.D., Reed, M.J., Pinney, E., Carbon, J., and Sage, E.H., (2001) SPARC-null Mice Exhibit Accelerated Wound Healing, Altered Extracellular Matrix in the Dermis, and Increased Cellular Invasion in a Sponge Model of Angiogenesis. Wound Healing Society, Albuquerque, NM.

Bradshaw, A.D., Reed, M.J., Brekken, R.A., Pinney, E., Wight, T.N., and Sage, E.H. (2001) SPARC-null Mice Exhibit Accelerated Wound Healing, Altered Dermal Extracellular Matrix, and Increased Cellular Invasion in a Sponge Model of Angiogenesis. BECON Reparative Medicine, Bethesda, MD.

Puolakainnen, P., **Bradshaw, A.D**., Kyriakides, T., Lehman, A., Brekken R., Bornstein, P., and Sage, E.H. (2001) Reduced Foreign Body Response to Implanted Biomaterials in SPARC-Null Mice. BECON Reparative Medicine, Bethesda, MD.

Bradshaw, A.D., Puolakkainen, P., Dasgupta, J., Davidson, J.M., Wight, T.N., Sage, E.H. (2002) SPARC Influences the Structure and Composition of the Dermal ECM. Gordon Research Conference, Basement Membranes, Plymouth NH.

Bradshaw, A.D., Puolakkainen, P., Dasgupta, J., Davidson, J.M., Wight, T.N., Sage, E.H. (2002) SPARC Influences the Structure and Composition of the Dermal ECM.

ASCB Annual Meeting, San Francisco, CA.

Westin, K., Sage, E.H., **Bradshaw, A.D.** (2003) Decreased Collagen Accumulation in SPARC-null Mice is Associated with Increased Adiposity. Gordon Research Conference: Collagen, New London, NH.

Poobalarahi F., Hills J., Sage, E.H., **Bradshaw, A.D.** (2005) SPARC Influences Collagen I Fibril Maturation and Extracellular Matrix Deposition. Gordon Research Conference: Collagen, New London, NH.

Rentz T., Poobalarahi, F., **Bradshaw, A.D**. (2006) SPARC Regulates Procollagen I Processing and Cell Binding. American Society for Matrix Biology Meeting, Nashville, TN.

Editorial Consultant

Journal of Molecular and Cellular Cardiology (2003-present)

American Journal of Pathology (2004-present)

Artheriosclerosis (2005)

Cardiovascular Research (2006)

Grant Awards

Current:
VA Career Development Award Bradshaw (Mentee) Cooper (Mentor) 4/06-4/08
Veteran's Admiminstration
Salary support provided to develop a research program in cardiac interstitium.

Pending:

1 RO1 AR0548949-01 Bradshaw (PI)
NIH/NIAMS
Role of Integrins in Collagen Fibrillogenesis and Remodeling
Studies proposed to investigate the mechanism of the matricellular protein SPARC in collagen fibrillogenesis and deposition in the skin.

Completed:

1 R21 DK066486-01 Bradshaw (Co-PI) 9/03-9/05
NIH/NIDDK
Control of Adipocyte Hypertrophy by Extracellular Matrix
Studies proposed to investigate developmental and obesity-dependent changes in the ECM of fat tissue and primary adipocytes.

1 KO-1 AR02220-01A Bradshaw (PI) 7/01-6/05
NIH/NIAMS
SPARC Modulates ECM Dynamics in Skin
Studies proposed to investigate the function of SPARC in matrix remodeling events in the skin such as angiogenesis, wound healing, and foreign body response.