CYNTHIA BRADHAM, Ph.D.
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Education

Ph.D.	Biochemistry and Biophysics	University of North Carolina at Chapel Hill	1998
B.S.	Molecular Biology	University of Wisconsin Milwaukee	1988

Professonal History

2019-present	Associate Chair, Cell and Molecular Biology	Biology Department Boston University
2019-present	Faculty Member	Biological Design Center (BDC)
2016-present	Associate Professor	Biology Department Boston University
2008-present	Faculty Member	Program in Bioinformatics Boston University
2008-present	Faculty Member	Graduate Program of Molecular Biology, Cell Biology and Biochemistry (MCBB) Boston University
2008-2016	Assistant Professor	Biology Department Boston University
2000-2007	Postdoctoral Fellow	Developmental, Cell & Molecular Biology Group Duke University *mentor David R. McClay*
1998-2000	Postdoctoral Fellow	Dept. of Medicine and CGIBD University of North Carolina at Chapel Hill *mentor David A. Brenner*
1993-1998	Graduate Student	Depts. of Medicine and Biochemistry & Biophysics University of North Carolina at Chapel Hill, NC *mentor David A. Brenner*
1990-1993	Research Technician	Molecular Genetics Laboratory Blood Center of Southeastern Wisconsin *Dr. Jack Gorski*
1988-1990	Research Technician	Dept. of Anatomy & Cell Biology Medical College of Wisconsin *Dr. Earl Godfrey*

Honors and Awards

2018	Organizer, International Conference for the Development of the Sea Urchin Embryo XXV
2017-present	Lecturer- Embryology Course Echinoderm Module, MBL, Woods Hole MA
2012	Patricia McIellan Leavitt Award
2011	Organizer, International Conference for the Development of the Sea Urchin Embryo XX
2006	NIH Pilot Projects Program (co-PI)
2001-2003	NIH F32 NRSA Postdoctoral Training Award
2000-2001	Hargett Postdoctoral Fellowship (Duke)

1998-2000	NIH T32 CGIBD Postdoctoral Training Grant
1998-1999	Center for GI Biology and Disease (CGIBD) Pilot Feasibility Grant (UNC)
1997	American Liver Foundation Graduate Student Fellowship
1996	Winner, CGIBD Research Competition (UNC)
1995	Winner, CGIBD Research Competition (UNC)
1994-1997	NSF Graduate Student Fellowship
1993	J. Irving Levine Graduate Student Fellowship (UNC)

Grants (Boston University)

09/18-08/19	"Developmental Biology of Sea Urchins and Other Marine Invertebrates - XXV" (conference) Society for Developmental Biology (Bradham, PI, $4000 total costs)
02/17-01/20	"The Molecular Basis for Skeletal Patterning" NSF IOS 1656752 (Bradham, PI, $700,000 total costs)
11/12-05/13	Grants for Undergraduate Teaching and Scholarship Program BU Center for Excellence and Innovation in Teaching ($2000)
01/13-12/18	"The Molecular Basis for Skeletal Patterning in Sea Urchin Embryos" NSF IOS-1257825 (Bradham, PI, $550,000 total costs)

Publications

JOURNAL ARTICLES (peer reviewed)
**** graduate student co-author***
***** undergraduate student co-author***
****** high school student co-author***

1. Hogan JD*[1], Keenan JL*[1], Luo L*, Speranza E*, Saji A**, Sundermeyer MA**, Schatzberg D*, Piacentino ML*, Zuch DT*, Core AB*, Blumberg C***, Ibn-Salem J*, Timmermann B, Grau JH*, Irie N, Poustka AJ and **CA Bradham**. 2020. The Developmental Transcriptome for *Lytechinus variegatus* exhibits temporally punctuated changes in gene expression. Developmental Biology (*in press*) BioRxiv 2019; 572388; doi: https://doi.org/10.1101/572388
[1]co-first authors

2. Piacentino ML*, Chung O**, Ramachandran J*, Zuch DT*, Yu J**, Conaway EA**, Reyna A**, **CA Bradham.** 2016. Zygotic LvBMP5-8 is required for skeletal patterning and for left-right but not dorsal-ventral specification in the sea urchin embryo. Developmental Biology 412:44-56.

3. Piacentino ML*, Zuch DT*, Fishman J**, Rose S**, Speranza E*, Li C**, Yu J**, Chung O**, Ramchandran J**, Ferrell P**, Patel V**, Reyna A**, Hammeduddin H**, Chaves J**, Hewitt F*, Bardot E**, Lee D**, Core AB*, Hogan JD*, Keenan JL*, Luo L*, Coulomb-Huntington J*, Blute T, Olenik E, Ibn-Salem J, Poustka AJ and **CA Bradham**. 2016. RNA-Seq identifies SPGs as a skeletal patterning cue in sea urchin embryos. Development 143:703-714.

4. Schatzberg D*, Lawton M**, Hadyniak S**, Ross EJ**, Carney T*, Beane WS, Levin M, and **CA Bradham**. 2015. H^+/K^+ ATPase activity is required for PMC differentiation and skeletogenesis in sea urchin embryos. Developmental Biology 406:259

5. Piacentino ML*, Ramachandran J**, and **CA Bradham**. 2015. Late Alk4/5/7 signaling is required for anterior skeletal patterning in sea urchin embryos. Development 142:943

6. van Heijster P, Hardway H, Kaper TJ, **CA Bradham**. 2014. A computational model for BMP movement in sea urchin embryos. Journal of Theoretical Biology 363:277

7. Wolenski FS*, **Bradham CA**, Finnerty JR, and TD Gilmore. 2012. NF-kappaB is required for cnidocyte development in the sea anemone Nematostella vectensis. Developmental Biology 373: 205

8. Core AB*, Reyna AE**, Conaway EA**, **C Bradham**. 2012. Pantropic retroviruses as a transduction tool for sea urchin embryos. PNAS USA 109:5334

9. **Bradham CA**, CM Oikonomu**, A Kuhn*, AB Core*, J Modell**, DR McClay, and A Poustka. 2009. Chordin is required for neural but not axial development in sea urchin embryos. Developmental Biology 328 (2): 221-33 **[Featured on the cover]**

10. Sodergren E, GM Weinstock, EH Davidson, RA Cameron, RA Gibbs, RC Angerer, LM Angerer, MI Arnone, DR Burgess, RD Burke, JA Coffman, M Dean, MR Elphick, CA Ettensohn, KR Foltz, A Hamdoun, RO Hynes, WH Klein, W Marzluff, DR McClay, RL Morris, A Mushegian, JP Rast, LC Smith, MC Thorndyke, VD Vacquier, GM Wessel, G Wray, L Zhang, CG Elsik, O Ermolaeva, W Hlavina, G Hofmann, P Kitts, MJ Landrum, AJ Mackey, D Maglott, G Panopoulou,G, AJ Poustka, K Pruitt, V Sapojnikov, XZ Song, A Souvorov, A Solovyev, Z Wei, CA Whittaker, K Worley, KJ Durbin, YF Shen, O Fedrigo, D Garfield, R Haygood, A Primus, R Satija, T Severson, ML Gonzalez-Garay, AR Jackson, A Milosavljevic, M Tong, CE Killian, BT Livingston, FH Wilt, N Adams, R Bellé, S Carbonneau, R Cheung, P Cormier, B Cosson, J Croce, A Fernandez-Guerra, AM Genevière, M Goel, H Kelkar, J Morales, O Mulner-Lorillon, AJ Robertson, JV Goldstone, B Cole, D Epel, B Gold, ME Hahn, M Howard-Ashby, M Scally, JJ Stegeman, EL Allgood, J Cool, KM Judkins, SS McCafferty, AM Musante, RA Obar, AP Rawson, BJ Rossetti, IR Gibbons, MP Hoffman, A Leone, S Istrail, SC Materna, MP Samanta, V Stolc, W Tongprasit, Q Tu, KF Bergeron, BP Brandhorst, J Whittle, K Berney, DJ Bottjer, C Calestani, K Peterson, E Chow, QA Yuan, E Elhaik, D Graur, JT Reese, I Bosdet, S Heesun, MA Marra, J Schein, MK Anderson, V Brockton, KM Buckley, AH Cohen, SD Fugmann, T Hibino, MI Loza-Col, AJ Majeske, C Messier, SV Nair, Z Pancer, DP Terwilliger, C Agca, E Arboleda, NS Chen, AM Churcher, F Hallböök, GW Humphrey, MM Idris, T Kiyama, SG Liang, D Mellott, X Mu, G Murray, RP Olinski, F Raible, M Rowe, JS Taylor, K Tessmar-Raible, D Wang, KH Wilson, S Yaguchi, T Gaasterland, BE Galindo, HJ Gunaratne, C Juliano, M Kinukawa, GW Moy, AT Neill, M Nomura, M Raisch, A Reade, MM Roux, JL Song, YH Su, IK Townley, E Voronina, JL Wong, G Amore, M Branno, ER Brown, V Cavalieri, V Duboc, L Duloquin, D Flytzanis, C Gache, F Lapraz, T Lepage, A Locascio, P Martinez, G Matassi, V Matranga, R Range, F Rizzo, E Röttinger, W Beane, **C Bradham**, C Byrum, T Glenn, S Hussain, G Manning, E Miranda, R Thomason, K Walton, A Wikramanayke, SY Wu, R Xu, CT Brown, L Chen, RF Gray, PY Lee, J Nam, P Oliveri, J Smith, D Muzny, S Bell, J Chacko, A Cree, S Curry, C Davis, H Dinh, S Dugan-Rocha, J Fowler, R Gill, C Hamilton, J Hernandez, S Hines, J Hume, L Jackson, A Jolivet, C Kovar, S Lee, L Lewis, G Miner, M Morgan, LV Nazareth, G Okwuonu, D Parker, LL Pu, YF Thom, R Wright. The Genome of the Sea Urchin *Strongylocentrotus purpuratus*. 2006. Science. 314 (5801): 941. **[Featured on the cover]**.

11. **Bradham CA** and DR McClay. 2006. p38 MAPK is Essential for Secondary Axis Specification and Patterning in Sea Urchin Embryos. Development 133:21-32. **[Featured on the cover]**

12. **Bradham C**, Foltz KR, Beane WS, Arnone Mi, Rizzo F, Coffman JA, Mushegian A, Goel M, Morales J, Geneviere AM, Lapraz F, Robertson AJ, Kelkar H, Loza-Coll M, Townley IK, Raisch M, Roux MM, Lepage T, Gache C, McClay DR, and G Manning. 2006. The Sea Urchin Kinome: A First Look. Developmental Biology 300 (1):180. **[Featured on cover]**.

13. Morales J, Mulner-Lorillon O, Cosson B, Morin E, Bellé R, **Bradham CA**, Beane WS, Cormier P. 2006. Translational control genes in the sea urchin genome. 2006. Developmental Biology 300 (1):293

14. Fernandez-Guerra A, Aze A, Morales J, Mulner-Lorillon O, Cosson B, Cormier P, **Bradham C**, Adams N, Robertson AJ, Marzluff WF, Coffman JA, Genevière AM. The genomic repertoire for cell cycle control and DNA metabolism in S. purpuratus. 2006. Developmental Biology 300 (1):238

15. Lapraz F, Rottinger E, Duboc V, Range R, Duloquin L, Walton K, Wu S-Y, **Bradham C**, Wiittaker C, Loza-Coll MA, Hibino T, Wilson K, Poustka A, McClay DR, Angerer L, Gache C, Lepage T. 2006. Genes for receptor tyrosine kinases and TGF signaling pathways encoded in the sea urchin genome. Developmental Biology 300 (1):132.

16. Roux MM, Townley IK, Raisch M, Reade A, **Bradham CA**, Humphreys G, Gunaratne HJ, Killian CE, Moy G, Su Y-H, Ettensohn CA, Wilt F, Vacquier VD, Wessel G, and Foltz KR. 2006. A functional genomic and proteomic perspective of sea urchin calcium signaling and egg activation. Developmental Biology 300 (1):416.

17. **Bradham CA**, Miranda EL, and DR McClay. 2004. PI3K Inhibitors Block Skeletogenesis But Not Patterning In Sea Urchin Embryos. Developmental Dynamics 229 (4): 713-21.

18. Schwabe RF, **Bradham CA**, Uehara T, Hatano E, Bennett BL, Schoonhoven R, Brenner DA. 2003. c-Jun-N-terminal kinase drives cyclin D1 expression and proliferation during liver regeneration. Hepatology 37(4):824-32.

19. Liu H, Rubashevsky E, Jones BE, **Bradham C**, and MJ Czaja. 2002. Increased cytochrome P-450 2E1

expression sensitizes hepatocytes to c-Jun-mediated cell death from TNF-alpha. Am J Physiol Gastrointest Liver Physiol. 282(2):G257-66.

20. Liedtke C, Plumpe J, Kubicka S, **Bradham CA**, Manns MP, Brenner DA, Trautwein 2002. c-Jun kinase modulates tumor necrosis factor-dependent apoptosis in liver cells. Hepatology. 36(2):315-25.

21. **Bradham CA**, Hatano E, and DA Brenner. 2001. Dominant Negative TAK1 Induces c-Myc and G0 Exit in the Liver. Am J Physiol Gastrointest Liver Physiol. 281(5):G1279-89.

22. Schnabl B, **Bradham CA**, Bennett BL, Manning AM, Stefanovic B, Brenner DA. 2001. TAK1/JNK and p38 have opposite effects on rat hepatic stellate cells. Hepatology. 34(5):953-63.

23. Nishiura T, Nishimura T, deSerres S, Godfrey V, **Bradham CA**, Nakagawa T, Brenner DA, Meyer AA. 2000. Gene expression and cytokine and enzyme activation in the liver after a burn injury. J. Burn Care Rehabil. 21:135-41.

24. Xu LH, Yang X, **Bradham CA**, Brenner DA, Baldwin AS Jr, Craven RJ, Cance WG. 2000. The focal adhesion kinase suppresses transformation-associated, anchorage-independent apoptosis in human breast cancer cells. Involvement of death receptor-related signaling pathways. J Biol Chem. 275:30597-604.

25. Hatano E, **Bradham CA**, Stark A, Iimuro Y, Lemasters JJ, Brenner DA. 2000. The mitochondrial permeability transition augments Fas-induced apoptosis in mouse hepatocytes. J Biol Chem. 275:11814-23.

26. **Bradham CA**, Schemmer P, Stachlewitz RF, Thurman RG, and DA Brenner. 1999 The activation of NF-κB during orthotopic liver transplantation in rats is protective and does not require Kupffer cells. Liver Transplant. & Surg. 5:282-93.

27. Jobin C, Holt L, **Bradham CA**, Streetz K, Brenner DA, and RB Sartor. 1999. Traf-2 is involved in both IL-1α and TNFα-signaling cascades leading to NF-κB activation and IL-8 expression in human intestinal epithelial cells. J. Immunol. 163:3474-83

28. Stachlewitz RF, Seabra V, Bradford B, **Bradham CA**, Rusyn IR, Germolec D, and RG Thurman. 1999. Glycine and urindine prevent D-galactosamine hepatotoxicity in the rat: role of Kupffer cells. Hepatology 29:737-45.

29. Jobin C, **Bradham CA**, Russo MP, Juma B, Narula AS, Brenner DA, Sartor RB. 1999. Curcumin blocks cytokine-mediated NF-kappa B activation and proinflammatory gene expression by inhibiting inhibitory factor IκB kinase activity. J Immunol. 163:3474-83.

30. Rusyn I, **Bradham CA**, Cohn L, Schoonhoven R, Swenberg JA, Brenner DA, and RG Thurman. 1999. The tumor promoter corn oil rapidly activates NF-κB in hepatic Kupffer cells by oxidant-dependent mechanisms. Carcinogenesis 20:2095-100.

31. **Bradham CA**, Qian T, Streetz K, Trautwein, C., Brenner DA and JJ Lemasters. 1998. The mitochondrial permeability transition is required for TNFα-mediated apoptosis and cytochrome *c* release. Mol. Cell. Biol. 18:6353-64

32. **Bradham C**, Stachlewitz RF, Gao W, Qian T, Jayadev S, Jenkins G, Hannun Y, Lemasters JJ, Thurman RG, and DA Brenner. 1997. Reperfusion after liver transplantation in rats differentially activates the mitogen-activated protein kinases. Hepatology 25:1128-1135

33. Xu Y, **Bradham C**, Brenner D and M Czaja. 1997. Hydrogen peroxide-induced liver cell necrosis is dependent on AP-1 activation. Am. J. Physiol. 273: G795-G803

34. Westwick J, Fleckstein J, Yin M, Yang S, **Bradham C**, Brenner D, and AM Diehl. 1996. Differential regulation of hepatocyte DNA synthesis by cAMP *in vitro* and *in vivo*. Am. J. Physiol. 271: G780

35. Mallat A, Preaux AM, Serradeil-LeGal C, Raufaste D, Gallois C, Brenner D, **Bradham C**, Maclouf J, Iourgenko V, Fouassier L, Dhumeaux D, Mavier P, and S Lotersztajn. 1996. Growth inhibitory properties of

endothelin-1 in activated human stellate cells: a cyclic adenosine monophosphate-mediated pathway. J. Clin. Invest. 98: 2771-2778

36. Clark G, Drugan J, Terrell R, **Bradham C**, Der C, Bell R, and S Campbell. 1996 Peptides containing a consensus Ras binding sequence from Raf-1 and the GTPase activating protein NF1 inhibit Ras function. Proc. Natl. Acad. Sci. USA 93:1577-1581

37. Fritz R, Zhao ML, **Bradham C**, Baxter-Lowe L, and J Gorski. 1995 T-cell receptor Vß spectrotypes of central nervous system T-cells during acute relapsing experimental autoimmune disease. Ann. N. Y. Acad. Sci. 756:327-328

BOOK CHAPTERS

1. Rodriguez-Sastre N, Thomas CF, and **CA Bradham**. 2019. Chapter 20: Measuring Voltage and Ion Concentrations in Live Embryos. In: Echinoderms: Experimental Approaches (A. Hamdoun and K. Foltz, Ed.) Methods in Cell Biology Series vol. 151, p459. Elsevier Press. https://doi.org/10.1016/bs.mcb.2019.01.007; ISSN 0091-679X

2. Zuch DT and **CA Bradham**. 2019. Chapter 18: Spatially mapping gene expression in sea urchin primary mesenchyme cells. In: Echinoderms: Experimental Approaches (A. Hamdoun and K. Foltz, Ed.) Methods in Cell Biology Series vol. 151, p.433 Elsevier Press. https://doi.org/10.1016/bs.mcb.2019.01.006; ISSN 0091-679X

3. McClay DR, Gross JM, Range R, Peterson RE, and **CA Bradham**. 2003. Sea urchin gastrulation In: Gastrulation (Claudio Stern, Ed.) Cold Spring Harbor Series

4. Brenner DA, Hatano E, **Bradham, C**, Schwabe R, Iimuro Y, Qian T, Thurman R, and J Lemasters . Regulation of TNF-α- and Fas-Induced Hepatic Apoptosis by NF-κB. 2001 In: Growth, Proliferation, and Apoptosis in Hepatocytes, ed. K. Okita

5. **Bradham CA**, Qian T, Streetz K, Trautwein C, Brenner DA, and JJ Lemasters. Role Of Mitochondria In Apoptosis Induced By Tumor Necrosis Factor-alpha. 1999 In: Mitochondria in Pathogenesis, ed.s JJ Lemasters and AL Nieminen.

JOURNAL ARTICLES (non-peer reviewed)

1.van Heijster P, Kaper TJ, and **CA Bradham**. 2015. A note on a reaction-diffusion model describing the bone morphogen protein gradient in Drosophila embryonic patterning. Advanced Studies in Pure Mathematics 64: Nonlinear Dynamics in Partial Differential Equations, 209-220.

2. Modell JM and **CA Bradham**. 2011. Mitochondrial gradients and p38 activity in early sea urchin embryos. Molecular Reproduction and Development 78 (4): 225

3. **Bradham CA** and DR McClay. 2007 Secondary Axis Specification in Sea Urchin Embryos (invited review). Signal Transduction 7:181

4. **Bradham C** and DR McClay. 2006. p38 MAPK in Development and Cancer (invited review). Cell Cycle 5:824-8.

5. Lemasters JJ, Qian T, Trost LC, Herman B, Cascio WE, **Bradham CA**, Brenner DA, Nieminen AL. 1999. Confocal microscopy of the mitochondrial permeability transition in necrotic and apoptotic cell death (review). Biochem Soc Symp. 66:205-22.

6. Lemasters JJ, Qian T, **Bradham CA**, Brenner DA, Cascio WE, Trost LC, Nishimura Y, Nieminen AL, Herman B. 1999. Mitochondrial dysfunction in the pathogenesis of necrotic and apoptotic cell death (review). J Bioenerg Biomembr. (4):305-19.

7. **Bradham CA**, Plümpe J, Manns MP, Brenner DA and C Trautwein. 1998. Mechanisms of hepatic toxicity: TNF-induced liver injury (invited review). Am. J. Phys. 275:G387-92.

8. Lemasters JJ, Nieminen AL, Qian T, Trost LC, Elmore SP, Nishimura Y, Casciola W, **Bradham CA**, Brenner DA, and B Herman. 1998. The mitochondrial permeability transition in cell death by necrosis,

apoptosis, and autophagy (review). Biochim. Biophys. Acta 1366:177-96.

9. Lemasters JJ, Qian T, Elmore SP, Trost LC, Nishimura Y, Herman B, **Bradham CA**, Brenner DA, Nieminen AL. 1998. Confocal microscopy of the mitochondrial permeability transition in necrotic cell killing, apoptosis and autophagy (review). Biofactors. 8:283-5.

Presentations

SEMINARS *since joining Boston University*

N Rodriguez, N Shapiro, and CA Bradham. Ethanol treatment perturbs skeletal patterning during sea urchin development. Invited seminar, Underrepresented Graduate Student Organization (UGSO) Academic Research Symposium, Boston University, September 2019 (*presented by N. Rodriguez-Sastre*)

CA Bradham. V-ATPase activity is required for dorsal-ventral symmetry breaking. Invited Seminar, Society for Developmental Biology Satellite Session on Developmental Bioelectricity. Boston, MA, July 2019

CA Bradham. Gene Regulatory Networks in Sea Urchin Development. Invited Lecture, Embryology Course (Echinoderm Module), Marine Biology Laboratories, Woods Hole MA, June 2019

CA Bradham. Bioelectricity and DV specification. Invited Lecture, Embryology Course (Echinoderm Module), Marine Biology Laboratories, Woods Hole MA, June 2019

CA Bradham. The Molecular Basis of Skeletal Patterning. Invited Seminar, Dynamics Seminar Series, Department of Mathematics and Statistics, Boston University, Boston MA, April 2019

CA Bradham. Skeletal Patterning and PMC diversification. Invited Plenary Seminar, The International Conference for the Developmental Biology of the Sea Urchin XXV, Woods Hole MA, October 2018

DT Zuch, K Dionne, ML Piacentino, S Rose, and CA Bradham. LvLipoxygenase activity fine-tunes skeletal patterning and PMC migration during sea urchin larval skeletogenesis. Invited Plenary Seminar, The International Conference for the Developmental Biology of the Sea Urchin XXV. MBL, Woods Hole MA, October 2018 (*presented by D. Zuch)*

CA Bradham. How does receipt of positional cues induce diversification? Invited Seminar, Research on Tap (single cell RNA sequencing), Boston University, Oct 2018

CA Bradham, Patterning the Biomineral. Invited Plenary Seminar, Gordon Conference on Biomineralization, Colby-Sawyer College, New London NH, July 2018

CA Bradham, Gene Regulatory Networks in Sea Urchin Development. Invited Lecture, Embryology Course (Echinoderm Module), Marine Biology Laboratories, Woods Hole MA, June 2018

CA Bradham, Bioelectricity and DV specification. Invited Lecture, Embryology Course (Echinoderm Module), Marine Biology Laboratories, Woods Hole MA, June 2018

CA Bradham, V-type H^+ ATPase Activity is Required for Dorsal-Ventral Symmetry Breaking in Sea Urchin Embryos. Invited Seminar, Northeastern Society for Developmental Biology, Marine Biology Laboratories, Woods Hole MA, April 2018

CA Bradham, Patterning the Skeleton in Sea Urchin Embryos. Invited Seminar, Department of Biological Sciences at the University of Delaware, Newark DE, October 2017

CA Bradham, Sea Urchin Development. Invited Lecture, Embryology Course (Echinoderm Module), Marine Biology Laboratories, Woods Hole MA, June 2017

CA Bradham, The Mechanisms Underlying Skeletal Patterning. Invited Lecture, Embryology Course (Echinoderm Module), Marine Biology Laboratories, Woods Hole MA, June 2017

CA Bradham, New Cues for Skeletal Patterning in Sea Urchin Embryos. Plenary session, The International Conference for the Developmental Biology of the Sea Urchin XXIV, Woods Hole MA, April 2017 (*invited seminar*)

CA Bradham, Teaching Gene Regulatory Network Logic to Undergraduates. Education session, The International Conference for the Developmental Biology of the Sea Urchin XXIV. MBL, Woods Hole MA, April 2017 (*invited seminar*)

Schatzberg D and CA Bradham, V-type H+ ATPase activity is required for dorsal-ventral symmetry breaking in sea urchin embryos. Concurrent session, The International Conference for the Developmental Biology of the Sea Urchin XXIV. MBL, Woods Hole MA, April 2017 (*presented by D. Schatzberg*)

Schatzberg D and CA Bradham, H^+/K^+ ATPase activity is required for PMC differentiation and skeletogenesis in sea urchin embryos. Invited seminar, Biology Graduate Recruitment Event, Boston University, Boston MA, February 2016 (*presented by D. Schatzberg*)

Hogan JD, Keenan JL, Luo L, Speranza E, Saji A, Sundermeyer MA, Schatzberg D, Piacentino ML, Zuch DT, Core AB, Blumberg C, Ibn-Salem J, Timmermann B, Grau JH, Irie N, Poustka AJ, and CA Bradham, The developmental transcriptome for *Lytechinus variegatus.* Plenary session, The International Conference for the Developmental Biology of the Sea Urchin XXIII, Woods Hole MA, October 2015

Piacentino ML, Chung O, Ramachandran J, Zuch DT, Yu J, Conaway EA, Reyna AE, and CA Bradham. LvBMP5-8 is required for left-side skeletal and neural patterning but not dorsal-ventral specification in *L. variegatus* embryos. Concurrent session, The International Conference for the Developmental Biology of the Sea Urchin XXIII, Woods Hole MA, October 2015 (*presented by M. Piacentino*)

CA Bradham, Pattern Formation During Sea Urchin Development. Invited Seminar, Department of Biological Sciences, Boston University, Boston MA, September 2015

Schatzberg D, Lawton M, Hadyniak S, Bishop J, Ross E, Carney T, Beane W, Levin M, and CA Bradham. H^+/K^+ ATPase activity is required for biomineralization in sea urchin embryos. Karolinska Insitituet, Stockholm, Sweden, September 2015 (*presented by D Schatzberg*)

Hogan JD, Keenan JL, Luo L, Speranza E, Saji A, Sundermeyer MA, Schatzberg D, Piacentino ML, Zuch DT, Core AB, Blumberg C, Ibn-Salem J, Timmermann B, Grau JH, Irie N, Poustka AJ, and CA Bradham, The developmental transcriptome for *Lytechinus variegatus.* Invited oral presentation, 23rd Annual International Conference on Intelligent Systems for Molecular Biology, Dublin, Ireland, July 2015 (*presented by E. Speranza*)

CA Bradham, Patterning the Sea Urchin Larval Skeleton. Invited Seminar, Department of Biological Sciences, Western Michigan University, Kalamazoo MI, November 2014

CA Bradham, Patterning the Sea Urchin Larval Skeleton. Invited Seminar, Department of Microbiology & Molecular Genetics, Michigan State University, East Lansing MI, November 2014

CA Bradham, Skeletal Patterning in Sea Urchin Embryos. Invited Seminar, Institute for Cellular and Molecular Biology, The University of Texas at Austin, Austin TX, October 2014

Piacentino M, Zuch DT, Hewitt F, Ramachandran J, Chung O, Reyna A, Hameeduddin H, Li X, Yu J, Patel V, Chaves J, Ferrell P, Bardot E, Lee D, Shaw S, Cho AR, Core AB, Tse M, Olenik E, Keenan J, Hogan JD, Luo L, Coulomb-Huntington J, Poustka AJ, and CA Bradham, New Genes in Dorsal-Ventral Skeletal Patterning. Plenary session, The International Conference for the Developmental Biology of the Sea Urchin XXII, Woods Hole MA, April 2014

Piacentino M, Ramachandran J, and CA Bradham, Late Alk4/5/7 activity is required for anterior skeletal patterning in sea urchin embryos. Concurrent session, The International Conference for the Developmental Biology of the Sea Urchin XXII, Woods Hole MA, April 2014 (*presented by M Piacentino*)

Hogan JD, Keenan JL, Luo L, Poustka AJ, and CA Bradham, The embryonic transcriptome for the sea urchin Lytechinus varieagatus. Oral Session, The 13th Annual International Workshop on Bioinformatics and Systems Biology, Kyoto University, Kyoto, Japan, July 2013 (*presented by J Keenan*)

CA Bradham, A gradient of sulfated proteoglycans is required for dorsal-ventral skeletal patterning in sea urchin embryos. Concurrent Session 7.2, Cells to organs: Long Range Signaling, Pattern Formation, International Society of Developmental Biologists 17th International Congress of Developmental Biology, Cancun Mexico, June 2013

CA Bradham, Dorsal-Ventral Patterning in Sea Urchin Embryos. Invited Seminar, Biomixer, Department of Biology, Boston University, May 2013

CA Bradham, A Screen for Skeletal Patterning Genes in Sea Urchin Embryos. Invited Seminar, Josephine Bay Paul Center & Eugene Bell Center Seminar Series, Marine Biology Laboratory, Woods Hole MA, November 2012

CA Bradham, M Piacentino, F Hewitt, A Reyna, H Hameeduddin, C Li, J Yu, V Patel, J Chaves, P Ferrell, E Bardot, D Lee, A Cho, AB Core, M Tse, E Olenik, J Coulombe-Huntington, and AJ Poustka. A Screen for Skeletal Patterning Genes in Sea Urchin Embryos. Plenary Session, The International Conference for the Developmental Biology of the Sea Urchin XXI, Woods Hole MA, October 2012

Schatzberg D, Hardway H, Kaper TJ, and CA Bradham. A computational model for BMP2/4 Movement in Sea Urchin Embryos. Concurrent Session, The International Conference for the Developmental Biology of the Sea Urchin XXI, Woods Hole MA, October 2012 (*presented by D Schatzberg*)

M Piacentino, V Patel, F Hewitt, J Yu, J Chaves, and CA Bradham. Notch2 and BMP5-8 are each required for normal skeletal patterning as well as left-right asymmetric Nodal expression in *Lytechnius varieagatus* embryos. Concurrent Session, The International Conference for the Developmental Biology of the Sea Urchin XXI, Woods Hole MA, October 2012 (*presented by M Piacentino*)

*K Pinet, AB Core, E Conaway, A Reyna, and CA Bradham. Bicistronic and Antisense Expression Mediated by Pantropic Retroviruses in Sea Urchin Embryos. Concurrent Session, The International Conference for the Developmental Biology of the Sea Urchin XXI, Woods Hole MA, October 2012 (*presented by K Pinet*). ***winner, best oral presentation (one of three winners).**

F Hewitt, C Li, and CA Bradham, SLC26a2 is Required for Ventral Sulfated Proteoglycans and Ventral Skeletal Patterning in Sea Urchin Embryos. Concurrent Session, The International Conference for the Developmental Biology of the Sea Urchin XXI, Woods Hole MA, October 2012 (*presented by F Hewitt*).

PS Ferrell, AB Core, I Murray, C Li, H Hardway, T Kaper, and CA Bradham, The Role of Twisted Gastrulation in Sea Urchin Development. Concurrent Session, The International Conference for the Developmental Biology of the Sea Urchin XXI, Woods Hole MA, October 2012 (*presented by P Ferrell*).

M Piacentino, F Hewitt, A Reyna, H Hameeduddin, E Bardot, D Lee, V Patel, JYu, P Ferrell, J Chaves, A Cho, AB Core, M Tse, J Coulombe-Huntington, A Heilbut, E Azizi, S Zhang, AJ Poustka, and CA Bradham, A Screen for Skeletal Patterning Genes in the Sea Urchin Embryo. Boston University Biology Graduate Student Symposium, May 2012 (*presented by M Piacentino*)

CA Bradham, Patterning in Sea Urchin Embryos. Invited Seminar, Blaffer Lecture, Department of Biochemistry and Molecular Biology, University of Texas MD Anderson Cancer Center, April 2012

CA Bradham, Skeletal Patterning in Sea Urchin Embryos. Invited Seminar, Genetics Symposium, "Signal Transduction: Insights Gained from Diverse Species", Brandeis University, September 2011

H Hardway, T Kaper, and CA Bradham, Dorsal-Ventral Patterning in Drosophila and Sea Urchin Embryos. Minisymposium, Society for Mathematical Biology Annual Conference, Krakow, Poland, June 2011 (*presented by H Hardway*)

H Hardway, T Kaper, and CA Bradham, Dorsal-Ventral Patterning in Drosophila and Sea Urchin Embryos. Minisymposium, Society for Industrial and Applied Mathematics, Snowbird UT, May 2011 (*presented by H Hardway*)

A Reyna, H Hameeduddin, E Bardot, D Lee, C Li, F Hewitt, M Piacentino, P Ferrell, J Chaves, AB Core, J Coulombe-Huntington, AJ Poustka, and CA Bradham A High Throughout Sequencing-Based Screen for Skeletal Patterning Genes. Plenary Session, The International Conference for the Developmental Biology of the Sea Urchin XX, Woods Hole MA, April 2011

AB Core, A Reyna, E Conaway, and CA Bradham. Pantropic Retroviruses: A New Transduction Tool for Sea Urchin Embryos. Concurrent Session, The International Conference for the Developmental Biology of the Sea Urchin XX, Woods Hole MA, April 2011 *(presented by A.B. Core)*

E Ross, P Zushin, T Carney, and CA Bradham. H+/K+ Antiport Activity is Required for PMC Development and Migration. Concurrent Session, The International Conference for the Developmental Biology of the Sea Urchin XX, Woods Hole MA, April 2011 *(presented by E. Ross)*

P Zushin, E Ross, C Montalbano, T Carney and CA Bradham Vacuolar ATPase Activity is Required for Secondary Axis Specification. Concurrent Session, The International Conference for the Developmental Biology of the Sea Urchin XX, Woods Hole MA, April 2011 *(presented by P. Zushin)*

A Reyna, AB Core, J Coulombe-Huntington, H Hameeduddin, C Li, M Piacentino, F Hewitt, E Bardot, DE Lee, AJ Poustka, and CA Bradham. A High-Throughput Sequencing-Based Screen for Skeletal Patterning Genes in Sea Urchin Embryos, Northeastern Regional Meeting for the Society for Developmental Biology, March 2011

C. Bradham. A Screen for Skeletal Patterning Genes in Sea Urchin Embryos. Systems Biology Group, Boston University, Feb 2010.

A.E. Reyna, A.B. Core, and C.A. Bradham. Pantropic Retroviruses: A New Transduction Tool for Sea Urchin Embryos. Emerging Topics Session, The International Conference for the Developmental Biology of the Sea Urchin XIX, Woods Hole MA, October 2009

C. Bradham. Networks in Sea Urchin Development. Center for BioDynamics, Boston University May 2009.

C. Bradham. Neural Specification in Sea Urchin Embryos. Developmental Biology Interest Group, BU Medical School, May 8 2009.

C. Bradham, C. Lookingbill, J. Modell, A. Kuhn, D.R. McClay, and A. Poustka. Chordin is required for neural but not axial specification in sea urchin embryos. Plenary Session, The International Conference for the Developmental Biology of the Sea Urchin XVIII, Woods Hole MA, April 2008

POSTERS *since joining Boston University*

Rodriguez-Sastre N, Shapiro N, and CA Bradham. Ethanol treatment perturbs skeletal patterning during sea urchin development. Society for Developmental Biology, Boston, MA, July 2019 (*presented by N. Rodriguez-Sastre*)

Huth J and CA Bradham. VEGF and Univin signaling are necessary for proper secondary skeletal patterning and PMC diversification in *Lytechinus variegatus*, Society for Developmental Biology, Boston, MA, July 2019 (*presented by J Huth*)

Hawkins DY, Huth J, and CA Bradham. Subpopulation Discovery During Patterning-Induced Developmental Diversification in Sea Urchin Embryos via Single-Cell RNA-Seq. Society for Developmental Biology, Boston, MA, July 2019 (*presented by DY Hawkins*)

Lion A, Nizhnik A, Lin Z, Zuch DT and CA Bradham. PMC migration assays *in vitro* and *in vivo*. Society for Developmental Biology, Boston, MA, July 2019 (*presented by A. Lion*)

Thomas C, Gibson J, Skidanova V and CA Bradham. Voltage-Gated Sodium Channel Activity Is Required for Normal Skeletal Patterning. Society for Developmental Biology, Boston, MA, July 2019 (*presented by C. Thomas*)

Shapiro N, Rodriguez-Sastre N, and CA Bradham. Mechanism of Ethanol Perturbation in Sea Urchin Larva, Society for Developmental Biology, Boston, MA, July 2019 (*presented by N Shapiro*)

Alburi D and CA Bradham. Cloning Cklf4 to explore the role of chemokines in developmental diversification during embryonic pattern formation. The International Conference for the Developmental Biology of the Sea Urchin XXV. MBL, Woods Hole MA, October 2018 (*presented by D. Alburi*)

Hawkins DY and CA Bradham. Automated Identification of Primary Mesenchyme Cells in Confocal Images. The International Conference for the Developmental Biology of the Sea Urchin XXV. MBL, Woods Hole MA, October 2018 (*presented by D. Hawkins*)

Huth J, Zuch DT, and CA Bradham. VEGF and Univin Signaling are Necessary for Normal PMC Subset Gene Expression and Migration during Secondary Skeletal Patterning. The International Conference for the Developmental Biology of the Sea Urchin XXV. MBL, Woods Hole MA, October 2018 (*presented by J. Huth*)

Rodriguez-Sastre N, Peyreau M, Correa AE, and CA Bradham. Ethanol treatment perturbs skeletal patterning during sea urchin development. The International Conference for the Developmental Biology of the Sea Urchin XXV. MBL, Woods Hole MA, October 2018. (*presented by N Rodriguez-Sastre*) ****winner, outstanding poster presentation**

Thomas CF, Rodriguez-Sastre N, Skidanova V, Gibson J, and CA Bradham. Voltage-gated sodium channel activity is required for normal skeletal patterning. The International Conference for the Developmental Biology of the Sea Urchin XXV. MBL, Woods Hole MA, October 2018 (*presented by C Thomas*)

Skidanova V, Thomas CF, and CA Bradham. Cloning the Voltage Gated Sodium Channel Scn5a: A Putative Regulator of Skeletal Patterning. The International Conference for the Developmental Biology of the Sea Urchin XXV. MBL, Woods Hole MA, October 2018 (*presented by V Skidanova*)

Lion A, Lin Z, Hawkins D, Zuch DT, and CA Bradham. A Migration Assay for PMCs during Skeletal Patterning. Next-in-BIO Regional Showcase for Undergraduate Research, Worchester Polytechnic Institute, Worchester MA October 2017 (*presented by A. Lion)* ****winner, best poster (3rd place).**

Lion A, Lin Z, Hawkins D, Zuch DT, and CA Bradham. A Migration Assay for PMCs during Skeletal Patterning. Twentieth Annual Boston University Undergraduate Research Opportunities Program Symposium, October 2017 (*presented by A. Lion)*

Nelson K, Huth J, and CA Bradham. The role of Univin signaling in the diversification and migration of primary mesenchyme cells in sea urchin embryos. Twentieth Annual Boston University Undergraduate Research Opportunities Program Symposium, October 2017 (*presented by K. Nelson)*

Lin Z, Zuch DT, Huth J, and CA Bradham. Primary Mesenchyme Cells are directed and patterned by cues in Extracellular Matrix in Sea Urchin Embryo. Twentieth Annual Boston University Undergraduate Research Opportunities Program Symposium, October 2017 (*presented by Z. Lin)*

Hawkins D, Shi X, Hackett WE, Lamba A, Huth J, Zuch DT, and CA Bradham. Subpopulation Discovery During Patterning-Induced Developmental Diversification in Sea Urchin Embryos via Single-Cell RNA-Seq. The International Workshop on Bioinformatics and Systems Biology, Berlin Germany, July 2017 (*presented by D Hawkins*) ****winner, best poster (2nd place).**

Zuch DT, Dionne K, Piacentino ML, Rose S, and CA Bradham. LvLipoxygenase activity regulates skeletal patterning and PMC migration throughout sea urchin larval skeletogenesis. The International Conference for the Developmental Biology of the Sea Urchin XXIV, Woods Hole MA, April 2017 (*presented by DT Zuch*)

Nizhnik A, Zuch DT, and CA Bradham. Defining the Mechanism by which Sulfated Proteoglycans Direct Migration during Embryonic Development. The International Conference for the Developmental Biology of the Sea Urchin XXIV, Woods Hole MA, April 2017 (*presented by A Nizhnik*)

Huth J, Zuch DT, and CA Bradham. VEGF signaling during gastrulation is necessary for proper PMC positioning and gene expression during secondary skeletal patterning in *Lytechinus variegatus.* The International Conference for the Developmental Biology of the Sea Urchin XXIV, Woods Hole MA, April 2017 (*presented by J Huth*)

Nizhnik A.S., Zuch D.T., and C.A. Bradham. Defining the Mechanism by which Sulfated Proteoglycans Direct Mesenchyme Cell Migration during Embryonic Development. Nineteenth Annual Boston University Undergraduate Research Opportunities Program Symposium, October 2016 (*presented by A. Nizhnik)*

Soto L., Schatzberg D., and C.A. Bradham. Proteinase K treatment radializes the dorsal-ventral axis in sea urchin embryos. Nineteenth Annual Boston University Undergraduate Research Opportunities Program Symposium, October 2016 (*presented by L. Soto*)

Bradham CA, Piacentino ML, and Zuch DT. A 3-D Model for Skeletal Patterning in Sea Urchin Embryos. Society for Developmental Biology, Boston MA August 2016 (*presented by C. Bradham)*

Schatzberg D., Hadyniak S., Dojer L., Reidy P., and C.A. Bradham. V-type H^+ ATPase activity is required for dorsal-ventral specification in sea urchin embryos. Society for Developmental Biology, Boston MA August 2016 (*presented by D. Schatzberg)*

Zuch D., Piacentino M., Aziz K., Rose S., and C.A. Bradham. Lipoxygenase activity regulates PMC positioning during secondary skeletogenesis in the sea urchin Lytechinus variegatus. Society for Developmental Biology, Boston MA August 2016 (*presented by D. Zuch)*

Huth J., Zuch D., and C.A. Bradham. VegF signaling is required for PMC migration from the ventrolateral clusters in the sea urchin Lytechinus variegatus. Society for Developmental Biology, Boston MA August 2016 (*presented by J. Huth)*

Soto L., Schatzberg D., and C.A. Bradham. Proteinase K treatment radializes the dorsal-ventral axis in sea urchin embryos. Society for Developmental Biology, Boston MA August 2016 (*presented by L. Soto)* ***winner, best undergraduate poster (third place)**

Nizhnik A.S., Zuch D.T., and C.A. Bradham. Defining the Mechanism by which Sulfated Proteoglycans Direct Mesenchyme Cell Migration during Embryonic Development. Beckman Symposium, Irvine CA, August 2016 (*presented by A. Nizhnik)*

Ellis A and CA Bradham, A Matlab Program For Mapping Cellular Positions in Developing Sea Urchin Embryos. The Annual Biomedical Research Conference for Minority Students, Seattle WA, November 2015 (*presented by A. Ellis*) ***winner, presentation award**

Schatzberg D, Ferrell PS, Core AB, Murray I, Kaper T, and CA Bradham. Perturbation of LvBMP2/4 signaling through LvChordin and LvTsg loss of function radializes the skeleton, but not the ectoderm of sea urchin embryos. The International Conference for the Developmental Biology of the Sea Urchin XXIII, Woods Hole MA, October 2015 (*presented by D Schatzberg*)

Zuch DT, Piacentino ML, Fishman J, Shaw S and CA Bradham. Sulfate transporter LvSLC26a2/7 coordinates positioning of ventral PMCs during sea urchin embryogenesis The International Conference for the Developmental Biology of the Sea Urchin XXIII, Woods Hole MA, October 2015 (*presented by DT Zuch*)

Ellis A and CA Bradham, An image analysis program for mapping cellular positions in developing sea urchin embryos. The International Conference for the Developmental Biology of the Sea Urchin XXIII, Woods Hole MA, October 2015 (*presented by A Ellis*)

Nizhnik A, Zuch DT, Piacentino ML, Buczek-Thomas J, and CA Bradham, *In vitro* Migration Assay for Sea Urchin PMCs. The International Conference for the Developmental Biology of the Sea Urchin XXIII, Woods Hole MA, October 2015 (*presented by A Nihznik*)

Soto L, Schatzberg D, and CA Bradham, Spatial Analysis of BMP2/4 Protein Movement in Sea Urchin Embryos. Eighteenth Annual Boston University Undergraduate Research Opportunities Program Symposium, October 2015 (*presented by L Soto*)

Ellis A and CA Bradham, An image analysis program for mapping cellular positions in developing sea urchin embryos. Eighteenth Annual Boston University Undergraduate Research Opportunities Program Symposium, October 2015 (*presented by A Ellis*)

Nizhnik A, Zuch DT, Piacentino ML, Buczek-Thomas J, and CA Bradham, *In vitro* Migration Assay for Sea Urchin PMCs. Eighteenth Annual Boston University Undergraduate Research Opportunities Program Symposium, October 2015 (*presented by A Nihznik*)

C Blumberg and CA Bradham, Computational identification of potential cis-regulatory regions regulating Tubulin-encoding genes in the sea urchin, *Lytechinus variegatus.* Poster Presentation, RISE Symposium, Boston University, August 2015. (*presented by C. Blumberg*)

Schatzberg D, Ferrell P, Core AB, Murray I, Kaper T, and CA Bradham. LvTsg regulates dorsal specification in sea urchin embryos. Society for Developmental Biology 74th Annual Meeting, Snowbird, UT, July 2015 (*presented by D. Schatzberg*)

S Hadyniak, D Schatzberg, and CA Bradham, Concanamycin A Radializes Nodal Expression in Sea Urchin Embryos. Poster Presentation, Seventeeth Annual Boston University Undergraduate Research Opportunities Program Symposium, October 2014.

J Fishman, DT Zuch, F Hewitt, and CA Bradham, Sulfated Proteoglycans are Required for Normal Skeletal Patterning in Sea Urchin Embryos, Seventeeth Annual Boston University Undergraduate Research Opportunities Program Symposium, October 2014.

DT Zuch, JD Hogan, J Keenan, L Luo, A Saji, MA Sundermeyer, M Piacentino, D Schatzberg, E Azzizi, S Zhang, A Heilbut, AJ Poustka, and CA Bradham, The embryonic transcriptome for *Lytechinus variegatus*. The International Conference for the Developmental Biology of the Sea Urchin XXII, Woods Hole MA, April 2014 (*presented by DT Zuch*)

D Schatzberg, M Lawton, S Hadyniak, J Bishop, E Ross, T Carney, W Beane, M Levin, and CA Bradham, H^+/K^+ antiport activity is required for PMC differentiation and skeletogenesis. Poster Presentation, The International Conference for the Developmental Biology of the Sea Urchin XXII, Woods Hole MA, April 2014 (*presented by D Schatzberg*)

S Hadyniak, D Schatzberg, M Lawton, J Bishop, W Beane, M Levin, and CA Bradham, Identifying and measuring voltage gradients in normal and perturbed embryos. Poster Presentation, The International Conference for the Developmental Biology of the Sea Urchin XXII, Woods Hole MA, April 2014 (*presented by S Hadyniak*)

I Murray, V Patel, C Li, J Yu, H Hameeduddin, F Hewitt, J Perez-Rogers, AJ Poustka, and CA Bradham, LOX is Required for Skeletal Patterning in Sea Urchin Embryos. Poster Presentation, The International Conference for the Developmental Biology of the Sea Urchin XXII, Woods Hole MA, April 2014 (*presented by I Murray*)

J Ramachandran, O Chung, M Piacentino, A Reyna, J Yu, H Hameeduddin, AJ Poustka and CA Bradham, LvBMP5-8 is required for normal skeletal patterning but not dorsal- ventral specification in the sea urchin embryo. Poster Presentation, The International Conference for the Developmental Biology of the Sea Urchin XXII, Woods Hole MA, April 2014 (*presented by J Ramachandran*)

O Chung, M Piacentino, F Hewitt, V Patel, P Ferrell, J Chaves, C Li, H Hameeduddin, AJ Poutska, and CA Bradham, SLC and Notch2 regulate dorsal-ventral PMC positioning and skeletal patterning. Poster Presentation, The International Conference for the Developmental Biology of the Sea Urchin XXII, Woods Hole MA, April 2014 (*presented by O Chung*)

P Reidy, J Bishop, D Schatzberg, P Zushin, E Ross, T Carney, and CA Bradham, Concanamycin A perturbs dorsal-ventral specification in sea urchin embryos. Poster Presentation, The International Conference for the Developmental Biology of the Sea Urchin XXII, Woods Hole MA, April 2014 (*presented by P Reidy*)

I Murray, V Patel, ML Piacentino, C Li, F Hewitt, H Hameeduddin, and CA Bradham, Lipoxygenase and SVEP are Essential for Regulating Triradiate Orientation During Skeletal Morphogenesis in Sea Urchins. Poster Presentation, Sixteenth Annual Boston University Undergraduate Research Opportunities Program Symposium, October 2013. (*presented by I Murray*)

J Ramachandran, O Chung, ML Piacentino, DT Zuch, and CA Bradham, BMP5/8 is Required for Skeletal Patterning in Sea Urchin Embryos. Poster Presentation, Sixteenth Annual Boston University Undergraduate Research Opportunities Program Symposium, October 2013. (*presented by J Ramachandran*)

O Chung, ML Piacentino, F Hewitt, and Cynthia Bradham, Monitoring PMC positioning to determine the proximal impact of patterning genes Notch2 and SLC in dictating the skeletal pattern in sea urchin embryos. Poster Presentation, Sixteenth Annual Boston University Undergraduate Research Opportunities Program Symposium, October 2013. (*presented by O Chung*)

P Reidy, D Schatzberg, and CA Bradham, Identifying BMP/4 Target Genes in Sea Urchin Embryos. Poster Presentation, Sixteenth Annual Boston University Undergraduate Research Opportunities Program Symposium, October 2013. (*presented by P Reidy*)

S Hadyniak, J Bishop, D Schatzberg and CA Bradham, Voltage Gradients in the Developing Sea Urchin Embryo. Poster Presentation, Sixteenth Annual Boston University Undergraduate Research Opportunities Program Symposium, October 2013. (*presented by S Hadyniak*)

JD Hogan, JL Keenan, L Luo, G Benson, AJ Poustka, and CA Bradham, An RNA-Seq-based screen for skeletal patterning genes in sea urchin embryos. The 13th Annual International Workshop on Bioinformatics and Systems Biology, Kyoto University, Kyoto, Japan, July 2013 (*presented by JD Hogan*)

D Schatzberg, H Hardway, P Ferrell, AB Core, I Murray, E Ross, C Li, T Kaper, and CA Bradham, A computational model suggests that diffusion alone does not account for BMP2/4 movement in sea urchin embryos. Poster Presentation, International Society of Developmental Biologists 17th International Congress of Developmental Biology, Cancun Mexico, June 2013 (*presented by D Schatzberg*)

ML Piacentino, V Patel, F Hewitt, J Ramachandran, J Yu, J Chaves, A Reyna, H Hameeduddin, E Bardot, D Lee, J Coulomb-Huntington, A Heilbut, AB Core, AJ Poustka, and CA Bradham, Notch2, BMP5-8 and Alk4/5/7 signaling are required for skeletal patterning in sea urchin embryos. Poster Presentation, International Society of Developmental Biologists 17th International Congress of Developmental Biology, Cancun Mexico, June 2013 (*presented by ML Piacentino*)

I Murray, F Hewitt, J Perez-Rogers, ML Piacentino, H Hameeduddin, J Chaves, and CA Bradham, The Effects of MLD and SVEP on Triradiate Orientation and PMC Migration in Sea Urchin Embryos. Poster Presentation, The International Conference for the Developmental Biology of the Sea Urchin XXI, Woods Hole MA, Oct 2012. (*presented by I Murray*)

VD Patel, J Perez-Rogers, F Hewitt, C Li, and CA Bradham, Lipoxygenase is Required for Skeletal Patterning in Sea Urchin Embryos. Poster Presentation, The International Conference for the Developmental Biology of the Sea Urchin XXI, Woods Hole MA, Oct 2012. (*presented by VD Patel*)

PS Ferrell, C Li, E Ross, AB Core, CA Bradham, The Role of Twisted Gastrulation in Sea Urchin Embryo Development. Poster Presentation, Fifteenth Annual Boston University Undergraduate Research Opportunities Program Symposium, October 2012. (*presented by P Ferrell*)

KJ Pinet, AB Core, EA Conaway, AE Reyna, and CA Bradham, Developing a Bicistronic Transduction Tool for Sea Urchin Embryos. Poster Presentation, Fifteenth Annual Boston University Undergraduate Research Opportunities Program Symposium, October 2012. (*presented by KJ Pinet*)

VD Patel, J Perez-Rogers, F Hewitt, C Li, and CA Bradham, Lipoxygenase is Required for Skeletal Patterning in Sea Urchin Embryos. Poster Presentation, Fifteenth Annual Boston University Undergraduate Research Opportunities Program Symposium, October 2012. (*presented by V Patel*)

H Hardway, T Kaper, and CA Bradham, Dorsal-Ventral Patterning in Drosophila and Sea Urchin Embryos. Poster Presentation, Society for Industrial and Applied Mathematics: Life Sciences, San Diego CA, August 2012. (*presented by H Hardway*)

PS Ferrell, A Reyna, H Hameeduddin, AB Core, J Coulombe-Huntington, AJ Poustka, CA Bradham, Mindbomb is Required For Skeletal Patterning in Sea Urchin Embryos. Poster Presentation, Fourteenth Annual Boston University Undergraduate Research Opportunities Program Symposium, October 2011. (*presented by PS Ferrell*)

E Azizi, S Zhang, A Heilbut, J Coulombe-Huntington, C Montalbano, AJ Poutska, and CA Bradham. The Developmental Transcriptome of the Sea Urchin L. variegatus. Poster Presentation, The Eleventh Annual International Systems Biology and Bioinformatics Workshop, Berlin Germany, July 2011 (*presented by E Azizi*)

J Chaves, A Reyna, H Hameeduddin, E Bardot, DE Lee, AB Core, J Coulomb-Huntington, AJ Poustka, and CA Bradham. The Notch Homolog Scalloped Wings is Required for Skeletal Patterning. Poster Presentation, The International Conference for the Developmental Biology of the Sea Urchin XX, Woods Hole MA, April 2011 (*presented by J Chaves*)

*E Conaway, AB Core, A Reyna, and CA Bradham. Delta Antisense-Expressing Pantropic Retroviruses Block Pigment Cell Development. Poster Presentation, The International Conference for the Developmental Biology of the Sea Urchin XX, Woods Hole MA, April 2011 (*presented by E Conaway*) ***winner, best undergraduate poster**.

PS Ferrell, A Reyna, H Hameeduddin, AB Core, J Coulombe-Huntington, AJ Poustka, CA Bradham. Mindbomb is required for skeletal patterning in sea urchin embryos. Poster Presentation, The International Conference for the Developmental Biology of the Sea Urchin XX, Woods Hole MA, April 2011 (*presented by PS Ferrell*)

H Hameeduddin, A Reyna, AB Core, J Coulombe-Huntington, AJ Poustka, CA Bradham. SVEP is Required for Skeletal Patterning in Sea Urchin Embryos. Poster Presentation, The International Conference for the Developmental Biology of the Sea Urchin XX, Woods Hole MA, April 2011 (*presented by H Hameeduddin*)

F Hewitt, A Reyna, H Hameeduddin, E Bardot, D Lee, AB Core, J Coulombe-Huntington, AJ Poustka, and CA Bradham. RECK is Required for Normal PMC Migration and Skeletal Patterning. Poster Presentation, The International Conference for the Developmental Biology of the Sea Urchin XX, Woods Hole MA, April 2011 (*presented by F Hewitt*)

C Li, H Hameeduddin, A Reyna, AB Core, J Coulombe-Huntington, AJ Poustka, and CA Bradham. Prestin and 5-LOX are Required for Skeletal Patterning in Sea Urchin Larvae. Poster Presentation, The International Conference for the Developmental Biology of the Sea Urchin XX, Woods Hole MA, April 2011 (*presented by C Li*)

ML Piacentino, A Reyna, H Hameeduddin, AB Core, J Huntington-Coulombe, AJ Poustka, and CA Bradham. The novel putative adhesion gene MLD is required for skeletal patterning in sea urchin embryos. Poster Presentation, The International Conference for the Developmental Biology of the Sea Urchin XX, Woods Hole MA, April 2011 (*presented by ML Piacentino*)

A Reyna, H Hameeduddin, AB Core, J Coulombe-Huntington, AJ Poustka, and CA Bradham. Functional Characterization Demonstrates that BMP5-8 and ST14 are Skeletal Patterning Genes. Poster Presentation, The International Conference for the Developmental Biology of the Sea Urchin XX, Woods Hole MA, April 2011 (*presented by A Reyna*)

J Yu, E Ross, P Zushin, and CA Bradham. The Role of V-ATPase in Sea Urchin Development. Poster Presentation, The International Conference for the Developmental Biology of the Sea Urchin XX, Woods Hole MA, April 2011 (*presented by J Yu*)

P Zushin, E Ross, T Carney and CA Bradham. The ion channel gene complement of the sea urchin genome. Poster Presentation, The International Conference for the Developmental Biology of the Sea Urchin XX, Woods Hole MA, April 2011 (*presented by P Zushin*)

P Zushin, E Ross, T Carney and CA Bradham. V-ATPase Activity is Required for Secondary Axis Specification in Sea Urchin Embryos. Poster Presentation, Boston University Science & Engineering Day, March 2011 (*presented by P Zushin*)

AB Core, AE Reyna, EA Conaway and CA Bradham. Pantropic Retroviruses: A New Transduction Tool for Sea Urchin Embryos. Poster Presentation, Science & Engineering Day, March 2011 (*presented by AB Core*)

N Repina, D Stefanik, L Haery, F Wolenski, J Finnerty, C Bradham & T Gilmore. Analyzing the function of transcription factor NF-kB in the sea anemone Nematostella vectensis by creation of transgenic reporter animals. Poster Presentation, Thirteenth Annual Boston University Undergraduate Research Opportunities Program Symposium, October 2010.

DE Lee, ES Bardot, and CA Bradham. Oral LvBMP2/4 is Required for Oral Hood Morphogenesis and Serotonergic Neural Development. Poster Presentation, International Conference for the Developmental Biology of the Sea Urchin XIX, Woods Hole MA, October 2009 (*presented by DE Lee and ES Bardot*)

AB Core and CA Bradham. BMP and Nodal SMAD Nuclearization Occurs in Overlapping Regions in Lytechinus varieagatus Embryos. Poster Presentation, International Conference for the Developmental Biology of the Sea Urchin XIX, Woods Hole MA, October 2009 (*presented by AB Core*)

A Reyna, AB Core, and CA Bradham. Pantropic Retroviruses: A New Transduction Tool for Sea Urchin Embryos. Poster Presentation, Thirteenth Annual Boston University Undergraduate Research Opportunities Program Symposium. October 16, 2009. Boston, MA (*presented by A Reyna*)

E Ross, T Carney, and CA Bradham. The Functional Role of Voltage Gradients in Sea Urchin Development. Poster Presentation, Thirteenth Annual Boston University Undergraduate Research Opportunities Program Symposium. October 16, 2009. Boston, MA (*presented by E Ross*)

Teaching Experience (Boston University)

2019-present	BI594	Advanced Topics in Development and Regeneration
2015	CC111	Origins (undergraduate non-science majors)
2010-present	BI735	Advanced Cell Biology (graduate)
2008-present	BI410/610	Developmental Biology (graduate/undergraduate)
2008-2018	BI581/582	Grant writing workshop (graduate)
2008	BI203/281	Cell Biology (undergraduate)
2011, 2015	BF820	Research Opportunities in Bioinformatics (Course Organizer)
2010, 2012, 2016	BF690	Bioinformatics Challenge Project (Team Leader)
2011, 2013, 2017	BE768	Biological Databases (Team Leader)
2009- 2018	BE727	Tissue Engineering (Guest Lecturer)
2010	BI213	Cell Biology (Guest Lecturer)
2011-2013	BF751	Molecular Biology and Biochemistry: Molecules and Processes (Guest Lecturer)
2011, 2012	BI203	Cell Biology (undergraduate) (Guest Lecturer)

Research Students (Boston University)

POSTDOCTORAL (2)	**DATES**		***AWARDS***	***CURRENTLY***
Heather Hardway	Nov 2009-May 2012	*co-mentored with T. Kaper*		*private sector*
Petrus van Heijster	Sept 2011-June 2012	*co-mentored with T. Kaper*		*faculty, Queensland University of Technology*
GRADUATE (14) (*co-author)	**DATES**	**DEGREE/PROGRAM**	**AWARDS**	**CURRENTLY**
Abigal Descouteaux	**May 2019**	**MCBB**		
Alexandra Lions	**May 2019-**	**MCBB**		
Kanwal Aziz	Aug 2017-August 2018	M.S. Student (MAMS)		*lab technician, TX*
Dakota Hawkins	**April 2017-present**	**Ph.D. Student (Bioinformatics)**	***Poster Award (2017)***	
Christopher Thomas*	**April 2017-present**	**Ph.D. Student (CM)**	***MLK Jr. Fellowship***	
Nahomie Rodriguez-Sastre*	**April 2017-present**	**Ph.D. Student (CM)**	***Poster Award (2018)***	
James Huth	**May 2016-present**	**Ph.D. Student (CM)**		
Daniel T. Zuch*	**May 2013-present**	**Ph.D. Student (MCBB)**		
Daphne Schatzberg*	May 2012 – May 2017	Ph.D. April 2017 (CM)	*Marion Kramer Award (2012) Warren-McLeod Fellowship (2015-2016)*	*technical writer*

Michael L. Piacentino*	May 2011-Dec 2015	Ph.D. Dec 2015 (MCBB)	*Warren-McLeod Fellowship (2014-2015)* *MBL Embryology Course (2014)* *Terner Award (2015)*	*postdoc, Caltech*
Emily Speranza*	May 2014-Aug 2015	Ph.D. Student (Bioinformatics)	*NSF Fellowship (2015-2018)*	*changed labs*
Vinita Verma	Jan 2015-May 2015	M.A. May 2015 (Bioinformatics)		
Finnegan Hewitt*	May 2011-Jan 2014	M.A. January 2014		*Software specialist (Detroit MI)*
Peter Zushin	July 2010-July 2012	M.A. August 2012		*research technician*
Tamara Carney*	May 2009-Aug 2010	M.A. August 2010		*DVM student, UC Davis*
Amanda B. Core*	May 2008-Oct 2012	Ph.D. August 2012		*postdoc, MGH*
UNDERGRADUATE (55) (*co-author)	**DATES**	**DEGREE/PROGRAM (other than Biology)**	**AWARDS**	**CURRENTLY**
Abbey Glick	**Jan 2020-present**			
Stephanie Dancausse	**Sept 2019-present**			
Kelley McCutcheon	**Sept 2019-present**			
Ekin Kurak	Sept 2018-May 2019			
Nicholas Shapiro	**June 2018-present**			
Viktoriya Skidanova	**Sept 2017-present**	**BMB, BA/MA**	***UROP award (2018, 2019)***	
Monique Peyreau	April 2017-May 2018			*research technician*
Zhike (Coco) Lin	Jan 2017-May 2018		*UROP award (2017)*	
Alexandra Lion	Jan 2017-Dec 2017		*UROP award (2017)* *Best Poster Award (2017)*	*PhD student (BU)*
Dana Alburi	June 2016-May 2019		*UROP award (2018)*	*master's student, UAE*
Kristin Dionne	June 2016-May 2017			*medical student*
Amber Willbanks	June 2016-May 2017		*UROP award (2016)*	*research technician*
Arjun Lambda	June 2016-Dec 2016	*Computer Science*		*medical student*
Kara Nelson	Jan 2016-May 2018	*BME*	*UROP award (2017)*	*research technician*
Brielle (Luz) Dojer	Sept 2015-May 2016			*research technician*
Lina Soto	Jan 2015-Dec 2016	*BMB*	*UROP award (2015), SURF award (2016),*	*NP student*

			SDB poster award (2016)	
Kanwal Aziz	Jan 2015-May 2016			*research technician*
Andria Ellis	Jan 2015-May 2016	*BME*	*REU Award (2015, Bioinformatics); ABRCAMs presentation award (2015)*	*PhD student, UWash*
Allison Billingsley	Jan 2015-May 2016			*dental student, BU*
Anastasia Nihznik	Sept 2014-May 2017	*BMB*	*Beckman Scholar (2015-2017)*	*PhD student, NY*
Tara Patel	May 2014-Aug 2014	*visiting from Bates College*		*medical student, CA*
Joseph Ferme	Jan 2014-May 2015			*priest, Vatican*
Julie Fishman*	Jan 2014-May 2015	*Honors*	*UROP Award (2014)*	*medical masters student, BU*
Shweta Kitchloo	Sept 2013-May 2015	*BMB, BA/MA*	*UROP Award (2015)*	*medical student*
Mary Ann Sundermeyer	Sept 2013-May 2015	*Biology & Computer Science*		
Sviatlana Rose*	Sept 2013-May 2015	*BMB, BA/MA*		*research technician, MIT*
Ahkil Saji	Sept 2013-May 2014	*BMB*		*medical student*
Gabriella Pabon	Sept 2013-Dec 2013			
Jacob Bishop	Aug-2013-May 2014	*Honors*		*phyician*
Matthew Lawton*	Jan 2013-May 2015			*PhD student, BU Med*
Chen Cao	Jan 2013-May 2013			
Scott Shaw	Aug 2012-May 2014			
Janani Ramachandran*	Aug 2012-May 2014	*BMB, BA/MA*		*PhD student (UT Austin)*
Patrick Reidy	Aug 2012-May 2014		*UROP Award (2013)*	*research technician*
Nikita Kondratiev	Aug 2012-July 2013			
Oliver Chung*	May 2012-May 2014	*BMB, BA/MA*	*UROP Award (2013)*	*research technician*
Kim Thibeault	May 2012-Aug 2012	*visiting from Vanderbilt*		
Nikhil Bhambi	Jan 2012-Aug 2012			
Sarah Hadyniak*	Sept 2011-May 2015	*BMB, BA/MA*	*UROP Award (2014)*	*PhD student, Johns Hopkins*
Ian Murray	Sept 2011-May 2014	*BMB, Honors*	*UROP Award (2013)*	*telemarketing*
Kaylinette Pinet	May 2011-May 2013	*Honors*	*SURF Award (2012)*	*Postdoctoral fellow*
Ah Raq Cho	May 2011-May 2012			

James Chavez*	Jan 2011-May 2012	*BMB*		*research technician Boston Heart Diagnostics*
Patrick Ferrell*	Jan 2011-Dec 2012	*BMB, BA/MA*	*UROP Award (2011, 2012)*	*research technician,*
Jia Yu*	Jan 2011-May 2012	*BMB, BA/MA*		*PhD student, Mt. Sinai*
Evan Conaway*	Jan 2011-May 2012	*Honors*		*DVM/PhD Student (U Colorado)*
Matthew Tse	Jan 2011-Aug 2011		*UROP Award (2011)*	
Vijeta Patel*	Jan 2011-May 2013		*UROP Award (2012)*	*nurse practioner*
Christy Li*	Sept 2010-May 2011	*BMB, Honors*		*PhD student, Cornell*
Hajerah Hameeduddin*	June 2010-May 2011			*doctor of osteopathy*
Natasha Amjed	Jan 2010-Dec 2010			
Erik Ross*	Jun 2009-May 2010	*BMB, Honors*	*UROP Award (2009)*	*MD/PhD student, Drexel U*
Arlene Reyna*	Jan 2009-May 2010		*SURF Award (2009)*	*medical student, Tufts*
David Lee*	Sept 2008-May 2009			*medical student, U Washington*
Evan Bardot*	Sept 2008-Aug 2009			*PhD student, Mt. Sinai*
Ramya Kumar	June 2008-Aug 2008		*UROP Award (2008)*	*physician*

Academic Service

Boston University Biology Departmental Service
Chair, Faculty Search Committee, Systems Biology Nov 2019-present
Biology Department Merit Review Committee 2018, 2019
Biology Department APT Committee, July 2018-present
Graduate Student Committee, March 2017-present
Faculty Search Committee, Marine Genomics (EBE program) Dec 2015-April 2016 (hired Sara Davies)
Preliminary Exam Committee (CM and MCBB programs) Jan 2010- present. Chair, 2012- present
Faculty Search Committee, Neurobiology Dec 2010- March 2011 (hired Ian Davison)
Faculty Search Committee, Functional Genomics Nov 2009- March 2010 (hired Sean Mulllins)
Faculty Search Committee, Systems Biology Nov 2008- March 2009 (unsuccessful)
Judge, Biology Graduate Student Retreat Presentations, 2012
Undergraduate Recruitment Freshman Friday Laboratory Tours 2008, 2009, 2010
Bio Expo Table, 2012- present

Boston University Service
Biophysics Search Committee member, November 2018-February 2019 (hired Joseph Larkin)
Bioinformatics Advisory Committee member, April 2015- present
Panelist, Grant Writing Workshop, GWISE, September 2014, September 2015
Graduate Student Advising, Bioinformatics Program, 2012-present
Guest Lecturer, Dept. of Biomedical Engineering and Bioinformatics Program, 2010-2018
Presenter for Program in Neuroscience Professional Development Seminar:
Writing a Successful Grant Proposal, November 2011
Presenter for Biology Graduate Student Association and Women in Biology: Grant Writing Seminar:
How to write effective and powerful grant proposals, April 2011
Presenter for Biology Graduate Student Association and Women in Biology: EndNote Seminar:
How to cite while you write and remember what you read, April 2011
Presenter for Graduate Women in Science and Engineering: Writing a Successful Grant Proposal Feb 2010

Hosted Speaker Prof. Philip Benfey for Systems Biology Seminar Series Oct 30-31 2008
WISE@Warren program Fall 2008 participant
Judge for Poster Competition, Science and Engineering Day, Boston University, March 2008

Professional Service
Meeting Organizer for the International Conference for the Developmental Biology of the Sea Urchin XXV at the Marine Biology Laboratory at Woods Hole MA, October 2018
Guest Lecturer and Instructor, Echinoderm Module, Embryology Course, Marine Biology Lab, Woods Hole MA (June 2017-present)
Strategic Planning Committee Member, Marine Biology Lab, Woods Hole MA (2015-present)
Reviewer for Professional Journals: Developmental Biology, Molecular Development and Reproduction, Journal of Cell Physiology, EvoDevo Journal, Proceedings of the National Academy of Science, Development, Scientific Reports, PLOS One. 2005 - present
Reviewer for grant proposal applications: NIH, NSF, Israel Science Foundation, The National Science Centre in Poland. 2006- present
Host for GROW program students (NSF-funded) (Parthena Kotsalidis and Jordan Ellis-Pugh, summer 2016; Caitlin Timmons and Susmita Koirala, summer 2017; Ashley Fortune and Heer Patel, summer 2018; Cheyenne Patrino and Stacy Fabo, summer 2019)
Host for Bioinformatics Research Opportunities for Undergraduates (Andria Ellis, summer 2015; Mia Price summer 2018)
Host for high school student's Science Fair project research (An Zhou, Marian High School, Framingham MA, Dec 2014-Jan 2015)
Host for high school student's research interest (Ziqing (Anney) Yu, George High School, Newton PA, June-August 2019)
Host for a Research Experience for Teachers (NSF-funded) (Ryan Keser, summer 2013; Portia Ross and Renee Hester, 2014)
Host for the Research Internship in Science and Engineering Program for high school students (Emma Walsh, 2012; Carolyn Blumberg 2015)
Host for Summer Undergraduate Research Fellowship Program for minority students (Arlene Reyna, 2009; Kaylinette Pinet, 2012; Lina Soto 2016; Janay Gibson and Andrea Correa Fernandez 2018)
Meeting Organizer for the International Conference for the Developmental Biology of the Sea Urchin XX at the Marine Biology Laboratory at Woods Hole MA, April 2011
Pathways to Independence Laboratory Tours for female minority high school students 2008-present
Science, Engineering, and Technology in the City Participant 2008-present
BioBUGs Outreach Program Participant 2008-present