

## KIMBERLY MCCALL

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### EDUCATION

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Ph.D. 1995	Genetics	Harvard University, Boston, MA
B.S. 1986	Biology	State University of New York, New Paltz, NY

### ACADEMIC APPOINTMENTS

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July 2016 - present	Chair Department of Biology, Boston University, Boston, MA
Sept. 2013 - present	Professor Department of Biology, Boston University, Boston, MA
2013-2014	Visiting Scientist Department of Genetics, Harvard Medical School, Boston, MA
2005- 2013	Associate Professor (with tenure) Department of Biology, Boston University, Boston, MA
1998- 2005	Assistant Professor Department of Biology, Boston University, Boston, MA

### TRAINING

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1995-1998	Postdoctoral Fellow with Dr. Hermann Steller Department of Biology, M.I.T., Cambridge, MA
1990-1995	Ph.D. Student with Dr. Welcome Bender Department of Biological Chemistry and Molecular Pharmacology Harvard Medical School, Boston, MA
1989	Research Assistant with Dr. Norbert Perrimon Department of Genetics and Howard Hughes Medical Institute Harvard Medical School, Boston, MA
1986-1988	Research Assistant with Drs. Lily and Yuh Nung Jan Department of Biochemistry and Howard Hughes Medical Institute University of California at San Francisco, San Francisco, CA

### AWARDS AND HONORS

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2017-2020	New England Representative of the Drosophila Board (elected)
2016	Selected Attendee, HERS Institute, Bryn Mawr College, PA
2014-2018	Member, NIH Cellular Mechanisms in Aging and Development study section
2007	College Prize for Excellence in Student Advising, Boston University
2002-2006	Member, American Cancer Society Cell Cycle and Growth Control Peer Review Committee

2000-2002	Basil O'Connor Starter Scholar Award from the March of Dimes
1998-2003	Clare Boothe Luce Assistant Professorship, Boston University
1995-1998	American Cancer Society Postdoctoral Fellowship
1989-1991	National Cancer Institute Training Grant, Harvard University

#### **TEACHING EXPERIENCE (BOSTON UNIVERSITY)**

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2016	Co-instructor, BI735 Advanced Cell Biology (graduate course)
2011, '12, '13, '16	Co-instructor, BI576 Carcinogenesis (graduate and upper level undergraduate course)
2003-present	Sole Instructor, BI572 Advanced Genetics (graduate and upper level undergraduate course)
1999-2009	Co-instructor, BI410/610 Cellular Aspects of Development and Differentiation
2000-2002	Co-instructor, Molecular Biology II (graduate and upper level undergraduate course)

#### **SELECTED ACADEMIC SERVICE (BOSTON UNIVERSITY)**

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2017	Member, Dean's Advisory Committee, College of Arts and Sciences
2016-2017	Member, University Committee on Basic Life Sciences
2015-present	Member, University Council Committee on Graduate Academic Programs and Policies
2014-present	Member, Steering Committee for BU's BEST (Broadening Experiences in Scientific Training)
2011-2013	College of Arts and Sciences Graduate Academic Affairs Committee (Chair 2011/2012)
2010-2016	Director of Graduate Studies, Biology Department
2010	Search Committee, Associate Dean for Students, College of Arts and Sciences
2010	Admissions Committee, Graduate Program in Bioinformatics
2008-2010	Boston University Appointments, Promotion and Tenure Committee
2007-2009	Charles Darwin 2009 Bicentennial Committee
2007-2013	WISE @ Warren Specialty Floor Advisory Committee
2005-2008	College of Arts and Sciences, Academic Policy Committee (Chair 2007/2008)
2005-2007	Director, Molecular Biology, Cell Biology, and Biochemistry graduate program
2004, 2006	Responsible Conduct in Research Advisory Committee
2001-07, 2010-13, '15	Seven-year Accelerated Liberal Arts/Medical Education Program Admissions Committee
2000, '01, '06, '11, '16	Faculty Search committees, Biology Department
1999-present	Qualifying Exam and/or Thesis Committee Member (for >80 students)
1999-present	Research Advisor for >50 undergraduate students, 17 Ph.D. students, 12 Master's students
1999-present	Outreach activities and lab tours for high school students

#### **SELECTED PROFESSIONAL ACTIVITIES**

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2017 -2018	Member, Larry Sandler Award Committee (Chair, 2018)
2014-2017	Member, NIH Cellular Mechanisms in Aging and Development study section
2004-present	Ad hoc Grant reviewer: Israel Science Foundation, European Research Council, L'Agence Nationale de la Recherche, NSF, U.S. - Israel Binational Science Foundation, Roy J. Carver Charitable Trust, The Wellcome Trust
2004-2014	Ad hoc member of NIH study sections: Cell Signaling and Regulatory Systems, Cellular Mechanisms in Aging and Development, Development -1, Special Emphasis Panels, Fellowship F-05, R15
2003-present	Session Chair: Experimental Biology Meeting, Keystone Conference on Cell Death Pathways, Gordon Conference on Cell Death, Drosophila Research Conference
2000-present	Invited Speaker – Gordon conferences, Keystone conferences, Experimental Biology Meeting, various other conferences and universities.
1999-present	Miscellaneous conference oral and poster presentations, > 50 since 2010
2012	Evaluator, Genetics and Development Graduate Program, U. Texas Southwestern, Dallas, TX
2011-2012	Co-editor, Methods in Molecular Biology, Necrosis Methods and Protocols Book

2004 Guest Editor, Seminars in Cell and Developmental Biology Journal  
2002-2006 Member, American Cancer Society Cell Cycle and Growth Control Peer Review Committee  
1999-present Manuscript reviewer for > 40 different Scientific Journals

#### GRANT SUPPORT (PI)

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09/2001-03/2017 NIH/NIGMS R01 GM060574  
“Programmed cell death in *Drosophila* development”  
07/2011-02/2016 NIH/NIGMS R01 GM094452  
“Mechanisms of cell corpse clearance”  
07/2014-06/2015 BU Alzheimer’s Disease Pilot Grant (NIH/NIA)  
“The role of phagocytosis in Alzheimer’s disease and neurodegeneration”  
03/2005-02/2008 NIH/NICHD R03 HD049458  
“Regulation of apoptosis in the *Drosophila* antenna”  
01/2000-12/2002 American Cancer Society RPG-00-074-01-DDC  
“Programmed cell death in *Drosophila*”  
02/2000-1/2002 March of Dimes Birth Defects Basil O’Connor Award #5-FY99-834  
“Role of cell death in the morphogenesis of adult structures in *Drosophila*”

#### PUBLICATIONS

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\*Graduate Student in my laboratory, \*\*Undergraduate Student in my laboratory, #Postdoctoral Associate in my laboratory

1. Yalonetskaya, A.\* , Hintze, Z.\*\* , Barkett, M.# , Tanner, E.A.\* , Mondragon, A.A.\* , Calikyan, A.\*\* , Peterson, J.P.# and **McCall, K.** Analysis of nuclear dynamics during non-apoptotic cell death, in preparation.
2. Mondragon, A.A.\* , Yalonetskaya, A.\* , Ortega, A.J.\* , Zhang, Y.\* , Naranjo, O.\*\* , Elguero, J.\* , Chung, W.-S., **McCall, K.** Lysosomal machinery drives extracellular acidification to direct non-apoptotic cell death, in preparation.
3. Jenkins, V.K.\* , Abbas, M.\*\* and **McCall, K.** Snail family genes are required to maintain ovarian somatic stem cell identity in *Drosophila*, under revision.
4. Santoso, C. S.\* , Meehan, T. L.\* , Peterson, J.S.# , Cedano, T.M.\*\* , Turlo, C.V.\*\* and **McCall, K.** (2018) The ABC transporter *Eato* promotes cell clearance in the *Drosophila melanogaster* ovary, *G3: Genes, Genomes, Genetics* <https://doi.org/10.1534/g3.117.300427>
5. Serizier, S.B.\* and **McCall, K.** (2017) Scrambled eggs: apoptotic cell clearance by non-professional phagocytes in the *Drosophila* ovary. *Frontiers in Immunology*, [doi.org/10.3389/fimmu.2017.01642](https://doi.org/10.3389/fimmu.2017.01642).
6. Timmons, A.K.\* , Mondragon, A.A.\* , Meehan, T.L.\* and **McCall, K.** (2017) Control of non-apoptotic nurse cell death by engulfment genes in *Drosophila*, *Fly*, 11:104-111.
7. Meehan, T.L.\* , Joudi, T.F.\*\* , Timmons, A.K.\* , Taylor, J.D.\*\* , Habib, C.\*\* , Peterson, J.S.# , Emmanuel, S.\*\* , Franc, N.C. and **McCall K.** (2016) Components of the engulfment machinery have distinct roles in corpse processing, *PLoS ONE* 11: e0158217.
8. Meehan, T.L.\* , Serizier, S.B.\* , Kleinsorge, S.E.\* and **McCall, K.** (2016) Analysis of Phagocytosis in the *Drosophila* Ovary, in *Oogenesis*, Methods in Molecular Biology series, Humana Press, I. Nezis (ed.), 1457:79-95.

9. Timmons, A.K.\* , Mondragon, A.A.\* , Schenkel, C.E.\*\* , Taylor, J.D.\*\* , Moynihan, K.E.\*\* , Etchegaray, J.I.\* , Meehan, T.L.\* and **McCall, K.** (2016) Phagocytosis genes non-autonomously promote developmental cell death in the *Drosophila* ovary. *Proceedings National Academy of Sciences USA* 113:E1246-55.
10. Etchegaray, J.I.\* , Elguero, E.J.\* , Tran, J.\*\* , Sinatra, V.\*\* , Feany, M.B. and **McCall, K.** (2016) Defective phagocytic corpse processing defects result in neurodegeneration and can be rescued by TorC1 activation. *Journal of Neuroscience* 36:3170-83.
11. Klionsky, D.J., et al. (2016) Guidelines for the use and interpretation of assays for monitoring autophagy (3rd edition). *Autophagy* 12:1-222.
12. Peterson, J.S.# , Timmons, A.K.\* , Mondragon, A.A.\* , and **McCall, K.** (2015) The end of the beginning: cell death in the germline. *Current Topics in Developmental Biology* 114: 93-119.
13. Meehan, T.L.\* , Kleinsorge, S.E.\* , Timmons, A.K.\* , Taylor, J.D.\*\* , and **McCall, K.** (2015) Polarization of the epithelial layer and apical localization of integrins are required for engulfment of apoptotic cells in the *Drosophila* ovary. *Disease Models and Mechanisms* 8:1603-14.
14. Meehan, T.L.\* , Yalonetskaya, A.\* , Joudi, T.\*\* and **McCall, K.** (2015) Detection of cell death and phagocytosis in the *Drosophila* ovary, in *Drosophila* Oogenesis, Methods and Protocols, *Methods in Molecular Biology* series vol. 1328, Humana Press, D. Bratu and G. McNeil, eds., pp. 191-206.
15. Perkins, L.A., Holderbaum, L., Tao, R., Hu, Y., Sopko, R., **McCall, K.**, Yang-Zhou, D., Flockhart, I., Binari, R., Shim, H.S., Miller, A., Housden, A., Foos, M., Randkelv, S., Kelley, C., Namgyal, P., Villalta, C., Liu, L.P., Jiang, X., Huan-Huan, Q., Xia, W., Fujiyama, A., Toyoda, A., Ayers, K., Blum, A., Czech, B., Neumuller, R., Yan, D., Cavallaro, A., Hibbard, K., Hall, D., Cooley, L., Hannon, G.J., Lehmann, R., Parks, A., Mohr, S.E., Ueda, R., Kondo, S., Ni, J.Q., Perrimon, N. (2015) The Transgenic RNAi Project at Harvard Medical School: Resources and Validation. *Genetics* 201:843-52.
16. Kongton, K.\* , **McCall, K.** and Phongdara, A. (2014) Identification of gamma-interferon-inducible lysosomal thiol reductase (GILT) homologues in the fruit fly *Drosophila melanogaster*. *Developmental & Comparative Immunology* 44:389-96.
17. Peterson, J.S.# and **McCall, K.** (2013) Combined inhibition of autophagy and caspases fails to prevent developmental nurse cell death in the *Drosophila melanogaster* ovary. *PLoS ONE* 8(9):e76046.
18. Jenkins, V.K.\* , Timmons, A. K.\* and **McCall, K.** (2013) Diversity of cell death pathways: insight from the *Drosophila* ovary. *Trends in Cell Biology* 23: 567-574.
19. **McCall, K.** and Klein, C. (2013) Necrosis Methods and Protocols, *Methods in Molecular Biology* series vol. 1004, Humana Press, edited book.
20. Timmons, A.K.\* , Meehan, T.L.\* , Gartmond, T.D.\*\* and **McCall, K.** (2013) Use of Necrotic Markers in the *Drosophila* ovary, in Necrosis Methods and Protocols, *Methods in Molecular Biology* series vol. 1004, Humana Press, **McCall, K.** and Klein, C., eds., pp. 215-28.
21. Etchegaray, J.I.\*^ , Timmons, A.\*^ , Klein, A.P.\*\* , Pritchett, T.L.\* , Welch, E.\*\* , Meehan, T.L.\* , Li, C.\*\* and **McCall, K.** (2012) Draper acts through the JNK pathway to control synchronous engulfment of dying germline cells by follicular epithelial cells. *Development* 139:4029-4039 (^co-first authors).
22. Pritchett, T.L.\* and **McCall, K.** (2012) Role of the insulin/Tor signaling network in starvation induced programmed cell death during *Drosophila* oogenesis. *Cell Death and Differentiation* 19: 1069-79.

23. Wonglapsuan, M.\* , Chotigeat, W., Timmons, A.\* and **McCall, K.** (2011) Conserved role for Rpl10A in oogenesis progression in the banana prawn *Fenneropenaeus merguensis* and *Drosophila melanogaster*. *General and Comparative Endocrinology* 173: 356–363.
24. Tanner, E.A.\* and **McCall, K.** (2011) Mitochondrial regulation of cell death in the *Drosophila* ovary. *Autophagy* 7:793-4.
25. Tanner, E.A.\* , Blute, T.A., Brachmann, C.B. and **McCall, K.** (2011) Bcl-2 proteins and autophagy regulate mitochondrial dynamics during programmed cell death in the *Drosophila* ovary. *Development* 138: 327-338. Highlighted article “In This Issue.”
26. **McCall, K.** (2010) Genetic control of necrosis – another type of programmed cell death. *Current Opinion in Cell Biology* 22:882-888.
27. Bakhrat, A.^, Pritchett, T.\*^, **McCall, K.** and Abdu, U. (2010) *Drosophila* Chk2 and p53 proteins induce stage-specific cell death independently during oogenesis. *Apoptosis* 15:1425-1434 (^co-first authors).
28. Pritchett, T.L.\* , Tanner, E.A.\* and **McCall, K.** (2009) Cracking open cell death in the *Drosophila* ovary. *Apoptosis* 14:969-79.
29. **McCall, K.**, Pritchett, T.L.\* and Peterson, J.S.# (2009) Detection of cell death in *Drosophila*. *Methods in Molecular Biology*, Apoptosis Methods and Protocols (P. Erhardt, ed.), 559:343-56.
30. Bass, B.P.\* , Tanner, E.A.\* , Mateos San Martín, D.\*\* , Blute, T., Kinser, R.D., Dolph, P.J. and **McCall, K.** (2009) Cell-autonomous requirement for *DNaseII* in non-apoptotic cell death. *Cell Death and Differentiation* 16:1362-71.
31. Hou, Y.C., Chittaranjan, S., Gonzalez, S.\*\* , **McCall, K.** and Gorski, S. (2008) Effector caspase Dcp-1 and IAP protein Bruce regulate starvation-induced autophagy during *Drosophila* oogenesis. *Journal of Cell Biology* 182: 1127-1139.
32. Peterson, J.S.# , Bass, B.P.\* , Jue, D.\*\* , Rodriguez, A., Abrams, J.M. and **McCall, K.** (2007) Non-canonical cell death pathways function in *Drosophila* oogenesis. *Genesis* 45:396-404.
33. Baum J.S.\* , Arama, E., Steller, H. and **McCall, K.** (2007) The *Drosophila* caspases Strica and Dronc function redundantly in programmed cell death during oogenesis. *Cell Death and Differentiation* 14:1508-1517.
34. Bass, B. P.\* , Cullen, K.\* and **McCall, K.** (2007) The axon guidance gene *lola* is required for programmed cell death in the *Drosophila* ovary. *Developmental Biology* 304:771-85.
35. Baum, J.S.\* , St. George, J. P. and **McCall, K.** (2005) Programmed cell death in the germline. *Seminars in Cell and Developmental Biology* 16:245-59.
36. **McCall, K.** (2005) Programmed cell death in development. *Seminars in Cell and Developmental Biology* 16:213.
37. **McCall, K.** (2004) Eggs over easy: cell death in the *Drosophila* ovary. *Developmental Biology* 274: 3-14.
38. **McCall, K.** and Peterson, J.S.# (2004) Detection of apoptosis in *Drosophila*. *Methods in Molecular Biology*, vol. 282: Apoptosis Methods and Protocols (H. Brady, ed.), pp. 191-206.

39. **McCall, K.**, Baum, J.S.\* , Cullen, K.\* and Peterson, J.S.# (2004) Visualizing Apoptosis, *Methods in Molecular Biology*, vol. 247: *Drosophila* Cytogenetics Protocols (D. Henderson, ed.) Humana Press, Totowa, NJ, pp.431-442.
40. Cullen, K.\* and **McCall, K.** (2004) Role of cell death in patterning the *Drosophila* antennal arista. *Developmental Biology* 275:82-92.
41. Laundrie, B.\*^, Peterson, J.S.#^, Baum, J.S.\*^, Chang, J.\*\* , Fileppo, D.\*\* , Thompson, S.R.\* and **McCall, K.** (2003) Germline cell death is inhibited by *P*-element insertions disrupting the *dcp-1/pita* nested gene pair in *Drosophila*. *Genetics* 165: 1881-1888. (^co-first authors)
42. Peterson, J.S.# , Barkett, M.# and **McCall, K.** (2003) Stage-specific regulation of caspase activity in *Drosophila* oogenesis. *Developmental Biology* 260: 113-123.
43. Goyal, L., **McCall, K.**, Agapite, J., Hartweg, E. and Steller, H. (2000) Induction of apoptosis by *Drosophila reaper, hid* and *grim* through inhibition of IAP function. *EMBO Journal* 19: 589-597.
44. Bergmann, A., Agapite, J., **McCall, K.** and Steller, H. (1998) The *Drosophila* gene *hid* is a direct molecular target of ras-dependent survival signaling. *Cell* 95: 331-341.
45. **McCall, K.** and Steller, H. (1998) Requirement for DCP-1 caspase during *Drosophila* oogenesis. *Science* 279: 230-234.
46. **McCall, K.** and Steller, H. (1997) Facing death in the fly: genetic analysis of apoptosis in *Drosophila*. *Trends in Genetics* 13: 222-226.
47. Song, Z., **McCall, K.** and Steller, H. (1997) DCP-1, a *Drosophila* cell death protease essential for development. *Science* 275: 536-540.
48. **McCall, K.** and Bender, W. (1996) Probes for chromatin accessibility in the *Drosophila* bithorax complex respond differently to *Polycomb*-mediated repression. *EMBO Journal* 15: 569-580.
49. **McCall, K.**, O'Connor, M. B. and Bender, W. (1994) Enhancer traps in the bithorax complex mark parasegmental domains. *Genetics* 138: 387-399.
50. Perrimon, N., Noll, E., **McCall, K.** and Brand, A. (1991) Generating lineage-specific markers to study *Drosophila* development. *Developmental Genetics* 12: 238-252.
51. Bier, E., Vaessin, H., Shepherd, S., **McCall, K.**, Barbel, S., Ackerman, L., Carretto, R., Uemura, T., Grell, E. H., Jan, L. Y. and Jan, Y. N. (1989) Searching for pattern and mutation in the *Drosophila* genome with a *P-lacZ* vector. *Genes and Development* 3: 1273-1287.