BIOGRAPHICAL SKETCH

NAME	POSITION TITLE
Baylies, Mary K	Member, Developmental Biology Program Sloan-Kettering Institute for Cancer Research
eRA COMMONS USER NAME BAYLIESM	

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
Dartmouth College, Hanover, NH	A.B.	1982	Biology
Rockefeller University, New York, NY	Ph.D.	1991	Genetics/Molecular Bio.
University of Cambridge, Cambridge, UK	Postdoctoral	1996	Developmental Biology

A. Positions and Honors

Professional Experience

1982-1983 Research Associate, Orthopedic Surgery
Tufts University Medical School, Boston, MA

1983-1985 Research Technologist, Molecular Biology
Northwestern University, Chicago, IL

1991-1993 Postdoctoral Fellow funded by NATO-NSF

1993-1996 Postdoctoral Fellow funded by the Wellcome Trust
Laboratory of Dr. Michael Bate
Department of Zoology, University of Cambridge, Cambridge, UK

June 1996-2003 Assistant Member/Laboratory Head
Department of Molecular Biology

2003-2008 Associate Member/Laboratory Head
Department of Developmental Biology

2008-Present Member
Department of Developmental Biology
Sloan-Kettering Institute for Cancer Research, New York, NY

Honors and Awards

1978-1982 Brown and Newell Class of 1876 Scholarship for Most Outstanding New Hampshire Student

1980-1981 Rufus Choate Scholar, Third Honor group

1981-1982 Rufus Choate Scholar

1985-1988 National Science Foundation Graduate Fellow

1991-1993 NATO-NSF Postdoctoral Fellow

1997-2003 Frederick Adler Chair for Junior Faculty - Memorial Sloan Kettering Cancer Center

2008-2012 Member of NIH Skeletal Muscle and Exercise Physiology Study Section

Reviewer for Cell Journals, Nature, Science, Development, Developmental Biology, Journal of Cell Biology And others.

B. Selected Peer-Reviewed Publications (in chronological order)

1. Staehling-Hampton, K., Hoffmann, F.M., Baylies, M.K., Rushton, E., and Bate, M. Dpp induces mesodermal gene expression in Drosophila. Nature 1994; 372: 783-786.

2. Taylor, M.V., Beatty, K., Hunter, H.K., and Baylies, M.K. Drosophila MEF2 is regulated by twist and is expressed in both the primordia and differentiated cells of the embryonic somatic, visceral, and heart musculature. Mechanisms in Development 1995; 50: 29-42.

3. Baylies, M.K., Martinez-Arias, A., and Bate, M. wingless is required for the formation of a subset of muscle founder cells during Drosophila embryogenesis. Development 1995; 121: 3829-3837.

4. Bate M. and Baylies, M.K. Intrinsic and Extrinsic Determinants of Mesodermal Differentiation in Drosophila. Seminars in Cell and Developmental Biology 1996; 7: 103-112.

5. Baylies, M.K. and Bate M. twist : a Myogenic switch in Drosophila. Science 1996; 272: 1481-1484.

6. Morcillo, P., Rosen, C., Baylies, M.K., and Dorsett, D. Chip, a widely-expressed chromosomal protein required for segmentation and activity of a remote wing margin enhancer in Drosophila. Genes & Development 1997; 11: 2729-2740.

7. Baylies, M.K., Bate, M., and Ruiz Gomez, M. The specification of muscle in Drosophila. Cold Spring Harbor Symposium on Quantitative Biology, LXII, 1997: 385-394.

8. Artero, R., Prokop, A., Paricio, N., Begemann, G., Pueyo, I., Mlodzik, M., Perez, M. and Baylies, M.K. The muscleblind gene participates in the organization of Z-bands and epidermal attachments in Drosophila muscles and is regulated by Dmef2. Developmental Biology 1998; 195: 131-143.

9. Baylies, M.K., Bate, M., and Ruiz Gomez, M. Myogenesis: A View from Drosophila. Cell 1998; 93: 921-927.

10. Landgraf, M., Baylies, M.K., Bate, M. Muscle founder cells regulate defasciculation and targeting of motor axons in the Drosophila embryo. Current Biology 1999; 9: 589-592.

11. Brennan, K., Baylies, M.K., Martinez-Arias, A., Repression by Notch is required before Wingless signaling during muscle progenitor cell development in Drosophila. Current Biology 1999; 9: 707-710.

12. Halfon, M., Carmena,A., Gisselbrecht, S., Sackerson, C., Jimenez, F., Baylies, M., and Michelson, A. Ras pathway specificity is determined by the integration of multiple signal-activated and tissue restricted transcription factors. Cell 2000, 103, 63-74.

13. Kass, J, Artero, R. and Baylies, M.K. Non-Radioactive Electrophoretic Mobility Shift Assay Using Digoxigenin-ddUTP Labeled Probes. Drosophila Information Service 2000.

14. Castanon, I., Von Stetina, S, Kass, J and Baylies, M.K. Dimerization partners determine Twist activity during Drosophila myogenesis. Development 2001 128, 3145-3159.

15. Artero, R., Castanon, I., and Baylies, M.K. The immunoglobulin like protein Hibris functions as a dose-dependent regulator of myoblast fusion and is differentially controlled by Ras and Notch signalling. Development 2001; 128: 4251-64.

16. Baylies, M.K. and Michelson, A. Invertebrate Myogenesis: Looking back to the future of Muscle Development. Current Opinions in Genetics and Development. 2001 Aug;11(4):431-9.

17. Castanon, I., and Baylies, M.K. A Twist in Fate: Evolutionary comparison of Twist Structure and Function. Gene 2002 287, (1-2):11-22.

18. Carmena, A., Buff, E., Jiménez, F., Baylies, M.K.* and Michelson, A.* Ras and Notch signaling pathways interact to generate specific cell fates during Drosophila mesoderm differentiation. Developmental Biology 2002, 244(2):226-42. (* joint senior authors)

19. Denholm, B., Sudarsan, V., Pasalodos-Sanchez, S., Artero, R., Lawrence, P., Maddrell, S., Baylies, M, and Skaer, H. Dual Origin of the Renal Tubes in *Drosophila:* Mesodermal Cells Integrate and Polarize to Establish Secretory Function. Current Biology 2003, 13(12):1052-1057.

20. Artero, R., Furlong, EM., Beckett, K., Scott, MP and Baylies, M.K. Notch and Ras signaling pathway effector genes expressed in Fusion-competent and Founder Cells during *Drosophila* myogenesis. Development 2003, 130: 6257-6272.

21. Tapanes-Castillo, A. and Baylies, M.K. Notch signaling directs the patterning of mesodermal segments in *Drosophila* by regulating a bHLH transcription factor network. Development 2004 131: 2359-2372.

22. Cox, V. and Baylies, M.K. Specification of individual Slouch muscle progenitors in Drosophila requires sequential Wingless signaling. Development 2005 132(4): 713-724.

23. Cox, V., Beckett K. and Baylies, M.K. Delivery of Wingless to the Ventral Mesoderm by the developing Central Nervous System ensures proper patterning of individual Slouch-positive muscle progenitors. Developmental Biology 2005 287: 403-415.

24. Carmena, A., and Baylies, M.K. The Development of the Drosophila Larval Somatic Musculature in "Drosophila Muscle Development". Editor: H. Sink Landes Press. 2005

25. Artero, R., Fernandez-Costa, J and Baylies, M.K. The *cadmusBG02608* mutation interferes with embryonic muscle morphology. Drosophila Information Service, 2006.

26. Beckett K. and Baylies M.K. Parcas, a regulator of non-receptor tyrosine kinase signaling, acts during anterior-posterior patterning and somatic muscle development in Drosophila melanogaster. Developmental Biology 2006 299:176-92.

27. Llorens, J., Navarro, J, Martinez-Sebastian, M., Baylies, MK., Schneuwly, S, Botella, J and Molto, M. Causative Role of oxidative stress in a Drosophila model of Friedreich ataxia. FASEB 2006.

28. Beckett, K and Baylies, M.K. "The Development of the Drosophila larval body wall muscles" In: The Fly Neuromuscular Junction: Structure and Function, International Review of Neurobiology, V 75 (Budnik, Ruiz-Canada, eds), San Diego, Elsevier Academic Press. P 55-70.

29. Carmena, A. and Baylies, M.K. The PDZ protein Canoe/AF-6 links RAS-MAPK, Notch and Wingless/Wnt signaling pathways by directly interacting RAS, Notch and Dishevelled.PLoS ONE 2006 e66.

30. Beckett, K. and Baylies, M.K. 3D analysis of Founder Cell and Fusion Competent Myoblasts arrangements outlines a new model of myoblast fusion. Developmental Biology, 2007 309: 113-125.

31. Richardson, B, Beckett, K, Nowak, S. and Baylies, M.K. SCAR/WAVE and Arp2/3 are critical for cytoskeletal remodeling at the site of myoblast fusion. Development 2007: 134, 4357-4367. ***Featured article***

32. Beckett, K., Rochlin, K., Duan, H., Nguyen, H., and Baylies, M.K. Expression and functional analysis of a novel Fusion competent myoblast specific GAL4 driver. Gene Expr Patterns 2008 8(2)" 87-91.***Featured article***.

33. Richardson, B., Beckett, K., and Baylies, M.K. Visualizing new dimensions in *Drosophila* myoblast fusion. Bioessays 2008 30(5): 423-31.

34. Richardson, B., Beckett, K., and Baylies, M.K. Live Imaging of Drosophila myoblast fusion in "Cell Fusion", ed. E. Chen. Humana, in press.

35. Wong, MC, Castanon, I and Baylies, M.K. Daughterless dictates Twist activity in a context dependent manner during somatic myogenesis. Developmental Biology, 2008: 317(2) 417-429.

36. Richardson, B., Nowak, S. and Baylies, M.K. Myoblast Fusion in Fly and Vertebrates: New Genes, new processes and new perspectives. Traffic 2008 9(7):1050-9. ***Cover photo.***

C. Research Support

ACTIVE

5 R01 GM056989-09 (Baylies) 1/1/1999 - 3/31/2010
NIH
Cell Fate Determination in the Mesoderm of Drosophila

5 R01 GM 078318-02 (Baylies) 8/1/2007 - 7/31/2012
NIH
Mechanisms Regulating Myoblast Fusion in Drosophila

Mary Ralph Trust 2007 - 2010
$20,000
for fostering Weizmann Institute and Sloan-Kettering Institute collaborations
Co-PIs: Drs. Eyal Schejter, Benjamin Shilo and Mary Baylies

MDA115653 (Baylies) 1/1/2009 - 12/31/2012
Muscular Dystrophy Association
Investigation of mechanisms underlying myonuclear positioning

PENDING

1 S10 RR 027763-01 (Hadjantonakis) 4/1/2010 - 3/31/2011
NIH
Zeiss LSM710 laser scanning confocal system for live imaging embryonic morphogenesis.
Co-PIs: Drs. Anna-Katerina Hadjantonakis, Mary Baylies and Kathryn Anderson