

Curriculum Vitae
Geraldine Seydoux

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Education

B. S.	1986	University of Maine at Orono	Biochemistry
Ph. D.	1991	Princeton University Mentor: Dr. Iva Greenwald	Molecular Biology
Post-doctorate	1995	Carnegie Institution of Washington Mentor: Dr. Andrew Fire	Developmental Biology

Professional Experience

10/1995 to 11/2000	Assistant Professor Department of Molecular Biology and Genetics The Johns Hopkins University, School of Medicine
12/2000 to 11/2004	Associate Professor Department of Molecular Biology and Genetics The Johns Hopkins University, School of Medicine
12/2004 to present	Professor Department of Molecular Biology and Genetics The Johns Hopkins University, School of Medicine
6/2005 to present	Investigator Howard Hughes Medical Institute

Research focus

Embryonic polarity and the soma-germline dichotomy in the nematode *Caenorhabditis elegans*.

Honors and Fellowships

1984-86	Phi Kappa Phi Honor Society
1985-86	Alpha Zeta Honorary Fraternity
1985-86	Totman Scholarship, University of Maine
1986	Graduated Summa Cum Laude, University of Maine
1986-87	Princeton Fellowship
1988-91	Howard Hughes Medical Institute Pre-Doctoral Fellowship
1991-94	Helen Hay Whitney Post-Doctoral Fellowship
1996-98	Basil O'Connor Starter Scholar Research Award, March of Dimes
1996-99	Junior Faculty Research Award, American Cancer Society
1996-01	David and Lucile Packard Fellowship for Science and Engineering
1996-99	Searle Scholar Program, The Chicago Community Trust
1999	Presidential Early Career Award for Scientists and Engineers (PECASE) - NIH
2001	Kirsch Investigator Award, Steve and Michele Kirsch Foundation
2001	John D. and Catherine T. MacArthur Fellowship

Teaching

Instructor

1996 to present *Molecules and Cells* (Medical School Course)
1997 to present *Fundamentals of Genetics*
2004 to present *Developmental Biology Elective*
2004 to present *Epigenetics Elective*

Course Director

2003 to present *Fundamentals of Genetics*

Institutional Administrative Appointments

1997-present Admissions Committee BCMB graduate program
1998-2002 Medical School Council
2000-present Biomedical Scholars Selection committee
2001-2002 Medical School Council Agenda Committee
2001-2004 BCMB curriculum reform committee
2002-2003 Vice-chair Radiology Search Committee
2003-present BCMB graduate program Policy Committee

Conference Organizer

2000 Germ Cells Meeting, Cold Spring Harbor Laboratories, Cold Spring Harbor NY
 Co-organizer with Chris Wylie, U. of Minnesota
2003 International *C. elegans* Meeting, UCLA, Los Angeles
 Co-head organizer with Stuart Kim, Stanford University
2005 International *C. elegans* Meeting, UCLA, Los Angeles
 Organizing committee member
2008 RNA Granules Workshop, HHMI headquarters, Chevy Chase, MD
 Co-organizer with Paul Anderson and Roy Parker

Scientific Review Panels

Spring 2001 NIH Genetics Study Section, Ad Hoc Reviewer
Fall 2001 Damon Runyon-Winchell Cancer Research Fund – Guest reviewer
Spring 2002 NIH Reproductive Biology Study Section, Ad Hoc Reviewer
Fall 2002 NIH Reproductive Biology Study Section, Ad Hoc Reviewer
Spring 2003 NIH Reproductive Biology Study Section, Ad Hoc Reviewer
2003-2008 Development 1 Study Section, Regular Member
2005-2008 Life Sciences Research Foundation, Post-doctoral Fellowships

Society Membership

Society for Developmental Biology, member
Genetic Society of America, Board of Directors 2005-2008

Editorial Boards

2002 to present *Developmental Cell*
2004 to present *Worm Book*, online review of *C. elegans* biology
2005 to present *Development*

Publications

- Seydoux, G. and Greenwald, I. (1989). Cell autonomy of *lin-12* function in a cell fate decision in *C. elegans*. *Cell* 57, 1237-1245.
- Greenwald, I. and Seydoux, G. (1990). Analysis of gain-of-function mutations of the *lin-12* gene of *Caenorhabditis elegans*. *Nature* 346, 197-199.
- Seydoux, G., Schedl, T. and Greenwald, I. (1990). Cell-cell interactions prevent a potential inductive interaction between soma and germline in *C. elegans*. *Cell* 61, 939-951.
- DeVoti, J., Seydoux, G., Beach, D., McLeod, M. (1991). Interaction between ran1+ protein kinase and cAMP dependent protein kinase as negative regulators of fission yeast meiosis. *EMBO Journal* 10, 3759-68.
- Seydoux, G., Savage, C., and Greenwald, I. (1993). Isolation and characterization of mutations causing abnormal eversion of the vulva in *Caenorhabditis elegans*. *Developmental Biology* 157, 423-436.
- Seydoux, G. and Fire, A. (1994). Soma-germline asymmetry in the distribution of embryonic RNAs in *C. elegans*. *Development* 120, 2823-2834.
- Bucher, E. and Seydoux, G. (1994). Gastrulation in the nematode *Caenorhabditis elegans*. *Seminars in Developmental Biology* 5, 121-130.
- Seydoux, G. and Fire, A. (1995). Whole-mount *in situ* hybridization for the detection of RNA in *C. elegans* embryos. In *C. elegans: Modern Biological Analysis of an Organism. Methods in Cell Biology* (ed. H. Epstein and D. Shakes) Academic Press, San Diego.
- Seydoux, G. (1996). Mechanisms of translational control in early development. *Current Opinion in Genetics and Development* 6, 555-561.
- Seydoux, G., Mello, C. C., Pettitt, J., Wood, W., Priess, J., Fire, A. (1996). Repression of gene expression in the embryonic germ lineage of *C. elegans*. *Nature* 382, 713-716.
- Seydoux, G. and Dunn, M. (1997). Transcriptionally-repressed germ cells lack a subpopulation of phosphorylated RNA polymerase II in early embryos of *C. elegans* and *D. melanogaster*. *Development* 124, 2191-2201.
- Tenenhaus, C., Schubert, C., Seydoux, G. (1998). Genetic requirements for PIE-1 localization and inhibition of gene expression in the embryonic germ lineage of *Caenorhabditis elegans*. *Developmental Biology*, 200(2):212-24.
- Prasad, B. C., Ye, B., Zackhary, R., Schrader, K., Seydoux, G., Reed, R. R. (1998). *unc-3*, a gene required for axonal guidance in *Caenorhabditis elegans*, encodes a member of the O/E family of transcription factors. *Development*, 125(8):1561-8
- Batchelder, C., Dunn, M. A., Choy, B., Suh, Y., Cassie, C., Shim, E. Y., Shin, T. H., Mello, C., Seydoux, G., Blackwell, T. K. (1999) Transcriptional repression by the *Caenorhabditis elegans* germ-line protein PIE-1. *Genes and Development* 13(2):202-12.
- Subramaniam, K. and Seydoux, G. (1999). *nos-1* and *nos-2*, two genes related to *Drosophila nanos*, regulate primordial germ cell development and survival in *C. elegans*. *Development* 126, 4861-4871.
- Seydoux, G. and Strome S. (1999). Launching the germline in *C. elegans*: regulation of gene expression in early germ cells. *Development* 126, 3275-3283.
- Seydoux G., and Schedl, T. (2000). The germline in *C. elegans*: Origins, Proliferation and Silencing. In “*Establishment of Cell Lineages and Patterning of the Embryo*”, a book in the *International Review of Cytology* Series edited by Etkin and Jeon.
- Halpern, M. and Seydoux, G. (2000). Embryo emergent: Elucidating the cell biology of development. *Embo Reports* 1, 469-472.
- Reese, K. J., Dunn, M. A., Waddle J. A. and Seydoux, G. (2000). Asymmetric segregation of PIE-1 in *C. elegans* is mediated by two complementary mechanisms that act through separate PIE-1 protein domains. *Molecular Cell* 6, 445-455.
- Wallenfang, M. R., and Seydoux, G. (2000). Polarization of the anterior-posterior axis of *C. elegans* is a microtubule-directed process. *Nature* 408, 89-92.

- Golden A., Sadler P. L., Wallenfang, M. R., Schumacher J. M., Hamill, Bates G., Bowerman B., Seydoux, G., and Shakes, D. C. (2000) Metaphase to anaphase transition defective (*mat*) mutants in *Caenorhabditis elegans*. ***Journal of Cell Biology*** 151, 1469-1482.
- Tenenhaus, C., Subramaniam, K., Dunn, M. Seydoux, G. (2001). PIE-1 is a bifunctional protein that regulates maternal and zygotic gene expression in the embryonic germ lineage of *C. elegans*. ***Genes and Development*** 15, 1031-1040.
- Strome, S. , Powers, J., Dunn, M., Reese, K., Seydoux, G and Saxton, W. (2001). Spindle dynamics and the role of gamma-tubulin in early *C. elegans* embryos. ***Mol. Biology of the Cell*** 12, 1751-64.
- Wallenfang, M. R., and Seydoux, G. (2002). *cdk-7* is required for mRNA transcription and cell cycle progression in *C. elegans* embryos. ***Proc. Nat. Acad. Sci.*** 99, 5527-5532.
- Pellettieri and Seydoux (2002). Anterior/Posterior Polarity in Worms and Flies – PARAllels and Differences. ***Science***, 298:1946-50.
- Subramaniam, K. and Seydoux, G. (2003). Dedifferentiation of primary spermatocytes into germ cell tumors in *C. elegans* lacking the Pumilio-like protein PUF-8. ***Current Biology*** 13, 134-139.
- Cuenca, A., Schetter A. , Aceto D., Kempfues K., Seydoux, G. (2003). Polarization of the *C. elegans* zygote proceeds via distinct establishment and maintenance phases. ***Development*** 130, 1255-1265.
- Derenzo, C., Reese, K. and Seydoux, G. (2003). Exclusion of germ plasm proteins from somatic lineages by cullin-dependent degradation. ***Nature*** 424, 685-9.
- Pellettieri, J., Reinke, V. , Kim, S. K. and Seydoux, G. (2003) Coordinate activation of maternal protein degradation during the Egg-to-Embryo Transition in *C. elegans*. ***Developmental Cell*** 5, 451-462.
- De Renzo, C. and Seydoux, G. (2004) A clean start: coordinate degradation of maternal proteins at the egg-to-embryo transition. ***Trends in Cell Biology*** 14, 420-428.
- Seydoux, G. (2004) Surfing the actomyosin wave: polarization of the *C. elegans* zygote. ***Developmental Cell***, 7, 285-286.
- Ingrid D'Agostino, Chris Merritt, Pei-Lung Chen, Geraldine Seydoux and Kuppaswamy Subramaniam (2006). Translational repression restricts expression of the *C. elegans* Nanos homolog NOS-2 to the embryonic germline. ***Developmental Biology*** 292 244-252.
- Stitzel, M., Pellettieri, M. and Seydoux, G (2006) The *C. elegans* DYRK kinase MBK-2 marks oocyte proteins for degradation in response to meiotic maturation. ***Current Biology*** 16, 1-7.
- Hao, Y., Boyd, L., Seydoux, G. (2006). Stabilization of cell polarity by the RING protein PAR-2. ***Developmental Cell*** 10, 199-208.
- Seydoux, G (2006) The 2006 GSA medal-Victor Ambros. ***Genetics***, 172(2):721-2.
- Gallo CM, Seydoux G (2006). Toti"potent" repressors. ***Bioessays***. 28(9):865-867
- Seydoux, G and Braun, R. (2006). Pathway to totipotency: lessons from germ cells. ***Cell*** 127, 891-904.
- Stitzel, M. and Seydoux, G (2007). Regulation of the oocyte to zygote transition. ***Science*** 316, 407-8.
- Stitzel, M., Cheng, K. , Seydoux, G. (2007). Regulation of MBK-2/Dyrk kinase by dynamic cortical anchoring during the oocyte-to-zygote transition. ***Current Biology***, 179:367-9.
- Motegi, F. and Seydoux, G. (2007). Revisiting the role of microtubules in *C. elegans* polarity. ***JCB*** 179:367-9.
- Lee MH, Hook B, Pan G, Kershner AM, Merritt C, Seydoux G, Thomson JA, Wickens M, Kimble J (2007) Conserved regulation of MAP kinase expression by PUF RNA-binding proteins. ***PLoS Genet.*** 3(12):e233.
- Ghosh, D., Seydoux, G. (2008). Inhibition of transcription by the *C. elegans* germline protein PIE-1: genetic evidence for distinct mechanisms targeting initiation and elongation. ***Genetics***, 178(1):235-43.

Gallo C., Munro, E., Rasoloson D., Merritt, C, and Seydoux G. (2008) . Processing bodies and germ granules are distinct RNA granules that interact in *C. elegans* embryos. *Developmental Biology*, in press