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EDUCATION

1995 Ph.D., Yale University, Molecular Biophysics and Biochemistry
1988 B.S., Tufts University, Chemistry

RESEARCH EXPERIENCE

2006– present Associate Professor, Dept. Molecular Biology, University of Wyoming
2001–2006 Assistant Professor, Dept. Molecular Biology, University of Wyoming
1997–2001 Postdoctoral Fellow, University of Colorado, Boulder & HHMI
1996–1997 Postdoctoral Fellow, Johns Hopkins University
1988–1995 Graduate Student, Yale University
1987–1988 Undergraduate Research, Tufts University,

FUNDING

Current

2004–2010 **National Institutes of Health (NIH) R01 GM066868**

- “Developmental Functions of Rb Family Proteins”
- Total costs: \$1,194,000

2009–2010 **National Institutes of Health/INBRE (P20RR016474)**

- Total costs: \$20,000

2009–2010 **National Institutes of Health (NIH) R01 GM066868-05S1**

- “Developmental Functions of Rb Family Proteins”
- Total costs: \$131,084

Pending

2010–2014 **National Institutes of Health (NIH) R01 GM066868-06**

- “Developmental Functions of Rb Family Proteins (Renewal)”
- Total costs: \$1,410,000

In Preparation

2011–2013 **National Institutes of Health (NIH) R21**

- “Analysis of a novel pleiotropic stress induction pathway”
- Total costs: ~\$450,000

Previous

2005–2008 **National Institutes of Health/INBRE (RR016474)**

- “A novel genetic approach for elucidating glycopeptide hormone functions and effectors”
- Total costs: ~\$120,000

2003–2007 American Cancer Society (ACS) RSG-03-035-01-DDC

- “The Retinoblastoma Protein in *C. elegans*”
- Total costs: \$799,000

2002–2003 UWYO Faculty Grant in Aid (Peter Thorsness, Co-PI)

- Total costs: \$7,000

PUBLICATIONS

Natasha V. Kirienko, Kumaran Mani, and David S. Fay* (2010). Cancer Models in *C. elegans*. *Invited review for Developmental Dynamics*. *In preparation*.

Natasha V. Kirienko and David S. Fay* (2009). Identification of a novel evolutionarily-conserved stress-response pathway. *In revision for EMBO*.

Kumaran Mani and David S. Fay* (2009). A Mechanistic Basis for the Coordinated Regulation of Pharyngeal Morphogenesis in *C. elegans* by LIN-35/Rb and UBC-18-ARI-1. *PLoS Genetics*. Vol 5 issue 6, e1000510.

David S. Fay* (2009). WormBook Methods: Forward Genetics and Genetic Mapping: Chapters 1-7. 2nd edition. ed. The *C. elegans* Research Community, WormBook, doi/10.1895/wormbook.1.90.1, <http://www.wormbook.org>.

David S. Fay* (2008). Classic genetics goes high tech. *Nat. Methods*. 5, 863-864.

Natalia V. Kirienko, John David McEnerney, and David S. Fay* (2008). Coordinated regulation of intestinal functions in *C. elegans* by LIN-35/Rb and SLR-2. *PLoS Genetics*. Vol 4 issue 4, e1000059.

David S. Fay* and John Yochem (2007). The SynMuv genes of *Caenorhabditis elegans* in vulval development and beyond. *Dev. Biol.* 306, 1–9.

Natalia V. Kirienko and David S. Fay* (2007). Transcriptome profiling of the *C. elegans* Rb ortholog reveals diverse developmental roles. *Dev. Biol.* 305, 674–684.

Saeyoull Cho, Katherine W. Rogers, and David S. Fay* (2007). The *C. elegans* glycopeptide hormone receptor ortholog, FSHR-1, regulates germline differentiation and survival. *Curr. Biol.* 17, 203–212.

Aaron M. Bender, Natalia V. Kirienko, Sara K. Olson, B.S. Jeffery D. Esko, and David S. Fay* (2007). *lin-35/Rb* and the CoREST ortholog *spr-1* coordinately regulate vulval morphogenesis and gonad development in *C. elegans*. *Dev. Biol.* 302, 448–462.

Xiaohui Qiu and David S. Fay* (2006). ARI-1, an RBR family ubiquitin ligase, functions with UBC-18 to regulate pharyngeal development in *C. elegans*. *Dev. Biol.* 291, 239-252.

David S. Fay* (2006). Contributing author and section editor of WormBook Methods: Forward Genetics and Genetic Mapping: Chapters 1-10. ed. The *C. elegans* Research Community, WormBook, doi/10.1895/wormbook.1.90.1, <http://www.wormbook.org>. (PubMed currently lists 10 separate headings for this entry, one for each chapter .)

David S. Fay* (2005). The cell cycle and development: Lessons from *C. elegans*. *Sem. Cell Dev. Biol.* 16, 297-406.

Aaron M. Bender, Orion Wells and David S. Fay* (2004). *lin-35/Rb* and *xnp-1/ATR-X* function redundantly to control somatic gonad development in *C. elegans*. *Dev. Biol.* 273, 335-349.

Mingxue Cui, David S. Fay and Min Han* (2004). *lin-35/Rb* cooperates with the SWI/SNF complex to control *Caenorhabditis elegans* larval development. *Genetics* 167, 1177-1185.

David S. Fay*, Xiaohui Qiu, Edward Large, Christopher P. Smith, Susan Mango and Bethany L. Johanson (2004). The coordinate regulation of pharyngeal development in *C. elegans* by *lin-35/Rb*, *pha-1*, and *ubc-18*. *Dev. Biol.* 271, 11-25.

David S. Fay*, Edward Large, Min Han, and Monica Darland (2003). *lin-35/Rb* and *ubc-18*, an E2 ubiquitin-conjugating enzyme, function redundantly to control pharyngeal morphogenesis in *C. elegans*. *Development* 130, 3319-3330.

David S. Fay*, Sean Keenan, and Min Han* (2002). *fzr-1* and *lin-35/Rb* function redundantly to control cell proliferation in *C. elegans* as revealed by a nonbiased synthetic screen. *Genes Dev.* 16, 503-517.

David S. Fay and Min Han (2000). Mutations in *cye-1*, a *Caenorhabditis elegans* cyclin E homolog, reveal coordination between cell-cycle control and vulval development. *Development* 127, 4049-4059.

David S. Fay and Min Han (2000). The synthetic multivulval genes of *C. elegans*: functional redundancy, Ras-antagonism, and cell fate determination. *Genesis* 26, 279-284.

David S. Fay, Heather M. Stanely, Min Han and William B. Wood (1999). A *C. elegans* homologue of *hunchback* is required for late stages of development but not early embryonic patterning. *Dev. Biol.* 205, 240-253.

David S. Fay, Amy Fluet, Carolyn J. Johnson and Christopher D. Link (1998). *In vivo* aggregation studies of β -amyloid peptide variants. *J. Neurochem.* 71, 1616-1625.

Zhaoxia Sun, James Hsiao, David S. Fay and David F. Stern (1998). Rad53 FHA domain associated with phosphorylated Rad9 in the DNA damage checkpoint. *Science* 281, 272-274.

David S. Fay, Zhaoxia Sun and David Stern (1997). Mutations in *SPK1/RAD53* that specifically abolish checkpoint but not growth-related functions. *Curr. Gen.* 31, 97-105.

Zhaoxia Sun, David S. Fay, Federica Mariani, Marco Foiani and David F. Stern (1996). Spk1p is regulated by *MEC1*-dependent protein phosphorylation in DNA replication and damage checkpoint pathways. *Genes Dev.* 10, 395-406.

Pan Zheng, David S. Fay, Janet Burton, Hong Xiao, Jennifer L. Pinkham and David F. Stern. (1993). *SPK1* is an essential S-phase-specific gene of *Saccharomyces cerevisiae* that encodes a nuclear serine/threonine/tyrosine kinase. *Mol. Cell. Biol.* 13, 5829-5842.

Vassiliki Karantza, Anjili Maroo, David Fay and John Sedivy (1993). Overproduction of Rb protein after the G1/S boundary causes G2 arrest. *Mol. Cell. Biol.* 13, 6640-6652.

Ahmad B. Fawzi, David S. Fay, Elizabeth A. Murphy, Haya Tamir, Joseph J. Erdos, and John K. Northup (1991). Rhodopsin and the retinal G-protein distinguish among G-protein $\beta\gamma$ subunit forms. *J. Biol. Chem.* 19, 12194-12200.

* Corresponding author(s) (2002–present).

INVITED PRESENTATIONS

- *C. elegans* International Meeting (6/09)
- Dartmouth College (11/08)
- University of Calgary (10/08)
- University of Minnesota (9/08)
- Simon Fraser University (8/08)
- Society for Developmental Biology International Meeting (7/08)
- *C. elegans* International Meeting (6/07)
- National Institutes of Health (12/07)
- University of Maryland, College Park (12/07)
- Canadian Institute for Advanced Research (CIAR), Princeton (8/06)
- University of Illinois, Chicago (4/06)
- University of Wyoming, Dept. of Animal Sciences (11/05)
- Southwest Developmental Biology Meeting (10/05)
- University of California, Davis (9/05)
- University of Colorado Health Sciences (4/05)
- University of Illinois, Urbana (11/04)
- *C. elegans* West Coast Meeting (7/04)
- University of Wyoming, Dept. of Zoo/Phys (12/03)
- ACS National Meeting (11/03)
- University of Colorado Health Sciences (10/03)
- Regional (WY/CO) presentations on behalf of the ACS ~20 (2003-2008)

MEETINGS

- *C. elegans* International Meeting (6/09)
- Society for Developmental Biology annual Meeting (7/08)
- *C. elegans* International Meeting (6/07)
- CIAR Genetic Networks (8/06)
- *C. elegans* Development Meeting (6/06)
- Southwest Developmental Biology Meeting (10/05)
- *C. elegans* International Meeting (8/05)
- West Coast *C. elegans* Meeting (8/04)
- Annual meeting of the Society of Developmental Biology (7/04)
- The Cell Cycle and Development – Keystone meeting (1/04)
- ACS National Meeting (11/03)
- *C. elegans* International Meeting (6/03)
- West Coast *C. elegans* Meeting (8/02)
- Front Range Bimonthly *C. elegans* Meetings (2002-present)

ADMINISTRATIVE DUTIES

- Director of the Molecular and Cellular Life Sciences (MCLS) Graduate Program (2005–present).

- Chair of the MCLS Steering Committee (2002–2005).

PROFESSIONAL ACTIVITIES

- NIH review panel Adhoc member for Dev1 study section (2007)
- ACS review panel Adhoc member for Development Differentiation and Cancer section (2006, 2008)
- National ACS Ambassador (2006–2008). This two-year appointment involved traveling to Washington D.C. to meet with Wyoming's Congressional leaders as well as local meetings with Wyoming's governor and state legislators. My primary charge was to lobby for increased funding for biomedical and cancer research and to highlight biomedical research at the University of Wyoming.
- Editor, Curator, and Author, Methods Section: Forward Genetics and Genetic Mapping, WormBook (2005–present)
- ACS regional representative/speaker (Has included ~20 talks to ACS volunteer groups including Jackson, Capser, Gillette, Laramie, Cheyenne, and Denver).
- Ad hoc reviewer for Nature Genetics, Nature Reviews, Nature Methods, EMBO, Development, Developmental Biology, Genetics, BMC Development, FEBS letters, PLoS Genetics, Cell Cycle, WormBook, USDA, ACS, National Institutes of Health, and the National Science Foundation (2001–present).
- Genetics Society of America
- Society for Developmental Biology
- American Association for the Advancement of Science

ADDITIONAL SERVICE

- Departmental Search Committee for two positions (2009–2010)
- University of Wyoming Microscopy Core Facility Board (2008–present)
- Departmental Search Committee for Molecular Biologist (2008–2009)
- Departmental Committee for Resource Distribution (2006–2008)
- Departmental Search Committee for Ecological Geneticist (2005–2006)
- Animal Science Search Committee for Functional Geneticist (2005–2006)
- University Graduate Council (2005–2008)
- University Committee for Genetics Curriculum (2004–2008)
- Departmental Committee for Curriculum Review (2004–present)
- Departmental Graduate Admissions committee (2004–2005)
- Department Chair Search Committee (2003–2004)
- Wyoming Science Fair judge (2002–2004)
- Graduate Student Thesis Committees (8 students total, 2002–present).
- Organizer/speaker graduate student recruitment trips/Colorado (2002).

COURSES TAUGHT

Classroom

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| Fall 2009 | • MCLS Cornerstone Course (MOLB 5630-02) |
| Spring 2009 | • Cell and Developmental Genetics (MOLB 4450/5450) |
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| Fall 2006 | • MCLS Cornerstone Course (MOLB 5630-02) |
| Spring 2006 | • Cell and Developmental Genetics (MOLB 4450/5450) |
| Fall 2005 | • Undergraduate Student Seminar (MOLB 4050) |
| Spring 2005 | • Cell and Developmental Genetics (MOLB 4450/5450) |

- Spring 2004** • Cell and Developmental Genetics (MOLB 4450/5450)
• Graduate Student Seminar (MOLB 5050)
- Spring 2003** • Molecular Genetics (MOLB 4440/5440; equivalent to 4450/5450)
- Fall 2002** • Departmental Seminar (MOLB 4051/5051)
• Developmental and Molecular Cell Biology (MOLB 5670)
- Spring 2002** • Graduate Student Seminar (MOLB 5050)

Research Based

- Problems in Molecular Biology (MOLB 5010)
- Advanced Problems in Molecular Biology (MOLB 5520)
- Dissertation Research (MOLB 5980)