

## Curriculum Vitae

David J. Marcey

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### Education

B.A. 1977, Biology Major, Chemistry Minor, The College of Wooster, Wooster, Ohio.

Ph.D. 1984, Genetics, University of Utah, Salt Lake City, Utah.

### Special Courses

1978 ..... *Theoretical Population Genetics, Environmental Physiology* at the Rocky Mountain Biological

Laboratory, Gothic, Colorado.

1979 ..... *Neurobiology* at The Marine Biological Laboratory, Woods Hole, MA.

1982 ..... *European Molecular Biology Workshop on Advanced Drosophila Genetics/Development*, Madrid, Spain

1997 ..... *Optical Microscopy in the Biomedical Sciences*, at The Marine Biological Laboratory, Woods Hole, MA.

1998 ..... Great Lakes Colleges Association Course Development Workshop, "Reaching Our Students"

2013 ..... National Academies Institute on STEM Education, Manoa, Hawaii

### Employment

#### Postdoctoral

1985-1987 ..... Max-Planck-Institute for Developmental Biology, Laboratory of Dr. Christiane Nüsslein-Volhard (Tübingen, Germany).

1987-1990 ..... Howard Hughes Medical Institute, University of Utah, Laboratory of Dr. Tulle Hazelrigg (Salt Lake City, USA).

#### Faculty

1990-1996 ..... *Assistant Professor*, Department of Biology, Kenyon College (Gambier, Ohio)

1996- 1999 ..... *Associate Professor*, Department of Biology, Kenyon College (Gambier, Ohio)

1999-present .. *Fletcher Jones Professor of Developmental Biology*, California Lutheran University (Thousand Oaks, California)

### Fellowships

1978-1980 ..... University of Utah Teaching Fellow.

1980-1984 ..... National Institutes of Health Predoctoral Trainee.

1985-1988 ..... Postdoctoral Fellow of The Helen Hay Whitney Foundation.

1988-1990 ..... Research Associate of The Howard Hughes Medical Institute.

2013-2014 ..... National Academy of Science Teaching Fellow

2012-present.. National PULSE Vision and Change Leadership Fellow (NIH/NSF/HHMI)

**Extramural Grants**

- 1996 ..... American Cancer Society (\$20,000). PI, "Transcriptional Responses to Oxidative Stress"
- 1997 ..... NSF-ILI (\$48,000). Co-PI, "Laboratory Exercises in Developmental Neuroscience" Federal Award #: 9751081
- 1999 ..... NSF-ILI (\$36,000). PI, "Equipment for Investigative Experiments in Cell Biology"
- 1999 ..... Parsons Foundation (\$75,000) (PI, with CLU Development Office) "Equipment for Integrating Cellular Studies into an Undergraduate Curriculum"
- 2000 ..... The W.M. Keck Foundation (\$500,000). PI, "A Center for Scientific Visualization"
- 2001 ..... NSF-MRI (Major Research Instrumentation - \$79,214). Co-PI with Dennis Revie, "Acquisition of Equipment for Genomics Research" Federal Award #: 0116789
- 2001 ..... NSF-CCLI (\$42,846). PI, "Equipment for an Investigative Introductory Biology Laboratory" Federal Award #: 0127089
- 2002..... Stauffer Foundation (\$750,000) (with Dean Michael Brint and the CLU Development Office). Grant to fund the Stauffer Assistant Professor of Applied Analytical Chemistry
- 2013 ..... NSF (\$17,900). PI, "Meeting of PULSE Vision and Change Leadership Fellows" Federal Award#: 1332230
- 2013 ..... NSF (\$287,000). Co-PI with Nitya Jacob and Alix Fink, "A Vision for Change: Using ATP (Ambassador Training Program) to Energize Departmental Transformation" Federal Award #: 1355771
- 2016 ..... The W.M. Keck Foundation (\$300,000). PI, "Modernizing Life Science Education"
- 2017 ..... NSF (\$49,000). PI, "A Southern California PULSE Institute" Federal Award #: 1720403
- 2018 ..... NSF (\$75,000). Co-PI, with Schuchi Dutta, "MolCaseNet: Using Case Studies to Enhance Learning of Macromolecular Structure" Federal Award #: 1827011

## Selected Awards/Appointments (since 1998)

For the Online Macromolecular Museum

([www.callutheran.edu/BioDev/omm/gallery.htm](http://www.callutheran.edu/BioDev/omm/gallery.htm)):

- Webpick for Outstanding Science Site, The Alchemist, the Webzine of ChemWeb (9/28/98).
- NetWatch feature in Science magazine (10/30/98)
- H.M.S. Beagle Webpick (1/00)
- Current Contents' selective listing of academic websites (3/00)
- Genetic Engineering News – Top 100 Websites (2000)
- “Best of the Web” Genetic Engineering and Biotechnology News (September, 2021)

1998. Invited Participant, The GLCA (Great Lakes Colleges Association) Pew-Knight Roundtable on the Future of the GLCA (1998)

1999. Member, Faculty for the 21<sup>st</sup> Century, class of '99, Project Kaleidoscope

1999. CLU Community Leaders Club Award, A time-lapse video microscopy workstation.

2000 CLU Hewlett Award, Travel to a summer FASEB conference on protein phosphatases.

2005 CLU Hewlett Award, Travel to American Society for Cell Biology conference.

2009. CLU Hewlett Award, Travel to Israel to deliver invited lecture at The Weizmann Institute, Rehovet, Israel.

2012-Present. HHMI/NSF/NIH PULSE (Partnership for Undergraduate Life Sciences Education) Vision and Change Leadership Fellow

2013. National Academy of Science Teaching Fellow

2016. Mentor, PALM (Promoting Active Learning and Mentoring) Program (an NSF funded initiative of the Genetics Society of America and The American Society for Cell Biology)

2018. 1<sup>st</sup> Place, Mentored Undergraduate Research Competition, National Association of Biology Teachers

2020. Mentor, PALM (Promoting Active Learning and Mentoring) Program (an NSF funded initiative of the Genetics Society of America and The American Society for Cell Biology)

2020 Lifetime Fellow, The American Association For The Advancement of Science (AAAS)

**Professional Service/Affiliations****Professional Education Committees**

- (2002-2006) Member, Committee of Examiners, Biology Graduate Record Examination (GRE), Educational Testing Service (ETS, Princeton, NJ)
- (2006-2010) Chair, Committee of Examiners, Biology Graduate Record Examination (GRE), Educational Testing Service (ETS, PrincetonNJ)
- (2020-2021) Member, Test Development Committee, SAT Biology, Educational Testing Service (ETS, Princeton, NJ)

**Review Panels**

- National Sigma Xi Grants in Aid of Research Panel, 1992, 1993, 1994
- National Science Foundation Course, Curriculum and Laboratory Improvement, July 2002
- National Science Foundation Course, Curriculum and Laboratory Improvement, December, 2004 (Chair of panel)

**Ad Hoc Reviews**

- National Science Foundation, Developmental Biology Program: 1992, 1993, 1994
- Review of Pomona College Biology Department faculty member (tenure review), 1995
- Review of Claremont Colleges Joint Science Department faculty member (reappointment review), 1996
- Review of two books for William C. Brown Publishers, 1995-1996
- Review of Mount Saint Mary University (Maryland) Biology Department faculty member (tenure review), 2017

**Memberships**

- AAAS
- Genetics Society of America
- Society for Developmental Biology
- American Society for Cell Biology
- Sigma Xi

**Editorial Boards**

- Project Merlot, a peer-reviewed online resource for college educators (2001-2003; 2013-present)
- Biochemistry and Molecular Biology Education (Elsevier) (2002-2005)
- Biomednet.com (A comprehensive online resource for biomedical researchers, including The H.M.S. Beagle, a webzine for biologists) (2001-2004)
- Life Sciences Education (2015-2018)

**Teaching Experience****Kenyon College**

Developmental Biology  
 Experimental Developmental Biology (laboratory)  
 Molecular Biology  
 Principles of Gene Manipulation (laboratory)  
 Introduction to Genetics and Development of Organisms  
 Introduction to Experimental Biology (laboratory)  
 Genetic Technologies (non-Biology majors)  
 From Cosmos to Consciousness: A Scientific Worldview (non-Science majors, for *The Integrated Program in Humane Studies*)  
 HIV and Emerging Viruses (non-Biology majors)

**California Lutheran University**

At Home in the Universe (Honors Program)  
 Cell Biology  
 Genetics  
 Developmental Biology  
 Molecular Biology  
 Recombinant DNA  
 Senior Research and Senior Departmental Honors  
 Macromolecular Structure  
 Remaking Eden (Honors Program)  
 Introduction to Experimental Biology  
 Goodness, Truth, Beauty (Honors Program)

**Institutional Administrative/Governance Experience****Kenyon College**

1991-1992 ..... Kenyon Senate  
 1992-1993 ..... Chair of Kenyon Science Division *and* Kenyon Senate  
 (Representative)  
 1993-1994 ..... Chair of Kenyon Senate *and* Kenyon Faculty Affairs  
 Committee member  
 1994-1995 ..... Faculty Affairs Committee *and* Science Division Liaison with  
 the Office of Development  
 1995-1997 ..... Curricular Policy Committee (CPC) *and* Science Division  
 Liaison with the Office of Development  
 1995-1998 ..... Chair, Science Division  
 1995-1999 ..... Co-Chair of Biochemistry and Molecular Biology Program  
 1996-1997 ..... CPC representative to Grants Committee *and* Academic  
 Computing Committee  
 1996-1997 ..... Search Committee, Vice President for Library and Information  
 Services  
 1996-1997 ..... Invited Member, *Great Lakes College Association's* Technology  
 Advisory Group (TAG)

**California Lutheran University**

- 1999-2000..... Search Committee, Dean of Arts and Sciences  
 1999-2000..... Search Committee, Director of Career Services  
 1999-2001 ..... Internet Task Force Committee  
 2000-2002 ..... Chair, Science Division Planning Committee  
 2000-2002 ..... Project Director and PI, W.M. Keck Foundation Grant (\$500K)  
 2001-2003 ..... Educational Planning and Policies Committee (EPPC)  
 2001-2003 ..... Chair, Undergraduate Education Committee  
 2001-2002 ..... Search Committee, Assistant Professor of Physics  
 2001-2002 ..... Search Committee, Stauffer Professor of Chemistry  
 2001-2002 ..... Dean's Council (an advisory board of four faculty members)  
 2001-2006 ..... Chair, Pre-Health Professional Advising Committee  
 2003-2005 ..... Chair, Honors Committee  
 2005-2006 ..... Teaching and Learning Committee  
 2006-2009 ..... Chair, Biology Department  
 2006-2009 ..... Artists and Speakers Committee (Chair, 2008 - present)  
 2008-2009 ..... Chair, Diversity Committee for Foundations of Excellence  
 Review  
 2009-2013 ..... Director, CLU Honors Program  
 2012-2015 ..... Teaching and Learning Committee  
 2016-2017 ..... Search Committees (2), 2 Assistant Professors of Exercise  
 Science  
 2016-2017 ..... Presidents Award for Teaching Excellence Committee

**Publications****Books**

Shaw, M.C., **Marcey, D.J.**, Brint, M. (eds). 2008. *Integrated Science, New Approaches to Education: a Virtual Roundtable*. Springer-Verlag, Berlin.

**Articles**

**Marcey, D.J.** and William S. Stark. 1985. The Morphology, Physiology, and Neural Projections of Supernumerary Compound Eyes in *Drosophila melanogaster*. *Developmental Biology* 107: 180-197.

**Marcey, D.J.** 1985. The Genetics and Neurobiology of the *extra eye* Mutation in *Drosophila melanogaster*. Ph.D. Thesis, University of Utah.

Baker, W.K., M.C. McElwain and **David J. Marcey**. 1985. On the Development of Ectopic Eyes in *Drosophila melanogaster* Produced by the *extra eye* Mutation. *Genetics* 111: 67-88

**Marcey, D.J.** and C. Nüsslein-Volhard. 1986. Embryology Goes Fishing. *Nature* 321: 380- 381.

Seifert, E., Holtkamp, F., **Marcey, D.J.** and H. Jäckle. 1987. Injection of poly(A)+ RNA Provokes Phenotypic Rescue in *spätzle* Mutant *Drosophila* Embryos. *Roux's Arch. Dev. Biol.* 196: 78-82.

Hazelrigg, T., Watkins, S., **Marcey, D.J.**, Karow, M., Tu, Chi. 1990. The *exuperantia* Gene is Required for *Drosophila* Spermatogenesis as well as Anteroposterior Polarity of the Developing Oocyte, and Encodes Overlapping, Sex-specific Transcripts. *Genetics* 126: 607-617.

**Marcey, D.**, Watkins, S., and T. Hazelrigg. 1991. The Temporal and Spatial Distribution Pattern of Maternal *exuperantia* Protein: Evidence for a Role in Establishment but not Maintenance of *bicoid* mRNA Localization. *EMBO Journal*, 10: 4259-4266.

Edwards, K., T. Davis, **D. Marcey**, J. Kurihara, D. Yamamoto. 2001. Comparative Analysis of the Band 4.1/ezrin-related Protein Tyrosine Phosphatase Pez from Two *Drosophila* Species: Implication for Structure and Function. *Gene* 275: 195-205.

Ann Finney Batiza, Mary Gruhl, Bo Zhang, Tom Harrington, Marisa Roberts, Donna LaFlamme, Mary Anne Haasch, Jonathan Knopp, Gina Vogt David Goodsell, Eric Hagedorn, **David J. Marcey**, Mark Hoelzer, and David Nelson. 2013. The Effects of the SUN Project on Teacher Knowledge and Self-Efficacy Regarding Biological Energy Transfer are Significant and Long-Lasting – Results of a Randomized Controlled Trial. *CBE Life Sci Educ June 3, 2013 12:287-305*; doi:10.1187/cbe.12-09-0155.

**David J. Marcey**. 2014. The Lecture Hall as an Arena of Inquiry: Using Cinematic Lectures and Inverted Classes (CLIC) to Flip an Introductory Biology Lecture Course. In *Blended Learning, Case Studies on Digital Collaboration and Blended/Hybrid Learning: 2014 Special Issue, The Academic Commons*.

Dutta, S., Cortes, K. L., Jakubowski, H. V., Lenahan, M., **Marcey, D.**, Marsteller, P., Terrell, C. (2020). Nicholas' Story. Molecular CaseNet Faculty Mentoring Network Spring 2020, QUBES Educational Resources. doi:10.25334/H82J-3C28

**World Wide Web/CD Publications (\*Peer Reviewed or \*\*Invited, #undergraduate co-authors)**

\*\*Marcey, D. (1998). For *The Biology Place* (www.biology.com), a reviewed website published by Peregrine Publishers, Inc. (Boston): 1) a series of reviews of recent research for the “Research News” section and “best of the web” (1998); 2) A tutorial on the use of molecular modeling software in classroom (1998).

\*\*Marcey, D. (1999). For *The Chemistry Place* ([www.chemplace.com](http://www.chemplace.com)), a reviewed website published by Peregrine Publishers, Inc. (Boston), a tutorial on the use of molecular modeling software in classroom.

\*\*Marcey, D.J. (1999) For *Botany Online*, the internet hypertextbook of the XVI International Botanical Congress, St. Louis, MO: "The Online Macromolecular Museum"

\*\*Marcey, D.J. (2000). Molecular Visualization for the Masses. H.M.S. Beagle 90, Nov. 10 ([biomednet.com](http://biomednet.com))  
(<http://news.bmn.com/hmsbeagle/90/reviews/insitu>).

\*Marcey, D. (2000, 2004). Antibody Recognition of Epitope. A web-based Chime macromolecular tutorial to accompany *Immunology (Kuby) 4e, 5e*. W.H. Freeman, New York.

\*Marcey, D. (2000, 2004). An Introduction to Immunoglobulin Structure. A web-based Chime macromolecular tutorial to accompany *Immunology (Kuby) 4e, 5e*. W.H. Freeman, New York.

\*Marcey, D. and Mazur, E.# (2000, 2004). Viral Antigens. A web-based Chime macromolecular tutorial to accompany *Immunology (Kuby) 4e, 5e*. W.H. Freeman, New York.

\*Marcey, D. and Goldman, M.# (2000, 2004). HIV-1 Reverse Transcriptase. A web-based Chime macromolecular tutorial to accompany *Immunology (Kuby) 4e, 5e*. W.H. Freeman, New York.

\*Marcey, D. (2001). Amino Acid Structures. A web-based Chime macromolecular tutorial to accompany *Molecular Cell Biology (Lodish, et al.) 4e*. W.H. Freeman, New York.

\*Marcey, D. (2001). Chemical Bonding in Protein Structure. A web-based Chime macromolecular tutorial to accompany *Molecular Cell Biology (Lodish, et al.) 4e*. W.H. Freeman, New York.

\*Marcey, D. (2001). The Beta Subunit of *E. coli* DNA Polymerase III. A web-based Chime macromolecular tutorial to accompany *Molecular Cell Biology (Lodish, et al.) 4e*. W.H. Freeman, New York.

\*Marcey, D. and Goldman, M.# (2001). HIV-1 Reverse Transcriptase. A web-based Chime macromolecular tutorial to accompany *Molecular Cell Biology (Lodish, et al.) 4e*. W.H. Freeman, New York.



\*Marcey, D. and Ward, M.# (2001). The Bacteriophage T7 DNA Replication Complex. A web-based Chime macromolecular tutorial to accompany *Molecular Cell Biology (Lodish, et al.) 4e*. W.H. Freeman, New York.

\* Millard, E.#, Downs, A.# and Marcey, D. (2001). *Hin* Recombinase. A web-based Chime macromolecular tutorial to accompany *Molecular Cell Biology (Lodish, et al.) 4e*. W.H. Freeman, New York.

\*Marcey, D., and Walsh, M.# (2001). HIV-1 Integrase. A web-based Chime macromolecular tutorial to accompany *Molecular Cell Biology (Lodish, et al.) 4e*. W.H. Freeman, New York.

\*Heerson, H. #, Downs, A.# and Marcey, D. (2001). The RecA Recombinase. A web-based Chime macromolecular tutorial to accompany *Molecular Cell Biology (Lodish, et al.) 4e*. W.H. Freeman, New York.

\*Kysela, D.#, and Marcey, D. (2001). Topoisomerase I. A web-based Chime macromolecular tutorial to accompany *Molecular Cell Biology (Lodish, et al.) 4e*. W.H. Freeman, New York.

\*Douglass, B.#, Downs, A.#, and Marcey, D. (2001). HhaI Methylase. A web-based Chime macromolecular tutorial to accompany *Molecular Cell Biology (Lodish, et al.) 4e*. W.H. Freeman, New York.

\*Ward, M.#, and Marcey, D. (2001). Fibronectin. A web-based Chime macromolecular tutorial to accompany *Molecular Cell Biology (Lodish, et al.) 4e*. W.H. Freeman, New York.

\*Flammer, K.#, Downs, A.#, and Marcey, D. (2001). *E. coli* Porins. A web-based Chime macromolecular tutorial to accompany *Molecular Cell Biology (Lodish, et al.) 4e*. W.H. Freeman, New York.

\*Fries, D.#, and Marcey, D. (2001). DNA Polymerase Beta. A web-based Chime macromolecular tutorial to accompany *Molecular Cell Biology (Lodish, et al.) 4e*. W.H. Freeman, New York.

\*Marcey, D. (2001). The Signal Recognition Particle Core of *E. coli*. A web-based Chime macromolecular tutorial to accompany *Molecular Cell Biology (Lodish, et al.) 4e*. W.H. Freeman, New York.

\*Marcey, D. (2001). U1A RNA Spliceosomal Protein. A web-based Chime macromolecular tutorial to accompany *Molecular Cell Biology (Lodish, et al.) 4e*. W.H. Freeman, New York.

- \*Marcey, D. (2004). An Introduction to DNA Structure. A web-based Chime macromolecular tutorial to accompany *Molecular Biology of the Gene* (Watson, et al.) 5e. Benjamin Cummings, San Francisco.
- \*Marcey, D., and Levi, S.# (2004). Bacteriophage 434 Repressor Protein. A web-based Chime macromolecular tutorial to accompany *Molecular Biology of the Gene* (Watson, et al.) 5e. Benjamin Cummings, San Francisco.
- \*Marcey, D. (2004). *E. coli* Catabolite Activator Protein. A web-based Chime macromolecular tutorial to accompany *Molecular Biology of the Gene* (Watson, et al.) 5e. Benjamin Cummings, San Francisco.
- \*Marcey, D. (2004). Cre Recombinase. A web-based Chime macromolecular tutorial to accompany *Molecular Biology of the Gene* (Watson, et al.) 5e. Benjamin Cummings, San Francisco.
- \*Marcey, D, and Silva, N.# (2004). Green Fluorescent Protein. A web-based Chime macromolecular tutorial to accompany *Molecular Biology of the Gene* (Watson, et al.) 5e. Benjamin Cummings, San Francisco.
- \*Marcey, D. (2004). An Introduction to Nucleosome Structure. A web-based Chime macromolecular tutorial to accompany *Molecular Biology of the Gene* (Watson, et al.) 5e. Benjamin Cummings, San Francisco.
- \*Marcey, D., and Crenwelge, C.# (2004). A Hammerhead Ribozyme. A web-based Chime macromolecular tutorial to accompany *Molecular Biology of the Gene* (Watson, et al.) 5e. Benjamin Cummings, San Francisco.
- \*Marcey, D., and Stoffregen, E.# (2004). MutS, a DNA Repair Enzyme. A web-based Chime macromolecular tutorial to accompany *Molecular Biology of the Gene* (Watson, et al.) 5e. Benjamin Cummings, San Francisco.
- \*Marcey, D. (2004). The Beta Subunit of DNA Polymerase III (*E. coli*). A web-based Chime macromolecular tutorial to accompany *Molecular Biology of the Gene* (Watson, et al.) 5e. Benjamin Cummings, San Francisco.
- \*Marcey, D. (2004). An Introduction to Ribosome Structure. A web-based Chime macromolecular tutorial to accompany *Molecular Biology of the Gene* (Watson, et al.) 5e. Benjamin Cummings, San Francisco.
- \*Marcey, D, and Silva, N.# (2004). RNA Polymerase. A web-based Chime macromolecular tutorial to accompany *Molecular Biology of the Gene* (Watson, et al.) 5e. Benjamin Cummings, San Francisco.

- \*Marcey, D. (2004). The *ruvA* Recombination Protein. A web-based Chime macromolecular tutorial to accompany *Molecular Biology of the Gene* (Watson, et al.) 5e. Benjamin Cummings, San Francisco.
- \*Marcey, D., and Ward, M.# (2004). The Bacteriophage T7 DNA Polymerase. A web-based Chime macromolecular tutorial to accompany *Molecular Biology of the Gene* (Watson, et al.) 5e. Benjamin Cummings, San Francisco.
- \*Marcey, D. (2006). Antibody Recognition of Epitope. A web-based Jmol macromolecular tutorial to accompany *Immunology* (Kuby) 6e. W.H. Freeman, New York.
- \*Marcey, D. (2006). An Introduction to Immunoglobulin Structure. A web-based Jmol macromolecular tutorial to accompany *Immunology* (Kuby) 6e. W.H. Freeman, New York.
- \*Marcey, D. (2006). HIV-1 Glycoprotein 120. A web-based Jmol macromolecular tutorial to accompany *Immunology* (Kuby) 6e. W.H. Freeman, New York.
- Mazur, E.#, and Marcey, D. (2006). Influenza Hemagglutinin. A web-based Jmol macromolecular tutorial to accompany *Immunology* (Kuby) 6e. W.H. Freeman, New York.
- \*Marcey, D. (2006). HIV-1 Reverse Transcriptase. A web-based Jmol macromolecular tutorial to accompany *Immunology* (Kuby) 6e. W.H. Freeman, New York.
- \*Marcey, D. (2007). An Introduction to DNA Structure. A web-based Jmol macromolecular tutorial to accompany *Molecular Biology of the Gene* (Watson, et al.) 6e. Benjamin Cummings, San Francisco, Cold Spring Harbor Laboratory Press.
- \*Marcey, D., and Levi, S.# (2007). Bacteriophage 434 Repressor Protein. A web-based Jmol macromolecular tutorial to accompany *Molecular Biology of the Gene* (Watson, et al.) 6e. Benjamin Cummings, San Francisco, Cold Spring Harbor Laboratory Press.
- \*Marcey, D. (2007). *E. coli* Catabolite Activator Protein. A web-based Jmol macromolecular tutorial to accompany *Molecular Biology of the Gene* (Watson, et al.) 6e. Benjamin Cummings, San Francisco, Cold Spring Harbor Laboratory Press.

\*Marcey, D. (2007). Cre Recombinase. A web-based Jmol macromolecular tutorial to accompany *Molecular Biology of the Gene (Watson, et al.) 6e*. Benjamin Cummings, San Francisco, Cold Spring Harbor Laboratory Press.

\*Marcey, D. (2007). An Introduction to Nucleosome Structure. A web-based Jmol macromolecular tutorial to accompany *Molecular Biology of the Gene (Watson, et al.) 6e*. Benjamin Cummings, San Francisco, Cold Spring Harbor Laboratory Press.

\*Marcey, D., and Crenwelge, C.# (2007). A Hammerhead Ribozyme. A web-based Jmol macromolecular tutorial to accompany *Molecular Biology of the Gene (Watson, et al.) 6e*. Benjamin Cummings, San Francisco, Cold Spring Harbor Laboratory Press.

\*Marcey, D., and Stoffregen, E.# (2007). MutS, a DNA Repair Enzyme. A web-based Jmol macromolecular tutorial to accompany *Molecular Biology of the Gene (Watson, et al.) 6e*. Benjamin Cummings, San Francisco, Cold Spring Harbor Laboratory Press.

\*Marcey, D. (2007). The Beta Subunit of DNA Polymerase III (*E. coli*). A web-based Jmol macromolecular tutorial to accompany *Molecular Biology of the Gene (Watson, et al.) 6e*. Benjamin Cummings, San Francisco, Cold Spring Harbor Laboratory Press.

\*Marcey, D. (2007). An Introduction to Ribosome Structure. A web-based Jmol macromolecular tutorial to accompany *Molecular Biology of the Gene (Watson, et al.) 6e*. Benjamin Cummings, San Francisco, Cold Spring Harbor Laboratory Press.

\*Marcey, D, and Silva, N.# (2007). RNA Polymerase. A web-based Jmol macromolecular tutorial to accompany *Molecular Biology of the Gene (Watson, et al.) 6e*. Benjamin Cummings, San Francisco, Cold Spring Harbor Laboratory Press.

\*Marcey, D. (2007). The ruvA Recombination Protein. A web-based Jmol macromolecular tutorial to accompany *Molecular Biology of the Gene (Watson, et al.) 6e*. Benjamin Cummings, San Francisco, Cold Spring Harbor Laboratory Press.

\*Marcey, D., and Ward, M.# (2007). The Bacteriophage T7 DNA Polymerase. A web-based Jmol macromolecular tutorial to accompany *Molecular Biology of the Gene (Watson, et al.) 6e*. Benjamin Cummings, San Francisco, Cold Spring Harbor Laboratory Press.

- \*Marcey, D. (2007). The RecBCD Recombination Complex. A web-based Jmol macromolecular tutorial to accompany *Molecular Biology of the Gene (Watson, et al.) 6e*. Benjamin Cummings, San Francisco, Cold Spring Harbor Laboratory Press.
- \*Marcey, D. (2007). The Argonaute Protein, the Slicer of RNAi. A web-based Jmol macromolecular tutorial to accompany *Molecular Biology of the Gene (Watson, et al.) 6e*. Benjamin Cummings, San Francisco, Cold Spring Harbor Laboratory Press.
- \*Marcey, D. (2011). The Structure of tRNA and tRNA Synthetases. A web-based Jmol macromolecular tutorial to accompany *The World of the Cell(Becker, et al.) 8e*. Pearson/Benjamin Cummings, San Francisco.
- \*Marcey, D. (2011). The Structures of Actin and Myosin . A web-based Jmol macromolecular tutorial to accompany *The World of the Cell(Becker, et al.) 8e*. Pearson/Benjamin Cummings, San Francisco.
- \*Marcey, D. (2011). ATP Synthase, a Molecular Rotor. A web-based Jmol macromolecular tutorial to accompany *The World of the Cell(Becker, et al.) 8e*. Pearson/Benjamin Cummings, San Francisco.
- \*Marcey, D. (2011). The Voltage-Gated Potassium Channel. A web-based Jmol macromolecular tutorial to accompany *The World of the Cell(Becker, et al.) 8e*. Pearson/Benjamin Cummings, San Francisco.
- \*Marcey, D., and P. DaSilva# (2013). Structure of The Photosystem II Protein Complex. A web-based Jmol tutorial to accompany the SUN (Students Understanding Energy) Project and Photosynthesis e-book, Milwaukee School of Engineering.
- \*Marcey, D., and P. DaSilva# (2013). Structure of The Cytochrome b6f Protein Complex. A web-based Jmol tutorial to accompany the SUN (Students Understanding Energy) Project and Photosynthesis e-book, Milwaukee School of Engineering.
- \*Marcey, D., and P. DaSilva# (2013). Structure of The Photosystem I Protein Complex. A web-based Jmol tutorial to accompany the SUN (Students Understanding Energy) Project and Photosynthesis e-book, Milwaukee School of Engineering.
- \*Marcey, D., and P. DaSilva# (2013). Structure of The Ferredoxin-Fd Oxidoreductase Protein Complex. A web-based Jmol tutorial to accompany the SUN (Students Understanding Energy) Project and Photosynthesis e-book, Milwaukee School of Engineering.

### Selected Public Presentations

- 1995. Pew Workshop on Information Technology, Kenyon College. "Use of the Internet to empower learning by students of molecular biology"
- 1995. Mount Vernon Nazarene College. "The use of information technology for information discovery, communication and collaboration, and empowered learning"
- 1995. Kenyon College, "Kenyon Today" program (for Board of Regents). "Dancing molecules: the relevance of molecular modeling to a liberal education"
- 1995. Keystone Symposium on the Genetic Manipulation of Insects, Tamaron, Colorado. "The isolation and characterization of *Manduca sexta* (Lepidoptera) homologs of the *Drosophila* (Diptera) maternal-effect genes"
- 1996. GLCA Pilot Project in Pedagogy and Technology, Denison University. "Dancing molecules: the relevance of molecular modeling to a liberal education"
- 1996. Kenyon Alumni Group, Kansas City, MO. "Information Technology and Proximity Learning"
- 1996. The 6th International Congress on Cell Biology, San Francisco, CA. "An enhancer-trap method for identification and isolation of conditionally-expressed genes in *Drosophila* tissue culture".
- 1997. Westminster College, SLC, Utah. "Information Technology and Proximity Learning"
- 1997. The annual meeting of the American Society for Cell Biology, Washington, D.C.. "Concentration-dependent effects of hydrogen peroxide on *Drosophila* Kc167 cell proliferation, apoptosis, and necrosis"
- 1997. Ohio University, Dept. of Biological Sciences. "Concentration-dependent effects of hydrogen peroxide on *Drosophila* Kc167 cell proliferation, apoptosis, and necrosis and the role of H<sub>2</sub>O<sub>2</sub> in transducing ecdysteroid signals."
- 1997. University of Utah, Salt Lake City, Utah. "Professional Life and the Liberal Arts"
- 1997. Indiana University, Bloomington, Indiana. "Professional Life in a Liberal Arts Setting"
- 1998. Westminster College, Salt Lake City, Utah. "Studies of developmentally-important molecules in *Drosophila* and *Manduca*"
- 1998. California Lutheran University, Thousand Oaks, California. "Studies of developmentally-important molecules in *Drosophila* and *Manduca*"
- 1998. Kalamazoo College, Kalamazoo, Michigan. "Implementation of information technology in the classroom: partnering faculty with IT specialists"
- 1998. The College of Wooster, Wooster, Ohio. "H<sub>2</sub>O<sub>2</sub> as a possible signaling molecule in *Drosophila*"
- 1998. Loyola Marymount University, Los Angeles, California. "H<sub>2</sub>O<sub>2</sub> as a possible signaling molecule in *Drosophila*"

- 1998. Michigan Colleges Foundation, Ameritech Faculty Development Technology Program. "Information Technology - Street Scenes from the Classroom".
- 1998. The annual meeting of the American Society for Cell Biology, San Francisco, CA. "Enhancer Trapping in *Drosophila* Tissue Culture Cells"
- 1999. Invited lecture for the Educational Initiatives Forum of the American Society for Cell Biology at the annual meeting of the ASCB, San Francisco, CA.. "Web-based Tutorials on Macromolecular Structure"
- 1999. Invited lecture for the Consortium of Independent Colleges Technology Workshop, Pittsburgh, PA. "Information Technology-Partnering with IT Specialists"
- 1999. Ohio Foundation of Independent Colleges Technology Workshop, Columbus, OH. "Learning Partnerships in the Classroom"
- 2000. Symposium on Science and Religion, CLU. "Shall We Use Human Embryos?"
- 2000. Invited lecture for the American Association for Biochemistry and Molecular Biology, Symposium on Multimedia in Biochemistry Education, Boston, MA. "Web-based Tutorials on Macromolecular Structure - Pedagogy and Assessment"
- 2000. FASEB Conference on Protein Phosphatases, Copper Mountain, CO. "A *Drosophila* member of the FERM-PTP protein family"
- 2001. CLU, Fletcher Jones Foundation Inaugural Lecture. "Vision by Blind Design"
- 2003. Harvey Mudd College (Claremont Colleges). "The *extra eye* mutation of *Drosophila melanogaster*"
- 2002. Invited Symposium Lecture at the Biennial Conference on Chemical Education, Bellingham, Washington. "The Online Macromolecular Museum"
- 2005. CLU faculty forum: "Should we use human embryos in biomedical research?"
- 2005. CLU faculty forum: "Intelligent Design: Bad Science and Bad Religion"
- 2006. Moorpark College, Year of Science and Religion, Keynote Lecture. "Religion, Science, and the Molding of Magisteria."
- 2007. National Association of Biology Teachers Annual Meeting. "The Power of Molecular Visualization."
- 2008. Invited Lecture, Molecular Visualization Workshop, American Association of Medical Illustrators, "Computational Tools for Molecular Visualization"
- 2009. CLU Festival of Scholars, Fletcher Jones Chair Lecture, "Me Look Pretty One Day, the Gene's Role in Constructing Organisms"
- 2009 Invited Lecture, Center for Biomolecular Modeling, The Milwaukee School of Engineering. "Jmol and The Online Macromolecular Museum"
- 2009. Eastern Illinois University, "How To Get A Head: the molecular biology of the *extra eye* mutation in *Drosophila melanogaster*."

- 2009. Invited Lecture, The American Association of Biochemistry and Molecular Biology Meeting on Student-Centered Education, Colorado Springs, Symposium on Visualization and Macromolecular Databases. "Jmol and The Online Macromolecular Museum"
- 2009. The Weizmann Institute of Science, Rehovot, Israel, "Jmol and the Online Macromolecular Museum"
- 2012. The Sloan-C Annual meeting on Transforming Education, with Michael Brint. "CLIC: Cinematic Lectures and Inverted Classes Transform an Undergraduate Biology Lecture Course" - (nominated for an educational effectiveness award)
- 2012. Refereed Symposium on Educational Research, The National Association of Biology Teachers annual meeting, "Preliminary Assessment of a Flipped Introductory Biology Course"
- 2013. Invited Panel Member, Keck/PKAL STEM Framework Conference, California State University Los Angeles. "Reflections on STEM Educational Reform"
- 2013. Invited Workshop Leader, AAC&U/PKAL National Conference, "Enhancing the Role of Faculty as STEM Department Change Agents in the 21st Century"
- 2014. University of San Diego, "The CLIC Model of Undergraduate Biology Flipped Classrooms"
- 2014. Invited Workshop Leader, the Pacific Division of AAAS Annual Meeting, "PULSE and Undergraduate Biology Education Reform"
- 2015. Invited lecture, Botany 2015 Conference (American Association of Plant Biologists), "The Lecture Hall as an Arena of Inquiry: Using Cinematic Lectures and Inverted Classes (CLIC) to Flip an Introductory Biology Lecture Course" Edmonton, Alberta, Canada.
- 2015. Invited Workshop organizer/presenter, "The Alignment of Undergraduate Courses, Curriculum, and Assessment of Learning and Teaching with Recommendations of Vision & Change." NABT (National Association of Biology Teachers) Annual Meeting, Providence, Rhode Island, November 11-14, 2015.
- 2016. Invited Workshop organizer/presenter, "Implementating Vision & Change at the Departmental Level with PULSE Rubrics." National Association of Biology Teachers Annual Conference (November, Denver).
- 2016. Annual Meeting of the Society for Cell Biology (December, San Francisco), "Using the Online Macromolecular Museum, Case Studies, and a New Assessment Tool to Engage Students in Hands-On Learning about the Biology of Sickle Cell Anemia."
- 2018. Rutgers University. "The Online Macromolecular Museum."



**Mentor for the following example undergraduate theses****California Lutheran University**

1. Daniel Roschke ('00) "The role of Nitric Oxide in mediating steroid hormone responses in *Drosophila* cultured cells."
2. David Bayles ('00) "Sequencing cDNAs of the extra eye gene of *Drosophila*"
3. Haley Jones ('00) "P transposable element interactions in *Drosophila*"
4. Tobias Maidl ('01) "The subcellular distribution of a protein tyrosine phosphatase in *Drosophila* development"
5. Cynthia Ham ('01) "A screen for new alleles of the extra eye gene"
6. Eric Stoffregen ('01) "5' RACE analysis of the extra eye gene"
7. Keri Kehoe ('02) "Construction of a cDNA library for a yeast two hybrid genetic screen"
8. Dan Geersen ('02) "A yeast two hybrid genetic screen for proteins that interact with a FERM-PTP signaling molecule"
9. Miyeko Mana ('03) "Expression of a developmentally important gene in the *Drosophila* head."
10. Michele Hattler ('04) "A new allele of the *Drosophila melanogaster* DPez gene"
11. Jennifer Lovick ('07) "Genetic Interactions of mutations in a Protein Tyrosine Phosphatase gene and mutations that perturb the JAK-STAT signaling pathway"
12. Garret Mosley ('09) "Genetic Interactions of mutations in a Protein Tyrosine Phosphatase gene and mutations that perturb the JAK-STAT signaling pathway"
13. Ryan Begley ('08) "Genetic Interactions of mutations in a Protein Tyrosine Phosphatase gene and mutations that perturb the JAK-STAT signaling pathway."
14. Ryan Schaub ('07) "Identification of a subset of CNS neurons in the developing *Drosophila* brain based on antigenic binding of an anti-Protein Tyrosine Phosphatase antibody (human)"
15. Garrett Mosley ('09) "Dissection of a two-component mutation in *Drosophila melanogaster* "
16. Keri Buck ('09) "Dissection of a two-component mutation in *Drosophila melanogaster* "
17. Kenny Smith ('09) "In situ hybridization localization of a P transposable element mutation in *Drosophila*"
18. Geno Bellville ('10) "In situ hybridization localization of a P transposable element mutation in *Drosophila*"
19. Samantha Aguinaldo ('11) "Searching for P transposable element insertions near visible genetic markers for RNAi targeted gene disruption"
20. Andrew Walker ('10) "Mapping a "peter pan" mutation in *Drosophila*"

21. Owen Johnson ('10) "Complementation tests reveal allelism of the *extra eye* and *Su(var)2-10* mutations in *Drosophila melanogaster*"
22. Sean Piwarski ('11) "Searching for P transposable element insertions near visible genetic markers for RNAi targeted gene disruption"
23. Amanda Nouris ('12) "Measuring STAT signal transduction in a morphogenetic mutation of *Drosophila*"
24. Ryan Sasada ('11) "Determining the proximity of a P transposable element to the *Su(var)2-10* locus in *Drosophila melanogaster*"
25. Samantha Aguinaldo ('11) "Using an in vivo assay for JAK-STAT signaling to determine the effect of the *extra eye* mutation on signal transduction in the developing head of *Drosophila*"
26. Jasmine Johnson ('11) "The effect of the *Su(var)2-10* mutation on JAK-STAT signaling"
27. John Mussato ('11) "Genetic effects of P-transposable elements on the *extra eye* mutation of *Drosophila*"
28. Ryan McCallister ('13) "JAK-STAT signaling in an over-proliferation mutation of *Drosophila*"
29. Austin Garcia ('13) "The effects of the defective proventriculus signaling mutation on over-proliferation of retinal tissue in the developing eye disc of *Drosophila*"
30. Montana Lara ('13) "The effects of the *defective proventriculus* signaling mutation on over-proliferation of retinal tissue in the developing eye disc of *Drosophila*"
31. Lyndsey Pugh ('14) "Wingless expression patterns in the *extra eye* mutation of *Drosophila*"
32. Hilary Glossbrenner ('14) "P-transposable element effects on the *Su(var)2-10* gene of *Drosophila*"
33. Shayna Perry ('14) "Investigating the expression of a FERM-PTP homolog in *Drosophila*"
34. Paolo DaSilva ('14) "Using a GFP reporter to investigate JAK-STAT signaling in *Drosophila*"
35. Jared Berman ('16) "The role of the *extra eye* mutation of *Drosophila* in tumor development"
36. Casey Whitters ('14) "The effects of mutations in the the PTP61F protein tyrosine phosphatase gene on *extra eye* expression in mutant *Drosophila*"
37. Carmen Wheeler ('15) "Inhibition of Activated STAT Signaling in *Drosophila* Development"
38. Soumya Unnikrishnan ('16) "Activated STAT Expression in the *Drosophila* Proventriculus"
39. Chloe Walian ('18), with Mary Kaveney ('18) "A screen for cryptic epigenetic variation"
40. Mary Kaveney ('18), with Chloe Walian ('18) "A screen for cryptic epigenetic variation"

41. Dagem Getahun ('19) "A tumorigenic mutation in *Drosophila melanogaster*"
42. Amanda Miller ('18) "Using a GFP reporter to investigate JAK-STAT signaling in *Drosophila*"
43. Lauren McAllister ('19) "Molecularly mapping P transposable elements"
44. Makena Wolfrom ('19) "Mapping an incompletely penetrant mutation in *Drosophila*"
45. Joanna Portillo ('20) "Molecular mapping of P-transposable element insertions in the genome of *Drosophila melanogaster*"
46. Kaitlin Hofmeister ('20) "Genetic interactions of modifiers of heterochromatin with the *extra eye* mutation of *Drosophila*"
47. Alyssa Albano ('20) "Mapping a new eye morphology gene in *Drosophila melanogaster*"
48. Devin Romines ('21) "Mapping genetic components contributing to a mutant head phenotype in *Drosophila melanogaster*"
49. Emily Jabourian ('21) "A specific inducer of inducible epigenetic variation in *Drosophila melanogaster*"
50. Neha Soogoor and Madison Katz ('21) "A continuing screen for inducible epigenetic variation in *Drosophila melanogaster*"
51. Gabriella Moreno ('22) "Mapping a transgene insertion by recombination"
52. Anthony Morgan ('22) "Analyzing next generation sequencing data to determine the genomic insertion sites of a family of transposable elements in several strains of *Drosophila melanogaster*"
53. Nicolette Alvandian ('22) "Investigating novel expression patterns of a transgene in *Drosophila melanogaster*"

### Kenyon College

- William Hage ('92) "The distribution of the *exuperantia* protein during oogenesis in *Drosophila melanogaster*"
- Katherine Kenworthy ('93) "An in vitro mRNA binding assay - does the *exuperantia* protein bind to *bicoid* mRNA?"
- Scott Mollner ('93) "The distribution of the *exuperantia* protein during oogenesis in maternal mutants of *Drosophila melanogaster*"
- Richard Clark ('94) "The cloning and characterization of a maternally-expressed gene encoding an RNA helicase from *Manduca sexta*"
- Annalisa VanHook ('94) "Electron microscopical studies of the distribution of the *exuperantia* protein during *Drosophila* oogenesis"
- Nicholas Zumberge ('95) "DNA sequence analysis of *Drosophila melanogaster* sequences surrounding a P element insertion at polytene chromosome bands 26D1-2"
- Jonathon Gibbons ('95) "Cloning and sequencing a mutant allele of the *Drosophila melanogaster exuperantia* gene"
- Sena Jong ('95) "Developing a system for screening conditionally-expressed genes in *Drosophila* cells using an enhancer-trap method"

- Damon Cooney ('95) "The construction of a genomic DNA library of *Manduca sexta*"
- Tracy Jones ('95) "The construction of a P element mobilization plasmid for use in transformation of *Drosophila* cells in culture"
- Kirk Zigler ('96) "Screening for conditionally-expressed genes in *Drosophila* cells in culture"
- Katherine Anderson ('96) "The distribution of injected, labeled *bcd* mRNA in *Drosophila* oocytes"
- Michael B. Becknell ('97) "The construction of a *Manduca sexta* ovarian cDNA library"
- Rita Kahng ('97) "Cloning a *Manduca sexta* homolog of the *Drosophila exuperantia* gene with the Polymerase Chain Reaction"
- Mike Gilbert ('97) "The construction and screening of a genomic DNA library of *Manduca sexta*"
- Heather Handley ('97) "PCR amplification of a *Manduca sexta* sequence with homology to the *Drosophila exuperantia* gene"
- Derrick Johnson ('97) "Optimizing conditions for electroporation of enhancer-trap vector DNA into *Drosophila* tissue culture cells"
- Greg Hannahs ('97) "Screening for oxidative stress-inducible genes in *Drosophila* tissue culture"
- Damon Cooney ('98) "Screening for alcohol-inducible genes in *Drosophila* tissue culture"
- Kathleen McCormally ('98) "Cloning and characterizing a *Manduca sexta* homolog of the *Drosophila exuperantia* gene"
- Wendy Beyer ('98) "Cloning and characterizing a *Manduca sexta* homolog of the *Drosophila exuperantia* gene"
- Stephanie Levi ('98) "The role of peroxide in apoptosis of *Drosophila* tissue culture cells"
- Daniel Denning ('98) "H<sub>2</sub>O<sub>2</sub> signaling in the control of cell proliferation of *Drosophila* cells in culture"
- Brian Gibney ('99) "2-dimensional gel electrophoresis as a tool to investigate cellular responses to H<sub>2</sub>O<sub>2</sub>"
- Aaron Downs ('00) "2-dimensional gel electrophoresis as a tool to investigate cellular responses to superoxide"
- Michael Ward ('99) "The oxidative stress response in cultured *Drosophila* cells"
- William Ward ('01) "Is H<sub>2</sub>O<sub>2</sub> an intercellular proliferation signal in *Drosophila*?"