

Donald A. Evans

Home Address

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Education

- 2000 PhD Molecular, Cellular and Developmental Biology, Indiana University
Thesis – SL2 RNA Requirements for Polycistronic Pre-mRNA Processing
in *Caenorhabditis elegans* (advisor - Thomas Blumenthal, PhD)
- 1994 BA Biological Sciences, DePauw University

Research Experience

- Jan. 2022 - current
University of Colorado, Boulder - Research Associate at the Institute for Behavioral Genetics
• Identification of biomarkers associated with cognitive changes in aging
- Sept. 2020 - Dec. 2021
University of Colorado, Boulder - Research Associate in the laboratory of Corrie Detweiller, PhD
• Examined mechanism of action of small molecule inhibitors of intracellular bacterial replication/survival
- March 2019 - May 2020
Colorado State University-Research Scientist/Scholar II in the laboratory of Carol Wilusz, PhD
• Induced pluripotent stem cell and HeLa cell culture
• Mutagenesis and cloning of PCBP2 and LINC01356 RNA expression constructs
• Western blotting, HeLa cell transfection, iPSC gene knockdown using shRNA
- July 2018 - Feb 2019
University of Colorado Anschutz Medical Campus-Research Associate in the laboratory of Shaodong Dai, PhD
• Lab manager responsible for establishing the lab in a new location, ordering, etc.
• Mutagenesis, cloning and eukaryotic cell culture and expression of proteins for crystallographic studies
• Editing of lab abstracts and posters
• Biochemical purification of BirA enzyme for lab use
- Sept. 2012 - June 2018
Research Associate, Linda Crnic Institute for Down Syndrome, University of Colorado, Denver

- Coordinated an academia-industry partnership to study the link between Down syndrome and Alzheimer's disease
- Participated in the largest proteomics study of Down syndrome using SomaScan technology

2008 – Sept. 2012

University of Colorado-Denver-Biological Literature Annotator

- Linked terms in scientific literature to entries in national databases to create a tool for testing natural language processing software

2000 – 2008

University of Colorado–Boulder Post-Doctoral fellow in the laboratory of Norman Pace, PhD

- Began initial examination of the subunit composition of *Sulfolobus acidocaldarius* signal recognition particle
- Attempted crystallization of *Schizosaccharomyces pombe* ribonuclease P protein subunits
- Assessed the role of universally conserved nucleotides in the bacterial RNase P RNA

1995 – 2000

Indiana University PhD Thesis Research in the laboratory of Thomas Blumenthal, PhD

- Performed an *in vivo* mutational analysis of the *Caenorhabditis elegans* SL2 RNA, a *trans*-splicing RNA involved in operon processing

1994 –

Indiana University Graduate Student Rotation in the laboratory of Mark Muskavitch, PhD

- Performed a genetic screen to identify enhancers and suppressors of a mutation in the *Drosophila melanogaster* gene Delta, which is involved in cell fate determination

1994 –

Indiana University Graduate Student Rotation in the laboratory of William Saxton, PhD

- Worked on generating GFP fusions with synaptic vesicle proteins to examine *Drosophila melanogaster in vivo* vesicle trafficking

1993 –

Summer Undergraduate Research Fellow, Eli Lilly & Co.-Skeletal Disease Division

- Examined the mRNA expression levels of several cytokines (myc, jun, fos) in different mouse tissues using ribonuclease protection assays

1992 –

Summer Undergraduate Research Fellow, Indiana University School of Medicine Dept. of Pharmacology and Toxicology, Dr. Sherry Queener (mentor)

- Examined phospholipid content of *Pneumocystis carinii* membranes using thin layer chromatography

1992 –

Winter Term Science Research Internship, Indiana University School of Medicine
Dept. of Pharmacology and Toxicology, Dr Sherry Queener (mentor)
•Utilized *in vitro* enzymatic assay to determine the efficacy of various drugs
against *Pneumocystis carinii*

Relevant Skills

Molecular Biology (nucleic acid and protein purification, Northern blots, Western blots, PCR (including digital droplet PCR), site directed mutagenesis, cloning, etc.)
Cell culture (HeLa, lymphoblastoid and iPSC/ESC)
Microscopy
Flow Cytometry (Sony SH800)
Computer skills (Word, Excel, Power Point)

Publications

Research Papers

Sullivan, K.D., **Evans, D.**, Pandey, A., Hraha, T.H., Smith, K.P., Markham, N., Rachubinski, A.L., Wolter-Warmerdam, K., Hickey, F., Espinosa, J.M. and Blumenthal, T. (2017) Trisomy 21 Causes Changes in the Circulating Proteome Indicative of Chronic Inflammation. *Sci. Rep.* **7**: 14818.

Bada, M., Eckert, M., **Evans, D.**, Garcia, K., Shipley, K., Sitnikov, D., Baumgartner, W.A., Jr., Cohen, K.B., Verspoor, K., Blake, J.A. and Hunter, L.E. (2012) Concept Annotation of the CRAFT Corpus. *BMC Bioinformatics* **13**, 161.

Marquez, S.M., Chen, J.L., **Evans, D.** and Pace, N.R. (2006) Structure and function of eukaryotic ribonuclease P. *Mol. Cell* **24**, 445-456.

Blumenthal, T., **Evans, D.**, Link, C., Guffanti, A., Lawson, D., Thierry-Mieg, J., Thierry-Mieg, D., Chiu, W.L., Duke, K., Kiraly, M. and Kim, S. (2002) A Global Analysis of *Caenorhabditis elegans* Operons *Nature* **417**, 851-854.

Evans, D., Perez, I., MacMorris, M., Leake, D., Wilusz, C. and Blumenthal, T. (2001) A complex containing CstF and the SL2 snRNP connects 3' end formation and *trans*-splicing in *C. elegans* operons. *Genes & Dev.* **15**, 2562-2571.

Evans, D. and Blumenthal, T. (2000) *trans* Splicing of Polycistronic *Caenorhabditis elegans* Pre-mRNAs: Analysis of the SL2 RNA. *Mol. Cell. Biol.* **20**, 6659-6667.

Evans, D., Zorio, D., MacMorris, M., Winter, C.E., Lea, K. and Blumenthal, T. (1997) Operons and SL2 *trans*-splicing exist outside the genus *Caenorhabditis*. *Proc. Natl. Acad. Sci. USA* **94**, 9751-9756.

Reviews

Evans, D., Marquez, S.M., and Pace, N.R. (2006) RNase P: interface of the RNA and protein worlds. *Trends Biochem Sci* **31**, 333-341.

Book Chapters

Marquez, S.M., **Evans, D.**, Kazantsev, A.V. and Pace, N.R. (2007) A structural analysis of RNase P. (In: Ribozymes and RNA Catalysis. Lilley, D.M.J. and Eckstein, F., eds) Royal Society of Chemistry

Abstracts

June 2017 2nd International Conference of the Trisomy 21 Research Society (travel award recipient) "Blood Proteomics of Children with Down Syndrome"

Evans, D., Blumenthal, T., Sullivan, K., Pandey, A., Smith, K., Makrkham, N., Rachubinski, A.L., Wolter-Warmerdam, K., Hickey, F. and Espinosa, J.

October 2015 4th Annual Linda Crnic Institute Down Syndrome Symposium (oral) "Protein changes in the blood of children with Down Syndrome" **Evans, D.**

May 2005 10th Annual Meeting of the RNA Society- "Structural Implications of Phylogenetically Invariant Nucleotides in RNase P RNA" **Evans, D.**, Kazantsev, A.V., Dalby, A.B. and Pace, N.R.

June 2004 9th Annual Meeting of the RNA Society- "Mutational Analysis of Phylogenetically Invariant Nucleotides in RNase P RNA" **Evans, D.**, Kazantsev, A.V. and Pace, N.R.

July 2003 8th Annual Meeting of the RNA Society- "*Schizosaccharomyces pombe* Ribonuclease P Revisited" **Evans, D.** and Pace, N.R.

August 2001 Cold Spring Harbor Eukaryotic mRNA Processing meeting (oral) – "A Global Analysis of the *Caenorhabditis elegans* Operons" Blumenthal, T., **Evans, D.**, Link, C., Guffanti, A., Thierry-Mieg, D., Thierry-Mieg, J., Duke, K. and Kim, S.

August 2001 Cold Spring Harbor Eukaryotic mRNA Processing meeting (oral) – "A complex containing CstF and the SL2 snRNP connects 3' end formation and *trans*-splicing in *C. elegans* operons" **Evans, D.**, Perez, I., MacMorris, P., Leake, D., Williams, C. and Blumenthal, T.

June 2001 13th International *C. elegans* meeting (oral) –

“A Global Analysis of the *Caenorhabditis elegans* Operons”
Blumenthal, T., **Evans, D.**, Link, C., Guffanti, A., Thierry-Mieg, D., Thierry-Mieg, J., Duke, K. and Kim, S.

June 2001 13th International *C. elegans* meeting (oral) –
“A complex containing CstF and the SL2 snRNP connects 3’ end formation and *trans*-splicing in *C. elegans* operons”
Evans, D., Perez, I., MacMorris, P., Leake, D., Williams, C. and Blumenthal, T.

May 2001 6th Annual Meeting of the RNA Society (oral) –
“A complex containing CstF and the SL2 snRNP connects 3’ end formation and *trans*-splicing in *C. elegans* operons”
Evans, D., Perez, I., MacMorris, M., Leake, D., Williams, C. and Blumenthal, T.

October 2000 Worm Breeder’s Gazette 16(4):22-23
“Global analysis of operons using microarrays”
Blumenthal, T., **Evans, D.**, Link, C., Duke, K. and Kim, S.

August 1999 Cold Spring Harbor Eukaryotic mRNA Processing meeting -
“*Trans*-splicing analysis of polycistronic *C. elegans* pre-mRNAs: Analysis of SL2 RNA and the intercistronic region” **Evans, D.**, Huang, T., Kuersten, S., MacMorris, P. and Blumenthal, T.

June 1999 12th International *C. elegans* meeting –
“The sequence of the SL2 RNA spliced leader is not required for transcription or *trans*-splicing”
Evans, D. and Blumenthal, T.

May 1998 3rd Annual Meeting of the RNA Society –
“*In vivo* mutational analysis of SL2 RNA in *C. elegans*”
Evans, D. and Blumenthal, T.

May 1997 11th International *C. elegans* meeting – “SL2 *trans*-splicing and operons occur outside the *Caenorhabditis* genus” **Evans, D.**, Zorio, D., MacMorris, M., Winter, C., Lea, K. and Blumenthal, T.

October 1996 Midwest RNA meeting –
“Phylogenetic comparative sequence analysis of the SL2 RNA”
Evans, D., Zorio, D. MacMorris, M., Winter, C., Lea, K. and Blumenthal, T.

June 1996 Midwest *Caenorhabditis elegans* meeting -
“SL2 *Trans*-splicing and operons in *Oscheius brevesophaga*, a non-caenorhabditid nematode”
Evans, D., Zorio, D., Lea, K., Winter, C.E. and Blumenthal, T.

February 1996 Worm Breeder’s Gazette 14(2): 31
“Operons are not restricted to *Caenorhabditis*”
Zorio, D., **Evans, D.**, Lea, K. and Blumenthal, T.

Academic and Professional Honors

2017 – Travel Award, 2nd International Conference of the Trisomy 21 Research Society

2002 – National Research Service Award (F32) Recipient

1993 – Summer Undergraduate Research Fellowship, Eli Lilly & Co.
Skeletal Disease Division

1992 – Summer Undergraduate Research Fellowship, Indiana University School of
Medicine
Dept. of Pharmacology and Toxicology, Dr. Sherry Queener (mentor)

Departmental Service

2007 Co-organized Pace Symposium (including soliciting sponsors, organizing
program, generating posters, creating slideshow of old lab photos, etc.)
MCDB, University of Colorado – Boulder
Boulder, CO

2007 Organized Summer Post-Doc Seminar Series (organized speakers/
schedule and ordered/prepared/cleaned up food)
MCDB, University of Colorado – Boulder
Boulder, CO

2005 – 2007 Maintenance of On-Site Qiagen cabinet
MCDB, University of Colorado – Boulder
Boulder, CO

Invited Talks

Dec. 7, 2017 Complement Seminar Series
•Discuss the overlap between the complement pathway and protein
changes in the blood of children with Down syndrome

Sept. 20, 2009 No Fear Molecular Biology, MCMLA (Midcontinental Chapter of the
Medical Library Association) Breckenridge, CO
•Provided overview of molecular biology to science librarians

References

Thomas Blumenthal, PhD
Director Emeritus, Linda Crnic Institute for Down Syndrome
Professor Molecular, Cellular and Developmental Biology, University of Colorado
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Norman Pace, PhD
Distinguished Professor Emeritus
Molecular, Cellular and Developmental Biology, University of Colorado
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Shaodong Dai, PhD
Associate Professor
Pharmacology, University of Colorado School of Medicine
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Additional references available upon request