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Personal

Born: Hanover, NH, USA on December 1, 1953

Citizenship: USA

Education

Ph.D., Biology, Massachusetts Institute of Technology, Cambridge, MA 1976-1979
Thesis Title: The protein covalently linked to the 5' end of poliovirus RNA
Advisor: Dr. David Baltimore

B.S., Biology, Massachusetts Institute of Technology, Cambridge, MA 1971-1975

Professional Appointments

Silverman Professor of Natural Sciences	2009-present
Co-Director, RNA Therapeutics Institute	2009-2016
Professor, Program in Molecular Medicine University of Massachusetts Medical School, Worcester, MA	2008-present
Professor of Genetics, Dartmouth Medical School	2001-2007
Professor, Biological Sciences, Dartmouth Medical School	1996-2001
Associate Professor, Biological Sciences, Dartmouth Medical School	1992-1996
Associate Professor, Department of Cellular and Development Biology, Harvard University, Cambridge, MA	1988-1992
Assistant Professor, Department of Cellular and Development Biology, Harvard University, Cambridge, MA	1985-1988
Postdoctoral Research Supervisor: Dr. H. Robert Horvitz Massachusetts Institute of Technology, Cambridge, MA	1979-1985
Graduate Research Supervisor: Dr. David Baltimore Massachusetts Institute of Technology, Cambridge, MA	1976-1979
Research Assistant Supervisor: Dr. David Baltimore Center for Cancer Research, Massachusetts Institute of Technology, Cambridge, MA	1975-1976

Honors and Awards

Fellow, American Association for the Advancement of Science	2018
Prize in Developmental Biology, March of Dimes (shared)	2016
Breakthrough Prize in Life Sciences (shared)	2014
Gruber Genetics Prize (shared)	2014
Wolf Prize (shared)	2014
Sven Berggren Prize, Royal Physiographic Society in Lund Sweden	2014
Keio Medical Science Award	2013
Benvenuto Memorial Award	2013
Dr. Paul Janssen Award for Biomedical Research (shared)	2012
Fellow, American Academy of Arts & Sciences	2011
Massry Award (shared)	2009
Horwitz Prize, Columbia University (shared)	2009
Dickson Prize, University of Pittsburgh	2009
Warren Triennial Prize (shared), Massachusetts General Hospital	2008
Gairdner Foundation International Award (shared)	2008
Lasker Award (shared)	2008
Benjamin Franklin Medal in Life Sciences (shared), Franklin Institute	2008
Member, National Academy of Sciences	2007
Jack M. Buchanan Medal, M.I.T.	2006
Genetics Society of America Medal for Outstanding Contributions in the Past 15 Years	2006
Lewis S. Rosenstiel Award (shared) in Basic Medical Science, Brandeis University	2006
Gene Knudson Lecturer in Molecular Genetics, Oregon State University	2003
Newcomb Cleveland Prize (shared), American Association for the Advancement of Science for the most outstanding paper published in Science July 2001-June 2002	2002
NIH Postdoctoral Fellow	1982-1984
American Cancer Society Postdoctoral Fellow	1980-1981
Chaim Weizmann Postdoctoral Fellow	1979

Professional Memberships and Activities

Member, Howard Hughes Young Investigator Review	2009
Adhoc Reviewer NIH Molecular Genetics C Study Section	2008
Adhoc Reviewer, NIH Molecular Genetics B Study Section	2007, 2009, 2011
Member, Friedrich Meischer Institute Scientific Advisory Board	2007
Member, Genetics Society of America Board	2007-2009
Member, Wellcome Trust Mouse and other Organisms Development Review	2005
Ad hoc Reviewer, NIH Molecular Genetics Study Section	2005, 2012
Member, Rosenstiel Award Review Panel	2004-present
Section Chair, NIH Genetics Study Section	2004-present
Member, NIH GMS Genetics Study Section	2002-2004
Judge, Siemens Westinghouse National Competition	2002-2005, 2009-2013
Member, Damon Runyon Fellowship Review	1994, 2006-present
Organizer, Bi-monthly Boston Area Worm Meeting	1989-present

Editorial Responsibilities

<i>RNA Biology</i> , Editorial Board of Development	2015-present
<i>RNA Biology</i> , Editorial Board Member	2004-2015

Educational Activities

Teaching Activities

Graduate Program Core Course "Small RNAs", team taught (UMMS)	2016-present
MD/PhD Lecturer "Developing Solutions to Research Problems" (UMMS)	2014-present
RNA Biology Journal Club, 25-30 students (UMMS)	2012-present
Introduction and RAPS, Core Course (UMMS)	2009-present
Biochemistry, Graduate Program Core Course, team taught (Dartmouth)	1995-2008
Developmental Genetics, Graduate discussion seminar, 5-20 students (Harvard and Dartmouth)	1986-2008
Introductory Genetics, Lecturer, 100-300 students (Harvard)	1985-2001

Advising, Mentoring & SupervisionCurrent Lab Members

Roger Chang, Ph.D., Postdoc	2019-present
Charles Nelson, Ph.D., Postdoc	2015-present
Alejandro Vasquez Rifo Ph.D., Postdoc (May 2020); Research Specialist (May 2020)	2013-present
Reyyan Bulut, Graduate Student	2018-present
Zeynep Mirza, Graduate Student	2017-present
Ye Duan, Graduate Student	2014-present
Starr Sabourin, Research Lab Tech	2020-present

Past Lab Members

Allison Abbott, Ph.D., Postdoc; Associate Professor, Marquette University, Milwaukee, Wisconsin	2001-2006
Gregory Ambros, Research Lab Tech	2015- 2017
Samantha Burke, Ph.D., Graduate Student; Science Faculty, Noble and Greenough School, Dedham, MA	2009-2015
Sungwook Choi, Ph.D., Graduate Student (2010-18); Postdoc, RNA Therapeutics Institute, UMass Medical School, Worcester, MA	2010-2019
James Marvel-Cohen, Research Tech; Student, Harvard Medical School, Cambridge, MA	2017-2018
Susan Euling, Ph.D., Graduate Student; Biologist, EPA	1987-1994
Rhonda Feinbaum, Ph.D., Postdoc; Instructor, Department of Genetics, Harvard Medical School, and Department of Molecular Biology, Mass General Hospital	1988-1992
William Fixsen, Ph.D., Postdoc; Senior Lecturer on Molecular and Cellular Biology Director of the Health Careers Program, Director of Science Instruction, Harvard	1985-1988
Dona Hirosha Geekiyanage, Ph.D., Postdoc; Postdoc, Microbiology and Physiological Systems, UMass Medical School	2016-2020
Christopher Hammell, Ph.D., Postdoc; Associate Professor, Cold Spring Harbor	2002-2010
Molly Hammell, Ph.D., Postdoc; Assistant Professor, Cold Spring Harbor Laboratory	2006-2010
William Hanna, Ph.D., Postdoc; Chair of Biology, Massasoit Community College, MA	2003-2004
Omid Harandi Ph.D., Postdoc; Senior Scientist, Rubius Therapeutics, Cambridge, MA	2008-2011
Orkan Ilbay, Graduate Student ; Postdoc, Stanford University, Stanford, CA.	2013-2020
Yang Hong, Ph.D., Graduate Student; Associate Professor, Univ. of Pittsburgh	1993-1999
Marta Hristova, M.D./Ph.D., Graduate Student; Nephrologist, Beth Israel Deaconess Hospital, Boston, MA	1995-2001

Past Lab Members (continued)

Xantha Karp, Ph.D., Postdoc; Assistant Professor, Central Michigan University	2005-2009
Zhongchi Liu, Ph.D., Graduate Student; Professor, University of Maryland	1984-1990
Isana Veksler-Lublinsky, Ph.D., Postdoc; Senior Lecturer, Ben-Gurion University of the Negev, Beersheba, Israel	2012-2017
Katherine McJunkin Ph.D., Postdoc; Acting Chief, Laboratory of Cellular and Developmental Biology, NIDDK, NIH	2010-2017
Craig Mello, Ph.D., Graduate Student; Professor, UMass Medical School, Howard Hughes Medical Institute Investigator	1984-1990
Kwaku Mensah, Lab Tech; Ultrasound Technitian,	2017-2019
Eric Moss, Ph.D., Postdoc; Associate Professor, Molecular Biology, University of Medicine and Dentistry of New Jersey	1990-1997
Philip Olsen, Ph.D., Postdoc; Proteome, Inc.	1994-1999
Maria Ow, Ph.D., Postdoc; Postdoctoral Researcher, Syracuse University	2005-2013
Zhiji Ren, Ph.D., Graduate Student; Associate Manager, Oligonucleotide Synthesis Division, Genewiz, Cambridge, MA	2009-2016
Ann Rougvie, Ph.D., Postdoc; Professor, University of Minnesota	1989-1992
Richard Roy, Ph.D., Postdoc; Professor, McGill University, Montreal, Quebec, CA	1997-2001
Lorenzo Sempere, Ph.D., Graduate Student; Assistant Professor, Van Andel Research Institute, Grand Rapids, Michigan	1999-2004
Nicholas Sokol, Ph.D., Postdoc; Associate Professor, Indiana University	2001-2008
Olivia Spring, Intern	2019-2020
Catherine Sterling Ph.D., Postdoc; University of Melbourne	2010-2016
Elizabeth Thatcher, Ph.D., Postdoc; UMass Medical School	2010-2014
Alexey Wolfson, Ph.D., MBA, Founder and CEO Advirna	2010-2012
Anna Zinovyeva Ph.D., Postdoc; Assistant Professor, Kansas State University	2008-2015

External Educational Activities

Cold Spring Harbor Course on C. elegans Guest Lecturer	2003
CSRI, Montreal Graduate Program Guest Lecturer	2003

FundingCurrent

NIH 1 R35GM131741-01

V. Ambros (PI)

05/01/2019-
04/30/2024**Genetic control of developmental timing**

The goal of this project is to investigate the relationship of the periodic components of worm development – particularly molting and larval diapause – to the progressive advancement of stage identify and cell fate progression, with the aim of testing hypotheses for how cell divisions and cell fate transitions are coordinated on the organism level.

Completed

NIH 5 R01 GM034028-31

V. Ambros (PI)

7/1/1984-
1/31/2019**Genetic Control of Animal Development**

The goal of this project is to uncover mechanisms of cross talk between pathways controlling temporal, spatial and sexual specification of cell fates, cell polarity, and quiescence in stem cells.

NIH/NHLBI 1 U01 HL126495-03

J. Freedman (PI)

8/1/2014-
4/30/2019**Racial and ethnic diversity in human extracellular RNA**

This project is in response to an RFA requesting the establishment of a referent group for extracellular RNA from a cohort representative of the U.S. population. This project will perform RNAseq from 1600 plasma and urine samples from the FHS and MESA studies.

Role: Co- Investigator

NIH 5 R01 GM104904-03

V. Ambros (PI)

6/1/2014-
9/30/2018**microRNA gene networks regulating responses environment**

The broad goal of this work is to use the *C. elegans* model system to understand the genetic and molecular mechanisms underlying how microRNAs mediate organismal responses to the nutritional and pathogenic properties of an animal's diet, and help confer developmental and physiological robustness against environmental change.

NIH 4 UH2 TR000921-04

J. Freedman (PI)

7/1/2013-
6/30/2018**Extracellular RNAs: Biomarkers for cardiovascular risk and disease**

The primary goal of this project is to define the expression of circulating RNAs in health and disease by exploring the impact of specific RNAs have on key processes that influence the development of cardiovascular disease.

Role: Co-Investigator

NIH R01 GM066826

V. Ambros

Functional analysis of microRNA genes in *Drosophila*

The major goals of this project were to determine the roles in *Drosophila* development for genes encoding evolutionarily conserved.

NIH 1 R01 GM088365-01

V. Ambros

Developmental Regulation of MicroRNA Expression

The broad goal of this work is to use the *C. elegans* model system to understand the genetic and molecular mechanisms underlying the developmental regulation of microRNA expression.

NIH 1 R21 CA143711-01

V. Ambros

Chemical genetics of LIN-28 in *C. elegans*

The goal of this project is to establish the feasibility of using *C. elegans* as a platform for screening for drugs that inhibit the oncogene *lin-28*.

The Ellison Foundation

V. Ambros

MicroRNA Pathways and Stress Resistance in *C. Elegans*

The major goal of this project will be to use the *C. elegans* genetic model to explore mechanisms of gene regulation in response to environmental and physiological stress.

ALS Therapy Alliance

V. Ambros

microRNA profiles in Amyotrophic Lateral Sclerosis

The goal of this project is to determine other pathological factors that alter the regulation of RNA expression or function that may similarly adversely influence motor neuron viability.

McNeil Foundation

J.A. Ward (PI)

MicroRNA in Acetaminophen Toxicity

The overarching goal of this proposal is to identify a miRNA expression profile that predicts ALF in patients with APAP-induced hepatotoxicity that is specific APAP toxicity.

Role: Co-Investigator

Publications

Peer Reviewed Articles

Duan Y, Choi S, Nelson C, Ambros V. Engineering essential genes with a "jump board" strategy using CRISPR/Cas9. *MicroPubl Biol.* 2020 Oct 8;2020. doi: 10.17912/micropub.biology.000315.. PMID: 33274316. PMCID: PMC7704125

Vasquez-Rifo A, Ricci, EP, Ambros, V. *Pseudomonas aeruginosa* cleaves the decoding center of *Caenorhabditis elegans* ribosomes. *PLoS Biol* 2020 Dec 1;18(12): doi: 10.1371/journal.pbio.3000969. eCollection 2020 Dec. PMID: 33259473.

Duan Y, Yongming Sun Y, Ambros V. RNA-seq with RNase H-based ribosomal RNA depletion specifically designed for *C. elegans*. *MicroPubl Biol.* 2020 Sep 22;2020: 10.17912/micropub.biology.000312. PMID: 33005886. PMCID: PMC7520128 .

Geekiyana H, Rayatpisheh S, Wohlschlegel JA., Brown, Robert, Jr., Ambros V. Extracellular microRNAs in human circulation are associated with miRISC complexes that are accessible to anti-AGO2 antibody and can bind target mimic oligonucleotides. *Proc Natl Acad Sci U S A* . 2020 Sep 29;117(39):24213-24223. doi: 10.1073/pnas.2008323117. Epub 2020 Sep 14. PMID: 32929008. PMCID: PMC7533700.

Carreiro S, James Marvel-Coen J, Lee R, Chapman B, Ambros V. Circulating microRNA Profiles in Acetaminophen Toxicity. *J Med Toxicol.* 2020 Apr;16(2):177-187. doi: 10.1007/s13181-019-00739-6. Epub 2019 Dec 2. PMID: 31792846. PMCID: PMC7099119 (available on 2021-04-01).

Ilbay O, Ambros V. Regulation of nuclear-cytoplasmic partitioning by the *lin-28-lin-46* pathway reinforces microRNA repression of HBL-1 to confer robust cell-fate progression in *C. elegans*. *Development.* 2019 Nov 6;146(21). pii: dev183111. doi: 10.1242/dev.183111. PMID: 31597658. PMCID: PMC6857590.

Nelson C, Ambros V. Trans-splicing of the *C. elegans let-7* primary transcript developmentally regulates *let-7* microRNA biogenesis and *let-7* family microRNA activity. *Development*. 2019 July 24;146(14). pii: dev182212. doi: 10.1242/dev.182212. PMID: 31340934. PMCID: PMC6432665.

Ilbay O, Ambros V. Pheromones and Nutritional Signals Regulate the Developmental Reliance on let-7 Family MicroRNAs in *C. elegans*. *Curr Biol*. 2019 Jun 3;29(11):1735-1745.e4. doi: 10.1016/j.cub.2019.04.034. Epub 2019 May 16. PMID: 31104929.

Choi S, Ambros V. The *C. elegans* heterochronic gene *lin-28* coordinates the timing of hypodermal and somatic gonadal programs for hermaphrodite reproductive system morphogenesis. *Development*. 2019 Feb 11. pii: dev.164293. doi: 10.1242/dev.164293. PMID: 30745431. PMCID: PMC6432661.

Vasquez-Rifo A, Veksler-Lublinsky I, Cheng Z, Ausubel M, Ambros V. The *Pseudomonas aeruginosa* accessory genome elements influence virulence towards *Caenorhabditis elegans*. *Genome Biol*. 2019; 20:270. doi: <https://doi.org/10.1101/621433>. PMID: 31823826. PMCID: PMC6902481.

Ambros V, Ruvkun, G. Recent Molecular Genetic Explorations of *Caenorhabditis elegans* MicroRNAs. *Genetics*. 2018 Jul;209(3):651-673. doi: 10.1534/genetics.118.300291. PMID:29967059. PMCID: PMC6028246.

McJunkin K, Ambros V. A microRNA family exerts maternal control on sex determination in *C. elegans*. *Genes Dev*. 2017 Feb 15;31(4):422-437. doi: 10.1101/gad.290155.116. Epub 2017 Mar 9. PMID: 28279983. PMCID:PMC5358761.

Tanriverdi K, Kucukural A, Mikhalev E, Tanriverdi SE, Lee R, Ambros VR, Freedman JE. Comparison of RNA isolation and associated methods for extracellular RNA detection by high-throughput quantitative polymerase chain reaction. *Anal Biochem*. 2016 May 15;501:66-74. doi: 10.1016/j.ab.2016.02.019. Epub 2016 Mar 10. PMID:26969789.

Ren Z, Veksler-Lublinsky I, Morrissey D, Ambros V. *Staufen* negatively modulates microRNA activity in *Caenorhabditis elegans*. *G3 (Bethesda)*. 2016 May 3;6(5):1227-37. doi: 10.1534/g3.116.027300. PMID:26921297. PMCID: PMC4856075.

Zinovyeva AY, Veksler-Lublinsky I, Vashisht AA, Wohlschlegel JA, Ambros VR. *Caenorhabditis elegans* ALG-1 antimorphic mutations uncover functions for Argonaute in microRNA guide strand selection and passenger strand disposal. *Proc Natl Acad Sci U S A*. 2015 Sep 22;112(38):E5271-80. doi: 10.1073/pnas.1506576112. Epub 2015 Sep 8. PMID:26351692. PMCID:PMC4586838.

Burke SL, Hammell M, Ambros V. Robust distal tip cell pathfinding in the face of temperature stress is ensured by two conserved microRNAs in *caenorhabditis elegans*. *Genetics*. 2015, Aug;200(4):1201-18. doi: 10.1534/genetics.115.179184. Epub 2015 Jun 15. PMID:26078280. PMCID:PMC4574240.

Bala S, Csak T, Momen-Heravi F, Lippai D, Kodys K, Catalano D, Satishchandran A, Ambros V, Szabo G. Biodistribution and function of extracellular miRNA-155 in mice. *Sci Rep*. 2015, May 29;5:10721. doi: 10.1038/srep10721. PMID: 26024046. PMCID:PMC4448655.

Ren Z, Ambros VR. *Caenorhabditis elegans* microRNAs of the let-7 family act in innate immune response circuits and confer robust developmental timing against pathogen stress. *Proc Natl Acad Sci USA*. 2015, May 5;112(18):E2366-75. doi: 10.1073/pnas.1422858112. Epub 2015 Apr 20. PMID: 25897023. PMCID:PMC4426397.

Harandi OF, Ambros VR. Control of stem cell self-renewal and differentiation by the heterochronic genes and the cellular asymmetry machinery in *Caenorhabditis elegans*. *Proc Natl Acad Sci USA*. 2015, Jan 20;112(3):E287-96. doi: 10.1073/pnas.1422852112. Epub 2015 Jan 5. PMID: 25561544. PMCID: PMC4311799.

Nelson C, Ambros V, Baehrecke EH. miR-14 regulates autophagy during developmental cell death by targeting ip3-kinase 2. *Mol Cell*. 2014, Nov 6;56(3):376-88. doi: 10.1016/j.molcel.2014.09.011. Epub 2014 Oct 9. PMID: 25306920. PMCID: PMC4252298.

McJunkin K, Ambros V. The embryonic mir-35 family of microRNAs promotes multiple aspects of fecundity in *C. elegans*. *G3 (Bethesda)*. 2014, Jul 21;4(9):1747-54. doi: 10.1534/g3.114.011973. PMID: 25053708. PMCID: PMC4169167.

Ward J, Kanchagar C, Veksler-Lublinsky I, Lee R, McGill M, Jaeschke H, Curry S, Ambros V. Circulating MicroRNA Profiles in Human Patients with Acetaminophen Hepatotoxicity or Ischemic Hepatitis. *Proc Natl Acad Sci USA*. 2014, Aug 19;111(33):12169-74. doi: 10.1073/pnas.1412608111. Epub 2014 Aug 4. PMID: 25092309. PMCID: PMC4143020.

Sterling C, Veksler-Lublinsky I, Ambros V. An efficient and sensitive method for preparing cDNA libraries from scarce biological samples. *Nucleic Acids Res*. 2015 Jan;43(1):e1. doi: 10.1093/nar/gku637. Epub 2014, Jul 23. PMID: 25056322. PMCID: PMC4288208.

Zinovyeva, AY, Bouasker S, Simard MJ, Hammell CM and Ambros V. Mutations in conserved residues of the *C. elegans* microRNA Argonaute ALG-1 identify separable functions in ALG-1 miRISC loading and target repression. *PLoS Genet*. 2014, Apr 24;10(4):e1004286. eCollection. 2014. PMID: 24763381. PMCID: PMC3998888.

Ward JA, Esa N, Pidikiti R, Freedman JE, Keaney JF, Tanriverdi K, Vitseva O, Ambros V, Lee R, McManus DD. Circulating Cell and Plasma microRNA Profiles Differ Between Non-ST-Segment and ST-Segment-Elevation Myocardial Infarction. *Fam Med Med Sci Res*. 2013, Oct 1;2(2):108. PubMed PMID: 24432306. PMCID: PMC3890357.

Bossé GD, Rüegger S, Ow MC, Vasquez-Rifo A, Rondeau EL, Ambros VR, Großhans H, and Simard MJ. The Decapping Scavenger Enzyme DCS-1 Controls MicroRNA Levels in *Caenorhabditis elegans*. *Mol Cell*. 2013, Apr 25;50(2):281-7. doi: 10.1016/j.molcel.2013.02.023. Epub 2013 Mar 28 PMID: 23541767. PMCID: PMC4624197.

Zou Y, Chiu H, Zinovyeva A, Ambros V, Chuang C-F, Chang C. Developmental decline in neuronal regeneration by the progressive change of two intrinsic timers. *Science*. 2013, Apr 19;340(6130):372-6. PMID: 23599497. PMCID: PMC4074024.

Karp X, Ambros V. Dauer larva quiescence alters the circuitry of microRNA pathways regulating cell fate progression in *C. elegans*. *Development*. 2012, Jun; 139(12):2177-86. PMID: 22619389. PMCID: PMC3357911.

McManus DD, Ambros V. Circulating MicroRNAs in cardiovascular disease. *Circulation*. 2011, Nov 1;124(18):1908-10. PMID: 22042926. PMCID: PMC3951832.

Ambros V. *MicroRNAs and developmental timing*. *Curr Opin Genet Dev*. 2011, Apr 28. PMID: 21530229. PMCID: PMC3149784.

Karp, X., Hammell, M., Ow, M.C., and Ambros, V. Effect of life history on microRNA expression during *C. elegans* development. *RNA*. 2011, Apr;17(4):639-51. PMID: 21343388 PMCID: PMC3062175.

Karp, X., Ambros, V. The developmental timing regulator hbl-1 modulates the dauer formation decision in *Caenorhabditis elegans*. *Genetics*. 2011, Jan;187(1):345-53. doi: 10.1534/genetics.110.123992. Epub 2010 Oct 26. PMID: 20980238. PMCID: PMC3018311.

Zheng G, Ambros V, Li WH. Inhibiting miRNA in *Caenorhabditis elegans* using a potent and selective antisense reagent. *Silence*. 2010 Apr 1;1(1):9. PMID: 20359322. PMCID: PMC2864223.

Ambros, V. MicroRNAs: genetically sensitized worms reveal new secrets. *Curr Biol*. 2010, July 27;20(14): R598-600.

Hammell, C.M., Karp, X. and Ambros, V. A feedback circuit involving let-7-Family miRNAs and DAF-12 integrates environmental signals and developmental timing in *C. elegans*. *Proc Natl Acad Sci USA*. 2009, Oct 13. PMID: 19828440. PMCID: PMC2774035.

Hong, X., Hammell, M., Ambros, V., and Cohen, S.M. Immunopurification of Ago1 miRNPs selects for a distinct class of microRNA targets. *Proc Natl Acad Sci USA*. 2009, Sep 1;106(35):15085-90. PMID: 19706460. PMCID: PMC2728611.

Zhang, L., Hammell, M., Kudlow, B.A., Ambros, V. and Han, M. Systematic analysis of dynamic miRNA- target interactions during *C. elegans* development. *Development*. 2009, Sep;136(18):3043-55. PMID: 19675127. PMCID: PMC2730362.

Hammell, C.M., Lubin, I., Boag, P.R., Blackwell, K.T., Ambros, V. nhl-2 modulates miRNA activity in *Caenorhabditis elegans*. *Cell*. 2009, Mar 6;136(5):926-38. PMID: 19269369. PMCID: PMC2670343.

Ambros V. The evolution of our thinking about microRNAs. *Nat Med*. 2008, Oct 14;10:1036-40. PMID: 18841144.

Ow MC, Martinez NJ, Olsen PH, Silverman HS, Barrasa MI, Conradt B, Walhout AJ, Ambros V. The FLYWCH transcription factors FLH-1, FLH-2, and FLH-3 repress embryonic expression of microRNA genes in *C. elegans*. *Genes Dev*. 2008, Sep 15;22(18):2520-34. PMID: 18794349. PMCID: PMC2546698.

Martinez, N. J., Ow, M. C., Barrasa, M. I., Hammell, M., Sequerra, R., Doucette-Stamm, L., Roth, F. P., Ambros, V. R., Walhout, A. J. M. A *C. elegans* genome-scale microRNA network contains composite feedback motifs with high flux capacity. *Genes and Dev*. 2008, Sep 15;22(18):2535-49. PMID: 18794350. PMCID: PMC2546694.

Hammell, M., Long, D., Zhang, L., Lee, A., Carmack, C. S., Han, M., Ding, Y. and Ambros, V. mirWIP: microRNA target prediction based on miRNA-containing ribonucleoprotein-enriched transcripts. *Nat Methods*. 2008, Sep; 5(9): 813-819. PMID: 19160516. PMCID: PMC3092588.

Sokol NS, Xu P, Jan YN, Ambros V. *Drosophila* let-7 microRNA is required for remodeling of the neuromusculature during metamorphosis. *Genes Dev*. 2008, Jun 15;22(12):1591-6. PMID: 18559475. PMCID: PMC2428057.

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Miska, E. A., Alvarez-Saavedra, E., Abbott, A. L., Lau, N. C., Hellman, A. B., McGonagle, S. M., Bartel, D. P., Ambros, V.R. and Horvitz, H. R. (2007) Most *Caenorhabditis elegans* microRNAs are individually not essential for development or viability. *PLoS Genet.* 2007, Dec 14;3(12):e215.

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Gaur, A.B. , Jewell, D.A., Liang, Y., Ridzon, D. , Moore, J.H. Chen, C., Ambros, V. R. and Israel, M. A. Characterization of microRNA expression levels and their biological correlates in human cancer cell lines. *Cancer Res.* 2007, Mar 15;67 (6); 2456-68. PMID: 17363563.

Long, D., Lee, R., Williams, P., Chan, C.Y., Ambros, V. and Ding, Y. Potent effect of target structure in microRNA function. *Nature Struct. Mol Biol.* 2007, Apr 14(4); 287-294. PMID: 17401373.

Hinas, A, Reimegård, J. Wagner, E.G.H., Nellen, W., Ambros, V.R. and Söderbom, F. The small RNA repertoire of *Dictyostelium discoideum* and its regulation by components of the RNAi pathway. *Nucleic Acids Res.* 2007;35(20):6714-26. PMID: 17916577. PMCID: PMC2175303.

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Lee RC, Hammell CM, Ambros V. Interacting endogenous and exogenous RNAi pathways in *Caenorhabditis elegans*. *RNA.* 2006, Apr;12(4):589-97. PMID:16489184, PMCID: PMC1421084.

Sokol NS, Ambros V. Mesodermally expressed *Drosophila* microRNA-1 is regulated by Twist and is required in muscles during larval growth. *Genes Dev.* 2005, Oct 1;19(19):2343-54. PMID: 16166373. PMCID: PMC1240043.

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Invited Reviews and Chapters

Ambros, V. pRB/CKI pathways at the interface of cell cycle and development. *Cell Cycle*. 2009 Nov 16; 8(21). PMID: 19823011.

Ambros, V. and Chen, C. The Regulation of Genes and Genomes by Small RNAs. *Development*. 2007 May; 134(9):1635-41. PMID: 17409118.

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Lee, R. C., Feinbaum, R. and Ambros, V. A Short History of a Short RNA. *Cell*. 2004 Jan 23;116 (2 Suppl):S89-92, 1 following S96. PMID: 15055592.

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Ambros, V., and Lee, R. (2003) Identification of microRNAs and other tiny noncoding RNAs by cDNA cloning in RNA Interference, Editing, and Modification, Methods and Protocols. J.Gott, Ed.

Carrington, J. and Ambros, V. Roles of Small RNAs in Development of Plants and Animals. Science 2003 Jul 18(5631): 336-338. PMID: 12869753.

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Ambros, V., and Moss, E. The heterochronic genes and developmental timing in *C. elegans*. Trends Genet. 1994 Apr;10(4):123-7. Review. PubMed PMID: 8029828.

Ambros, V. "Genetic basis for heterochronic variation" in Heterochrony in Evolution, Michael L. McKinney, Ed. Plenum, New York.

Non-Peer Reviewed Publications

Orkan, I., Nelson, C., Ambros, V. *C. elegans* LIN-28 controls temporal cell-fate progression by regulating LIN-46 expression via the 5'UTR of *lin-46* mRNA. bioRxiv 697490 doi: <https://doi.org/10.1101/697490>.

Presentations & Abstracts

Invited Presentations

Speaker, MOSTEC Symposium (virtual). MIT Office of Engineering Outreach Programs. Cambridge, MA	2020
Speaker, Society for Developmental Biology 78 th Annual Meeting, Boston, MA	2019
Speaker, Department of Molecular, Cellular and Developmental Biology, Yale, University, New Haven, CT	2019
Speaker, Department of Pathology, Case Western Reserve, Cleveland, OH	2018
Keynote Speaker, RNA Therapeutics Conference: From Base Pairs to Bedside. University of Massachusetts Medical School, Worcester, MA	2018

Speaker, Department of Genetics & Development, Columbia University, New York City, NY	2018
Keynote Speaker, 2018 SUNY Upstate Student Research Day, Syracuse, NY	2018
Speaker, Department of Cell and Developmental Biology, University of Pennsylvania, Philadelphia, PA	2018
Speaker, Department of Molecular Genetics and Cell Biology, University of Chicago, Chicago, IL	2018
Speaker, Carnegie Science Embryology, Carnegie Institutions, Baltimore, MD	2018
Speaker, NCI RNA Biology Symposium, Bethesda, MD	2017
Speaker, University California, Riverside, Program, Genetics, Genomics and Bioinformatics, Riverside, CA	2017
Speaker, Duke University, Program in Genetics and Genomics, Durham, NC	2016
Speaker, Keystone Symposia on Molecular and Cellular Biology, Keystone, CO	2016
Keynote Speaker, Developmental, Regenerative & Stem Cell Biology Retreat, Washington University, St. Louis, MO	2015
Speaker, 1st Annual Non-coding RNA Symposium, BIDMC, Boston, MA	2015
Speaker, Johns Hopkins University, Baltimore, MD	2015
Speaker, Green Center for Systems Biology, UT Southwestern, Texas	2015
Speaker, MOCB/CBMG Seminar Series, University of Maryland, College Park	2014
Speaker, William H. Telfer Endowed Lectureship, University of Pennsylvania	2014
Speaker, Dean's Distinguished Lecture Series, University of Kentucky	2013
Speaker, Biology Colloquium, MIT	2013
Speaker, Molecular, Cellular and Developmental Biology, University of Colorado-Boulder	2013
Speaker, Biology Graduate Student's Seminar, California Institute of Technology	2013
Speaker, Benvenuto Memorial Lecture, UT Houston	2013
Speaker, Faculty of Medicine, University of Ottawa	2013
Speaker, Developmental Biology Center, University of Minnesota	2012
Speaker, RNA MaxiGroup, University of Wisconsin-Madison	2012
Distinguished Joshua Lederberg Lecturer, Rockefeller University	2012
Speaker, Cell and Developmental Biology's Seminar, Vanderbilt University	2011
Speaker, Danny Thomas Lecture Series, St. Jude Children's Research Hospital	2011

Speaker, Genetics, Cell Biology & Development Seminar, University of Minnesota	2011
Speaker, Molecular Biology and Genetics Seminar, Cornell University	2011
Speaker, Rachford Lecture, Cincinnati Children's Hospital	2011
Speaker, President's Research Seminar, Memorial Sloan Kettering Cancer Center	2011
Speaker, Cell, Molecular and Developmental Biology Student Program	2011
Speaker, Microbiology and Immunology Seminar, Stanford University	2011
Distinguished Schueler Lecturer, Tulane University School of Medicine	2010
Speaker, Microbiology and Molecular Genetics Seminar, Harvard University	2009
Speaker, Cell and Molecular Biology Student Symposium, UNC	2009
Jack Buchanan Inaugural Lectureship, Massachusetts Institute of Technology	2006

National/International Meetings

Speaker & Chair, "Small RNAs" half-session. Fourth Regulatory & Non-Coding RNAs, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY.	2020
Keynote Speaker, Second Latin American Worm Meeting, Rosario, Argentina	2020
Speaker & Moderator, RiboClub 20 th Anniversary and Canada Gairdner International Symposium, Orford, Canada	2019
Speaker, Department of Zoology, Special Seminar Series, Barbara McClintock Lecture, University of British Columbia, Vancouver, Canada	2019
Speaker, Keystone Symposia on Molecular and Cellular Biology, Daejeon, South Korea.	2019
Speaker, The Goodman Cancer Research Centre, Frontiers in Cancer Research Lecture Series, McGill University, Montreal, Canada	2019
International Review Committee of the Center for Life Sciences, Tsinghua Univ. Beijing, China	2018
Keynote Speaker, RNA Regulation, Scientific Council of the Laboratory of Excellence, Nice, France	2018
Speaker, Center for Genomics Sciences, National University of Mexico	2017
International Review Committee of the Center for Life Sciences, Tsinghua Univ. Beijing, China	2017
Organizer, Cold Spring Harbor Laboratory Regulatory & Non-Coding RNAs Conference	2016
Speaker, Instituto De Fisiología Celular, Departamento de Biología Celular y Desarrollo, Mexico	2016
Speaker, Universidad Nacional Autónoma de Mexico, Mexico	2016
Speaker, Yonsei University, Seoul, Korea	2015

Speaker, Inter-Academy Seoul Science Forum, Seoul Korea	2015
Speaker, Developmental & Stem Cell Biology Program, Hospital for Sick Children, Toronto	2015
Speaker, IMBA "Microsymposium on small RNAs", Vienna, Austria	2015
RIKEN Center for Developmental Biology Symposium "Time in Development", Kobe Japan	2015
Keynote Speaker, Human Genetics Student's Society Conference "Exploring non-coding RNA function", McGill University, Montreal, Canada	2015
Keynote Speaker, NESDB 2015, Marine Biological Laboratory, Woods Hole, MA	2015
Speaker, Royal Physiographic Society RNA Symposium "ncRNAs in health and disease", Lund, Sweden	2014
Speaker, School of Sciences "Small Brains, Big Ideas", Universidad de Chile	2012, 2014
Speaker, Nobel Symposium, "Molecular and Physiological Aspects of Diabetes Mellitus", Karolinska Institute, Stockholm, Sweden	2012
Speaker, International Symposium on "microRNAs and other ncRNAs in health and disease", Lund, Sweden	2012
Organizer, RiboClub, Quebec, Canada	2012
Speaker, Cold Spring Harbor "Regulatory & Non-Coding RNAs"	2012, 2014
Speaker, Gordon Conference "The Biology of Post-Transcriptional Gene Regulation"	2012
Speaker, European Science Open Forum for Biomedical Research (Janssen), Ireland	2012
Speaker, Genetics Society of America Conference, Washington, DC	2012
Keynote Speaker, 7th Microsymposium on siRNAs, Basel	2012
Speaker, Austrian Genome Research Program, Innsbruck	2012
Keynote Speaker, "Micromanaging the Lung", Maxx Planck Institute, Germany	2011
Keynote Speaker, Toll2011 "Decoding Innate Immunity", Italy	2011
Speaker, Novartis Scientific Seminar Series	2011
Organizer, Keystone Symposia on Biological roles of RNA silencing	2011
Speaker, MicroRNA Symposium, St. Kitts	2010
Speaker, China IUBMB International Congress/FAOBMB Congress Biochemistry and Molecular Biology	2009
Speaker, Keystone Symposium on The Biology of RNA Silencing	2009, 2011
Speaker, "Regulation of MicroRNA Activity in C. elegans Development", St. Kitts	2009
Speaker, Meeting on Developmental Timing, Janelia Farms, HHMI	2008

Speaker, Meeting on Developmental Timing, Janelia Farms, HHMI	2008
Speaker, DIA Oligonucleotide-based Therapeutics Conference	2008, 2013
Speaker, Keystone Symposia on RNAi, MicroRNA and Non-coding RNA	2008, 2011
Speaker, NIDDK Workshop on miRNAs in Cellular Development & Hematopoiesis	2007
Speaker, Santa Cruz Developmental Biology Conference	2006
Speaker, Nobel Conference, Functional RNA World, Karolinska Institute	2006
Speaker, Jacques Monod Conference, Roscoff, France	2006
Speaker, Swerling Symposium, Dana Farber Cancer Institute	2006
Speaker, CDB Symposium, RIKEN Kobe, Japan	2006
Speaker, Keystone Symposium, RNAi and Related Pathways	2006
Speaker, Gairdner Foundation Symposium, Toronto, Canada	2005, 2009
Speaker, Beckman Symposium, City of Hope, Duarte, CA	2005
Speaker, UCSD Symposium RNA: Beyond the Central Dogma	2005
Speaker, Ille cycle Symposium on Non-coding RNAs, Villars, Switzerland	2005
Speaker, Italian Federation of Life Sciences, Riva Del Garda, Italy	2005
Speaker, Ernst Schering Foundation RNAi Symposium, Berlin, Germany	2005
Speaker, Mechanisms of Cell Behavior Symposium, Tuebingen, Germany	2005
Organizer, Keystone Symposium on microRNAs	2004
Speaker, MIT Cancer Center Symposium on Small RNA Revolution	2004
Speaker, Keystone Meeting Diverse Roles of RNA in Gene Regulation	2004
Speaker, Boehringer/Ingelheim Titisee Conference on RNA Silencing	2004
Speaker, EMBL/EMBO Symposium on Functional Genomics	2004
Speaker, European Biochemical Society Annual Meeting	2004
Speaker, Biology of RNA Gordon Research Conference	2004
Speaker, National Academy of Science Symposium on small RNAs	2004
Speaker, Keystone Meeting on siRNAs and miRNAs	2004
Speaker, AAAS Annual Meeting	2003, 2006
Speaker, Whitehead Symposium XXI, "Biological Regulatory Mechanisms"	2003
Speaker, Nature Horizon Symposium, "Understanding the RNAiisance"	2003
Speaker, European Regional Worm Meeting	2003

Speaker, Molecular Cellular Biology, Gordon Research Conference	2003
Speaker, Royal Swedish Academy, "Structure, Function of Non-coding RNAs"	2003
Speaker, Royal Swedish Academy, "The New Roles of RNAs"	2003
Speaker, Lorne, Australia Genome Conference	2002
Speaker, Genome Sequencing and Analysis Conference XIV (GSAC)	2002
Speaker, Society for Developmental Biology 61 st Annual Meeting	2002
Speaker, Keystone Symposium on RNAi, etc.	2000
Speaker and Organizer, American Society for Cell Biology Mini Symposium	2000
Speaker, Novartis Foundation Symposium, "Cell Cycle and Development"	2000
Speaker, Society for Developmental Biology Northeast Regional Meeting	1999
Speaker, Society for Developmental Biology 59th Annual Meeting	1999
Speaker, ISREC Symposium, Lausanne, Switzerland	1998
Speaker, Biological Regulatory Mechanisms Gordon Conference	1998
Speaker, Cell Cycle Symposium, Samuel Lunenfeld Research Institute	1997
Speaker, CNRS Conference, Post-transcriptional Control of Gene Expression	1996
Speaker, Keystone Symposium on Molecular Helminthology	1995
Speaker, Genetical Society of Great Britain <i>C. elegans</i> Meeting	1994
Organizer & Speaker, Second Annual Dartmouth Symposium in the Life Sciences	1994
Speaker, Northwestern University Conference on Developmental Biology	1994
Speaker, Cold Spring Harbor Meeting on Translational Control	1993, 2007
Organizer, International <i>C. elegans</i> Meeting	1992, 1996
Speaker, Molecular Genetics Gordon Research Conference	1990
Speaker, Wellcome Trust/WHO Conference, Nematode Molecular Biology	1988, 1993
Organizer, East Coast <i>C. elegans</i> Meeting	1988, 1990, 1998, 2002
Speaker, Developmental Biology Gordon Research Conference	1997, 1999, 2005

Committee Assignments and Administrative Service

Department, School, and University

Co-Chair, GSBS FFIE (Faculty Fostering Inclusive Excellence), UMMS	2020-
Advisory Board, GSBS Center for Biomedical Career Development, UMMS	2019-
Pioneers in Molecular Medicine Distinguished Seminar Series Committee, UMMS	2017-
Neurotherapeutics Institute Review Committee, UMMS	2016-2017
Basic Science/GSBS Retreat Planning Committee, UMMS	2014-present

Dean's Basic Science Departments Task Force, UMMS	2014
Chair, RNA Therapeutics Faculty Search Committee, UMMS	2013-2014
RNA Therapeutics Faculty Search Committee, UMMS	2011-2014
Chancellor's Award for Distinguished Scholarship, UMMS	2010
Program in Molecular Medicine Faculty Search Committee, UMMS	2009-present

External Professional Service

Scientific Advisory Board, Searle Scholars Program, Chicago, IL	2015-present
Scientific Advisory Board, Intellia, Cambridge, MA	2014-present
Scientific Advisory Board, Wellstone Foundation, UMMS	2014-2015
Scientific Advisory Board, Firefly Bioworks, Cambridge, MA	2011-2017
Scientific Advisory Board, MiRagen, Boulder, CO	2010-2016