

CURRICULUM VITAE

Name: Antonio J. Giraldez, Ph.D.
Chair and Professor, Department of Genetics

School: Yale University School of Medicine and the Graduate School

Education: B.S. Chemistry. University Autonoma of Madrid (Spain) 1998
Ph.D. Developmental Biology, European Molecular Biology Laboratory,
(Germany) 2002

CAREER/ACADEMIC APPOINTMENTS

1998-2002 Ph.D with Dr. Stephen M. Cohen. Developmental Genetics. European Molecular Biology Laboratory. Heidelberg. Germany.

2003-2005 Postdoctoral Research, with Dr. Alexander F. Schier. Skirball Institute. New York University School of Medicine. NY.

2006 Postdoctoral Research, with Dr. Alexander F. Schier. Harvard University. Cambridge. MA.

2006-2011 Assistant Professor. Yale University School of Medicine. New Haven, Connecticut. USA

2011-2012 Associate Professor. Yale University School of Medicine. New Haven, Connecticut. USA

2013-2015 Associate Professor with Tenure. Yale University School of Medicine. New Haven, CT.

2012-2016 Director of Graduate Studies in Genetics. Yale University School of Medicine. New Haven, CT.

2015-Present Professor with Tenure. Yale University School of Medicine. New Haven, CT.

2017-Present Chair of the Department of Genetics Yale University School of Medicine. New Haven, CT.

Administrative positions

2012-2016 Director of Graduate Studies Genetics Department. Yale University School of Medicine. New Haven, Connecticut. USA

2017-Present Chair of the Department of Genetics Yale University School of Medicine. New Haven, CT.

PROFESSIONAL HONORS & RECOGNITION**International/National/Regional**

2017 Blavatnik National Award for Young Scientists (Finalist)

2016 Whitman Center Research Fellow MBL (2016, 2017)

2016-2021 HHMI Faculty Scholar

2016 Blavatnik National Award for Young Scientists (Finalist)

2016 Whitman Center Research Fellow MBL
 2015 Damon Runyon Fellowship Award Committee
 2014 Vilcek Prize for Creative Promise in Biomedical Sciences
 2008-2012 Pew Scholar
 2007 John Kendrew Young investigator Award EMBL, Heidelberg
 2007 NYAS Blavatnik Young Investigator Award (Finalist)
 2004-2007 HFSP Postdoctoral Fellowship
 2003-2004 EMBO Postdoctoral Fellowship
 2001-2002 EMBL Postdoctoral bridging fellowship.
 1998-2001 EMBL PhD fellowship
 1997-1998 Undergraduate Research Fellowship. CBMSO. UAM.

University

2007-2010 Lois E. and Franklin H. Top, Jr., Yale Scholar Award

GRANT HISTORY

OTHER SUPPORT

Active

R01MH118554-01A1 (Giraldez, PI) 03/15/19-01/31/24 1.8 cal mos
 NIH. \$371,641 direct/year
 Functional analysis of autism risk genes during neural development using single cell seq
 We combine single cell sequencing, with genetic, genomic and computational approaches in zebrafish and embryoid bodies to i) characterize the role of ASD-risk genes in healthy neural gene regulatory networks.

504633 (Giraldez, PI) 09/01/17-08/31/20
 0.6 cal mos
Simons Foundation \$229,397 direct/year
 Effect of Autism risk genes in neural cell identity using single cell seq
 To use a novel combination of single cell CRISPR-mediated mutagenesis and single-cell sequencing to decipher the combinatorial code of transcription factors responsible for the cellular diversity within the vertebrate brain during development and disease.

R35GM122580 (Giraldez, PI) 05/01/17-04/30/22 6.6 cal mos
 NIH/ NIGMS \$478,385 direct/year
 Molecular mechanisms of the maternal to zygotic transition
 The goal of understanding basic conserved principles of how genes are regulated that can be applied to other systems, including reprogramming of the cellular fates and cancer.

55108524 (Giraldez, PI). 11/01/16-10/30/21 0.60 cal mos
HHMI-Gates Foundation \$100,000 direct/year

Molecular analysis of the maternal to zygotic transition

Fundamental features of cellular transition identified through these studies can advance our understanding of epithelial to mesenchymal transition, induced pluripotency reprogramming, and benign to malignant progression during oncogenesis.

R01 (Giraldez, PI) 04/01/20-03/31/25 1.8 cal mos
NIH/NCHD \$416,320 direct/year

Deciphering the regulatory code that specifies different cell fates in development using single cell genomics This proposal aims to understand how different cell types in the developing embryo are generated, the transcription factors involved and the sequences in the genome activated in different cells

Past Grants

Agency: NIH
I.D.# **R01GM103789 (NCE)**
Title: "Analysis of the gene networks regulating the maternal to zygotic transition"
P.I.: Antonio Giraldez
Percent effort: 19%
Direct costs per year: \$255,726
Total costs for project period: \$1,748,355
Project period: 09/01/2012-08/31/2016

Agency: NIH
I.D.# **R01HD074078 (NCE)**
Title: "Functional analysis of the zebrafish genome through RNA-seq and ribosome profile"
P.I.: Antonio Giraldez
Percent effort: 10%
Direct costs per year: \$305,617
Total costs for project period: \$2,377,640
Project period: 08/15/2012-04/30/2017 (Pre award 7/1/12)

Agency: NIH
I.D.# **R01 GM101108-03**
Title: "Molecular Characterization of the microRNA Processing Pathways"
P.I.: Antonio Giraldez
Percent effort: 20%
Direct costs per year: \$ 300,696
Total costs for project period: \$1,982,821
Project period 5/1/2012-2/29/2016 (Pre-award 2/1/12)

Agency: NIH
I.D.# **R01GM102251-01**
Title: " Molecular mechanisms of miRNA mediated regulation"
P.I.: Antonio Giraldez

Percent effort: 19%
 Direct costs per year: \$183,350
 Total costs for project period: \$1,253,302
 Project period: 08/10/2012-05/31/2016

Agency: NIH
 I.D.# **R21HD073768-01**
 Title: "Development of RNA interference in zebrafish"
 P.I.: Antonio Giraldez
 Percent effort: 5 %
 Direct costs per year: \$ 142,350
 Total costs for project period: \$ 444,513
 Project period: 7/1/2012-6/31/2014

Agency: MOD
 I.D.# **MARCH OF DIMES #1-FY12-230**
 Title: "The role of microRNAs during vertebrate development "
 P.I.: Antonio Giraldez
 Percent effort: 2%
 Direct costs per year: \$100,186
 Total costs for project period: \$ 334,312
 Project period: 6/1/2012-5/31/2015

Agency: NIH
 I.D.# **RC2 MH089956-01**
 Title: " Genomic profiling and Functional Mutation Analysis in Autism Spectrum Disorders "
 P.I.: Mathew State (Giraldez Co-Pi)
 Percent effort: 20%
 Direct costs per year: \$220,000
 Total costs for project period: \$2,245,836
 Project period: 09/30/2009-08/31/2012 (no cost ext)

Agency: Pew Charitable Trusts
 I.D.# **Pew Scholars in the Biomedical Sciences**
 Title: "The role of microRNAs in vertebrate development "
 P.I.: Antonio Giraldez
 Percent effort: 1%
 Direct costs per year: \$ 23,076
 Total costs for project period: \$ 240,000
 Project period: 07/01/2008-6/30/2013 (no cost ext)

Agency: Yale Center for Genomics and Proteomics
 I.D.# **Yale Genomics Grant**
 Title: "Identification of the microRNA regulatory networks in vertebrates"
 P.I.: Antonio Giraldez
 Percent effort: 0%
 Direct costs per year: \$25,000
 Total costs for project period: \$25,000
 Project period: 04/01/2008-03/31/2009

Agency: NIH
 I.D.# **R01 GM081602-01**
 Title: "The Role of microRNAs in Vertebrate Development"
 P.I.: Antonio Giraldez
 Percent effort: 75%
 Direct costs per year: \$ 188,000
 Total costs for project period: \$ 1,545,536
 Project period: 08/01/2007-05/31/2012

Agency: MDA
 I.D.# **115608**
 Title: "The role of microRNAs in muscle development and muscular dystrophy"
 P.I.: Antonio Giraldez
 Percent effort: 15.25 %
 Direct costs per year: \$113,913
 Total costs for project period: \$385,180
 Project period: 01/01/2009-12/31/2011

Agency: NIH
 I.D.# **GM081602 ARRA Supplement**
 Title: "The role of microRNAs in vertebrate development"
 P.I.: Antonio Giraldez
 Percent effort: 0%
 Direct costs per year: \$63,819
 Total costs for project period: \$105,620
 Project period: 02/12/2010-12/31/2010

LECTURES, COURSES, EDUCATION

Courses

2008 Basic Concepts of Genetic Analysis (Fall)
 2008 – present Genetics Graduate student seminar (Fall)
 2009 Genomics and Bioinformatics MBB/MCDB/CS/CBB 752 (Spring)
 2012 – present Genetics Graduate student seminar (Spring)
 2012 Time management for graduate students in the Genetics training grant
 2012 – present GENE 760: Genomic Methods for Genetic Analysis

INVITED SPEAKING ENGAGEMENTS, PRESENTATIONS, SYMPOSIA & WORKSHOPS International/National

2019 International Symposium on Early Embryonic Development in Beijing
 2019 Invited Speaker, International Zebrafish Conference, Suzhou, China
 2019 Invited Speaker, Gene regulation in development. Atacama, Chile

2018 Seminar Speaker Hubrecht University. The Netherlands
 2018 International meeting in RNA biology Seoul, Korea
 2018 Keynote Speaker CSHL meeting in translational control

- 2018 Society of Developmental Biology international meeting. Portland Oregon.
- 2018 Seminar Speaker Brandeis University
- 2018 Keystone Symposia Noncoding RNAs
- 2018 Seminar Speaker MIT Whitehead,

- 2017 Biochemistry & Biophysics Seminar series at UCSF
- 2017 HHMI Conference, Washington DC
- 2017 Congress in Molecular Biology and Biochemistry, Gijon Asturias Spain
- 2017 University of Minnesota Symposium.
- 2017 Annual meeting and Workshop NIH. Washington
- 2017 EMBO Symposium, Awakening the genome. Germany, Dresden
- 2017 University of Utah, Department of Human Genetics
- 2017 Center for genomic Regulation. Spain Barcelona
- 2017 Institute for Research in Biomedicine. IRB. Spain, Barcelona
- 2017 Gene regulatory systems in Development. Spain, Carmona
- 2017 Brown University. Department of Biology
- 2017 Upenn. Developmental Biology Seminar Series
- 2017 Zebrafish Strategic Conference. Asilomar

- 2016 Columbia University
- 2016 Keystone Symposia Stem Cells and Regeneration- Silverthorne, CO
- 2016 3rd Developmental Biology Workshop NIH
- 2016 MARC NU-STAR Seminar at Northeastern Illinois University
- 2016 EMBL epitranscriptome. EMBL Heidelberg.
- 2016 Vienna microsposium IMBA-IMP
- 2016 Computational biology conference Florida
- 2016 Blavatnik Science Symposium NYC
- 2016 Complex life of RNA
- 2016 IMB conference
- 2016 Heidelberg Steve Cohen symposium
- 2016 The Hospital for Sick Children Seminar Series
- 2016 Frontiers of Biology Stanford University, Developmental Biology Department

- 2015 6th Strategic Conference of Zebrafish Investigators, Pacific Grove, CA
- 2015 Seminar NYU Department of Biology
- 2015 University of Wisconsin School of Medicine and Public Health, Seminar
- 2015 Annual Meeting of Korean Society for Biochemistry and Molecular Biology (KSBMB)
- 2015 9th European Zebrafish Meeting Oslo Norway

- 2015 Gordon Conference, Fertilization and Activation of Development, NH

- 2014 13th Annual McGill Workshop on Bioinformatics in Barbados
- 2014 Keystone Symposium RNA Silencing Sheraton Seattle Hotel in Seattle, Washington
- 2014 UCB CDB Seminar
- 2014 EMBO/EMBL SYMPOSIA
- 2014 Northwestern University
- 2014 Santa Cruz Developmental Meeting
- 2014 RNA meeting in Quebec Ribo Club
- 2014 Ohio State University
- 2014 Towards an encyclopedia of DNA elements in zebrafish London, UK
- 2014 Santa Cruz Developmental Biology Meeting.
- 2014 Non-coding RNA - From Basic Mechanisms to Cancer, DKFZ, Germany
- 2014 Biochemistry Department, Northwestern University, Chicago, USA
- 2014 Department of Biochemistry, University of Washington, Seattle, USA
- 2014 University of California Berkeley, Division of Cell & Developmental Biology, USA
- 2014 MicroRNA workshop. McGill University's Bellairs Research Station, Barbados
- 2014 Keystone Symposium RNA silencing, Seattle, Washington. USA

- 2013 RNA Program in Academia Sinica (RPAS), Taipei, Taiwan
- 2013 Molecular Biology Society of Japan, Kobe, Japan
- 2013 RNA Symposium: Nobel Forum Karolinska Institute, Stockholm, Sweden
- 2013 EMBO|EMBL Symposium: Non-Coding Genome, Heidelberg, Germany
- 2013 EMBO, Protein Synthesis and Translational Control, Heidelberg, Germany
- 2013 Gordon Conference in Developmental Biology, Il Ciocco, Italy
- 2013 Cellular aspects of mRNA fate, Université Pierre et Marie Curie, Paris, France
- 2013 Micro Symposium, IMP, Vienna.
- 2013 National Institute of Child Health and Human Development, NIH, Bethesda, ME
- 2013 Keystone Meeting, Noncoding RNAs in Development and Cancer, Vancouver, CA

- 2012 Cincinnati Children's Hospital Medical Center, Cincinnati, OH.
- 2012 Annual Developmental Biology symposium, McGill University, Montreal, CA.
- 2012 CRG, Centre de Regulacio Genomica, Barcelona, Spain.
- 2012 FMI, Friedrich Miescher Institute for Biomedical Research , Basel, Switzerland.
- 2012 RIKEN, Center for Developmental Biology, Kobe, Japan.
- 2012 Max Plank Institute for Biochemistry, Munich, Germany.
- 2012 Institute of Molecular Biology, Mainz, Germany.
- 2012 EMBL, Developmental Biology Department, Heidelberg, Germany

- 2012 Keystone Meeting, RNA Silencing, Vancouver, CA
- 2012 Department of Developmental and Molecular Biology, Albert Einstein, NY.
- 2011 Microsymposium on small RNAs. IMP. Vienna. Austria.
- 2011 Non-coding RNAs and Cancer Symposium. UCL Cancer Institute. London, England.
- 2011 Department of Medicine. New York University School of Medicine. New York.
- 2011 Keystone Symposium on Mechanism and Biology of Silencing, Monterey, California.
- 2010 Genetics department. Skirball Institute. NYU. New York.
- 2010 EMBO/EMBL Non Coding Genome Symposium. Heidelberg. Germany
- 2010 Regulatory roles of small RNAs. Weizmann Institute of Science. Rehovot, Israel.
- 2010 Santa Cruz Developmental Biology Meeting. Santa Cruz. California.
- 2009 4th Barossa Meeting. Cell signaling in Cancer and Development. Adelaide, Australia.
- 2009 Twenty-first Annual Kavli Frontiers of Science symposium. Irvine California.
- 2009 International PhD program, Gulbenkian Institute, Oeiras. Portugal
- 2009 Institute of Molecular Medicine, Lisbon, Portugal
- 2009 European Zebrafish meeting. Rome. Italy
- 2009 The Biology of RNA silencing. Keystone meeting. Victoria, British Columbia. Canada.
- 2009 Pew Meeting on Biomedical Sciences. Puerto Rico.
- 2009 Center for Research on Reproduction. University of Pennsylvania. Philadelphia.
- 2009 Strategic Conference of Zebrafish Investigators. Asilomar, CA. USA.
- 2008 48th Annual Meeting of the American Society for Cell Biology. San Francisco, CA.
- 2008 University of Connecticut Health Center. Farmington, CT. USA.
- 2008 European Molecular Biology Laboratory. Heidelberg. Germany
- 2008 MicroRNA Symposium. Vienna, Austria.
- 2008 Regulatory RNA Symposium. Symposium. Toronto, Canada.
- 2008 National Center for Biological Sciences. Bangalore, India.
- 2008 Temasek Life Science Laboratory, Singapore.
- 2008 Institute of Molecular and Cell Biology. Singapore.
- 2008 Vanderbilt University, Nashville, Tennessee, USA
- 2007 Keystone Symposia. MicroRNAs and cancer. Keystone, Colorado. USA
- 2007 Molecular Biology Society of Japan Spring Symposium, Awajishima Island, Japan.
- 2007 New York Academy of Sciences. RNAi discussion group. New York. USA
- 2007 Keystone Symposia 'miRNAs and siRNAs' at Keystone, Colorado. USA
- 2007 Strategic Conference of Zebrafish Investigators. Asilomar, CA. USA.
- 2006 Keystone Symposia. RNAi and Related Pathways. Vancouver, BC, Canada.
- 2006 Department of Physiology. Columbia University. New York
- 2006 Cold Spring Harbor Laboratory. Cold Spring Harbor. New York.
- 2006 Genetics Department. Yale University School of Medicine. New Haven Connecticut.
- 2006 Department of Biology. New York University. New York.

- 2006 Department of Gene expression. UMASS Medical School. Worcester, Massachusetts
- 2006 Center for RNA. Case Western Reserve University. Cincinnati, Ohio.
- 2006 Department of Biochemistry. UMASS Medical School. Worcester, Massachusetts.
- 2005 CSHL RNAi meeting. Cold Spring Harbor Laboratory, New York.
- 2005 New York Academy of Sciences. RNAi discussion group. New York.
- 2005 Keystone Symposia Meeting. Beaver Run Resort Breckenridge, Colorado. USA
- 2002 ELSO 2002. Nice, France.

Mentoring

- 2007-2009 Yuichiro Mishima, postdoctoral fellow (Currently Research Scientist, Tokyo University, Japan) (JSFP fellowship)
- 2007-2011 Carlos Stahlhut, graduate student (Currently Post-doc, Frank Slack, Yale University)
- 2007-2012 Alison Staton, graduate student (Currently Post-doc, Craig Crews, Yale University)
- 2008-present Daniel Cifuentes, postdoctoral fellow (Ramon Areces Fellowship)(K99)
- 2008-present Carter Takacs, postdoctoral fellow (NIH fellowship)
- 2009-2011 Huiling Xue, postdoctoral fellow (HFSP fellowship)
- 2009-present Ellen Hofmann MD., graduate student (co-mentored with Mathew State)
- 2010-present Ariel Bazzini, postdoctoral fellow (Pew fellowship)
- 2010-present Minsun Jeong, graduate student
- 2011-2012 Polloneal Ocbina, Postdoctoral fellow (NIH Fellowship)
- 2011-present Miler Lee, Postdoctoral fellow (NIH Fellowship)
- 2011-2012 Simon Moxon, Postdoctoral fellow (Currently Project Leader, The Genome Analysis Centre)
- 2011-present Magdalena Koziol (HFSP Fellowship), (Currently post-doc, John Gurdon, Gurdon Institute)
- 2012-present Valeria Yartseva, Graduate Student
- 2012-present Ashley Bonneau, Graduate Student
- 2012-present Kate DiVito, Postgraduate Student
- 2012-present Elizabeth Fleming, Lab manager
- 2012-present Stephanie Lau, Postgraduate student
- 2013-present Miguel Angel Moreno Mateos, Postdoctoral Fellow, (Andalusian Fellowship)
- 2013-present Charles Vejnar, Postdoctoral Fellow, (Swiss Science Foundation Fellowship)
- 2013-present Jean-Denis Beaoudin, Postdoctoral Fellow
- 2013-present Juan Pablo Fernandez Postdoctoral Fellow
- 2013-present Hiba Codore, Lab manager
- 2013-present Marlon Stoeckious, Postdoctoral Fellow
- 2013-present Tim Johnstone. PhD Student

(numerous rotation students)

Student Exam Committees

- 2007 – Khalid Fakhro (Qualifying Exam)
- 2008 – Jade Li (Thesis Committee Member)
Manav Pathania (Thesis Committee Member)
- 2009 – Eric Guo (Qualifying Exam and ongoing Thesis Committee Member)
David Taylor Jr. (Qualifying Exam and ongoing Thesis Committee Member)
Michael J. Stulberg (Qualifying Exam and ongoing Thesis Committee Member)

- Jamie Schwendinger-Schreck (Qualifying Exam and ongoing Thesis Committee Member)
- 2010 – Dong Chen (Qualifying Exam)
- 2011 – David Taylor Jr. (Thesis Committee Member)
 Eric Guo (Thesis Committee Member)
 Michael J. Stulberg (Thesis Committee Member)
 Jamie Schwendinger-Schreck (Thesis Committee Member)
 Helen Rankin (Thesis Committee Member)
 Diona Kasper (Thesis Committee Member)
- 2012 – David Taylor Jr. (Thesis Committee Member)
 Eric Guo (Thesis Committee Member)
 Michael J. Stulberg (Thesis Committee Member)
 Jamie Schwendinger-Schreck (Thesis Committee Member)
 Helen Rankin (Thesis Committee Member)
 Diona Kasper (Thesis Committee Member)
- 2013 – David Taylor Jr. (Thesis Committee Member)
 Eric Guo (Thesis Committee Member)
 Helen Rankin (Thesis Committee Member)
 Diona Kasper (Thesis Committee Member)

Undergraduate student mentoring

STARS minority program:

Roohi Rustum (2009)

Non-Yale interns:

Alexis Hubaud (Ecole Normale Supérieure de Parisellesley) 2009-2010,

PROFESSIONAL SERVICE

Peer Review Groups/Grant Study Sections

- 2017-2021 NIH Dev1 study section permanent member.
- 2016-2019 Pew Scholars Alumni Review Board
- 2016-2017 Damon Runyon Cancer Research Foundation Fellowship Award Committee
- 2016 NIH/NIAMS ad hoc reviewer Board of Scientific Counselors
- 2015 NIH Dev1 study section ad hoc reviewer
- 2014 NIH/SREA reviewer for a CSR study section, ad hoc reviewer
- 2008 NIH reviewer for a Molecular Neurogenetics study section, ad hoc reviewer

Journal Service

Reviewer

2007-present Reviewer for Cell, Nature, Nature Genetics, Science, Current Biology, Cell Metabolism, Developmental Cell, EMBO Journal, Genome Biology, Nature Molecular Structural Biology, PLoS ONE, Proceedings of the National Academy of Sciences, BMC Genomics, RNA,

Professional Organizations

2004-present New York Academy of Science

Meeting Planning

2007-2011 Co-Organizer, Genetics Department Retreat

Yale University Service

2012-present Director of Graduate Studies, Genetics.

University Committees

2012- Member, executive committee of the Developmental Biology Training Grant
 2012- Member, executive committee for the Human Genetics Training Grant
 2012- Member, executive committee Molecular Cell Biology, Development and Genetics
 2011- Member, advisory committee for the Genetics Training Grant
 2009-2011 Vertebrate Developmental Biology/Pediatrics Faculty Search Committee

Departmental Committees

2010-present Co-Organizer Genetics Seminar Series
 2009-2010 Co-Organizer of the Interdepartmental Junior Faculty Meetings

Faculty mentoring

Participant in the 1st Junior faculty retreat as a faculty in the discussion panel
 Co-organizer of the junior faculty meeting in group/organizational psychology (David Berg)

BIBLIOGRAPHY

Peer-Reviewed Original Research

<https://www.ncbi.nlm.nih.gov/pubmed?term=giraldez+AJ&cmd=DetailsSearch>

1. El-Brolosy MA, Kontarakis Z, Rossi A, Kuenne C, Günther S, Fukuda N, Kikhi K, Boezio GLM, Takacs CM, Lai SL, Fukuda R, Gerri C, **Giraldez AJ**, Stainier DYR. Genetic compensation triggered by mutant mRNA degradation. **Nature**. 2019 Apr;568(7751):193-197. doi: 10.1038/s41586-019-1064-z. Epub 2019 Apr 3.
2. Vejnar CE*, Messih MA*, Takacs CM*, Yartseva V*, Oikonomou P*, Christiano R, Stoeckius M, Lau S, Lee MT, Beaudoin JD, Musaev D, Darwich-Codore H, Walther TC, Tavazoie S, Cifuentes D‡, **Giraldez AJ‡** Genome wide analysis of 3'-UTR sequence elements and proteins regulating mRNA stability during maternal-to-zygotic transition in zebrafish.. **Genome Research**. 2019. Jul;29(7):1100-1114. doi: 10.1101/gr.245159.118.
3. Chan SH, Tang Y, Miao L, Darwich-Codore H, Vejnar CE, JBeaudoin JD, Musaev D, Fernandez JP, Benitez MDJ, Moreno-Mateos MA‡, **Giraldez AJ‡** Brd4 and p300 confer transcriptional competency during zygotic genome activation. **Developmental Cell**. 2019. Jun 17;49(6):867-881.e8. doi: 10.1016/j.devcel.2019.05.037.
4. Beaudoin JD*‡, Novoa EM*, Vejnar CE, Yartseva V, Takacs CM, Kellis M, **Giraldez AJ‡**. Analyses of mRNA structure dynamics identify embryonic gene regulatory programs. **Nature Struct Mol Biol**. 2018 Aug;25(8):677-686. doi: 10.1038/s41594-018-0091-z. Epub 2018 Jul 30.
5. Fernandez JP, Moreno-Mateos MA, Gohr A, Miao L, Chan SH, Irimia M, **Giraldez AJ‡**. RES complex is associated with intron definition and required for zebrafish early embryogenesis. **PLoS Genet**. 2018 Jul 3;14(7):e1007473. doi: 10.1371/journal.pgen.1007473. eCollection 2018 Jul.
6. Fernandez JP, Vejnar CE, **Giraldez AJ**, Rouet R, Moreno-Mateos MA. Optimized CRISPR-Cpf1 system for genome editing in zebrafish. **Methods**. 2018 Jun 28. pii:

- S1046-2023(18)30021-5. doi: 10.1016/j.ymeth.2018.06.014.
7. Moreno-Mateos MA, Fernandez JP, Rouet R, Vejnar CE, Lane MA, Mis E, Khokha MK, Doudna JA, **Giraldez AJ**‡. CRISPR-Cpf1 mediates efficient homology-directed repair and temperature-controlled genome editing. **Nature Communications**. 2017 Dec 8;8(1):2024. doi: 10.1038/s41467-017-01836-2.
 8. Boguraev AS, Christensen HC, Bonneau AR, Pezza JA, Nichols NM, **Giraldez AJ**, Gray MM, Wagner BM, Aken JT, Foley KD, Copeland DS, Kraves S, Alvarez Saavedra E. Successful amplification of DNA aboard the International Space Station. **NPJ Microgravity**. 2017 Nov 16;3:26
 9. Kasper DM, Moro A, Ristori E, Narayanan A, Hill-Teran G, Fleming E, Moreno-Mateos M, Vejnar CE, Zhang J, Lee D, Gu M, Gerstein M, **Giraldez A**, Nicoli S. MicroRNAs Establish Uniform Traits during the Architecture of Vertebrate Embryos. **Developmental Cell**. 2017 Mar 27;40(6):552-565.e5. doi: 10.1016/j.devcel.2017.02.021.
 10. Kontur C, **Giraldez A**‡. RNA Methylation Clears the Way. **Developmental Cell**. 2017 Mar 13;40(5):427-428. doi: 10.1016/j.devcel.2017.02.024.
 11. Yartseva V, Takacs CM, Vejnar CE, Lee MT‡, **Giraldez AJ**‡. RESA identifies mRNA regulatory sequences with high resolution. **Nature Methods**. 2017 Feb;14(2):201-207. doi: 10.1038/nmeth.4121. Epub 2016 Dec 26.
 12. Bazzini AA‡, Del Viso F, Moreno-Mateos MA, Johnstone TG, Vejnar CE, Qin Y, Yao J, Khokha MK, **Giraldez AJ**‡. Codon identity regulates mRNA stability and translation efficiency during the maternal-to-zygotic transition. **EMBO J**. 2016 Oct 4;35(19):2087-2103.
 13. Reischauer S, Stone OA, Villasenor A, Chi N, Jin SW, Martin M, Lee MT, Fukuda N, Marass M, Witty A, Fiddes I, Kuo T, Chung WS, Salek S, Lerrigo R, Alsiö J, Luo S, Tworus D, Augustine SM, Mucenieks S, Nystedt B, **Giraldez AJ**‡, Schroth GP, Andersson O, Stainier DY‡. Cloche is a bHLH-PAS transcription factor that drives haemato-vascular specification. **Nature**. 2016 Jul 13;535(7611):294-8. doi: 10.1038/nature18614.
 14. Johnstone TG, Bazzini AA, **Giraldez AJ**‡. Upstream ORFs are prevalent translational repressors in vertebrates. **EMBO J**. 2016 Apr 1;35(7):706-23. doi: 10.15252/embj.201592759.
 15. Hoffman EJ, Turner KJ, Fernandez JM, Cifuentes D, Ghosh M, Ijaz S, Jain RA, Kubo F, Bill BR, Baier H, Granato M, Barresi MJ, Wilson SW, Rihel J‡, State MW‡, **Giraldez AJ**‡. Estrogens Suppress a Behavioral Phenotype in Zebrafish Mutants of the Autism Risk Gene, CNTNAP2. **Neuron**. 2016 Feb 17;89(4):725-33. doi: 10.1016/j.neuron.2015.12.039.
 16. Moreno-Mateos MA, Vejnar CE, Beaudoin JD, Fernandez JP, Mis EK, Khokha MK and **Giraldez AJ**‡. CRISPRscan: designing highly efficient sgRNAs for CRISPR/Cas9 targeting in vivo. **Nature Methods**. 2015. Oct;12(10):982-8. Bazzini AA‡, Johnstone TG‡, Christiano R, Mackowiak SD, Obermayer B, Fleming ES, Vejnar CE, Lee MT, Rajewsky N‡, Walther TC and **Giraldez AJ**‡. Identification of small ORFs in animals using ribosome footprinting and evolutionary conservation. **EMBO J**. 2014 Apr 4.

17. Lee MT[#], Bonneau AR[#], Takacs CM, Bazzini AA, DiVito KR, Fleming ES, **Giraldez AJ[‡]**. Nanog, SoxB1 and Pou5f1/Oct4 regulate widespread zygotic gene activation during the maternal-to-zygotic transition. **Nature**, 2013 Sep 22. doi: 10.1038/nature12632.
18. Yoda M[#], Cifuentes D[#], Izumi N, Sakaguchi Y, Suzuki T, **Giraldez AJ[‡]** and Tomari Y[‡]. PARN mediates 3'-end trimming of Argonaute2-cleaved precursor microRNAs. **Cell Reports**, 2013, 5, 1–12, November 14,
19. Lewellis SW, Nagelberg D, Subedi A, Staton A, LeBlanc M, **Giraldez A**, and Knaut H. Precise SDF1-mediated cell guidance is achieved through ligand clearance and microRNA-mediated decay. **J Cell Biol.** 2013 Feb 4;200(3):337-55.
20. Stahlhut C, Suarez Y, Lu J, Mishima Y[‡], and **Giraldez AJ[‡]**. miR-1/206 regulate angiogenesis by modulating Vegf-A expression. **Development**, 2012.
21. Bazzini AA, Lee MT, **Giraldez AJ[‡]**. Ribosome Profiling Shows That miR-430 Reduces Translation Before Causing mRNA Decay in Zebrafish. **Science** 13 April 2012: 233-23
22. Staton AA, **Giraldez AJ[‡]**. Use of target protector morpholinos to analyze the physiological roles of specific miRNA-mRNA pairs in vivo. **Nature Protocols**. 2011 Dec 1;6(12):2035-49. doi: 10.1038/nprot.2011.423.
23. Zhu C, Smith T, McNulty J, Rayla AL, Lakshmanan A, Siekmann AF, Buffardi M, Meng X, Shin J, Padmanabhan A, Cifuentes D, **Giraldez AJ**, Look AT, Epstein JA, Lawson ND, Wolfe SA. Evaluation and application of modularly assembled zinc-finger nucleases in zebrafish. **Development**. 2011 Oct;138(20):4555-64.
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