# Joaquín M. Espinosa

**Howard Hughes Medical Institute Early Career Scientist**
**Associate Professor, Department of Molecular, Cellular and Developmental Biology, UC Boulder**
**Co-Leader, Molecular Oncology Program, University of Colorado Cancer Center**
**Director, The Functional Genomics Facility at UC Boulder**

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Websites:

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| The Espinosa Lab website: | http://espinosalab.org |
| The Espinosa Lab at MCD Biology: | http://mcdb.colorado.edu/directory/espinosa_j.html |
| HHMI (biographical profile): | http://www.hhmi.org/research/ecs/espinosa_bio.html |
| HHMI (research): | http://www.hhmi.org/research/ecs/espinosa.html |
| The Functional Genomics Facility: | http://mcdb.colorado.edu/functionalgenomics/index.html |
| Molecular Oncology Program: | http://www.ucdenver.edu/academics/colleges/medicalschool/centers/cancercenter/Research/ResearchPrograms/MolecularOncology |
| The Huffington Post blog: | http://www.huffingtonpost.com/joaquin-m-espinosa |

## I. EDUCATION

1994 **B.S.** Biology. Universidad Nacional de Mar del Plata, Argentina.
1999 **Ph.D.** Biology. Universidad de Buenos Aires, Argentina.

## II. ACADEMIC EMPLOYMENT & POSITIONS

1995-1999 **Doctoral Research Associate**
Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET)
Instituto de Investigaciones en Biología Molecular e Ingenieria Genética (INGEBI)
Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires.
Advisors: Dr. Mirtha M. Flawiá and Dr. Héctor N. Torres.

1999-2004 **Post-Doctoral Research Associate**

2000-2002 **The PEW Charitable Trusts Latin American Fellow**

2003-2005 **The Leukemia and Lymphoma Society Special Fellow**
The Salk Institute for Biological Studies, La Jolla, CA, U.S.A.
Advisor: Dr. Beverly Emerson.

2004-2011 **Assistant Professor**

2011- **Associate Professor (with tenure)**
Department of Molecular, Cellular and Developmental Biology
University of Colorado at Boulder, CO, U.S.A.

2008-12 **Instructor,** Cold Spring Harbor Laboratories, course on Eukaryotic Gene Expression

2009- **Howard Hughes Medical Institute Early Career Scientist**

2009- **Editorial Board,** *Molecular and Cellular Biology*

2010- **Co-Leader**, Molecular Oncology Program, University of Colorado Cancer Center

2010- **Director**, The Functional Genomics Facility at the University of Colorado at Boulder

2010- **Editorial Board,** *Transcription*

2010- **Member**, Task Force, Biofrontiers Institute at the University of Colorado at Boulder

2011 **Instructor**, American Society for Cell Biology (ASCB), Africa Teaching Team

2011- **Editorial Board**, *Cell Reports*

2012- **Editorial Board,** *eLife*

2012-13 **Member,** Cancer Molecular Pathology (CAMP) NIH Study Section
2013- **Co-Editor in Chief**, *Transcription*

## III. FELLOWSHIPS & AWARDS

1995 Gold Medal. Universidad Nacional de Mar del Plata. Prize to Outstanding Students.
1996 Gold Medal. Rotary Club International. Prize to students graduating with best grades from Universidad Nacional de Mar del Plata, Argentina.
1995 Pre-Doctoral Fellowship. CONICET, Argentina.
1997 Advanced Pre-Doctoral Fellowship. CONICET, Argentina.
2000 The Pew Charitable Trusts Latin American Fellowship in the Biomedical Sciences.
2003 The Leukemia and Lymphoma Society Special Fellowship.
2005 The March of Dimes Basil O'Connor Award.
2007 The Mortar Board Society Teaching Award.
2009 Howard Hughes Medical Institute, Early Career Scientist Award.

## IV. PUBLICATIONS

### *As Doctoral Candidate:*

1. The Nitric Oxide transduction pathway in *Trypanosoma cruzi*.
Paveto, C., Pereira, C., **Espinosa, J.M.**, Montagna, A., Farber, M., Flawiá, M.M., and Torres, H.N.
*The Journal of Biological Chemistry*, 270:16756-16579, **1995**.

2. The control of *Trypanosoma cruzi* epimastigote motility through the nitric oxide pathway.
Pereira, C., Paveto, C., **Espinosa, J.**, Alonso, G., Flawiá, M.M. and Torres, H. N.
The Journal of Eukaryotic Microbiology, 44(2):155-156, **1997**.

3. Factors from *Trypanosoma cruzi* interacting with AP-1 sequences.
**Espinosa, J.M.,** Martinetto, H., Portal, D., D'Angelo, M., Torres, H. and Flawiá, M.M.
*The Journal of Eukaryotic Microbiology*, 46:516-521, **1999**.

4. mRNA encoding a putative RNA Helicase of the DEAD-box gene family is up-regulated in trypomastigotes of *Trypanosoma cruzi*.
Diaz Anel, A., Rossi, S.M., **Espinosa, J.M.**, Guida, C., Freitas, F.A., Kornblihtt, A.R., Zingales, B., Flawiá, M.M., and Torres, H. N.
*The Journal of Eukaryotic Microbiology*, 47:555-60, **2000**.

*5.* *Trypanosoma cruzi* Poly Zinc Finger Protein: a novel DNA/RNA-binding CCHC-Zinc Finger Protein.
**Espinosa, J.M.**, Portal, D., Lobo, G.S., Pereira, C. A., Alonso, G.D., Gómez, E.B., Lan, G.H., Rivera Pomar, R.V., Flawiá, M.M., and Torres, H.N.
*Molecular and Biochemical Parasitology*, 131(1):35-44, **2003**.

6. An early ancestor in the evolution of splicing: a *Trypanosoma cruzi* serine-arginine-rich protein (TcSR) is functional in cis-splicing.
Portal, D., **Espinosa, J.M.**, Lobo, G.S., Kadener, S., Pereira, C.A., De La Mata, M., Tang, Z., Lin, R.J., Kornblihtt, A.R., Baralle, F.E., Flawiá, M.M. and Torres, H.N.
*Molecular and Biochemical Parasitology*, 127(1):37-46, **2003**.

*7.* *Trypanosoma cruzi* TcSRPK, the first protozoan member of the SRPK family, is biochemically and functionally conserved with metazoan SR protein-specific kinases.
Portal, D., Lobo, G.S., Kadener, S., Prasad, J., **Espinosa, J.M.**, Pereira, C.A., Tang, Z., Lin, R.J., Manley, J.L., Kornblihtt, A.R., Flawiá, M.M. and Torres, H.N.
*Molecular and Biochemical Parasitology*, 127(1):9-21, **2003**.

### *As Post-Doctoral Associate:*

8. Transcriptional regulation by p53 through intrinsic DNA/chromatin binding and site-directed cofactor

recruitment.
**Espinosa, J.M.** and Emerson, B.M.
*Molecular Cell*, 8(1):57-69, **2001**.
* Selected by Cell Press as 'Featured Article'.
** Selected by Science magazine for its 'Editor's Choice' column.
***Selected by Faculty of 1000 as 'Exceptional'.
URL: http://www.cell.com/molecular-cell/retrieve/pii/S1097276501002830

9. p53 functions through stress- and promoter-specific recruitment of transcription initiation components before and after DNA damage.
**Espinosa, J.M**., Verdún, R.E. and Emerson, B.M.
*Molecular Cell*, 12(4):1015-1027, **2003**.
* Selected by Faculty of 1000 as 'Must Read'.
URL: http://www.cell.com/molecular-cell/retrieve/pii/S1097276503003599

***As Independent Investigator:***

10. S. pombe mst2+ encodes a MYST-family histone acetyltransferase that negatively regulates telomere silencing.
Gómez, E.B., **Espinosa, J.M**., and Forsburg, S.L.
*Molecular and Cellular Biology*, 25(20):8887-903, **2005**.
URL: http://mcb.asm.org/cgi/reprint/25/20/8887

11. Gene-specific requirements for P-TEFb activity and RNA polymerase II phosphorylation within the p53 transcriptional program.
Gomes, N.P., Bjerke, G., Llorente, B., Szostek, S.A., Emerson, B.M. and **Espinosa, J.M.**
*Genes and Development*, 20(5):601-12, **2006**.
* Selected by *Genes and Development* editors for a special 'Perspective' appearing in *Genes and Development*, 20(6):643-7.
** Selected by Faculty of 1000 as 'Recommended'.
URL: http://genesdev.cshlp.org/content/20/5/601.long

12. CDK8 is a stimulus-specific positive coregulator of p53 target genes.
Donner, A.J., Szostek, S.A., Hoover, J.M. and **Espinosa J.M.**
*Molecular Cell,* 27(1):121-133, **2007**.
* Selected by the ISI portal as one of the Top 50 articles in the Cell Cycle field in 2009.
URL: http://www.cell.com/molecular-cell/retrieve/pii/S1097276507003279

13. Doxazolidine induction of apoptosis by a topoisomerase II-independent mechanism.
Kalet, B.T., McBryde, M., **Espinosa, J.M.** and Koch, T.
*Journal of Medicinal Chemistry*, 50(18):4493-500, **2007**.
URL: http://pubs.acs.org/doi/full/10.1021/jm070569b?cookieSet=1

14. Stimulus-specific transcriptional regulation within the p53 network.
Donner, A.J., Hoover, J.M., Szostek, S.A., and **Espinosa J.M.**
*Cell Cycle*, 6(21):2594-8, **2007**.
URL: http://www.landesbioscience.com/journals/cc/article/4893/

15. RNA polymerase II pauses and associates with pre-mRNA processing factors at both ends of genes.
Glover-Cutter, K., Kim, S., **Espinosa, J.** and Bentley, D.L.
*Nature Structural and Molecular Biology*, 15(1):71-8, **2008**.
* Selected by Faculty of 1000 as 'Recommended'.
URL: http://www.nature.com/nsmb/journal/v15/n1/full/nsmb1352.html

16. Mechanisms of regulatory diversity within the p53 transcriptional network.
**Espinosa, J.M.**
*Oncogene,* 27(29):4013-23, **2008**.
URL: http://www.nature.com/onc/journal/v27/n29/full/onc200837a.html

17. Cooperative activity of cdk8 and GCN5L within Mediator directs tandem phosphoacetylation of histone H3.
Meyer, K.D., Donner, A.J., Knuesel, M.T., York, A.G., **Espinosa J.M.,** Taatjes, A.D.
*EMBO Journal*, 27(10):1447-57, **2008**.
URL: http://www.nature.com/emboj/journal/v27/n10/full/emboj200878a.html

18. BH3 activation overcomes Hdmx suppression of apoptosis and co-operates with Nutlin to induce cell death.
Wade, M., Rodewald, L.W., **Espinosa, J.M.** and Wahl, G.M.
*Cell Cycle* 7(13): 1973-82, **2008**.
URL: http://www.landesbioscience.com/journals/6/article/6072/

19. Multiple p53-independent gene silencing mechanisms define the cellular response to p53 activation.
Paris, R., Henry, R.E., Stephens, S.J., McBryde, M. and **Espinosa, J.M.**
*Cell Cycle* 7(15):2427-33, **2008**.
URL: http://www.landesbioscience.com/journals/cc/article/6420/

20. Histone H2B ubiquitination: the cancer connection.
**Espinosa, J.M.**
*Genes and Development* 22(20):2743-9, **2008**.
URL: http://genesdev.cshlp.org/content/22/20/2743.long

21. The human CDK8 subcomplex is a histone kinase that requires Med12 for activity and can function independently of Mediator.
Knuesel M.T., Meyer K.D., Donner A.J., **Espinosa J.M.**, Taatjes D.J.
*Molecular and Cellular Biology* 29(3):650-61, **2009.**
URL: http://mcb.asm.org/cgi/content/full/29/3/650?view=long&pmid=19047373

22. A role for Chk1 in blocking transcriptional elongation of p21 RNA during the S phase checkpoint.
Beckerman, R., Donner, A.J., Mattia, M., Peart, M.J., Manley, J.M., **Espinosa, J.M.** and Prives, C.
*Genes and Development* 23(11):1364-77, **2009.**
URL: http://genesdev.cshlp.org/content/23/11/1364.long

23. Differential regulation of p53 target genes: it's (core promoter) elementary.
Gomes, N.P. and **Espinosa, J.M.**
*Genes and Development* 24(2):111-4, **2010.**
URL: http://genesdev.cshlp.org/content/24/2/111.long

24. CDK8 is a positive regulator of transcriptional elongation within the serum response network.
Donner, A.J., Ebmeier, CC, Taatjes, D.J. and **Espinosa, J.M.**
*Nature Structural and Molecular Biology* 17(2):194-201, **2010.**
***** Selected for the cover of the February 2010 issue of Nature SMB.
** Selected by Faculty of 1000 as 'Recommended'.
URL: http://www.nature.com/nsmb/journal/v17/n2/full/nsmb.1752.html

25. The histone deacetylase Sirt6 regulates glucose homeostasis via HIF1$\alpha$.
Zhong, L., D'Urso, A., Toiber, D., Sebastian, C., Henry, R.E., Vadysirisack, D.D., Guimaraes, A., Marinelli, B., Wikstrom,J.D., Nir, T., Clish, C.B., Vaitheesvaran, B., Iliopoulos, O., Kurland, I., Dor, Y., Weissleder, R., Shirihai, O.S., Ellisen, L.W., **Espinosa, J.M.** and Mostoslavsky, R.
*Cell* 140(2):280-293, **2010.**
***** Selected by Faculty of 1000 as 'Must Read'.
URL: http://www.cell.com/retrieve/pii/S0092867409016274

26. Gene-specific repression of the p53 target gene PUMA via intragenic CTCF-Cohesin binding.
Gomes, N.P. and **Espinosa, J.M.**
*Genes and Development* 24(10): 1022-34, **2010.**
* Selected by Nature Cancer Reviews for its 'Highlight' section
****** Selected by Faculty of 1000 as 'Recommended'
URL: http://genesdev.cshlp.org/content/24/10/1022.long

27. CDK8: a positive regulator of transcription.
Galbraith, M.D., Donner, A.J. and **Espinosa, J.M.**
*Transcription* 1(1):4-12, **2010.**
URL: http://www.landesbioscience.com/journals/transcription/article/12373/

28. Disparate chromatin landscapes and kinetics of inactivation impact on differential regulation of p53 target genes.
Gomes, N. P. and **Espinosa, J.M.**
*Cell Cycle* 9(17):3428-3437, **2010.**
URL: http://www.landesbioscience.com/journals/cc/article/12998/

29. The meaning of pausing.
**Espinosa, J.M.**
*Molecular Cell* 40(4):507-8, **2010.**
URL: http://www.ncbi.nlm.nih.gov/pubmed/21095581

30. Lessons on transcriptional control from the serum response network.
Galbraith, M.D. and **Espinosa, J.M.**
*Current Opinions in Genetics and Development* 21(2):160-6, **2011.**
URL: http://www.ncbi.nlm.nih.gov/pubmed/21316215

31. A DR4:tBID axis drives the p53 apoptotic response by promoting oligomerisation of poised BAX.
Henry, R.E., Andrysik, Z., Paris, R., Galbraith, M.D. and **Espinosa, J.M.**
*EMBO Journal,* 13;31(5):1266-78*,* **2012.**
URL: http://www.nature.com/emboj/journal/vaop/ncurrent/full/emboj2011498a.html

32. Get Back TFIIF, Don't Let Me Gdown1.
**Espinosa, J.M.**
*Molecular Cell,* 45(1):3-5, **2012.**
URL: http://www.cell.com/molecular-cell/retrieve/pii/S1097276511009890

33. The p53 circuit board.
Sullivan, K.D., Gallant-Behm, C.L., Henry, R.E., Fraikin, J.L. and **Espinosa, J.M.**
*Biochimica et Biophysica Acta Reviews in Cancer,* 1825(2):229-44*,* **2012.**
URL: http://www.ncbi.nlm.nih.gov/pubmed/22333261

34. ATM and MET are synthetic lethal with non-genotoxic activation of p53.
Sullivan, K.D., Padilla-Just, N., Henry, R.E., Porter, C.C., Kim, J., Tentler, J.J., Eckhardt, S.G., Tan, A.C, DeGregori, J. and **Espinosa, J.M.**
*Nature Chemical Biology,* 8(7):646-54*,* **2012.**
URL: http://www.ncbi.nlm.nih.gov/pubmed/22660439
*Selected by the HHMI bulletin for a special story entitled *'Cancer's Dead End'*

35. CBX3 regulates efficient RNA processing genome-wide.
Smallwood, A., Hong, G.C., Jin, F., Henry, R.E., **Espinosa, J.M.** and Ren, B.
*Genome Research,* 22(8):1426-36*,* **2012.**
URL: http://www.ncbi.nlm.nih.gov/pubmed/22684280

36. ΔNp63α represses anti-proliferative genes via H2A.Z deposition
Gallant-Behm, C.L., Ramsey, M.R., Bensard, C.L., Nojek, I., Tran, J., Liu, M., Ellisen, L.W. and **Espinosa, J.M.**
*Genes and Development,* 26(20):2325-36, **2012.**
*Selected by the Cancer Discovery AACR publication for its Cancer News section.
URL: http://www.ncbi.nlm.nih.gov/pubmed/23019126

37. The impact of post-transcriptional regulation in the p53 network.
Freeman, J.A. and **Espinosa, J.M.**
*Briefings in Functional Genomics,* 12(1):46-57, **2013.**

URL: http://www.ncbi.nlm.nih.gov/pubmed/23242178

38. ΔNp63α utilizes multiple mechanisms to repress transcription in squamous cell carcinoma cells.
Gallant-Behm, C.L. and **Espinosa, J.M.**
*Cell Cycle,* 12(3): 409-16, **2013.**
URL: http://www.ncbi.nlm.nih.gov/pubmed/23324337

39. How does ΔNp63α drive cancer?
Gallant-Behm, C.L. and **Espinosa, J.M.**
*Epigenomics,* 5(1):5-7, **2013.**
URL: http://www.ncbi.nlm.nih.gov/pubmed/23414311

40. A genetic screen identifies TCF3/E2A and TRIAP1 as pathway-specific regulators of the cellular response to p53 activation.
Andrysik, Z., Kim, J., Tan, A.C. and **Espinosa, J.M.**
*Cell Reports,* 3:1-9, **2013.**
URL: http://www.ncbi.nlm.nih.gov/pubmed/23684607

41. HIF1A employs CDK8-Mediator to stimulate RNAPII elongation in response to hypoxia.
Galbraith, M.D., Allen, M.A., Bensard, C.L., Wang, X., Schwinn, M.K., Qin, B., Long, H.W., Daniels, D.L., Hahn, W.C., Dowell, R.D. and **Espinosa, J.M.**
*Cell* 153(6):1327-39, **2013.**
URL: http://www.ncbi.nlm.nih.gov/pubmed/23746844

42. Tumor suppression by p53: is apoptosis important or not?
Mellert, H. and **Espinosa, J.M.**
*Cell Reports* 3(5):1335-6**, 2013.**
URL: http://www.ncbi.nlm.nih.gov/pubmed/23726020

43. Mutual exclusivity of MED12/MED12L, MED13/13L, and CDK8/19 paralogs revealed within the CDK8-Mediator kinase module.
Daniels, D.L., Ford, M., Schwinn, M.K., Benink, H., Galbraith, M.D., Amunugama, R., Jones, R., Allen., D, Okazaki, N., Yamakawa, H., Miki, F., Nagase, T., **Espinosa, J.M.** and Urh, M.
*Journal of Proteomics and Bioinformatics* S2:004, **2013**

44. ERK phosphorylation of MED14 in promoter complexes during mitogen-induced gene activation by Elk-1.
Galbraith, M.D., Saxton, J., Li, L., Shelton, S., Zhang, H., **Espinosa, J.M.** and Shaw, P.E.
*Nucleic Acid Research* 41(22):10241-53, **2013**.
URL: http://nar.oxfordjournals.org/content/41/22/10241.long

45. Inhibition of telomerase recruitment and cancer cell death.
Nakashima, M., Nandakumar, J., Sullivan, K.D., **Espinosa, J.M.** and Cech, T.R.
*Journal of Biological Chemistry* 288(46):33171-80, **2013.**
URL: http://www.jbc.org/content/288/46/33171.long

46. Back to bases: how a nucleotide biosynthetic enzyme controls p53 activation.
Guarnieri, A. L. and **Espinosa, J.M.**
*Molecular Cell* 53(3):365-367, **2014.**
URL: http://www.cell.com/molecular-cell/abstract/S1097-2765(14)00086-0

47. Transcriptional regulation by hypoxia inducible factors.
Dengler, V.L., Galbraith, M. and **Espinosa, J.M.**
*Critical Reviews in Biochemistry and Molecular Biology* 49(1):1-15*,* **2014.**
URL: http://www.ncbi.nlm.nih.gov/pubmed/24099156

48. Autophagy controls the kinetics and extent of mitochondrial apoptosis by regulating PUMA levels.
Thorburn, J., Andrysik, Z., Staskiewicz, L., Gump, J., Maycotte, P., Oberst, A., Green, D.R., **Espinosa, J.M.,** Thorburn, A.
*Cell Reports 7(1):45-52,* **2014.**

URL: http://www.sciencedirect.com/science/article/pii/S2211124714001508

49. Global analysis of p53-regulated transcription identifies its direct targets and unexpected regulatory mechanisms.
Allen, M.A., Andrysik, Z., Dengler, V.L., Mellert, H.S., Guarnieri, A., Freeman, J.A., Sullivan, K.D., Galbraith, M.D., Luo, X., Kraus, W.L., Dowell, R.D. and **Espinosa, J.M.**
*eLIFE 3:e02200* **2014.**
URL: http://elifesciences.org/content/3/e02200

50. ATM regulates cell fate choice upon p53 activation by modulating mitochondrial turnover and ROS levels.
Sullivan, K.D., Palaniappan, V.V. and **Espinosa, J.M.**
*Cell Cycle* 14(1):56-63*,* **2015.**
URL: http://www.ncbi.nlm.nih.gov/pubmed/25483068

51. p53 Family Members Regulate Phenotypic Response to Aurora Kinase A Inhibition in Triple-Negative Breast Cancer.
Diamond, J.R., Eckhardt, S.G., Ionkina, A., Tan, A.C., Newton, T.P., Pitts, T.M., Glogowska, M., Kabos, P., Sartorius, C., Sullivan, K.D., **Espinosa, J.M.**, Tentler, J.J.
*Mol Cancer Ther (in press),* **2015.**

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**V. GRANT SUPPORT (since independent appointment only)**

***Completed Support:***

**The Leukemia and Lymphoma Society** (3407-04) 07/2004-06/2007
PI: Joaquín M. Espinosa
Total costs: $150,000
Title: *Mechanisms of transcriptional regulation by the tumor suppressor p53*

**Department of Defense** (CM050054) 09/2005-09/2007
PI: Joaquín M. Espinosa
Total costs: $150,000
Title: *Counteracting the oncogenic effects of Bcr-Abl by disrupting MDM2-p53 interactions in CML cells.*

**National Cancer Institute (NCI) - Spore in Lung Cancer (UCDHSC)** 07/2006-06/2007
PI: Paul Bunn (seed grant to the Espinosa Lab)
Total costs: $30,000
Title: *Non-genotoxic activation of p53 in lung cancer cells: a cellular and molecular analysis.*

**Council on Research and Creative Work (CU-Boulder)** 07/2006-06/2007
PI: Joaquín M. Espinosa
Total costs: $5,000
Title: *Identification of genes mediating the response to a novel form of cancer therapy.*

**March of Dimes** (5-FY05-1217) 02/2006-01/2008
PI: Joaquín M. Espinosa
Total costs: $150,000
Title: *Mechanisms of transcriptional regulation by p63 transcription factors*

**Cancer League of Colorado** 07/2008-06/2009
PI: Joaquín M. Espinosa
Total costs: $30,000
Title: *Mechanisms of cell fate choice to therapeutic activation of p53.*

**Butcher Award** 06/2010-06/2011
Co-Investigators: Joaquín M. Espinosa / Robin Dowell
Total costs: $100,000
Title: *p53 meets genomics: elucidating the p53 transcriptome by global run-on deep sequencing.*

**National Cancer Institute (NCI)** (1R01CA117907-05) 02/2006-01/2012

PI: Joaquín M. Espinosa
Total Costs: ~$1,057,900
Direct costs/year: $140,000
Title: *Stress- and promoter- specific mechanisms of transcriptional activation by p53.*

**National Science Foundation (NSF)** (MCB-0842974) 04/2009-01/2013
PI: Joaquín M. Espinosa
Total costs: $453,957
Direct costs/year: $95,000
Title: *Functional studies of the CDK-module of the human Mediator complex.*

**The Leukemia and Lymphoma Society** 10/2013-10/2014
PI: Joaquín M. Espinosa
Total costs: $100,000
Direct costs/year: $100,000
Title: *A systematic test of synthetic lethality in personalized cancer therapy.*

***Current Support:***

**Howard Hughes Medical Institute Early Career Award** 09/2009-08/2015
PI: Joaquín M. Espinosa
Total costs: >$2,000,000
Direct costs/year: $150,000 (year 1) increasing to $300,000 (year 6), plus PI's salary and lab rental.
Title: *Understanding how gene networks control cell behavior: the p53 paradigm.*

**National Cancer Institute (NCI)** (2R01CA117907-07) 04/2012-03/2017
PI: Joaquín M. Espinosa
Total Costs: $1,396,750
Direct costs/year: $185,000
Title: *Mechanisms of gene-specific transcriptional regulation within the p53 network.*

**National Science Foundation (NSF)** (MCB-1243522) 03/2013-02/2017
PI: Joaquín M. Espinosa
Total costs: $1,079,999
Direct costs/year: $165,000
Title: *Functional specialization of the Mediator-associated kinases CDK8 and CDK19.*

**Linda Crnic Institute for Down Syndrome** 03/2013-03/2015
PI: Joaquín M. Espinosa
Total costs: $100,000
Direct costs/year: $100,000
Title: *A genetic screen for synthetic lethal pathways with trisomy 21.*

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## VI. TEACHING

***Classroom teaching at UC Boulder:***

2006- **Instructor.** Biology of the Cancer Cell (MCDB3150), >120 students.
2005- **Co-Instructor.** Graduate Program CORE Course (MCDB5230), 10-20 students.
2009- **Co-Instructor.** Advanced Topics in Signal Transduction and Cell Cycle Regulation (CHEM5801), 10-20 students.

***Non-classroom teaching at the University of Colorado:***

1. **Mentoring of undergraduate students in the laboratory:** Meagan McBryde (2005-07), Megan Ash (2005-07), Glen Bjerke (2005-06), Jennifer Hoover (2005-2008), Jenna Rose (2005), Jeffrey Ahn (2005), Sarah Stephens (2006-2008), Grant Weaver (2006), Max Ederer (2007), Vadim Tsvankim

(2007), Jason Gotzinger (2006), Rachel Rice (2007-2008), Sarah Baldridge (2007-2008), Leif Nietzel (2007-2008), Rishi Rawat (2008), Rakel Salamander (2008), Christopher Potts (2008-2010), Marybeth Sechler (2008-2009), Federico Unglaub (2008-2009), Whitney Haseman (2009-2010), Amy Raucher (2009-2010), Sophia Pelecanos (2009-2010), Jace Burton (2009-2010), Jenny Sims (2010-11), Jack Tran (2010-12), Claire Bensard (2011-12), Uri Bulow (2011-12), Tom White (2012), Dave Myers (2012-13), Amber Johnson (2012-2013), Emily Dohm (2013-2014), Nicole Michael (2013-present), Joseph Cabral (2013), Kyle Tucker (2013), Zane Gibbs (2014), Samantha Gumbin (2014-present), Caitlin Ritz (2014-present), Madeline Brown (2014-present)

2. **Mentor for Ph.D. students:** Aaron Donner (graduated in 2010), Nathan Gomes (graduated in 2010), Ryan Henry (graduated in 2012), Katherine Audetat and Roni Dengler (all MCDB).

3. **Mentor for Post-Doctoral Fellows:** Ramiro Paris (2006-2008), Ignacio Nojek (2006-2008), Zdenek Andrysik (2009-present), Lindsay Levkoff (2009), Kelly Sullivan (2009-present), Mathew Galbraith (2009-present), Corrie Gallant-Behm (2009-2013), Renee Paulsen (2010-2011), Mary Allen (2010-2014), Hestia Mellert (2011-present), Jean-Luc Fraikin (2011-2012), Jessica Nichol (2012), Anna Smith (2013-present), Rose Byrne (2013-2014), Chris Abraham (2014-present).

4. **Mentor for Rotation Students:** Megan Wemmer (2004), Ben Barthel (2005), Nick Farina (2005), Becky Nixx (2006), Aileen Spindler (2007), Dan Adams (2007), Kent Riemondy (2008), Jessica Vera (2009), Justin Holt (2009, MSTP-UCDHSC), Kate Goldfarb (2011), Minghua Liu (2011), Brian Huiton (2011), Andre Hersan (2011), Eli Geron (2012), Roni Dengler (2012), Marie Balboa (2012), Ariel Hernandez (2013), Joshua Wheeler (2013), Russell Burke (2013), John Nardini (2014).

5. **Member of Ph.D. thesis committee: Completed:** Annita Whichmann, Travis Hughes, Brady Culver, Nick Farina, Mary Allen, Allyson Schaaff, Alfonso Garrido-Lecca (MCDB). Jeff Beckman, Darren Bates, Brian Kalet, Matthew Knuesel, Krista Meyer and Chris Ebmeier (Chem-Biochem., CU-Boulder). Pippa Cosper (MSTP, UCDHSC), Doug Micalizzi (UCDHSC). **Currently:** Kent Reimondy, Jessica Vera, Li Wang, Joel Basken and Christopher Bennet (MCDB); Christina Garlington (UCDHSC).

6. **Mentor of Undergraduate Honor Thesis:** Meagan McBryde (2007), Jennifer Hoover (2008), Sarah Stephens (2008), Claire Bensard (2012), Amber Johnson (2013), Nicole Michael (2014).

7. **Mentor for Junior Faculty.** Brian Dedecker and James Orth (MCD Biology), Jennifer Diamond (UCDHSC).

***Teaching beyond the University of Colorado:***

2008-12 **Instructor.** Cold Spring Harbor Laboratory, Summer Course on Eukaryotic Gene Expression.

2006- **PhD Thesis Committee Member outside of CU:** Melissa Mattia and Rachel Beckerman (Department of Biological Sciences, Columbia University, New York) and Manuel de la Mata (Departamento de Biología, Universidad de Buenos Aires).

2011 **Instructor.** The American Society for Cell Biology (ASCB), Africa Teaching Team.

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## VII. INVITED TALKS, LECTURES & SEMINARS (last six years only)

2008 Federation for American Societies for Experimental Biology (FASEB) meeting, Snowmass, CO, U.S.A.
Massachusetts General Hospital Cancer Center, Boston, MA, U.S.A.
Helsinki Biomedical Student Symposium, Helsinki, Finland.
Center for Genomic Regulation (CRG), Barcelona, Spain.
International Center for Genetic Engineering and Biotechnology (ICGEB), Trieste, Italy.
American Medical Student Association (AMSA), Colorado Chapter, Boulder, CO, U.S.A.
ASBMB Meeting on Transcriptional Regulation by Chromatin and RNAPII, Lake Tahoe, CA, U.S.A.
Louisiana State University Health Sciences Center, Shreveport, LA, U.S.A.

2009 Novartis Institute for Biomedical Research, Boston, MA, U.S.A.
Colorado State University Animal Cancer Center, Fort Collins, CO, U.S.A.

University of Colorado Health Science Center, Aurora, CO, U.S.A.
Keystone Symposia Meeting on Deregulation of Transcription in Cancer, Kerry, Ireland.
Cold Spring Harbor Laboratories meeting on Mechanisms of Eukaryotic Transcription, NY, U.S.A.
Kittredge Honors Program, University of Colorado at Boulder, CO, U.S.A.
National Institutes of Diabetes, Digestive and Kidney Diseases (NIDDK), Bethesda, MD, U.S.A.
Colorado State University, Department of Cell and Molecular Biology, Fort Collins, CO, U.S.A.
Howard Hughes Medical Institute, Janelia Farm Research Campus, MD, U.S.A.
Columbia University, Department of Biological Sciences, New York, NY, U.S.A.

2010 McGill University Graduate Student Symposium, Montreal, Canada.
UCCC Bi-annual Retreat, Westminster, CO, U.S.A.
ASBMB Annual Meeting, Session on Chromatin and Transcription, Anaheim, CA, U.S.A.
SomaLogic, Boulder, CO, U.S.A.
Department of Immunology Annual Retreat, UCDHSC, Glenwood Springs, CO, U.S.A.
Max Planck Society Meeting on P-TEFb and Elongation Control, Munich, Germany.
The 15th International p53 Workshop, Philadelphia, PA, U.S.A.
UC Denver Medical School, Molecular Biology Program, Aurora, CO, U.S.A.
ASBMB Meeting on Transcriptional Regulation by Chromatin and RNAPII, Lake Tahoe, CA, U.S.A.
Mount Sinai School of Medicine, New York, NY, U.S.A.
University of Arizona, Tucson, AZ, U.S.A.

2011 Tufts University Genetics Program, Boston, MA, U.S.A.
Gordon Research Conference on Cell Growth and Proliferation, Biddeford, ME, U.S.A.
Cold Spring Harbor Laboratories Meeting on Mechanisms of Eukaryotic Transcription, NY, U.S.A.
Symposium on Chromatin Changes during Differentiation and Malignancies, Giessen, Germany.
Gene Expression and RNA Processing Symposium (ICGEB), Iguazú Falls, Argentina.
VI MDM2 International Workshop, New York Academy of Sciences, NY, U.S.A.
Howard Hughes Medical Institute, Janelia Farm Research Campus, MD, U.S.A.
Butcher Symposium, Westminster, CO, U.S.A.

2012 The John H. Baffler Lecture Series, MD Anderson Cancer Center, Houston, Texas, U.S.A
The University of Illinois at Chicago, Department of Medicine, IL, U.S.A.
Promega Corporation, Madison, Wisconsin, U.S.A.
Banbury Meeting on Transcription and Cancer, Cold Spring Harbor Laboratories, NY, U.S.A.
ASBMB Annual Meeting, Session on Transcriptional Regulation during Growth and Development, San Diego, CA, U.S.A.
Program in Reproductive Sciences, Department of Obstetrics and Gynecology, UCD-SOM, CO, U.S.A.
University of California at San Francisco, Department of Biochemistry and Biophysics, CA, U.S.A.
The Science Coalition Congressional Briefing, Washington D.C., U.S.A.
FASEB Meeting on Transcriptional Regulation during Cell Growth, Differentiation and Malignancy, Snowmass, CO, U.S.A.
ASBMB Meeting on Transcriptional Regulation by Chromatin and RNAPII, Snowbird, Utah, U.S.A.
Ponce School of Medicine, Ponce, Puerto Rico.
Colorado State University at Colorado Springs.

2013 The Stowers Institute, Kansas City, KS. U.S.A.
Department of Biochemistry, University of Washington, Seattle, WA, U.S.A.
Universite de Sherbrooke, Sherbrooke, Quebec, Canada.
Cold Spring Harbor Laboratories Summer Course on Eukaryotic Gene Expression, NY, U.S.A.
FASEB Summer Research Conference on Transcription, Chromatin & Epigenetics, Bahamas.
Howard Hughes Medical Institute, Chevy Chase Headquarters, MD, U.S.A.
Annual Biomedical Research Conference for Minority Students, Nashville, Tennessee, U.S.A.

2014 Keystone Symposia on Hypoxia Signaling, Breckenridge, CO, U.S.A.
Keystone Symposia on Transcriptional Regulation and Cancer Epigenetics, Santa Fe, NM, U.S.A.
The PEW Charitable Trust Program in Biomedical Sciences, Costa Rica.

Department of Genetics, University of Georgia at Athens, Georgia, U.S.A.
Biomedical Sciences Graduate Program, University of Michigan at Ann Arbor.
Department of Chemical and Systems Biology, Stanford University, California, U.S.A.
p53 International Workshop, Stockholm, Sweden.
EMBL meeting on Transcription and Chromatin, Heidelberg, Germany.
Department of Biochemistry, Vanderbilt University, Nashville, Tennessee, U.S.A.
Annual meeting of the Chilean Society of Biochemistry and Molecular Biology, Puerto Varas, Chile.
James H. Holland Lecture, Department of Biology, Indiana University, Bloomington, Indiana.
Annual meeting of the Argentine Society of Biochemistry and Molecular Biology, Rosario, Argentina.
European Institute of Oncology, Milan, Italy.
University of Trento, Trento, Italy.
University of Massachusetts at Worcester, Department of Cell and Developmental Biology. MA, U.S.A.

2015 Department of Oncological Sciences, Huntsman Cancer Institute, Salt Lake City, UT, U.S.A.
*Confirmed speaker at:*
Cold Spring Harbor Laboratories Meeting on Mechanisms of Eukaryotic Transcription, NY, U.S.A.
HHMI EXROP Symposium, Chevy Chase, MD, U.S.A.
HHMI Annual Meeting, Janelia Farm, VA, U.S.A.

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## VIII. SERVICE

### *MCD Biology:*

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| 2005-08 | Member of the Committee on Graduate Students Affairs (COGSA). |
| 2006 | Member of the Chair Search Committee. |
| 2006 | Member of the Junior Faculty Search Committee. |
| 2007-09 | Member of the Seminars Committee. |
| 2007- | Co-Organizer of MCD Biology Bi-Annual Retreat. |
| 2008-12 | Member of the Junior Faculty Search Committee. |
| 2011 | Member of the Graduate Student Admissions Committee. |
| 2012 | Member of the Committee on Graduate Students Affairs (COGSA). |
| 2013 | Member of Undergraduate Committee (UGCOM). |

### *University of Colorado:*

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| 2005- | Member of the Faculty Advisory Board for the Biosciences Initiative (BSI). |
| 2010- | Co-Leader, Molecular Oncology Program, University of Colorado Cancer Center. |
| 2010- | Director, The Functional Genomics Facility at CU-Boulder. |
| 2010- | Task Force Member, The Biofrontiers Institute. |
| 2012- | Faculty Associate, Faculty Teaching Excellence Program (FTEP). |

### *Scientific community at large:*

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| 2005-2007 | Member of the Scientific Advisory Board for The Cancer League of Colorado. |
| 2004- | Scientific Reviewer for the journals: Cell, Science, Genes and Development, Molecular Cell, Nature Review Cancers, Nature Structure and Molecular Biology, Nature Communications, Proceedings of the National Academy of Sciences, Molecular and Cellular Biology, EMBO Journal, EMBO Reports, Oncogene, Cancer Research, Cell Death and Differentiation, Molecular Cancer, Human Molecular Reproduction, Molecular Carcinogenesis, Journal of Biological Chemistry, Epigenetics, Genome Biology, Transcription, Developmental Cell, Cell Reports. |
| 2007 | Reviewer for the Ireland Research Board. |
| 2008- | Reviewer for the Ohio Cancer Research Foundation. |
| 2008 | Reviewer for Cancer Research UK. |
| 2009 | Reviewer, National Science Foundation (NSF), Gene and Genomes Cluster. |
| 2010-11 | Reviewer, Molecular Genetics A Study Section (MGA), Center for Scientific Review, NIH. |

2010 Reviewer, Colorado Clinical and Translational Sciences Institute (CCTSI).
2011-13 Reviewer, Cancer Molecular Pathology Study Section (CAMP), NIH.
2011 Reviewer, National Science Foundation (NSF), Gene Regulation and Epigenetics Cluster.
2011 Reviewer, HHMI, International Pre-Doctoral Fellowship Program.
2011 Reviewer, Netherlands Organization for Scientific Research.
2011 Reviewer, Ministerio de Education, Ciencia y Tecnología, Argentina.
2012 Reviewer, Agence National du Recherche, France.
2012 Reviewer, The Butcher Foundation Awards.
2012 Site Visit Reviewer, Cancer and Cell Biology laboratories, NIH-NCI.
2012 Reviewer, NIH Special Emphasis Panel, Genetic Variation and Evolution Study Section.

***Editorial Boards:***

2009- *Molecular and Cellular Biology* (American Society for Microbiology)
2011- Co-Editor in Chief, *Transcription* (Landes Bioscience Journals)
2011- *Cell Reports* (Cell Press)
2012- *eLIFE* (HHMI / Welcome Trust / Max Planck Society)

***Outreach Activities:***

2012- The Huffington Post, blog on cancer-related topics.
2012 The Science Coalition, participated in promotional short film and panel with members of Congress staff.

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## IX. PATENTS

Patent US20030228627 A1: *Assay for p53 function in cells,* Beverly M. Emerson and Joaquin Espinosa.

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## X. MEMBERSHIPS IN SCIENTIFIC SOCIETIES

2005- American Association for Cancer Research (AACR).