

# Curriculum Vitae

**Hiten D. Madhani**

**Professor**

**Department of Biochemistry and Biophysics**

**UCSF**

## **Born**

London, England (US Citizen)

## **Education**

Postdoctoral, Whitehead Institute, 1995-1999, laboratory of G. Fink

MD, UCSF, 1995

PhD, Genetics, UCSF, 1993, laboratory of C. Guthrie

B.S./M.S., Biological Sciences, 1986, Stanford University, laboratory of P. Hanawalt

## **Professional Positions**

Professor, Department of Biochemistry and Biophysics, UCSF, 2008-present

Associate Professor, Department of Biochemistry and Biophysics, UCSF, 2005-2008

Assistant Professor, Department of Biochemistry and Biophysics, UCSF, 1999-2005

## **Awards and Honors**

UCSF Outstanding Faculty Mentor Award, 2015

Elected Fellow, American Academy of Microbiology, 2014

Leukemia and Lymphoma Society Scholar, 2005-2010

David and Lucile Packard Foundation Fellowship for Scientists and Engineers, 2000-2005

Burroughs-Wellcome Fund Career Development Award, 1999-2002

Helen Hay Whitney Foundation Postdoctoral Research Fellowship, 1995-1998

Fox Award for Outstanding Undergraduate in Biology at Stanford, 1986

Firestone Medal for Excellence in Research at Stanford, 1986

## Publications (•major papers)

•Clarke SC, Dumesic PA, Homer CM, O'Donoghue AJ, La Greca F, Pallova L, Majer P, Madhani H.D., Craik CS. (2016) Integrated Activity and Genetic Profiling of Secreted Peptidases in *Cryptococcus neoformans* Reveals an Aspartyl Peptidase Required for Low pH Survival and Virulence. **PLoS Pathog.** 12:e100605.1.

Inada M, Nichols RJ, Parsa JY, Homer CM, Benn RA, Hoxie RS, Madhani H.D., Shuman S, Schwer B, Pleiss JA. (2016) Phospho-site mutants of the RNA Polymerase II C-terminal domain alter subtelomeric gene expression and chromatin modification state in fission yeast. **Nucleic Acids Res.** 44:9180-9189.

Al-Sady B, Greenstein RA, El-Samad HJ, Braun S, Madhani H.D. (2016) Sensitive and Quantitative Three-Color Protein Imaging in Fission Yeast Using Spectrally Diverse, Recoded Fluorescent Proteins with Experimentally-Characterized In Vivo Maturation Kinetics. **PLoS One.** 11:e0159292.

•Homer, C.M., Summers, D.K., Goranov, A.I., Clarke, S.C., Weisner, D., Diedrich, J.K., Moresco, J.J., Toffaletti, D., Upadhyaya, R., Caradonna, I., Petnic, S., Pessino, V., Cuomo, C.A., Lodge, J.K., Perfect, J., Yates, J.R. III, Nielsen, K., Craik, C.S., Madhani, H.D. (2016) Intracellular Action of a Secreted Peptide Required for Fungal Virulence. **Cell Host and Microbe** 19, 849-864

Dumesic PA, Rosenblad MA, Samuelsson T, Nguyen T, Moresco JJ, Yates JR 3rd, Madhani H.D. (2015). Noncanonical signal recognition particle RNAs in a major eukaryotic phylum revealed by purification of SRP from the human pathogen *Cryptococcus neoformans*. **Nucleic Acids Res.** :43:9017-27.

Desjardins CA, Sanscrainte ND, Goldberg JM, Heiman D, Young S, Zeng Q, Madhani H.D., Becnel JJ, Cuomo CA. (2015) Contrasting host-pathogen interactions and genome evolution in two generalist and specialist microsporidian pathogens of mosquitoes. **Nat Commun.** 6:7121.

Garcia, J.F., Al-Sady, B., Madhani, H.D. (2015) Intrinsic Toxicity of Unchecked Heterochromatin Spread is Suppressed by Redundant Chromatin Boundary Functions in *Schizosaccharomyces pombe*. **Genes, Genomes, Genetics** 5:1453-61.

•Dumesic, P.A., Homer, C.M., Moresco, J.J., Pack, L.R., Shanle, E.K., Coyle, S.M., Strahl, B.D., Fujimori, D.G., Yates, J.R., and Madhani, H.D. (2014) Product binding enforces the genomic specificity of a yeast Polycomb repressive complex. **Cell** 160: 204-218

•Brown, J.C.S., Nelson, J., VanderSluis, B., Deshpande, R., Butts, A., Kagan, S., Polacheck, I., Krysan, D.J., Myers, C.L., and Madhani, H.D. (2014) Unraveling the biology of a fungal meningitis pathogen using chemical genetics. **Cell** 159: 1168-87.

Goranov, A. and Madhani, H.D. (2014) Functional profiling of human fungal pathogen genomes. **Cold Spring Harbor Perspectives** 5(3):a019596.

Butts A, Koselny K, Chabrier-Roselló Y, Semighini CP, Brown JC, Wang X, Annadurai S, DiDone L, Tabroff J, Childers WE Jr, Abou-Gharbia M, Wellington M, Cardenas ME, Madhani H.D., Heitman J, Krysan DJ. (2014) Estrogen receptor antagonists are anti-cryptococcal agents that directly bind EF hand proteins and synergize with fluconazole in vivo. **MBio**. 5:e00765-13.

Dumesic, P.A., and Madhani, H.D. (2014) Recognizing the enemy within: licensing RNA-guided genome defense. **Trends in Biochemical Sciences** 39: 25-24.

Dumesic, P.A. and Madhani, H.D. (2013) The spliceosome as a transposon sensor. **RNA Biology** 10: 1653-1660.

Madhani, H.D. (2013) snRNA catalysts in the spliceosome's ancient core. **Cell** 155: 1213-1215.

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•Marina, D.B., Shankar, S., Natarajan, P., Finn, K., and Madhani, H.D. (2013) A conserved ncRNA-binding protein recruits silencing factors to heterochromatin through an RNAi-independent mechanism. **Genes and Development** 27: 1851-1856.

•Al-Sady, B., Madhani, H.D., Narlikar, G.J. (2013) Division of Labor between the Chromodomains of HP1 and Suv39 Methylase Enables Coordination of Heterochromatin Spread. **Molecular Cell** 51:80-91.

•Canzio, D., Liao, M., Naber, N., Pate, E., Larson, A., Wu, S., Marina, D.B., Garcia, J.F., Madhani, H.D., Cooke, R., Schuck, P., Cheng, Y., Narlikar, G.J. (2013) A conformational switch in HP1 releases auto-inhibition to drive heterochromatin assembly. **Nature** 496:377-81.

•Dumesic, P.A., Natarajan, P., Chen, C., Drinnenberg, I.A., Schiller, B.J., Thompson, J., Moresco, J.J., Yates, J.R. III, Bartel, D.P. and Madhani, H.D. (2013). Stalled Spliceosomes Are a Signal for RNAi-Mediated Genome Defense. **Cell** 152: 957–968.

Brown, J.C.S. and Madhani, H.D. (2012) Approaching the functional annotation of fungal virulence factors using cross-species genetic interaction profiling. **PLoS Genetics** 8:e1003168.

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•Rougemaille, M., Braun, S., Coyle, S., Dumesic, P.A., Garcia, J.F., Isaac, R.S., Libri, D., Narlikar, G.J., Madhani, H.D. (2012) Ers1 links HP1 to RNAi. **Proceedings of the National Academy of Sciences, USA** 109:11258-63

Braun, S., and Madhani, H.D. (2012) Shaping the landscape: mechanistic consequences of ubiquitin modification of chromatin. **EMBO Reports** 13:619-30

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Kiely, C.M., Marguerat, S., Garcia, J., Madhani, H.D., Bähler, J, Winston, F.(2011) Spt6 is required for heterochromatic silencing in the fission yeast *Schizosaccharomyces pombe*. **Molecular and Cellular Biology** 31:4193-4204.

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Charles G.M., Chen C., Shih S.C., Collins S.R., Beltrao P., Zhang X., Sharma T., Tan S., Burlingame A.L., Krogan N.J., Madhani H.D.,\* Narlikar G.J.\* (2011) Site-specific acetylation mark on an essential chromatin-remodeling complex promotes resistance to replication stress. **Proceedings of the National Academy of Sciences, USA** 108:10620-5. \*co-corresponding authors

•Chun C.D., Brown J.C., Madhani H.D. (2011) A Major Role for Capsule-Independent Phagocytosis-Inhibitory Mechanisms in Mammalian Infection by *Cryptococcus neoformans*. **Cell Host & Microbe** 9:243-51.

•Canzio D., Chang E.Y., Shankar S., Kuchenbecker K.M., Simon M.D., Madhani H.D., Narlikar G.J., Al-Sady B. (2011) Chromodomain-mediated oligomerization of HP1 suggests a nucleosome-bridging mechanism for heterochromatin assembly. **Molecular Cell** 41:67-81.

•Braun, S., Garcia, J.F., Rowley, M., Rougemaille, M., Shankar, S., Madhani, H.D. (2011) The Cul4-Ddb1<sup>Cdt2</sup> ubiquitin ligase inhibits the invasion of a boundary-associated anti-silencing factor into heterochromatin. **Cell** 144: 41-54.

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•Garcia J.F., Dumesic P.A., Hartley P.D., El-Samad H., Madhani H.D. (2010) Combinatorial, site-specific requirement for heterochromatic silencing factors in the elimination of nucleosome-free regions. **Genes and Development** 15:1758-71.

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Raisner, R.M. & Madhani, H.D. (2008) Genomewide screen for negative regulators of sirtuin activity in *S. cerevisiae* reveals 40 loci and links to metabolism. **Genetics** 179: 1933-1944.

Venkatasubrahmanyam, S., Hwang, W.W. Meneghini, M.D., Tong, A.H. & Madhani, H.D. (2007) Genome-wide, as opposed to local, antisilencing is mediated redundantly by the euchromatic factors Set1 and H2A.Z. **Proceedings of the National Academy of Sciences, USA** 104: 16609-16614.

Chow, E.D., Liu, O.W., O'Brien, S & Madhani, H.D. (2007) Exploration of whole-genome responses of the human AIDS-associated yeast pathogen *Cryptococcus neoformans var grubii*: nitric oxide stress and body temperature. **Current Genetics** 57: 137-148.

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- Bao, M.Z., Schwartz, M.A., Cantin, G.T., Yates, J.R. 3<sup>rd</sup>, Madhani, H.D. (2004) Pheromone-dependent destruction of the Tec1 transcription factor is required for MAP kinase signaling specificity in yeast. **Cell** 119: 911-1000.
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- Meneghini, M.D., Wu., M, and Madhani, H.D. (2003) Conserved histone variant H2A.Z prevents the ectopic spread of silent heterochromatin. **Cell** 112: 725-736.
- Hwang, W., Venkatasubrahmanyam, S., Ianculescu, A.G., Tong, A., Boone, C., Madhani, H.D. (2003) A conserved RING finger protein required for histone H2B monoubiquitination and cell size control. **Molecular Cell** 11: 261-266. Published online Dec. 28, 2002.
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- Madhani, H.D., & Fink, G.R. (1998) The control of fungal differentiation and virulence. **Trends in Cell Biology** 8: 348-352.
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- Madhani, H.D., Styles, C.A. & Fink, G.R. (1997) MAP kinases with distinct inhibitory functions impart signaling specificity during yeast differentiation. **Cell** 91: 673-684.
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