Jian Feng

CURRICULUM VITAE

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1425 Madison Ave, Room 10-26

Department of Neuroscience

Icahn School of Medicine at Mount Sinai

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Visa Status: U.S. Permanent Resident

EDUCATION

University of California, Los Angeles (Ph.D., December 2007) Los Angeles, CA

Human Genetics Department, David Geffen School of Medicine

Advisor: Dr. Guoping Fan

Dissertation title: The role of DNA methyltransferases in development and function of the central nervous system.

Tianjin Medical University (M.D., July 1998) Tianjin, China P.R.

Clinical Medicine Program

POSTDOCTORAL TRAINING

Icahn School of Medicine at Mount Sinai (Postdoctorate Fellow, November 2009-present) New York, NY

Neuroscience Department

Advisor: Dr. Eric J. Nestler

Major studies: Epigenetic regulations and transcriptome dynamics of cocaine action and depression.

University of California, Los Angeles (Postdoctorate Fellow, January 2008-October 2009) Los Angeles, CA

Human Genetics Department, David Geffen School of Medicine

Advisor: Dr. Guoping Fan

Major study: The role of DNA methyltransferases in development and function of the central nervous system.

OTHER RESEARCH/TRAINING EXPERIENCE

University of California, Riverside (Ph.D. Research Assistant, September 2001-December 2003) Riverside, CA

Interdepartmental Graduate Program in Neuroscience

Advisor: Dr. Gene Huh (rotated with Drs. Currás-Collazo, Adams prior to joining the Huh lab)

Research title: Molecular regulation of class I MHC in mouse neural development.

Tianjin Medical University General Hospital (Resident, July 1998-September 2001) Tianjin, China P.R.

Neurosurgery Department

AWARDS & HORNORS

ISMMS Postdoc Recognition Award, Icahn School of Medicine at Mount Sinai 2014

NARSAD Young Investigator Grant, Brain & Behavior Research Foundation 2014-2016

Proposal title: "Role of TET1 and 5-hydroxymethylcytosine in depression". Amount: $60,000.

Chancellor's Award for Postdoctoral Research (nominee), UCLA 2010

Dean's Fellowship, University of California, Riverside 2001-2003

Outstanding Graduate, Tianjin Medical University, Tianjin, China P.R. 1998

PROFESSSIONAL AFFILIATION & ACTIVITIES

Member, The Society for Neuroscience 2004-present

Ad Hoc Journal Reviewer for ***Biological Psychiatry***, ***Brain Research***, ***Epigenetics***, ***International Journal of Developmental Neuroscience***, ***The Journal of Neurobiology***, ***Learning and Memory***, ***Plos One***, ***Psychopharmacology***.

PUBLICATIONS

Manuscripts in process (* equal contribution, # co-corresponding authors)

1. Wang T*, **Feng J***, Santos JH*, Cahill M, Fargo D, Shen L, Nestler EJ#, Woychik RP#. Chronic cocaine regulated repetitive element mobilization drives transcriptome mosaics in mouse nucleus accumbens. In review.
2. Mitsi V, Terzi D, Puruphashaman I, Manouras L, Gaspari S, Stratinaki M, **Feng J**, Shen L, Zachariou V. RGS9-2 actions in the nucleus accumbens modulate the antiallodynic and antidepressant actions of tricyclic antidepressants in models of neuropathic pain. In review.

Accepted or Published papers (* equal contribution, # co-corresponding authors)

3. **Feng J**, Shao N, Szulwach KE, Vialou V, Huynh J, Zhong C, Le T, Li Y, Ferguson D, Cahill ME, Koo JW, Laitman B, Estey D, Stockman V, Ribeiro E, Kennedy P, Mensah I, Turecki G, Faull KF, Song H, Fan G, Casaccia P, Shen L, Jin P, Nestler EJ. Role of Tet1 and 5-hydroxymethylcytosine in cocaine action. Accepted at ***Nat Neurosci***.
4. Wright KN, Hollis F, Duclot F, Dossat AM, Mercer R, **Feng J**, Dietz DM, Nestler EJ, Kabbaj M. Methyl supplementation attenuates cocaine-seeking behaviors and cocaine-induced c-fos activation in a DNA methylation-dependent manner. Accepted at ***J Neurosci***.
5. Ferguson D, Shao N, Heller EA, **Feng J**, Neve R, Shen L, Nestler EJ. SIRT1-FOXO3a regulate cocaine actions in the nucleus accumbens. In print at ***J Neurosci***.
6. Koo JW, Mazei-Robison MS, LaPlant Q, Egervari G, Braunscheide KM, Adank DN, Ferguson D, **Feng J**, Sun H, Scobie KN, Damez-Werno DM, Ribeiro E, Peña CJ, Walker D, Bagot RC, Cahill ME, Anderson SAR, Labonté B, Hodes GE, Browne H, Chadwick B, Robison AJ, Vialou VF, Dias C, Lorsch Z, Mouzon E, Lobo MK, Dietz DM, Russo SJ, Neve RL, Hurd YL, Nestler EJ. Epigenetic basis of opiate suppression of Bdnf gene expression in the ventral tegmental area. In print at ***Nat Neurosci***.
7. Dias C*, **Feng J***, Sun H, Shao NY, Mazei-Robison MS, Damez-Werno D, Scobie K, Bagot R, LaBonté B, Ribeiro E, Liu X, Kennedy P, Vialou V, Ferguson D, Peña C, Calipari ES, Koo JW, Mouzon E, Ghose S, Tamminga C, Neve R, Shen L, Nestler EJ. (**2014**) β-Catenin mediated stress resilience through Dicer1/microRNA regulation. ***Nature.*** Dec 4;516(7529):51-5.

   •***News & Views****:* Schratt G. (**2014**) Neurobiology: a molecular knife to dice depression. ***Nature***. Dec 4;516(7529):45-6

8. Heller EA, Cates HM, Peña CG, Sun H, Knight S, Shao N, **Feng J**, Golden SA, Walsh JJ, Mazei-Robison M, Ferguson D, Herman JP, Han MH, Russo SJ, Tamminga CS, Neve RL, Zhang HS, Shen L, Zhang F, Nestler EJ. (**2014**) Locus-specific epigenetic reprogramming controls addiction- and depression-related behaviors. ***Nature Neurosci.*** Dec;17(12):1720-7.
9. **Feng J**, Wilkinson M, Liu X, Purushothaman I, Ferguson D, Vialou V, Maze I, Shao N, Kennedy P, Koo JW, Dias C, Laitman B, Stockman V, LaPlant L, Cahill M, Nestler EJ[#], Shen L[#]. (**2014**) Chronic cocaine-regulated epigenomic chages in mouse nucleus accumbens. ***Genome Biology***. 15(4):R65 (journal IF: 10.5)
10. Vialou V, Bagot R, Cahill M, Ferguson D, Robison A, Ku S, Dietz D, Fallon B, Mazei-Robison M, Harrigan E, Winstanley C, Joshi T, **Feng J**, Berton O, Nestler EJ. (**2014**) Prefrontal cortical circuit for depression- and anxiety-related behaviors mediated by cholecystokinin: Role of ∆ FosB. ***J Neurosci*** 34(11):3878-87
11. Ferguson D, Koo JW, **Feng J**, Heller E, Rabkin J, Heshmati M, Renthal W, Neve R, Liu X, Shao N, Sartorelli V, Shen L, Nestler EJ. (**2013**). Essential Role of SIRT1 Signaling in the Nucleus Accumbens in Cocaine and Morphine Action. ***J Neurosci***. 33(41):16088-16098.
12. Shen L, Shao NY, Liu X, Maze I, **Feng J**, Nestler EJ. (**2013**). diffReps: detecting differential chromatin modification sites from ChIP-seq data with biological replicates. ***PLoS One***. 8(6):e65598.
13. Kennedy PJ, **Feng J**, Robison AJ, Maze I, Badimon A, Mouzon E, Chaudhury D, Damez-Werno DM, Haggarty SJ, Han MH, Bassel-Duby R, Olson EN, Nestler EJ. (**2013**). Class I HDAC inhibition blocks cocaine-induced plasticity through targeted changes in histone methylation. ***Nat Neurosci***. 16(4):434-40.
14. Robison AJ, Vialou V, Mazei-Robison M, **Feng J**, Kourrich S, Collins M, Wee S, Koob G, Turecki G, Neve R, Thomas M, Nestler EJ. (**2013**). Behavioral and Structural Responses to Chronic Cocaine Require a Feed-Forward Loop Involving ΔFosB and CaMKII in the Nucleus Accumbens Shell. ***J Neurosci***. 33(10):4295-307.
15. **Feng J**, Nestler EJ. (**2013**). Epigenetic mechanisms of drug addiction. ***Curr Opin Neurobiol.*** *23(4):521-8*. (Review)
16. Koo JW, Mazei-Robison MS, Chaudhury D, Juarez B, LaPlant Q, Ferguson D, **Feng J**, Sun H, Scobie KN, Damez-Werno D, Crumiller M, Ohnishi YN, Ohnishi YH, Mouzon E, Dietz DM, Lobo MK, Neve RL, Russo SJ, Han MH, Nestler EJ. (**2012**). BDNF is a negative modulator of morphine action. ***Science***. 5;338(6103):124-8.
17. Vialou V, **Feng J**, Robison AJ, Nestler EJ. (**2013**). Epigenetic mechanisms of depression and antidepressant action. ***Annu Rev Pharmacol Toxicol***. 6;53:59-87. (Review)
18. Warren BL, Vialou VF, Iñiguez SD, Alcantara LF, Wright KN, **Feng J**, Kennedy PJ, Laplant Q, Shen L, Nestler EJ, Bolaños-Guzmán CA. (**2013**). Neurobiological sequelae of witnessing stressful events in adult mice. ***Biol Psychiatry***. 73(1):7-14.
19. Vialou V*, **Feng J***, Robison AJ, Ku SM, Ferguson D, Scobie KN, Mazei-Robison MS, Mouzon E, Nestler EJ. (**2012**). Serum response factor and cAMP response element binding protein are both required for cocaine induction of ΔFosB. ***J Neurosci***. 32(22):7577-84.
20. Dietz DM, Laplant Q, Watts EL, Hodes GE, Russo SJ, **Feng J**, Oosting RS, Vialou V, Nestler EJ. (**2011**). Paternal transmission of stress-induced pathologies. ***Biol Psychiatry***. 70(5):408-14.
21. Maze I, **Feng J**, Wilkinson MB, Sun H, Shen L, Nestler EJ. (**2011**). Cocaine dynamically regulates heterochromatin and repetitive element unsilencing in nucleus accumbens. ***Proc Natl Acad Sci U S A***. 108(7):3035-40.
22. Gomez-Pinilla F, Zhuang Y, **Feng J**, Ying Z, Fan G. (**2011**). Exercise impacts brain-derived neurotrophic factor plasticity by engaging mechanisms of epigenetic regulation. ***Eur J Neurosci***. 33(3):383-90.
23. **Feng J**, Nestler EJ. (**2010**). MeCP2 and drug addiction. ***Nat Neurosci***. 13(9):1039-41. (News and Views)

24. LaPlant Q, Vialou V, Covington HE 3rd, Dumitriu D, **Feng J**, Warren BL, Maze I, Dietz DM, Watts EL, Iñiguez SD, Koo JW, Mouzon E, Renthal W, Hollis F, Wang H, Noonan MA, Ren Y, Eisch AJ, Bolaños CA, Kabbaj M, Xiao G, Neve RL, Hurd YL, Oosting RS, Fan G, Morrison JH, Nestler EJ. (**2010**). Dnmt3a regulates emotional behavior and spine plasticity in the nucleus accumbens. ***Nat Neurosci***. 13(9):1137-43.
    •***News & Views****:* Hopf FW, Bonci A. (**2010**). Dnmt3a: addiction's molecular forget-me-not? ***Nat Neurosci***. Sep;13(9):1041-3.
25. **Feng J**, Zhou Y, Campbell SL, Le T, Li E, Sweatt JD, Silva AJ, Fan G. (**2010**). Dnmt1 and Dnmt3a maintain DNA methylation and regulate synaptic function in adult forebrain neurons. ***Nat Neurosci***. 13(4):423-30.
    •***News & Views****:* Korzus E. (**2010**) Manipulating the brain with epigenetics. ***Nat Neurosci***. 2010 Apr;13(4):405-6.
26. **Feng J**, Fan G. (**2009**). The role of DNA methylation in the central nervous system and neuropsychiatric disorders. ***Int Rev Neurobiol***. 89:67-84. (Review)
27. **Feng J**, Fouse S, Fan G. (**2007**). Epigenetic regulation of neural gene expression and neuronal function. ***Pediatr Res***. 61(5 Pt 2):58R-63R. (Review)
28. **Feng J**, Chang H, Li E, Fan G. (**2005**). Dynamic expression of de novo DNA methyltransferases Dnmt3a and Dnmt3b in the central nervous system. ***J Neurosci Res***. 79(6):734-46.

Book chapters

1. Robison AJ, **Feng J**, Nestler EJ. (**2013**). Chapter 6: Drug Addiction and Reward. In Sweatt JD, Meaney MJ, Nestler EJ, and Akbarian S (Eds). ***Epigenetic Regulation in the Nervous System: Basic Mechanisms and Clinical Impact***. Academic Press.
2. Shen L, **Feng J**, Nestler EJ. (**2015**). Profiling drug-induced chromatin modification landscape in mouse brains by ChIP-seq. in Kalueff AV, and Stewart AM (Eds.) ***Bioinformatic Methods in Biological Psychiatry***. Humana Press.

INVITED TALKS

1. Epigenetic mechanisms of cocaine action and depression in mouse nucleus accumbens. ***Molecular Psychiatry Seminar Series, Yale University***, New Haven, CT. June **2014**.
2. The epigenetic regulation of cocaine action in mouse nucleus accumbens. ***XXIst World Congress of Psychiatric Genetics***, Boston, MA. October **2013**.
3. Role of 5-methylcytosine oxidation in drug addiction. ***Taishan Academic Forum: Brain Function and Disorders***. Tsingtao, China P.R. November **2012**.
4. Epigenetics in drug addiction. ***The Relevance of Neuroepigenetics in Brain Disorders Symposium***. Chicago, IL. May **2011**.

SELECTED CONFERENCE ABSTRACTS

1. **Feng J**, Wang T, Santos JH, Cahill M, Shen L, Fargo D, Nestler EJ, Woychik RP. Chronic cocaine regulated repetitive element mobilization drives transcriptome mosaics in mouse nucleus accumbens. ***Society for Neuroscience 44th Annual Meeting.*** (Poster#: 326.09/AA24). Washington DC, November **2014.**
2. Ribeiro EA, Koo J, Juarez B, Scarpa J, **Feng J**, Rabkin J, Sun H, Walker D, Cates H, Doyle M, Mouzon E, Han M, Nestler EJ. Identification of novel circuits in the nucleus accumbens involving somatostatin interneurons and their role in cocaine induced plasticity. ***Society for Neuroscience 44th Annual Meeting.*** (Poster#: 709.10/X7). Washington DC, November **2014.**

3. **Feng J**, Szulwach KE, Vialou V, Huynh J, Shao N, Le T, Ferguson D, Koo J, Kennedy P, Dias C, Song H, Casaccia P, Fan G, Shen L, Jin P, Nestler EJ. Role of TET1 and 5-hydroxymethylcytosine in cocaine action**.** ***Society for Neuroscience 43rd Annual Meeting***. (Program# 508.13 in **Nanosymposium. Learning and Memory: Epigenetics**; also selected as a **Neuroscience 2013's "Hot Topic"**) San Diego, CA. November **2013**.
4. **Feng J**, Wilkinson M, Ferguson D, Vialou V, Liu X, Maze I, Shao N, Koo J, Kennedy P, Dias C, Laplant Q, Cahill M, Nestler EJ*, Shen L*. Epigenetic regulation of cocaine action in mouse nucleus accumbens. ***Society for Neuroscience 43rd Annual Meeting***. (Poster#: 59.02/Z14). San Diego, CA. November **2013**.
5. Dias CM, **Feng J**, Sun H, Mazei-Robison M, Damez-Werno D, Scobie K, Shao N, Kennedy P, Vialou V, Bagot R, Cahill M, Ferguson D, Ghose S, Tamminga C, Neve R, Shen L, Nestler EJ. β-catenin mediates the development of behavioral resilience. ***Society for Neuroscience 43rd Annual Meeting***. (Poster#: 59.03/Z15). San Diego, CA. November **2013**.
6. Koo J, **Feng J**, Neve R, Lobo M, Nestler EJ. Gadd45g is a critical mediator in the social defeat model of depression. ***Society for Neuroscience 43rd Annual Meeting***. (Poster#: 59.09/AA3). San Diego, CA. November **2013**.
7. Pfau ML, Hodes GE, **Feng J**, Golden SA, Cates HM, Christoffel DJ, Heshmati M, Aleyasin H, Shen L, Russo SJ. Sex-specific regulation of the microRNA transcriptome by stress. ***Society for Neuroscience 43rd Annual Meeting***. (Poster#: 541.26/EE10). San Diego, CA. November **2013**.
8. Mitsi V, Terzi D, **Feng J**, Manouras E, Gaspari S, Liu X, Shen L, Zachariou V. RGS9-2 modulates the actions of opiate and antidepressant drugs in neuropathic pain models. ***Society for Neuroscience 43rd Annual Meeting***. (Poster#: 731.24/DD4). San Diego, CA. November **2013**.
9. Wright KN, Hollis F, Dietz DM, **Feng J**, Nestler EJ, Kabbaj M. Methyl supplementation via L-Methionine promotes extinction after self-administration of cocaine and attenuates cocaine-primed reinstatement in rats. ***Society for Neuroscience 43rd Annual Meeting***. (Poster#: 816.17/Q13). San Diego, CA. November **2013**.
10. **Feng J**, Szulwach KE, Vialou V, Huynh J, Shao N, Le T, Ferguson D, Koo J, Kennedy P, Dias C, Song H, Casaccia P, Fan G, Shen L, Jin P, Nestler EJ. Role of TET1 and 5-hydroxymethylcytosine in cocaine action. ***Gordon Research Conference: Epigenetics***. Smithfield, RI. August **2013.**
11. **Feng J**, Wilkinson M, Liu X, Ferguson D, Vialou V, Kennedy P, Koo J, Dias C, Shao N, Maze I, Laitman B, Laplant Q, Cahill M, Shen L, Nestler EJ. Cocaine induced transcriptome and epigenome changes in mouse nucleus accumbens. ***Society for Neuroscience 42nd Annual Meeting***. (Poster#: 458.12/T7). New Orleans, LA. October **2012**.
12. Koo J, Mazei-Robison M, Ferguson D, **Feng J**, Adlman H, Mouzon E, Cahill M, Neve R, Lobo M, Nestler EJ. Differential role of Sox11 in opiate and cocaine addiction. ***Society for Neuroscience 42nd Annual Meeting***. (Poster#: 257.01/S7). New Orleans, LA. October **2012**.
13. Ferguson D, Shao N, Koo J, **Feng J**, Vialou V, Dietz D, Maze I, Liu X, Kennedy P, Renthal W, Neve R, Shen L, Sartorelli V, Nestler EJ. Next generation sequencing using ChIP-Seq highlights an essential role for SIRT1 in emotional plasticity. ***Society for Neuroscience 42nd Annual Meeting***. (Poster#: 778.09/HH14). New Orleans, LA. October **2012**.
14. **Feng J**, Wilkinson M, Kennedy P, Ferguson D, Koo JW, Shen L, Nestler EJ. Cocaine induces pre-mRNA alternative splicing in the nucleus accumbens. ***Society for Neuroscience 41st Annual Meeting***. (Poster 909.19/OO4). Washington DC, November **2011**.
15. Kennedy P, Sun H, Damez-Werno D, Scobie K, Maze I, **Feng J**, Nestler EJ. Differential histone h2a variant expression in the nucleus accumbens following repeated exposure to cocaine or morphine. ***Society for Neuroscience 41st Annual Meeting***. (Poster 909.15/NN36). Washington DC, November **2011**.

16. **Feng J**, Wilkinson M, Kennedy P, Ferguson D, Maze I, Laplant Q, Koo J, Shen L, Nestler EJ. Cocaine induced transcriptome and epigenome change in the nucleus accumbens. ***Gordon Research Conference: Epigenetics***. Easton, MA. August **2011**.
17. **Feng J**, Zhou Y, Campbell SL, Le T, Li E, Sweatt JD, Silva AJ, Fan G. Requirement for DNA Methyltransferases in Neural Plasticity and Function. ***Gordon Research Conference: Epigenetics***. Holderness, NH. August **2009**.
18. **Feng J**, Huang X, Fan G. DNA methylation regulates Xlr3b gene expression in mouse central nervous system. ***Gordon Research Conference: Neural circuits and plasticity***. Newport, RI. July **2007**.
19. **Feng J**, Li E, Fan G. De novo DNA methyltransferase Dnmt3a and 3b in the central nervous system. ***Society for Neuroscience 34th Annual Meeting***. (**Slide Section 483.1**), San Diego, CA. October **2004**.
20. **Feng J**, Yang S, Zhu T, Yao Z. Therapeutic effect of Interleukin-1 receptor antagonist on traumatic brain edema in the rat. ***International Conference on Recent Advances in Neurotraumatology***. Taipei, Taiwan. November **1999**.

TEACHING/SUPERVISION EXPERIENCE

Teaching Assistant, University of California Riverside Spring 2003

Course: Introduction to Neuroscience (CBNS106)

Students Mentored in Ph.D. and Postdoc labs:

Zachary Rosh (high school student, The Dalton School, NY) Summer, 2014

Elizabeth Keeley (high school student, Ossining High School Science Program, NY) 06/2013-08/2014

Intel Science Talent Search 2015 Research Report Badge winner on the lab research I mentored

David Estey (undergrad student, Cornell University) Summer, 2012

Benjamin Laitman (M.D.-Ph.D. student, Mount Sinai School of Medicine) Summer, 2011

Thanathom Chailangkarn (Master student, UCLA Department of Physiological Sciences) 01/2007-09/2009

Leeron Morat (Master student, UCLA Human Genetics Department) 12/2006-07/2008

Kunal Patel (undergrad researcher, UCLA Neuroscience Program) 01/2008-10/2009

Peter Edpao (undergrad researcher, UCLA Neuroscience Program) 04/2007-10/2008

Sue Fu (undergrad researcher, UCLA Neuroscience Program) 04/2007-06/2007

Gary Chou (undergrad researcher, UCLA Department of Microbiology, Immunology, Molecular Genetics) 10/2006-08/2007

Mitchell Luu (undergrad researcher, UCLA Neuroscience Program) 04/2005-10/2006

LIST OF REFERENCES

Eric J. Nestler, M.D., Ph.D. (Postdoc Advisor)

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