**CURRICULUM VITAE**

**Date of Revision: 02/23/2021**

**Name:** Arie Kaffman, M.D., Ph.D.

**Titles:** Research Scientist

Department of Psychiatry

Yale University School of Medicine

**Education**: 1991-1993 B.A., Biochemistry, University of California Berkeley

1994-2001 M.D., Ph.D., Medical Scientist Training Program, University of California, San Francisco

2001-2006 Residency in Psychiatry, Neuroscience Research Training Program, Yale University

**Career/Academic Appointments**

* 1. 2005-2006 Instructor, Departments of Psychiatry and the Child Study Center, Yale University School of Medicine, New Haven, CT
  2. 2006-2012 Assistant Professor, Departments of Psychiatry and the Child Study Center, Yale University School of Medicine, New Haven, CT

2012-Present Attending Psychiatrist, Veteran Administration, Newington, CT

2012-2014 Associate Research Scientist, Department of Psychiatry, Yale University School of Medicine, New Haven, CT

2014-Present Research Scientist, Department of Psychiatry, Yale University School of Medicine, New Haven, CT

2015-Present Assistant Clinical Professor, Department of Psychiatry

**Board Certification**

05/2006 Adult Psychiatry

02**/**2017Adult Psychiatry

**Professional Honors and Recognition**

A) International/National/Regional

2016 NARSAD-Independent Investigator Award

2011 DANA Award in Immuno-imaging

2007 NARSAD-Young Investigator Award

2006 NIMH Mentored Career Award

2006 APIRE/Merck Early Academic Career Research Award

2005 Presentation at the NARSAD 2005 Scientific Symposium

2005 APIRE/Wyeth MD/Ph.D. Psychiatric Research Award

2004 NARSAD-Young Investigator Award

B) University

2002 The Seymour L. Lustman Award, Psychiatry Department, Yale University

1998 The Richard Fineberg Memorial Teaching Award, UC San Francisco

1994 Departmental Citation in Molecular and Cell Biology, UC Berkeley

1994 Graduated Summa Cum Laude in Molecular and Cell Biology, UC

Berkeley

1994 Phi Beta Kappa, UC Berkeley

1993 Regents Scholarship, UC Berkeley

**Grant History:**

**Current Grants**

Agency: NIMH  
 I.D. 1R01MH119164

Title: Role of microglial IRF8 in the developmental consequences of early adversity

P.I.: A. Kaffman, M.D., Ph.D.   
Percent effort: 15%

Co-investigators: Hyder, F. (Yale), Zhang, J. (NYU)  
Direct costs per year: $250,000  
Total costs for project period: $1,250, 000

Project period: 01/01/20-12/31/25

Agency: NIMH  
 I.D. 1R01MH118332

Title: *Amygdala Hyper-Connectivity in a Mouse Model of Unpredictable Early Life Stress*

P.I.: A. Kaffman, M.D., Ph.D.   
Percent effort: 20%

Co-investigators: Hyder, F. (Yale), DiLeone, R, (Yale), Zhang, J. (NYU)  
 Direct costs per year: $326,147-448,359/year  
 Total costs for project period: $2,081, 954

Project period: 07/01/19-08/30/24

**Past Grants**

Agency: NIMH  
 I.D. R56MH114833

Title: *PU.1 as a Putative Master Regulator of Neurodevelopmental Abnormalities in mice exposed to brief daily separation (BDS)*   
 P.I.: A. Kaffman, M.D., Ph.D.   
 Percent effort: 10%  
 Co-investigator: Butovsky O. (Harvard)

Direct costs per year: $336,093  
 Total costs for project period: $557, 556

Project period: 09/01/18-08/30/20

Agency: NIMH  
 I.D. R01MH100078

Title: *Microglia play a critical role in mediating long-term sequelae of early life stress*   
 P.I.: A. Kaffman, M.D., Ph.D.   
 Percent effort: 30%  
 Direct costs per year: $250,000   
 Total costs for project period: $2,081,250

Project period: 12/01/13-11/30/19

Agency: NARSAD

I.D.# Independent Investigator Award

Title: *Early life stress impairs normal hippocampal development by inhibiting expression of IRF8 in microglial cells*

P.I.: A. Kaffman, M.D., Ph.D.

Percent effort: 50%

Direct costs per year: $50,000

Total costs for project period: $100,000

Project period: 09/01/16-08/31/18

Agency: NIMH  
 I.D. R21MH0981181

Title: *Early life stress inhibits dentate gyrus development by down regulating Autotaxin*    
 P.I.: A. Kaffman, M.D., Ph.D. (Co-PI), R. DiLeone Ph.D. (Co-PI)  
 Percent effort: 9%  
 Direct costs per year: $135,600   
 Total costs for project period: $458,000

Project period: 04/01/13-03/31/15

Agency: NIMH

I.D. R21 MH094861

Title: *Defining a sensitive period for socialization in rodents*   
 P.I.: A. Kaffman, M.D., Ph.D.  
 Percent effort: 23%  
 Direct costs per year: $135,600   
 Total costs for project period: $445,000

Project period: 09/01/12-08/31/14

Agency: DANA program award in brain and immuno-imaging   
 I.D. DANA Young Investigator Award

Title: *Early life stress programs synaptic development by regulating a novel innate immune pathway in the developing mammalian brain*   
 P.I.: A. Kaffman, M.D., Ph.D.  
 Percent effort: 5%  
 Direct costs per year: $66,600   
 Total costs for project period: $200,000  
 Project period: 01/01/11-12/31/13

Agency: NIMH

I.D.# 1KO8MH074856

Title: “Effect of Maternal Care on Neurogenesis and Behavior”  
 P.I.: A. Kaffman, M.D., Ph.D.  
 Percent effort: 70%  
 Direct costs per year: $180,000   
 Total costs for project period: $929,988  
 Project period: 04/01/06-03/31/11

Agency: NARSAD

I.D.# Young Investigator Award

Title: “Vulnerability to Stress is Programmed by Postnatal Maternal Care via Stable Alterations in Neurotrophic Factors Expression Levels”  
 P.I.: A. Kaffman, M.D., Ph.D.  
 Percent effort: 10%  
 Direct costs per year: $30,000   
 Total costs for project period: $60,000  
 Project period: 07/01/07-06/31/09

Agency: American Psychiatric Institute for Research and Education (APIRE)

I.D.# Early Academic Career Research Award

Title: “Functional Consequences of Adult Neurogenesis”  
 P.I.: A. Kaffman, M.D., Ph.D.  
 Percent effort: 5%  
 Direct costs per year: $45,000   
 Total costs for project period: $45,000  
 Project period: 05/01/06-04/30/07

Agency: NARSAD

I.D.# Young Investigator Award

##### Title: “The Role of Neurogenesis in Mediating Vulnerability to Anxiety and

Depression-like Behaviors in Mice Exposed to Low Levels of Maternal Care

P.I.: A. Kaffman, M.D., Ph.D.  
 Percent effort: 10%  
 Direct costs per year: $30,000   
 Total costs for project period: $60,000

Project period: 07/01/04-06/30/06

Agency: American Psychiatric Institute for Research and Education (APIRE)

I.D.# M.D./Ph.D. Psychiatric Research Award

Title: The Effects of Postnatal Maternal Care on Neurogenesis During

Development and their Implications for the Development of Vulnerability to Stress.

P.I. A. Kaffman, M.D., Ph.D.  
 Percent effort: 5%  
 Direct costs per year: $45,000   
 Total costs for project period: $45,000

Project period: 05/01/05-04/30/06

**Invited Speaking Engagements, Presentations, Symposia & Workshops Not Affiliated With Yale:**

**International/National**

2020 Invited speaker, Department of Psychiatry, Stanford

2020 Research Project Editor- Frontiers of Neuroscience

2019 Invited speaker at the Institute of Biomedical Research, Ohio State University

2012 Grand Rounds, Department of Psychiatry, University of Alabama at Birmingham, “Juvenile neurogenesis is essential for normal social development in the mouse”

2012 Grand Rounds, Department of Psychiatry, Vanderbilt University, “Early Life Stress Inhibits a Novel Innate Immune Pathway in the Developing Hippocampus”

2011 Grand Rounds, Department of Psychiatry, McLean Hospital, “Abnormal Neurogenesis during Adolescence and the Emergence of Psychopathology”.

2011 Grand Rounds, Department of Psychiatry, Mount Sinai Medical School, “Adolescents without Neurogenesis and the Ontogeny of Affiliative Behavior in Rodents”.

2011 Grand Rounds, Child Study Center, New York University, “The Magic of Touch: Lessons from Neurobiology”

2009 Radio interview with Julie Motz about the sequelae of early life stress, on www.KWMR.org

**Regional**

2020 Molecular Psychiatry, Department of Psychiatry Yale. “Imaging in Rodent Models of Early Life Stress”

2015 BSTP, Department of Psychiatry Yale. “Early life stress activates the immune system in the developing hippocampus”

2008 Presentation for the Department Children and Families (DCF), Hartford, CT. “Molecular Mechanisms of Resiliency”

2008 Presentation for the National Alliance on Mental Illness (NAMI), CT. “Molecular Mechanisms of Resiliency”

**Peer-Reviewed Presentations & Symposia Given at Meetings Not Affiliated With Yale**

**International/National**

2012 Mini-Symposium at the Society for Biological Psychiatry: “ Epigenetic Mechanisms of Early Life Stress”. Philadelphia.

2005 Scientific Symposium, NARSAD. “Novel Method for Conditional Ablation of Adult Neurogenesis”. Mount Sinai’s Stern Auditorium, NYC.

**Professional Service**

**Peer Review Groups/Grant Study Sections:**

2014 Ad Hoc member of the Developmental Brain Disorders study section

2015 Ad Hoc member of the Developmental Brain Disorders study section

2016 Ad Hoc member of the Bio-behavioral Regulation, Learning and Ethology (BRLE)

study section

2018 ZRG1 MDCN-E special panel Dynamic Neuroimmune Interactions in the transition from Normal CNS Function to Disorders

**Journal Service:**

Editor Research Project Editor- [Frontiers of Neuroscience](https://www.frontiersin.org/research-topics/12845/effects-of-early-life-stress-on-neurodevelopment-and-health-bridging-the-gap-between-human-clinical)

Reviewer

2005-Present Journal of Neuroscience, Biological Psychiatry, Neuropsychopharmacology, Hormones and Behavior, Journal of Neurochemistry, Brain behavior and immunology, Acta Neuropathalogica, Trends in Neuroscience

**Professional Organizations:**

**Meeting Planning/Participation**

2012 Mini-Symposium at the Society for Biological Psychiatry: “ Epigenetic Mechanisms of Early Life Stress”. Philadelphia

2011Society for Neuroscience, Washington, DC

2010 Society for Neuroscience, San Diego, CA, Poster presentation

2008Keystone Chromatin Meeting, Snowmass, CO, Poster presentation

2008Society for Neuroscience, Washington, DC, Poster presentation

2007Society for Neuroscience, San Diego, CA, Poster presentation

2006American Psychiatric Association, Toronto, Canada

2006 Member of the Organizing Committee for the annual symposium on Risk, Resiliency and Recovery, Child Study Center, Yale University

**Yale University Service**

***Medical School Committees***

2020-Present Thesis committee, Alexa Soares (Picciotto Lab)

2019-Present Thesis committee, Sarah Meller (Greer Lab)

2008-2012 Selection Committee, M.D., Ph.D. Program, Medical School, Yale University

***Departmental Committees***

2016-Present Dual diagnosis integration in clinical practice, Newington VA

2012-Present Suicide risk assessment in veterans, Newington VA

2010-Present Clinical Examiner for PGY 3 and 4 residents, Clinical Competency Evaluation, Psychiatry Department, Yale University School of Medicine

2006-Present Interviewer for the Psychiatry Residency and the Neuroscience Research Training Program (NRTP), Psychiatry Department, Yale University School of Medicine

2008-2012 Selection Committee, Medical Scientist Training Program (M.D., Ph.D. Program), Yale UniversitySchool of Medicine

2007-2012 Selection Committee for the joint Adult-Child Program, Child Study Center, Yale University

2005-2006 Organizing committee for the Risk, Resiliency and Recovery, Child Study Center, Yale University

***Hospital Boards & Committees***

2014-Present Dual diagnosis conferences, Newington VA hospital

2012-Present Supervising APRN, and PGY3 psychiatry resident, Newington VA hospital

2012-Present Managing a PTSD clinic of roughly 700 veterans

2012-Present Suicide Prevention committee, Newington VA hospital

**Bibliography:**

**Peer-Reviewed Original Research**

**Kaffman, A**., Herskowitz, I., Tjian, R., O'Shea, E. K. (1994). Phosphorylation of the Transcription Factor Pho4 by a Cyclin-CDK Complex, Pho80-Pho85. Science. *263*, 1153-6.

O'Neill, E. M., **Kaffman, A**., Jolly, E. R., O'Shea, E. K. (1996). Regulation of Pho4 Nuclear Localization by the Pho80-Pho85 Cyclin-CDK Complex. Science. *271*, 209-12.

**Kaffman, A**., Rank, N. M., O'Shea, E. K. (1998). Phosphorylation Regulates Association of the Transcription Factor Pho4 with its Import Receptor Pse1/Kap121. Genes and Development*. 12*, 2673-83.

**Kaffman, A**., Rank, N. M., O'Neill, E. M., Huang, L. S., O'Shea, E. K. (1998). The Receptor Msn5 Exports the Phosphorylated Transcription Factor Pho4 Out of the Nucleus. Nature***.***  *396*, 482-6.

Wei L, David A, Duman RS, Anisman H, **Kaffman A**. (2010). Early life stress increases anxiety-like behavior in Balbc mice despite a compensatory increase in levels of postnatal maternal care. Hormones and Behavior. 57(4-5):396-404. PMC2849915.

Coplan, J.D., Abdallah, C.G., Tang, C.Y., Mathew, S.J., Martinez, J., Hof, P.R., Smith, E.L., Dwork, A.J., Perera, T.D., Pantol, G.*,* Carpenter, D., Rosenblum, L. A., Shungu, D. C., Gelernter, J.,

**Kaffman, A**., Jackowski, A., Kaufman, J., Gorman, J. M. (2010)*.* The role of early life stress in development of the anterior limb of the internal capsule in nonhuman primates. Neuroscience Letters*.* *480*, 93-96. PMC2951885.

Coplan, J.D., Abdallah, C.G., Kaufman, J., Gelernter, J., Smith, E.L., Perera, T.D., Dwork, A.J., **Kaffman, A**., Gorman, J.M., Rosenblum, L.A.*,* Owens, M. J., Nemeroff, C. B. (2010).Early-life stress, corticotropin-releasing factor, and serotonin transporter gene: A pilot study. Psychoneuroendocrinology. 36(2):289-93. NIHMS229894

Jackowski A, Perera TD, Abdallah CG, Garrido G, Tang CY, Martinez J, Mathew SJ, Gorman JM, Rosenblum LA, Smith EL, Dwork AJ, Shungu DC, **Kaffman A**, Gelernter J, Coplan JD, Kaufman J. (2011). Early-life stress, corpus callosum development, hippocampal volumetrics, and anxious behavior in male nonhuman primates. Psychiatry Research: Neuroimaging. 192(1):37-44. *NIHMS254578*

Wei L, Meaney MJ, Duman RS, Kaffman A. (2011). Affiliative behavior requires juvenile, but not adult neurogenesis. Journal of Neuroscience. 31(40):14335-45. PMC3204413

Wei L, Simen A, Mane S, Kaffman A. (2011). Early life stress inhibits expression of a novel innate immune pathway in the developing hippocampus. Neuropsychopharmacology. 37(2):567-80. PMC3242319

Coplan, J.D., Abdallah, C.G., Kaufman, J., Gelernter, J., Smith, E.L., Perera, T.D., Dwork, A.J., **Kaffman, A**., Gorman, J.M., Rosenblum, L.A.*,* Owens, M. J., Nemeroff, C. B. (2011). Early-life stress, corticotropin-releasing factor, and serotonin transporter gene: A pilot study. Psychoneuroendocrinology. Feb;36(2):289-93. PMC3017732

Coplan, J. D., Fathy, H. M., Jackowski, A. P., Tang, C. Y.*,* Perera, T. D., Mathew, S. J., Martinez, J.,

Abdallah, C. G., Dwork, A. J.,Pantol, G.,Carpenter, D.,Gorman, J. M., Nemeroff, C. B.,Owens, M. J., **Kaffman, A**., Kaufman, J.(2014). Early life stress and macaque amygdala hypertrophy: preliminary evidence for a role for the serotonin transporter gene. *Frontiers in behavioral neuroscience*. Oct 6;8:342.*8*, 342. PMC4186477

Coplan, J. D., Fulton, S. L., Reiner, W., Jackowski, A.*,* Panthangi, V., Perera, T. D.,Gorman, J. M., Huang, Y.,Tang, C., Hof, P. R., **Kaffman, A.**, Dwork, A., Mathew, S. J., Kaufman, J., Mann, J. J. (2015). Elevated Cerebrospinal fluid 5-hydroxyindoleacetic acid in Macaques Following Early Life Stress (ELS) and Inverse Association with Hippocampal Volume: Preliminary Implications for Serotonin-Related Function in Moodand Anxiety Disorders. *Frontiers in behavioral neuroscience*. *Dec 23;8:440.* PMC4274982

Wei, L., Hao, J., **Kaffman, A**. (2014). Early life stress inhibits expression of ribosomal RNA in the developing hippocampus. *PLoS ONE*, *9*, e115283. PMC4269428

Wei, L., Hao, J., Lacher, R.K., Abbott, T., Chung, L., Colangelo, C.M., and **Kaffman, A**. (2015). Early life stress perturbs key cellular programs in the developing mouse hippocampus. Developmental neuroscience. PMC4644446

Delpech, J.C., Wei, L., Hao, J., Yu, X., Madore, C., Butovsky, O., and Kaffman, A. (2016). Early life stress perturbs the maturation of microglia in the developing hippocampus. Brain, behavior, and immunity. PMC5010940

Johnson, F. K., Delpech, J. C., Thompson, G. J., Wei, L., Hao, J., Herman, P., Hyder, F., and **Kaffman, A**. (2018) Amygdala hyper-connectivity in a mouse model of unpredictable early life stress, *Translational psychiatry* *8*, 49. PMC5820270

Wang, D., Levine, J. L. S., Avila-Quintero, V., Bloch, M., and Kaffman, A. (2020) Systematic review and meta-analysis: effects of maternal separation on anxiety-like behavior in rodents, Translational psychiatry 10, 174.

White, J. D., Arefin, T. M., Pugliese, A., Lee, C. H., Gassen, J., Zhang, J., and Kaffman, A. (2020) Early life stress causes sex-specific changes in adult fronto-limbic connectivity that differentially drive learning, *Elife* *9*.

Chapters, Books, and Reviews

**Kaffman, A**., O'Shea, E. K. (1999). Regulation of Nuclear Localization: a Key to a Door. Annual Review of Cellular and Developmental Biology. *15*, 291-339.

**Kaffman, A**., Meaney, M.J. (2007). Neurodevelopmental Sequelae of Postnatal Maternal Care in Rodents: Clinical and Research Implications of Molecular Insights. Journal of Child Psychology andPsychiatry Annual Reviews 48:3/4, 224-244.

**Kaffman A**, Krystal J.H. (2012). New Frontiers in Animal Research of Psychiatric Illness. Methods Mol Biol.829:3-30. PMC3337084.

Dwyer, J.B., **Kaffman, A**. (2017). Epigenetics in Psychiatry: The Promise for New Biomarkers and Treatments. Kaplan & Sadock’s Comprehensive Textbook of Psychiatry, Tenth

Edition, edited by Benjamin J. Sadock, Virginia A. Sadock, and Pedro Ruiz.

Johnson F.K and **Kaffman A**. (2017). Early life stress perturbs the function of microglia in the developing rodent brain: new insights and future challenges. Brain, behavior, and immunity, doi:10.1016/j.bbi.2017.06.008. PMC5732099

**Kaffman, A**., White, J., Wei, L., Johnson, F. K., and Krystal, J. H. (2019) Enhancing the utility of preclinical research in neuropsychiatry drug development, Methods Mol Biol*.* *2011:3-22. doi: 10.1007/978-1-4939-9554-7\_1*

White, D. J. and **Kaffman, A**. (2019). Sex as an important moderator of the consequences of childhood maltreatment: from clinical studies to animal models. Frontier of Neuroscience. *13:1082*

Mingrone, A., Kaffman, Ay., and **Kaffman, A**. (2020) The Promise of Automated Home-Cage Monitoring in Improving Translational Utility of Psychiatric Research in Rodents, *Frontiers in neuroscience* *14*, 618593.

**Invited Editorials and Commentaries**

**Kaffman A**. (2009). The silent epidemic of neurodevelopmental injuries. Biological Psychiatry.;66(7):624-6. PMC2840038.

**Kaffman, A**. (2015) Early-life stress restricts the capacity of adult progenitor cells to differentiate into neurons. *Biol Psychiatry.* 77(4):307-9.

**Case Reports, Technical Notes, Letters**

Kaufman J, Gelernter J, **Kaffman A**, Caspi A, Moffitt T. (2009). Arguable Assumptions, Debatable Conclusions. Biological Psychiatry. 15;67(4):e19-20. NIHMS164805.

White, D. J. and **Kaffman, A**. (2019). Childhood Maltreatment: The problematic *unisex assumption*. Journal of Child Psychology andPsychiatry. doi.org/10.1111/jcpp.13177

**Under review**

Rocha, M., Wang, D., Avila-Quintero, V., Bloch, H. M., and **Kaffman, A**. (2020) Deficits in hippocampal dependent memory across different rodent models of early life stress: systematic review and meta-analysis, *Translational Psychiatry (Under review)*.

Islam, R., and **Kaffman, A**. (2021) White-matter repair as a novel therapeutic target for early adversity *Front neurosci (under review)*.

**References**

**John Krystal, M.D.** Robert L. McNeil, Jr. Professor of Translational Research and Professor of Psychiatry and of Neuroscience; Chair, Department of Psychiatry at Yale School of Medicine; Director: NIAAA Center for the Translational Neuroscience of Alcoholism; Director, Clinical Neuroscience Division, VA National Center for PTSD. **john.krystal@yale.edu**

**Fahmeed Hyder, Ph.D.** Professor of Biomedical Engineering and Radiology & Biomedical Imaging at Yale University. Technical Director of the preclinical magnetic resonance imaging (MRI) and spectroscopy (MRS) infrastructure of the Magnetic Resonance Research Center (MRRC) and Program Director of the Quantitative Neuroscience with Magnetic Resonance (QNMR) Core Center. **fahmeed.hyder@yale.edu**

**Ismene Petrakis, M.D.** Professor of Psychiatry and the Chief of Psychiatric Services at the VA health care system in Connecticut. **ismene.petrakis@yale.edu**