



Amit Etkin, MD, PhD

Professor of Psychiatry and Behavioral Sciences (Major Laboratories and Clinical Translational Neurosciences Incubator)

Bio

BIO

Amit Etkin, MD, PhD, is a Professor of Psychiatry and Behavioral Sciences at Stanford University and a member of the Wu Tsai Neurosciences Institute. Dr. Etkin is trained as both as a neuroscientist and psychiatrist. He received his MD/PhD at Columbia University with Nobel laureate Eric Kandel, completed his psychiatry residency and concurrent postdoc at Stanford University with Alan Schatzberg, and joined the faculty at Stanford in 2010. Dr. Etkin has received multiple awards, most notably the NIH Director's Pioneer Award in 2017.

The overarching aim of the Etkin lab is to understand the neural basis of emotional disorders and their treatment, and to leverage this knowledge to better understand how the brain works and to develop novel treatment interventions. In support of this goal, Dr. Etkin also collaborates with neuroscientists, engineers, psychologists, physicians and others to establish a new intellectual, scientific and clinical paradigm for understanding and manipulating human brain circuits in healthy individuals and for treating psychiatric disease.

ACADEMIC APPOINTMENTS

- Professor, Psychiatry and Behavioral Sciences
- Member, Bio-X
- Member, Wu Tsai Neurosciences Institute

ADMINISTRATIVE APPOINTMENTS

- Chair, Steering Committee, Major Laboratories and Clinical Translational Neurosciences Incubator, Department of Psychiatry and Behavioral Sciences, Stanford University, (2018- present)
- Associate Chair, Research Strategy and Oversight, Department of Psychiatry and Behavioral Sciences, Stanford University, (2018- present)

HONORS AND AWARDS

- Joel Elkes Research Award, American College of Neuropsychopharmacology (2018)
- Director's Pioneer Award, NIH (2017)
- Young Scientist Awardee, World Economic Forum (2015)
- Chairman's Award for Advancing Science, Stanford University (2014)
- Dana Neuroscience Scholar award, Dana Foundation (2012)
- Fellow, Kavli-National Academy of Science "Frontiers of Science" (2011-2013)
- Biobehavioral Research Awards for Innovative New Scientists (BRAINS) R01 Award, NIMH (2010)
- Outstanding Resident Award, NIMH (2008)

- PhD awarded with distinction, Columbia University (2005)
- Phi Beta Kappa, MIT (1997)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Associate Editor, Neuropsychopharmacology (2012 - 2019)
- Editorial Board, Depression and Anxiety (2010 - present)
- Chair, Scientific Program Committee, Society of Biological Psychiatry (2014 - present)
- Fellow, American College of Neuropsychopharmacology (2011 - present)
- Member, Society of Biological Psychiatry (2011 - present)
- Scientific Advisory Board, Laureate Institute for Brain Research (Tulsa, OK) (2015 - present)
- Scientific Advisory Board, Akili Interactive (2016 - present)
- Scientific Advisory Board, Mindstrong Health (2017 - present)

PROFESSIONAL EDUCATION

- Board Certification, American Board of Psychiatry and Neurology , Psychiatry (2011)
- MD, Columbia University , Medicine (2006)
- PhD, Columbia University , Neurobiology (2005)
- MPhil, Columbia University , Neurobiology (2003)
- BS, Massachusetts Institute of Technology , Biology (1997)

LINKS

- etkinlab.stanford.edu: <http://etkinlab.stanford.edu/>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

The overarching aim of the Etkin lab is to understand the neural basis of emotional disorders and their treatment, and to leverage this knowledge to better understand how the brain works and to develop novel treatment interventions. In support of this goal, we collaborate with neuroscientists, engineers, psychologists, physicians and others to establish a new intellectual, scientific and clinical paradigm for understanding and manipulating human brain circuits in healthy individuals and for treating psychiatric disease.

Our work is organized around the study of the neuroscience of emotion and cognitive regulation, as well as basic aspects of neural circuit functioning and control, in healthy subjects and individuals with a range of psychiatric disorders. Studies aimed at understanding the neurobiology of anxiety, depression, and post-traumatic stress, as well as their treatment, addresses:(a) which domains of neural/mental functions are involved, (b) how different existing treatment approaches yield their effects on the brain, and (c) whether emerging tools for mapping and modulating neural circuits can remediate brain abnormalities that may not be affected by current treatments.

Emotional and cognitive regulation: A successful affective neuroscience approach to psychopathology and treatment requires understanding the basic mechanisms involved in emotional and cognitive regulation. Ongoing work seeks to ground our circuit-based understanding of the control mechanisms in causal circuit-level mechanisms by combining behavioral tasks, neuroimaging (with fMRI or EEG), and computational modeling, as well as circuit disruptions with transcranial magnetic stimulation (TMS).

Neural basis of psychopathology: Since its inception, our neuroimaging studies on psychopathology have investigated the nature of brain circuit disruption across traditional psychiatric categories, both in primary studies and in large-scale meta-analyses. Results have borne out the importance of understanding the function of key emotional and cognitive circuitry, and that relevant impairments are not captured well by traditional diagnostics. Current focus in the lab is therefore on understanding the nature of mechanistically-meaningful neural circuit dysfunction at the level of individual patients and biologically-defined subgroups.

Neural mechanisms and biomarkers of existing treatments: Very little is known about the mechanisms of action of existing treatments in psychiatry, across both pharmacological and non-pharmacological approaches (i.e. brain stimulation and psychotherapy). Current work in the lab is investigating all of these interventions in order to both reveal mechanisms, but also to develop clinic-ready biomarkers that can predict who will respond to which treatment. Results have already revealed potential avenues for treatment selection in depression and PTSD.

Causal probing and manipulation of neural circuits in humans: A key limitation of basic and clinical human neuroscience is in our ability to understand circuit-level causality, for example between the function of a circuit and resulting behavior or dysfunction of that circuit and psychiatric symptoms. Neuroimaging alone cannot address this challenge. To do so, we have developed a suite of methods combining causal circuit manipulation using TMS with concurrent neuroimaging to read out its effects using either fMRI or EEG. This allows us to define how a circuit contributes to a given behavior, the nature of its dysfunction in psychiatric patients, and how remediating this dysfunction can result in symptom relief. Work in the lab is furthermore focused on detailing causal mechanisms at the level of the individual, and creating tailored neuroplasticity-inducing interventions through TMS that address the abnormalities found. This opens up the potential for the development of novel, personalized, circuit-based interventions informed by neuroimaging.

CLINICAL TRIALS

- Brain-Based Biomarkers in Response to TMS in MDD, Recruiting
- A Novel Neurobehavioral Intervention for Emotion Regulation in Anxiety and Depression Across the Lifespan, Not Recruiting
- Brain Imaging of Psychotherapy for Posttraumatic Stress Disorder (PTSD), Not Recruiting
- Brain Imaging of rTMS Treatment for Depression, Not Recruiting
- Neurobehavioral Intervention as a Novel Treatment Approach for Emotion-Regulatory Deficits, Not Recruiting
- Use of a Novel Neuroplasticity-based Neurobehavioral Intervention for PTSD, Not Recruiting

Teaching

STANFORD ADVISEES

Med Scholar Project Advisor

Ellie Beam

Doctoral Dissertation Reader (AC)

Molly Lucas, Cammie Rolle

Doctoral Dissertation Advisor (AC)

Ellie Beam

Postdoctoral Research Mentor

Neir Eshel

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Neurosciences (Phd Program)
- Psychiatry and Behavioral Science (Fellowship Program)

Publications

PUBLICATIONS

- **An electroencephalographic signature predicts antidepressant response in major depression.** *Nature biotechnology*
Wu, W., Zhang, Y., Jiang, J., Lucas, M. V., Fonzo, G. A., Rolle, C. E., Cooper, C., Chin-Fatt, C., Krepel, N., Cornelissen, C. A., Wright, R., Toll, R. T., Trivedi, et al
2020
- **An Electroencephalography Connectomic Profile of Posttraumatic Stress Disorder.** *The American journal of psychiatry*
Toll, R. T., Wu, W., Naparstek, S., Zhang, Y., Narayan, M., Patenaude, B., De Los Angeles, C., Sarhadi, K., Anicetti, N., Longwell, P., Shpigel, E., Wright, R., Newman, et al
2020: appiajp201918080911
- **Identification of Common Neural Circuit Disruptions in Emotional Processing Across Psychiatric Disorders.** *The American journal of psychiatry*
McTeague, L. M., Rosenberg, B. M., Lopez, J. W., Carreon, D. M., Huemer, J., Jiang, Y., Chick, C. F., Eickhoff, S. B., Etkin, A.
2020: appiajp201918111271
- **A Reckoning and Research Agenda for Neuroimaging in Psychiatry.** *The American journal of psychiatry*
Etkin, A.
2019; 176 (7): 507–11
- **Using fMRI connectivity to define a treatment-resistant form of post-traumatic stress disorder** *SCIENCE TRANSLATIONAL MEDICINE*
Etkin, A., Maron-Katz, A., Wu, W., Fonzo, G. A., Huemer, J., Vertes, P. E., Patenaude, B., Richiardi, J., Goodkind, M. S., Keller, C. J., Ramos-Cejudo, J., Zaiko, Y., Peng, et al
2019; 11 (486)
- **Using fMRI connectivity to define a treatment-resistant form of post-traumatic stress disorder.** *Science translational medicine*
Etkin, A., Maron-Katz, A., Wu, W., Fonzo, G. A., Huemer, J., Vertes, P. E., Patenaude, B., Richiardi, J., Goodkind, M. S., Keller, C. J., Ramos-Cejudo, J., Zaiko, Y. V., Peng, et al
2019; 11 (486)
- **Towards objective definition of psychopathology in post-traumatic stress disorder.** *Neuropsychopharmacology : official publication of the American College of Neuropsychopharmacology*
Etkin, A.
2019
- **Brain regulation of emotional conflict predicts antidepressant treatment response for depression.** *Nature human behaviour*
Fonzo, G. A., Etkin, A., Zhang, Y., Wu, W., Cooper, C., Chin-Fatt, C., Jha, M. K., Trombello, J., Deckersbach, T., Adams, P., McInnis, M., McGrath, P. J., Weissman, et al
2019
- **Addressing the Causality Gap in Human Psychiatric Neuroscience** *JAMA PSYCHIATRY*
Etkin, A.
2018; 75 (1): 3–4
- **PTSD Psychotherapy Outcome Predicted by Brain Activation During Emotional Reactivity and Regulation** *AMERICAN JOURNAL OF PSYCHIATRY*
Fonzo, G. A., Goodkind, M. S., Oathes, D. J., Zaiko, Y. V., Harvey, M., Peng, K. K., Weiss, M., Thompson, A. L., Zack, S. E., Lindley, S. E., Arnow, B. A., Jo, B., Gross, et al
2017; 174 (12): 1163–74
- **Selective Effects of Psychotherapy on Frontopolar Cortical Function in PTSD** *AMERICAN JOURNAL OF PSYCHIATRY*
Fonzo, G. A., Goodkind, M. S., Oathes, D. J., Zaiko, Y. V., Harvey, M., Peng, K. K., Weiss, M., Thompson, A. L., Zack, S. E., Mills-Finnerty, C. E., Rosenberg, B. M., Edelstein, R., Wright, et al
2017; 174 (12): 1175–84
- **Identification of Common Neural Circuit Disruptions in Cognitive Control Across Psychiatric Disorders.** *American journal of psychiatry*
McTeague, L. M., Huemer, J., Carreon, D. M., Jiang, Y., Eickhoff, S. B., Etkin, A.
2017: appiajp201716040400-?

- **Selective Effects of Psychotherapy on Frontopolar Cortical Function in PTSD.** *The American journal of psychiatry*
Fonzo, G. A., Goodkind, M. S., Oathes, D. J., Zaiko, Y. V., Harvey, M., Peng, K. K., Weiss, M. E., Thompson, A. L., Zack, S. E., Mills-Finnerty, C. E., Rosenberg, B. M., Edelstein, R., Wright, et al
2017; 174 (12): 1175–84
- **PTSD Psychotherapy Outcome Predicted by Brain Activation During Emotional Reactivity and Regulation.** *The American journal of psychiatry*
Fonzo, G. A., Goodkind, M. S., Oathes, D. J., Zaiko, Y. V., Harvey, M., Peng, K. K., Weiss, M. E., Thompson, A. L., Zack, S. E., Lindley, S. E., Arnow, B. A., Jo, B., Gross, et al
2017; 174 (12): 1163–74
- **The neural bases of emotion regulation** *NATURE REVIEWS NEUROSCIENCE*
Etkin, A., Buechel, C., Gross, J. J.
2015; 16 (11): 693-?
- **Identification of a Common Neurobiological Substrate for Mental Illness** *JAMA PSYCHIATRY*
Goodkind, M., Eickhoff, S. B., Oathes, D. J., Jiang, Y., Chang, A., Jones-Hagata, L. B., Ortega, B. N., Zaiko, Y. V., Roach, E. L., Korgaonkar, M. S., Grieve, S. M., Galatzer-Levy, I., Fox, et al
2015; 72 (4): 305-315
- **Causal interactions between fronto-parietal central executive and default-mode networks in humans** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Chen, A. C., Oathes, D. J., Chang, C., Bradley, T., Zhou, Z., Williams, L. M., Glover, G. H., Deisseroth, K., Etkin, A.
2013; 110 (49): 19944-19949
- **Common Abnormalities and Disorder-Specific Compensation During Implicit Regulation of Emotional Processing in Generalized Anxiety and Major Depressive Disorders** *AMERICAN JOURNAL OF PSYCHIATRY*
Etkin, A., Schatzberg, A. F.
2011; 168 (9): 968-978
- **Failure of Anterior Cingulate Activation and Connectivity With the Amygdala During Implicit Regulation of Emotional Processing in Generalized Anxiety Disorder** *AMERICAN JOURNAL OF PSYCHIATRY*
Etkin, A., Prater, K. E., Hoeft, F., Menon, V., Schatzberg, A. F.
2010; 167 (5): 545-554
- **Disrupted Amygdalar Subregion Functional Connectivity and Evidence of a Compensatory Network in Generalized Anxiety Disorder** *ARCHIVES OF GENERAL PSYCHIATRY*
Etkin, A., Prater, K. E., Schatzberg, A. F., Menon, V., Greicius, M. D.
2009; 66 (12): 1361-1372
- **Functional neuroimaging of anxiety: A meta-analysis of emotional processing in PTSD, social anxiety disorder, and specific phobia** *AMERICAN JOURNAL OF PSYCHIATRY*
Etkin, A., Wager, T. D.
2007; 164 (10): 1476-1488
- **Resolving emotional conflict: A role for the rostral anterior cingulate cortex in modulating activity in the amygdala** *NEURON*
Etkin, A., Egner, T., Peraza, D. M., Kandel, E. R., Hirsch, J.
2006; 51 (6): 871-882
- **Correction: Shaped Magnetic Field Pulses by Multi-Coil Repetitive Transcranial Magnetic Stimulation (rTMS) Differentially Modulate Anterior Cingulate Cortex Responses and Pain in Volunteers and Fibromyalgia Patients.** *Molecular pain*
Tzabazis, A., Aparici, C. M., Rowbotham, M. C., Schneider, M. B., Etkin, A., Yeomans, D. C.
; 10: 174480691016
- **Cortical Connectivity Moderators of Antidepressant vs Placebo Treatment Response in Major Depressive Disorder: Secondary Analysis of a Randomized Clinical Trial.** *JAMA psychiatry*
Rolle, C. E., Fonzo, G. A., Wu, W., Toll, R., Jha, M. K., Cooper, C., Chin-Fatt, C., Pizzagalli, D. A., Trombello, J. M., Deckersbach, T., Fava, M., Weissman, M. M., Trivedi, et al
2020
- **Global connectivity and local excitability changes underlie antidepressant effects of repetitive transcranial magnetic stimulation.** *Neuropsychopharmacology : official publication of the American College of Neuropsychopharmacology*

Eshel, N., Keller, C. J., Wu, W., Jiang, J., Mills-Finnerty, C., Huemer, J., Wright, R., Fonzo, G. A., Ichikawa, N., Carreon, D., Wong, M., Yee, A., Shpigiel, et al
2020

- **Sparse Latent Space Regression (SELSER) for Treatment Prediction in Major Depressive Disorder**
Wu, W., Trivedi, M., Etkin, A.
NATURE PUBLISHING GROUP.2019: 437–38
- **Neural Correlates of Anger Expression in Patients With PTSD**
Eshel, N., Maron-Katz, A., Marmar, C., Etkin, A.
NATURE PUBLISHING GROUP.2019: 87
- **Antidepressant-Responsive Brain Signatures in Major Depression Defined by Electroencephalography**
Etkin, A.
NATURE PUBLISHING GROUP.2019: 74
- **Mapping Causal Circuitry in Human Depression.** *Biological psychiatry*
Etkin, A.
2019; 86 (10): 732–33
- **Driving Progress in Posttraumatic Stress Disorder Biomarkers.** *Biological psychiatry*
Jeromin, A., Lasseter, H. C., Provost, A. C., Daskalakis, N. P., Etkin, A., Gehrman, P., Lancashire, L., Marx, B. P., McGlinchey, R., Haas, M.
2019
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2019; 37 (9): 993–96
- **Transcranial magnetic stimulation demonstrates a role for the ventrolateral prefrontal cortex in emotion perception.** *Psychiatry research*
Chick, C. F., Rolle, C., Trivedi, H. M., Monuszko, K., Etkin, A.
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- **Cerebral Blood Perfusion Moderates Treatment Response to Sertraline in Major Depressive Disorder**
Cooper, C. M., Fatt, C., Jha, M., Fonzo, G., Grannemann, B. D., Carmody, T., Ali, A., Aslan, S., Almeida, J. C., Deckersbach, T., Fava, M., Kurian, B. T., McGrath, et al
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- **Classification of TMS evoked potentials using ERP time signatures and SVM versus deep learning.** *Conference proceedings : ... Annual International Conference of the IEEE Engineering in Medicine and Biology Society. IEEE Engineering in Medicine and Biology Society. Annual Conference*
Naze, S., Caggiano, V., Sun, Y., Lucas, M. V., Etkin, A., Kozloski, J. R.
2019; 2019: 3539–42
- **Development of VM-REACT: Verbal memory RecAll computerized test** *JOURNAL OF PSYCHIATRIC RESEARCH*
Naparstek, S., El-Said, D., Eisenberg, M. L., Jordan, J. T., O'Hara, R., Etkin, A.
2019; 114: 170–77
- **Intrinsic Brain Connectivity Moderators of Psychotherapy Response and Changes in PTSD: A Combined Connectomic, Network Level, and Seeded Connectivity Approach**
Fonzo, G., Goodkind, M., Oathes, D., Zaiko, Y., Harvey, M., Peng, K., Weiss, E., Thompson, A., Zack, S., Rothbaum, B., Etkin, A.
ELSEVIER SCIENCE INC.2019: S111–S112
- **Cognitive Function Networks Vary With Quality of Life**
Zamler, S., Narayan, M., Marmar, C., Etkin, A.
ELSEVIER SCIENCE INC.2019: S120
- **A "Primate-Approach" to Studying Approach-Avoidance Conflict in Humans**
Rolle, C., Johnson, N., Caudle, T., Yan, M., Etkin, A.
ELSEVIER SCIENCE INC.2019: S140
- **Cerebral Blood Perfusion Predicts Response to Antidepressant Treatment in Major Depressive Disorder**
Cooper, C., Fatt, C., Jha, M., Fonzo, G., Grannemann, B., Carmody, T., Ali, A., Aslan, S., Almeida, J., Deckersbach, T., Fava, M., Kurian, B., McGrath, et al
ELSEVIER SCIENCE INC.2019: S111

- **Baseline Functional Connectivity and Cerebral Perfusion Markers of Response to Sertraline Vs. Placebo: A Data-Driven Multi-Modal Neuroimaging Study**
Trivedi, M., Fatt, C., Cooper, C., Jha, M., Fonzo, G., South, C., Grannerman, B., Carmody, T., Greer, T., Kurian, B., Fava, M., McGrath, P., Adams, et al
ELSEVIER SCIENCE INC.2019: S55–S56
- **Cortical Plasticity in Heroin and Methamphetamine Addiction**
Lucas, M., Liu, Q., Wu, W., Liu, T., Badami, F., Keller, C., Etkin, A., Yuan, T.
ELSEVIER SCIENCE INC.2019: S296
- **State-Dependency of the Stimulation-Induced Evoked Response in EEG**
Yan, M., Rolle, C., Caudle, T., Johnson, N., Etkin, A.
ELSEVIER SCIENCE INC.2019: S139
- **Individual Patterns of Abnormality in Resting-State Functional Connectivity Reveal Two Data-Driven PTSD Subgroups**
Maron-Katz, A., Narayan, M., Zamler, S., Longwell, P., Shpigel, E., De Los Angeles, C., Newman, J., Abu Amara, D., Marmar, C., Etkin, A.
ELSEVIER SCIENCE INC.2019: S121
- **Pre-Deployment Risk Factors for PTSD in Afghanistan Veterans: A Machine Learning Approach for Analyzing Multivariate Predictors**
Schultebrucks, K., Qian, M., Abu-Amara, D., Dean, K., Laska, E., Siegel, C., Gautam, A., Guffanti, G., Hammamieh, R., Blessing, E., Etkin, A., Ressler, K., Doyle, et al
ELSEVIER SCIENCE INC.2019: S302–S303
- **Causal Role of the Dorsal-Lateral Prefrontal Cortex in Approach-Avoidance Conflict**
Johnson, N., Rolle, C., Caudle, T., Yan, M., Etkin, A.
ELSEVIER SCIENCE INC.2019: S137
- **Anger Expression in Patients With PTSD: Clinical, Cognitive, and Neural Correlates**
Eshel, N., Maron-Katz, A., Marmar, C., Etkin, A.
ELSEVIER SCIENCE INC.2019: S137
- **Internet-delivered computerized cognitive & affective remediation training for the treatment of acute and chronic posttraumatic stress disorder: Two randomized clinical trials.** *Journal of psychiatric research*
Fonzo, G. A., Fine, N. B., Wright, R. N., Achituv, M., Zaiko, Y. V., Merin, O., Shalev, A. Y., Etkin, A.
2019; 115: 82–89
- **Reproducibility in TMS-EEG studies: A call for data sharing, standard procedures and effective experimental control** *BRAIN STIMULATION*
Belardinelli, P., Biabani, M., Blumberger, D. M., Bortoletto, M., Casarotto, S., David, O., Desideri, D., Etkin, A., Ferrarelli, F., Fitzgerald, P. B., Fornito, A., Gordon, P. C., Gosseries, et al
2019; 12 (3): 787–90
- **Reproducibility in TMS-EEG studies: A call for data sharing, standard procedures and effective experimental control.** *Brain stimulation*
Belardinelli, P., Biabani, M., Blumberger, D. M., Bortoletto, M., Casarotto, S., David, O., Desideri, D., Etkin, A., Ferrarelli, F., Fitzgerald, P. B., Fornito, A., Gordon, P. C., Gosseries, et al
2019
- **Development of VM-REACT: Verbal memory RecAll computerized test.** *Journal of psychiatric research*
Naparstek, S., El-Said, D., Eisenberg, M. L., Jordan, J. T., O'Hara, R., Etkin, A.
2019; 114: 170–77
- **Effect of Intrinsic Patterns of Functional Brain Connectivity in Moderating Antidepressant Treatment Response in Major Depression.** *The American journal of psychiatry*
Chin Fatt, C. R., Jha, M. K., Cooper, C. M., Fonzo, G., South, C., Grannemann, B., Carmody, T., Greer, T. L., Kurian, B., Fava, M., McGrath, P. J., Adams, P., McInnis, et al
2019: appiajp201918070870
- **Individual Patterns of Abnormality in Resting-State Functional Connectivity Reveal Two Data-Driven PTSD Subgroups.** *The American journal of psychiatry*
Maron-Katz, A., Zhang, Y., Narayan, M., Wu, W., Toll, R. T., Naparstek, S., De Los Angeles, C., Longwell, P., Shpigel, E., Newman, J., Abu-Amara, D., Marmar, C., Etkin, et al
2019: appiajp201919010060

- **Cerebral Blood Perfusion Predicts Response to Sertraline versus Placebo for Major Depressive Disorder in the EMBARC Trial.** *EClinicalMedicine*
Cooper, C. M., Chin Fatt, C. R., Jha, M., Fonzo, G. A., Grannemann, B. D., Carmody, T., Ali, A., Aslan, S., Almeida, J. R., Deckersbach, T., Fava, M., Kurian, B. T., McGrath, et al
2019; 10: 32–41
- **Interhemispheric cortico-cortical paired associative stimulation of the prefrontal cortex jointly modulates frontal asymmetry and emotional reactivity.** *Brain stimulation*
Zibman, S., Daniel, E., Alyagon, U., Etkin, A., Zangen, A.
2018
- **Decoding mood.** *Nature biotechnology*
Etkin, A.
2018; 36 (10): 932–33
- **Cognitive Flexibility Predicts PTSD Symptoms: Observational and Interventional Studies** *FRONTIERS IN PSYCHIATRY*
Ben-Zion, Z., Fine, N. B., Keynan, N., Admon, R., Green, N., Halevi, M., Fonzo, G. A., Achituv, M., Merin, O., Sharon, H., Halpern, P., Liberzon, I., Etkin, et al
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- **Effect of Repetitive Transcranial Magnetic Stimulation on Treatment-Resistant Major Depression in US Veterans A Randomized Clinical Trial** *JAMA PSYCHIATRY*
Yesavage, J. A., Fairchild, J., Mi, Z., Biswas, K., Davis-Karim, A., Phibbs, C. S., Forman, S. D., Thase, M., Williams, L. M., Etkin, A., O'Hara, R., Georgette, G., Beale, et al
2018; 75 (9): 884–93
- **Increased Attention Regulation from Emotion Regulation Therapy for Generalized Anxiety Disorder** *COGNITIVE THERAPY AND RESEARCH*
Renna, M. E., Seeley, S. H., Heimberg, R. G., Etkin, A., Fresco, D. M., Mennin, D. S.
2018; 42 (2): 121–34
- **Evaluating web-based cognitive-affective remediation in recent trauma survivors: study rationale and protocol** *EUROPEAN JOURNAL OF PSYCHOTRAUMATOLOGY*
Fine, N. B., Achituv, M., Etkin, A., Merin, O., Shalev, A. Y.
2018; 9 (1): 1442602
- **ARTIST: A fully automated artifact rejection algorithm for single-pulse TMS-EEG data.** *Human brain mapping*
Wu, W., Keller, C. J., Rogasch, N. C., Longwell, P., Shpigel, E., Rolle, C. E., Etkin, A.
2018
- **Cognitive Flexibility Predicts PTSD Symptoms: Observational and Interventional Studies.** *Frontiers in psychiatry*
Ben-Zion, Z., Fine, N. B., Keynan, N. J., Admon, R., Green, N., Halevi, M., Fonzo, G. A., Achituv, M., Merin, O., Sharon, H., Halpern, P., Liberzon, I., Etkin, et al
2018; 9: 477
- **Affective neuroimaging in generalized anxiety disorder: an integrated review** *DIALOGUES IN CLINICAL NEUROSCIENCE*
Fonzo, G. A., Etkin, A.
2017; 19 (2): 169–79
- **Erratum: Resting-state connectivity biomarkers define neurophysiological subtypes of depression.** *Nature medicine*
Drysedale, A. T., Grosenick, L., Downar, J., Dunlop, K., Mansouri, F., Meng, Y., Fetcho, R. N., Zebley, B., Oathes, D. J., Etkin, A., Schatzberg, A. F., Sudheimer, K., Keller, et al
2017; 23 (2): 264-?
- **Learning in Generalized Anxiety Disorder Benefits From Neither the Carrot Nor the Stick.** *American journal of psychiatry*
Etkin, A., Fonzo, G. A.
2017; 174 (2): 87-88
- **Is the boss watching?** *Nature neuroscience*
Etkin, A.
2017; 20 (8): 1039–40
- **Neuroticism and Individual Differences in Neural Function in Unmedicated Major Depression: Findings from the EMBARC Study.** *Biological psychiatry. Cognitive neuroscience and neuroimaging*

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- Fournier, J. C., Chase, H. W., Greenberg, T., Etkin, A., Almeida, J. R., Stiffler, R., Deckersbach, T., Weyandt, S., Cooper, C., Toups, M., Carmody, T., Kurian, B., Peltier, et al
2017; 2 (2): 138–48
- **Test-retest reliability of transcranial magnetic stimulation EEG evoked potentials.** *Brain stimulation*
Kerwin, L. J., Keller, C. J., Wu, W., Narayan, M., Etkin, A.
2017
 - **Test-retest reliability of transcranial magnetic stimulation EEG evoked potentials** *Brain Stimulation*
Kerwin, L. J., Keller, C., Wu, W., Narayan, M., Etkin, A.
2017
 - **Resting-state connectivity biomarkers define neurophysiological subtypes of depression** *NATURE MEDICINE*
Drysdale, A. T., Grosenick, L., Downar, J., Dunlop, K., Mansouri, F., Meng, Y., Fetcho, R. N., Zebley, B., Oathes, D. J., Etkin, A., Schatzberg, A. F., Sudheimer, K., Keller, et al
2017; 23 (1): 28-38
 - **Fear memory erasure through neuronal transplantation.** *Science translational medicine*
Etkin, A.
2017; 9 (371)
 - **Switching tracks in fear memories.** *Science translational medicine*
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