



Gen Shinozaki, MD

Associate Professor of Psychiatry and Behavioral Sciences (General Psychiatry and Psychology)

CLINICAL OFFICES

- **Psychiatry**

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Bio

CLINICAL FOCUS

- Psychiatry
- Psychosomatic Medicine
- Consultation Liaison Psychiatry

ACADEMIC APPOINTMENTS

- Associate Professor - University Medical Line, Psychiatry and Behavioral Sciences
- Member, Bio-X
- Member, Wu Tsai Neurosciences Institute

HONORS AND AWARDS

- NIH Research Project Grant (R01), National Institute of Mental Health (2020-2024)
- Visiting Professorship Award, Academy of Consultation Liaison Psychiatry (2019)
- Dlin/Fischer Clinical Research Award, Academy of Consultation Liaison Psychiatry (2018)
- Inventor Award, University of Iowa (2018)
- NSF I-Corp Award, National Science Foundation (2016-2017)
- Inventor Award, University of Iowa (2016)
- Startup Launched Award, University of Iowa (2016)
- NIH Mentored Patient-Oriented Research Career Development Award (K23), National Institute of Mental Health (2015-2019)
- UI Venture Gap Funding Award, University of Iowa Research Foundation (2015-2017)
- Helen Johnson Scholar in Informatics, University of Iowa (2014-2016)
- William Webb Fellowship Award, Academy of Psychosomatic Medicine (2008-2009)
- Research Colloquium for Junior Investigators, American Psychiatric Association (2008, 2009, 2010)
- Departmental Small Grant Award, Mayo Clinic Department of Psychiatry and Psychology (2008)

- Howard P. Rome Resident Academic Writing Award, Mayo Clinic Department of Psychiatry and Psychology (2008)
- Howard P. Rome Resident Grand Rounds Award, Mayo Clinic Department of Psychiatry and Psychology (2008)
- Resident Fellowship Award, Academy of Occupational and Organization Psychiatry (2007)
- Scholarship Award, Noguchi Medical Institute (2004-2005)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Distinguished Fellow, American Psychiatric Association (2018 - present)
- Fellow, Academy of Consultation Liaison Psychiatry (2013 - present)
- Research Committee, Academy of Consultation Liaison Psychiatry (2011 - present)
- Research Committee, American Delirium Society (2019 - present)
- Editorial Board, Psychiatry and Clinical Neurosciences (2018 - present)
- Editorial Board, PLOS One (2018 - present)

PROFESSIONAL EDUCATION

- Fellowship: Mayo Clinic - Rochester (2009) MN
- Residency: Mayo Clinic - Rochester (2008) MN
- Board Certification: Psychosomatic Medicine, American Board of Psychiatry and Neurology (2011)
- Board Certification: Psychiatry, American Board of Psychiatry and Neurology (2009)
- Internship: US Naval Hospital Okinawa (2003) Japan
- Medical Education: University of Yamanashi (2002) Japan

LINKS

- Lab website: <https://med.stanford.edu/shinozaki.html>

Publications

PUBLICATIONS

- **DNA methylation in the TNF-alpha gene decreases along with aging among delirium inpatients.** *Neurobiology of aging*
Yamanashi, T., Saito, T., Yu, T., Alario, A., Comp, K., Crutchley, K. J., Sullivan, E. J., Anderson, Z. M., Marra, P. S., Chang, G., Wahba, N. E., Jellison, S. S., Meyer, et al
2021; 105: 310-317
- **New Cutoff Scores for Delirium Screening Tools to Predict Patient Mortality.** *Journal of the American Geriatrics Society*
Yamanashi, T., Iwata, M., Crutchley, K. J., Sullivan, E. J., Malicoat, J. R., Anderson, Z. M., Marra, P. S., Chang, G., Kaneko, K., Shinozaki, E., Lee, S., Shinozaki, G.
2021; 69 (1): 140-147
- **Bispectral EEG (BSEEG) quantifying neuro-inflammation in mice induced by systemic inflammation: A potential mouse model of delirium.** *Journal of psychiatric research*
Yamanashi, T., Malicoat, J. R., Steffen, K. T., Zarei, K., Li, R., Purnell, B. S., Najafi, A., Saito, K., Singh, U., Toth, B. A., Lee, S., Dailey, M. E., Cui, et al
2021; 133: 205-211
- **Topological data analysis (TDA) enhances bispectral EEG (BSEEG) algorithm for detection of delirium.** *Scientific reports*
Yamanashi, T., Kajitani, M., Iwata, M., Crutchley, K. J., Marra, P., Malicoat, J. R., Williams, J. C., Leyden, L. R., Long, H., Lo, D., Schacher, C. J., Hiraoka, K., Tsunoda, et al
2021; 11 (1): 304
- **Mortality prediction by bispectral electroencephalography among 502 patients: its role in dementia.** *Brain communications*
Saito, T., Malicoat, J. R., Leyden, L. R., Williams, J. C., Jellison, S. S., Long, H., Hellman, M. M., Crutchley, K. J., Anderson, Z. E., Lo, D., Modukuri, M. V., Schacher, C. J., Yoshino, et al

2021; 3 (2): fcab037

- **The relationship between DNA methylation in neurotrophic genes and age as evidenced from three independent cohorts: differences by delirium status.** *Neurobiology of aging*
Saito, T., Braun, P. R., Daniel, S., Jellison, S. S., Hellman, M., Shinozaki, E., Lee, S., Cho, H. R., Yoshino, A., Toda, H., Shinozaki, G.
2020; 94: 227-235
- **Bispectral EEG (BSEEG) to assess arousal after electro-convulsive therapy (ECT).** *Psychiatry research*
Zarei, K., Sparr, N. A., Trapp, N. T., Neuhaus, E. D., Cromwell, J. W., Boes, A. D., Shinozaki, G.
2020; 285: 112811
- **Epigenetics of neuroinflammation: Immune response, inflammatory response and cholinergic synaptic involvement evidenced by genome-wide DNA methylation analysis of delirious inpatients.** *Journal of psychiatric research*
Saito, T., Toda, H., Duncan, G. N., Jellison, S. S., Yu, T., Klisares, M. J., Daniel, S., Andreassen, A. J., Leyden, L. R., Hellman, M. M., Shinozaki, E., Lee, S., Yoshino, et al
2020; 129: 61-65
- **Genome-wide DNA methylation investigation of glucocorticoid exposure within buccal samples.** *Psychiatry and clinical neurosciences*
Braun, P. R., Tanaka-Sahker, M., Chan, A. C., Jellison, S. S., Klisares, M. J., Hing, B. W., Shabbir, Y., Gaul, L. N., Nagahama, Y., Robles, J., Heinzman, J. T., Sabbagh, S., Cramer, et al
2019; 73 (6): 323-330
- **Genome-wide DNA methylation comparison between live human brain and peripheral tissues within individuals.** *Translational psychiatry*
Braun, P. R., Han, S., Hing, B., Nagahama, Y., Gaul, L. N., Heinzman, J. T., Grossbach, A. J., Close, L., Dlouhy, B. J., Howard, M. A., Kawasaki, H., Potash, J. B., Shinozaki, et al
2019; 9 (1): 47
- **Identification of Patients With High Mortality Risk and Prediction of Outcomes in Delirium by Bispectral EEG.** *The Journal of clinical psychiatry*
Shinozaki, G., Bormann, N. L., Chan, A. C., Zarei, K., Sparr, N. A., Klisares, M. J., Jellison, S. S., Heinzman, J. T., Dahlstrom, E. B., Duncan, G. N., Gaul, L. N., Wanzek, R. J., Cramer, et al
2019; 80 (5)
- **Delirium detection by a novel bispectral electroencephalography device in general hospital** *PSYCHIATRY AND CLINICAL NEUROSCIENCES*
Shinozaki, G., Chan, A. C., Sparr, N. A., Zarei, K., Gaul, L. N., Heinzman, J. T., Robles, J., Yuki, K., Chronis, T. J., Ando, T., Wong, T., Sabbagh, S., Weckmann, et al
2018; 72 (12): 856-63
- **Epigenetics of Delirium and Aging: Potential Role of DNA Methylation Change on Cytokine Genes in Glia and Blood Along With Aging.** *Frontiers in aging neuroscience*
Shinozaki, G., Braun, P. R., Hing, B. W., Ratanatharathorn, A., Klisares, M. J., Duncan, G. N., Jellison, S. S., Heinzman, J. T., Nagahama, Y., Close, L., Sabbagh, S., Dlouhy, B. J., Howard, et al
2018; 10: 311
- **Integrated Inpatient Medical and Psychiatric Care: Experiences of 5 Institutions.** *Annals of internal medicine*
Chan, A. C., Burke, C. A., Coffey, E. M., Hilden, D. R., Coira, D. L., Warner-Cohen, J., Grady, M., Muskin, P. R., Shinozaki, G.
2018; 168 (11): 815-817
- **New developments in the genetics of bipolar disorder.** *Current psychiatry reports*
Shinozaki, G., Potash, J. B.
2014; 16 (11): 493
- **State dependent gene-environment interaction: Serotonin transporter gene-child abuse interaction associated with suicide attempt history among depressed psychiatric inpatients** *JOURNAL OF AFFECTIVE DISORDERS*
Shinozaki, G., Romanowicz, M., Passov, V., Rundell, J., Mrazek, D., Kung, S.
2013; 147 (1-3): 373-378
- **The integrated model of serotonin transporter gene variation (5HTTLPR) and the glial cell transporter in stress vulnerability and depression.** *Medical hypotheses*
Shinozaki, G.
2012; 78 (3): 410-4

- **Relationship between FKBP5 polymorphisms and depression symptoms among kidney transplant recipients.** *Depression and anxiety*
Shinozaki, G., Jowsey, S., Amer, H., Biernacka, J., Colby, C., Walker, D., Black, J., Rundell, J., Stegall, M., Mrazek, D. A.
2011; 28 (12): 1111-8
- **A new interaction between SLC6A4 variation and child abuse is associated with resting heart rate.** *Depression and anxiety*
Shinozaki, G., Romanowicz, M., Kung, S., Mrazek, D. A.
2011; 28 (3): 227-33
- **Sexual abuse and lifetime diagnosis of psychiatric disorders: systematic review and meta-analysis.** *Mayo Clinic proceedings*
Chen, L. P., Murad, M. H., Paras, M. L., Colbenson, K. M., Sattler, A. L., Goranson, E. N., Elamin, M. B., Seime, R. J., Shinozaki, G., Prokop, L. J., Zirakzadeh, A.
2010; 85 (7): 618-29
- **Mortality among patients with sepsis associated with a bispectral electroencephalography (BSEEG) score.** *Scientific reports*
Yamanashi, T., Marra, P. S., Crutchley, K. J., Wahba, N. E., Malicoat, J. R., Sullivan, E. J., Akers, C. C., Nicholson, C. A., Herrmann, F. M., Karam, M. D., Noiseux, N. O., Kaneko, K., Shinozaki, et al
2021; 11 (1): 14211
- **Increased mortality in patients with standard EEG findings of 'diffuse slowing'.** *Annals of clinical psychiatry : official journal of the American Academy of Clinical Psychiatrists*
Wanzenek, R., Bormann, N., Shabbir, Y., Saito, T., Yamada, T., Shinozaki, G.
2021; 33 (2): 93-100
- **Stress increases blood beta-hydroxybutyrate levels and prefrontal cortex NLRP3 activity jointly in a rodent model.** *Neuropsychopharmacology reports*
Nishiguchi, T., Iwata, M., Kajitani, N., Miura, A., Matsuo, R., Murakami, S., Nakada, Y., Pu, S., Shimizu, Y., Tsubakino, T., Yamanashi, T., Shinozaki, G., Tsubota, et al
2021; 41 (2): 159-167
- **Beta-hydroxybutyrate, an endogenous NLRP3 inflammasome inhibitor, attenuates anxiety-related behavior in a rodent post-traumatic stress disorder model.** *Scientific reports*
Yamanashi, T., Iwata, M., Shibushita, M., Tsunetomi, K., Nagata, M., Kajitani, N., Miura, A., Matsuo, R., Nishiguchi, T., Kato, T. A., Setoyama, D., Shirayama, Y., Watanabe, et al
2020; 10 (1): 21629
- **Epigenome-wide meta-analysis of PTSD across 10 military and civilian cohorts identifies methylation changes in AHRR.** *Nature communications*
Smith, A. K., Ratanatharathorn, A., Maihofer, A. X., Naviaux, R. K., Aiello, A. E., Amstadter, A. B., Ashley-Koch, A. E., Baker, D. G., Beckham, J. C., Boks, M. P., Bromet, E., Dennis, M., Galea, et al
2020; 11 (1): 5965
- **Effect of interaction between a specific subtype of child abuse and the FKBP5 rs1360780 SNP on DNA methylation among patients with bipolar disorder.** *Journal of affective disorders*
Saito, T., Shinozaki, G., Koga, M., Tanichi, M., Takeshita, S., Nakagawa, R., Nagamine, M., Cho, H. R., Morimoto, Y., Kobayashi, Y., Yoshino, A., Toda, H.
2020; 272: 417-422
- **Symptoms of anxiety and depression and use of anxiolytic-hypnotics and antidepressants in current and former smokers with and without COPD - A cross sectional analysis of the COPDGene cohort.** *Journal of psychosomatic research*
Iyer, A. S., Holm, K. E., Bhatt, S. P., Kim, V., Kinney, G. L., Wamboldt, F. S., Jacobs, M. R., Regan, E. A., Armstrong, H. F., Lowe, K. E., Martinez, C. H., Dransfield, M. T., Foreman, et al
2019; 118: 18-26
- **Pharmacokinetic-Pharmacodynamic interaction associated with venlafaxine-XR remission in patients with major depressive disorder with history of citalopram / escitalopram treatment failure.** *Journal of affective disorders*
Ahmed, A. T., Biernacka, J. M., Jenkins, G., Rush, A. J., Shinozaki, G., Veldic, M., Kung, S., Bobo, W. V., Hall-Flavin, D. K., Weinshilboum, R. M., Wang, L., Frye, M. A.
2019; 246: 62-68
- **The point-of-care EEG for delirium detection in the emergency department.** *The American journal of emergency medicine*
Lee, S., Yuki, K., Chan, A., Cromwell, J., Shinozaki, G.
2019; 37 (5): 995-996
- **GWAS and systems biology analysis of depressive symptoms among smokers from the COPDGene cohort.** *Journal of affective disorders*

- Heinzman, J. T., Hoth, K. F., Cho, M. H., Sakornsakolpat, P., Regan, E. A., Make, B. J., Kinney, G. L., Wamboldt, F. S., Holm, K. E., Bormann, N., Robles, J., Kim, V., Iyer, et al
2019; 243: 16-22
- **Relationship of genetic variation in the serotonin transporter gene (SLC6A4) and congenital and acquired cardiovascular diseases.** *Genetic testing and molecular biomarkers*
Moyer, A. M., Walker, D. L., Avula, R., Lapid, M. I., Kung, S., Bryant, S. C., Edwards, K. K., Black, J. L., Karpyak, V. M., Shinozaki, G., Jowsey-Gregoire, S. G., Ehlers, S. L., Romanowicz, et al
2015; 19 (3): 115-23
 - **CYP2C19 variation, not citalopram dose nor serum level, is associated with QTc prolongation.** *Journal of psychopharmacology (Oxford, England)*
Kumar, Y., Kung, S., Shinozaki, G.
2014; 28 (12): 1143-8
 - **Treatment outcomes of depression: the pharmacogenomic research network antidepressant medication pharmacogenomic study.** *Journal of clinical psychopharmacology*
Mrazek, D. A., Biernacka, J. M., McAlpine, D. E., Benitez, J., Karpyak, V. M., Williams, M. D., Hall-Flavin, D. K., Netzel, P. J., Passov, V., Rohland, B. M., Shinozaki, G., Hoberg, A. A., Snyder, et al
2014; 34 (3): 313-7
 - **Biological pathways, candidate genes, and molecular markers associated with quality-of-life domains: an update.** *Quality of life research : an international journal of quality of life aspects of treatment, care and rehabilitation*
Sprangers, M. A., Thong, M. S., Bartels, M., Barsevick, A., Ordoñana, J., Shi, Q., Wang, X. S., Klepstad, P., Wierenga, E. A., Singh, J. A., Sloan, J. A.
2014; 23 (7): 1997-2013
 - **Does 5HTTLPR long allele prevent hospitalization? Test of Hardy-Weinberg equilibrium.** *Psychiatric genetics*
Shinozaki, G., Kung, S., Mrazek, D. A.
2014; 24 (1): 34-6
 - **HTR2A gene-child abuse interaction and association with a history of suicide attempt among Caucasian depressed psychiatric inpatients** *JOURNAL OF AFFECTIVE DISORDERS*
Shinozaki, G., Romanowicz, M., Mrazek, D. A., Kung, S.
2013; 150 (3): 1200-1203
 - **"Diminished" association between the serotonin transporter linked polymorphism (5HTTLPR) and body mass index in a large psychiatric sample.** *Journal of affective disorders*
Shinozaki, G., Kumar, Y., Rosen, B. H., Rundell, J. R., Mrazek, D. A., Kung, S.
2013; 151 (1): 397-400
 - **Biological pathways and genetic mechanisms involved in social functioning.** *Quality of life research : an international journal of quality of life aspects of treatment, care and rehabilitation*
Ordoñana, J. R., Bartels, M., Boomsma, D. I., Cella, D., Mosing, M., Oliveira, J. R., Patrick, D. L., Veenhoven, R., Wagner, G. G., Sprangers, M. A.
2013; 22 (6): 1189-200
 - **Testing a Diathesis-Stress Model: Potential Genetic Risk Factors for Development of Distress in Context of Acute Leukemia Diagnosis and Transplant** *PSYCHOSOMATICS*
Romanowicz, M., Ehlers, S., Walker, D., Decker, P., Rundell, J., Shinozaki, G., Litzow, M., Hogan, W., Mrazek, D., Black, J. L.
2012; 53 (5): 456-462
 - **State Dependent Gene-Environment Interaction: Serotonin Transporter Gene-Child Abuse Interaction Associated with Suicide Attempt among Large Sample of Depressed Psychiatric Inpatients**
Shinozaki, G., Romanowicz, M., Rundell, J., Mrazek, D., Kung, S.
ELSEVIER SCIENCE INC.2012: 157S
 - **Investigation of serotonin transporter gene (SLC6A4) by child abuse history interaction with body mass index and diabetes mellitus of White female depressed psychiatric inpatients.** *Psychiatric genetics*
Shinozaki, G., Romanowicz, M., Kung, S., Rundell, J., Mrazek, D.
2012; 22 (3): 109-14
 - **Post-pump chorea--choreiform movements developing after pulmonary thromboendarterectomy for chronic pulmonary hypertension presenting as "functional" movement disorder.** *Psychosomatics*
Das, P., Shinozaki, G., McAlpine, D.

2011; 52 (5): 459-62

- **Continuous un-SERT-ainty of 5-HTTLPR.** *Pharmacogenomics*
Shinozaki, G.
2011; 12 (7): 935-8
- **Serotonin transporter gene promotor polymorphism (5-HTTLPR) associations with number of psychotropic medication trials in a tertiary care outpatient psychiatric consultation practice.** *Psychosomatics*
Rundell, J. R., Staab, J. P., Shinozaki, G., McAlpine, D.
2010; 52 (2): 147-53
- **Which patient will feel down, which will be happy? The need to study the genetic disposition of emotional states.** *Quality of life research : an international journal of quality of life aspects of treatment, care and rehabilitation*
Sprangers, M. A., Bartels, M., Veenhoven, R., Baas, F., Martin, N. G., Mosing, M., Movsas, B., Ropka, M. E., Shinozaki, G., Swaab, D.
2010; 19 (10): 1429-37
- **Biological pathways and genetic variables involved in pain.** *Quality of life research : an international journal of quality of life aspects of treatment, care and rehabilitation*
Shi, Q., Cleeland, C. S., Klepstad, P., Miaskowski, C., Pedersen, N. L.
2010; 19 (10): 1407-17
- **Scientific imperatives, clinical implications, and theoretical underpinnings for the investigation of the relationship between genetic variables and patient-reported quality-of-life outcomes.** *Quality of life research : an international journal of quality of life aspects of treatment, care and rehabilitation*
Sprangers, M. A., Sloan, J. A., Barsevick, A., Chauhan, C., Dueck, A. C., Raat, H., Shi, Q., Van Noorden, C. J.
2010; 19 (10): 1395-403
- **I'm so tired: biological and genetic mechanisms of cancer-related fatigue.** *Quality of life research : an international journal of quality of life aspects of treatment, care and rehabilitation*
Barsevick, A., Frost, M., Zwinderman, A., Hall, P., Halyard, M.
2010; 19 (10): 1419-27
- **Pharmacogenomic testing in a tertiary care outpatient psychosomatic medicine practice.** *Psychosomatics*
Rundell, J. R., Staab, J. P., Shinozaki, G., Saad-Pendergrass, D., Moore, K., McAlpine, D., Mrazek, D.
2009; 52 (2): 141-6
- **The establishment of the GENEQOL consortium to investigate the genetic disposition of patient-reported quality-of-life outcomes.** *Twin research and human genetics : the official journal of the International Society for Twin Studies*
Sprangers, M. A., Sloan, J. A., Veenhoven, R., Cleeland, C. S., Halyard, M. Y., Abertnethy, A. P., Baas, F., Barsevick, A. M., Bartels, M., Boomsma, D. I., Chauhan, C., Dueck, A. C., Frost, et al
2009; 12 (3): 301-11