Rongxiang (Catherine) Tang, Ph.D.

Assistant Professor

Department of Psychological and Brain Sciences, Texas A&M University

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Education

Ph.D. **Psychological and Brain Sciences, Washington University in St. Louis** 2021

Advisor: Todd Braver, Ph.D.
Program: Behavior, Brain, and Cognition

B.S. **Psychology, The University of Texas at Austin** 2014

Minor: Biology

Academic Positions

Assistant Professor 2024-Present

Department of Psychological and Brain Sciences, Texas A&M University

Postdoctoral Scholar 2021-2024

Principal Investigators: William Kremen, Ph.D., Carol Franz, Ph.D.
Department of Psychiatry, University of California San Diego

Honors, Awards, and Fellowships

2023 **Support Outstanding Academic Research (SOAR) Award**
The University of Texas at Dallas

2023, 2022 **Sallie P. Asche Travel Award**
Dallas Aging and Cognition Conference

2021 **Teaching Citation**
Washington University in St. Louis

2019-2021 **Ruth L. Kirschstein Predoctoral Individual National Research Service Award (F31)**
National Center for Complementary and Integrative Health (NCCIH)

2017 **Interface of Psychology, Neuroscience, and Genetics Training Fellowship (T32)**
National Institute of General Medical Sciences (NIGMS)

2016 **Building Bridges Award**
National Institute of Dental and Craniofacial Research (NIDCR)

2014 **Honorable Mention**
National Science Foundation Graduate Research Fellowship (NSF GFRP)

2012-2014 **University Honors**
The University of Texas at Austin

Grants

ACTIVE

K01 AG084815, National Institute on Aging 08/15/2024-06/30/2029
Title: Brain Connectomics of Cognitive Aging and Vulnerability to Alzheimer's Disease
Role: Principal Investigator
Total Cost: $656,511

Completed

F31 AT010422, National Center for Complementary and Integrative Health 06/01/2019-05/31/2021

Title: Examining Mindfulness Training Effects and Mechanisms on Cognitive Control
Role: Principal Investigator
Total Cost: $77,736

T32 GM081739, National Institute of General Medical Sciences 01/01/2017-12/31/2017

Title: Training At the Interface of Psychology, Neuroscience, and Genetics
Role: Pre-doctoral Trainee
Direct Cost: $23,844

Under Review

R01 AG064010, National Institute on Aging 04/01/2025-03/31/2030

Title: The cerebellum in aging and mild cognitive impairment: longitudinal insights into function, structural networks, and neurodegeneration (PI: Jessica Bernard, Ph.D.)
Role: Co-Investigator

Publications

Manuscript Under Review/Revision

Tang, **R.**, Elman, J. A., Reynolds, C. A., Puckett, O. K., Panizzon, M. S., Lyons, M. J., Hagler Jr, D. J., Fennema-Notestine, C., Eyler, L. T., Dorros, S. M., Dale, A. M., Kremen, W. S., Franz, C. E. (2024). Cortical surface area profile mediates effects of childhood disadvantage on later-life general cognitive ability.

Peer-Reviewed Journal Articles (Count: 38)

1. **Tang**, **R.**, Franz, C. E., Hauger, R. L., Dale, A. M., Dorros, S. M., Eyler, L. T., Fennema-Notestine, C., Hagler Jr, D. J., Lyons, M. J., Panizzon, M. S., et al. (2024). Early cortical microstructural changes in aging are linked to vulnerability to alzheimer's disease pathology. *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging*.
2. **Tang**, **R.**, Elman, J. A., Dale, A. M., Dorros, S. M., Eyler, L. T., Fennema-Notestine, C., Gustavson, D. E., Hagler Jr, D. J., Lyons, M. J., Panizzon, M. S., et al. (2024). Childhood disadvantage moderates late midlife default mode network cortical microstructure and visual memory association. *The Journals of Gerontology: Series A*, *79*(1), glad114.
3. **Tang**, **R.**, Buchholz, E., Dale, A. M., Rissman, R. A., Fennema-Notestine, C., Gillespie, N. A., Hagler, D. J., Lyons, M. J., Neale, M. C., Panizzon, M. S., Puckett, O. K., Reynolds, C. A., Franz, C. E., Kremen, W. S., & Elman, J. A. (2024). Associations of plasma neurofilament light chain with cognition and neuroimaging measures in community-dwelling early old age men. *Alzheimer's Research & Therapy*, *16*(1), 90.
4. Fan, Y., Cui, Y., **Tang**, **R.**, Sarkar, A., Mehta, P., & Tang, Y.-Y. (2024). Salivary testosterone and cortisol response in acute stress modulated by seven sessions of mindfulness meditation in young males. *Stress*, *27*(1), 2316041.
5. Tang, Y., & **Tang**, **R.** (2024). Health neuroscience—how the brain/mind and body affect our health behavior and outcomes. *Journal of Integrative Neuroscience*, *23*(4), 69.
6. **Tang**, **R.**, Elman, J. A., Franz, C. E., Dale, A. M., Eyler, L. T., Fennema-Notestine, C., Hagler Jr, D. J., Lyons, M. J., Panizzon, M. S., Puckett, O. K., et al. (2023). Longitudinal association of executive function and structural network controllability in the aging brain. *GeroScience*, *45*(2), 837–849.
7. Snijder, J.-P., **Tang**, **R.**, Bugg, J. M., Conway, A. R., & Braver, T. S. (2023). On the psychometric evaluation of cognitive control tasks: An investigation with the dual mechanisms of cognitive control (dmcc) battery. *Behavior Research Methods*, 1–36.
8. Tang, Y.-Y., **Tang**, **R.**, Posner, M. I., & Gross, J. J. (2022). Effortless training of attention and self-control: Mechanisms and applications. *Trends in Cognitive Sciences*, *26*(7), 567–577.

9. **Tang**, **R.**, Panizzon, M. S., Elman, J. A., Gillespie, N. A., Hauger, R. L., Rissman, R. A., Lyons, M. J., Neale, M. C., Reynolds, C. A., Franz, C. E., et al. (2022). Association of neurofilament light chain with renal function: Mechanisms and clinical implications. *Alzheimer's Research & Therapy*, *14*(1), 1–12.
10. **Tang**, **R.**, Bugg, J. M., Snijder, J.-P., Conway, A. R., & Braver, T. S. (2022). The dual mechanisms of cognitive control (dmcc) project: Validation of an online behavioural task battery. *Quarterly Journal of Experimental Psychology*, *76*(7), 1457–1480.
11. Lin, Y., **Tang**, **R.**, & Braver, T. S. (2022). Investigating mindfulness influences on cognitive function: On the promise and potential of converging research strategies. *Psychonomic Bulletin & Review*, 1–25.
12. Etzel, J. A., Brough, R. E., Freund, M. C., Kizhner, A., Lin, Y., Singh, M. F., **Tang**, **R.**, Tay, A., Wang, A., & Braver, T. S. (2022). The dual mechanisms of cognitive control dataset, a theoretically-guided within-subject task fmri battery. *Scientific Data*, *9*(1), 1–14.
13. Ding, X., Cao, F., Wang, S., Zhang, Y., Yu, L., Wang, X., **Tang**, **R.**, & Tang, Y. (2022). Efficiency moderates the relationship between sleep-onset insomnia and resting-state electroencephalogram microstate. *Journal of Integrative Neuroscience*, *21*(2), 52.
14. **Tang**, **R.**, Etzel, J. A., Kizhner, A., & Braver, T. S. (2021). Frontoparietal pattern similarity analyses of cognitive control in monozygotic twins. *Neuroimage*, *241*, 118415.
15. **Tang**, **R.**, Broderick, P. C., Bono, T., Dvoráková, K., & Braver, T. S. (2021). A college first-year mindfulness seminar to enhance psychological well-being and cognitive function. *Journal of Student Affairs Research and Practice*, *58*(4), 437–451.
16. Braver, T. S., Kizhner, A., **Tang**, **R.**, Freund, M. C., & Etzel, J. A. (2021). The dual mechanisms of cognitive control project. *Journal of Cognitive Neuroscience*, *33*(9), 1990–2015.
17. Tang, Y.-Y., Fan, Y., Lu, Q., Tan, L., **Tang**, **R.**, Kaplan, R., Chen, K., Reiman, E. M., & Friston, K. (2020). Long-term meditation practice changes autonomic and central nervous systems in an aging population. *Frontiers in Psychology*, *11*, 358.
18. **Tang**, **R.**, Friston, K. J., & Tang, Y.-Y. (2020). Brief mindfulness meditation induces gray matter changes in the brain hub. *Neural Plasticity*, *2020*.
19. **Tang**, **R.**, & Braver, T. S. (2020a). Predicting individual preferences in mindfulness techniques using personality traits. *Frontiers in psychology*, *11*, 1163.
20. **Tang**, **R.**, & Braver, T. S. (2020b). Towards an individual differences perspective in mindfulness training research: Theoretical and empirical considerations. *Frontiers in psychology*, *11*, 528066.
21. Ding, X., Wang, X., Yang, Z., **Tang**, **R.**, & Tang, Y.-Y. (2020). Relationship between trait mindfulness and sleep quality in college students: A conditional process model. *Frontiers in psychology*, *11*, 2587.
22. Tang, Y.-Y., **Tang**, **R.**, Rothbart, M. K., & Posner, M. I. (2019). Frontal theta activity and white matter plasticity following mindfulness meditation. *Current opinion in psychology*, *28*, 294–297.
23. Tang, Y.-Y., **Tang**, **R.**, & Gross, J. J. (2019). Promoting psychological well-being through an evidence-based mindfulness training program. *Frontiers in human neuroscience*, *13*, 237.
24. Tang, Y.-Y., Tang, Y., **Tang**, **R.**, & Lewis-Peacock, J. A. (2017). Brief mental training reorganizes large-scale brain networks. *Frontiers in systems neuroscience*, *11*, 6.
25. Tang, Y.-Y., Jiang, C., & **Tang**, **R.** (2017). How mind-body practice works—integration or separation? *Frontiers in psychology*, *8*, 263535.
26. Tang, Y.-Y., **Tang**, **R.**, & Posner, M. I. (2016). Mindfulness meditation improves emotion regulation and reduces drug abuse. *Drug and alcohol dependence*, *163*, S13–S18.
27. **Tang**, **R.**, Razi, A., Friston, K. J., & Tang, Y.-Y. (2016). Mapping smoking addiction using effective connectivity analysis. *Frontiers in human neuroscience*, *10*, 195.
28. Tang, Y.-Y., & **Tang**, **R.** (2015). Rethinking future directions of the mindfulness field. *Psychological Inquiry*, *26*(4), 368–372.
29. Tang, Y.-Y., Lu, Q., **Tang**, **R.**, & Posner, M. I. (2015). Short-term meditation increases blood flow in anterior cingulate cortex and insula. *Frontiers in Psychology*, *6*, 124174.
30. **Tang**, **R.**, & Tang, Y.-Y. (2015). Bilingualism, executive control and neuroplasticity. *Culture and Brain*, *3*(1), 68–74.

31. Fan, Y., Tang, Y.-Y., **Tang**, **R.**, & Posner, M. I. (2015). Time course of conflict processing modulated by brief meditation training. *Frontiers in psychology*, *6*, 128515.
32. Ding, X., Tang, Y.-Y., Deng, Y., **Tang**, **R.**, & Posner, M. I. (2015). Mood and personality predict improvement in creativity due to meditation training. *Learning and Individual Differences*, *37*, 217–221.
33. Xue, S.-W., Tang, Y.-Y., **Tang**, **R.**, & Posner, M. I. (2014). Short-term meditation induces changes in brain resting eeg theta networks. *Brain and cognition*, *87*, 1–6.
34. Tang, Y.-Y., **Tang**, **R.**, Jiang, C., & Posner, M. I. (2014). Short-term meditation intervention improves self-regulation and academic performance. *J Child Adolesc Behav*, *2*(4).
35. Fan, Y., Tang, Y.-Y., **Tang**, **R.**, & Posner, M. I. (2014). Short term integrative meditation improves resting alpha activity and stroop performance. *Applied psychophysiology and biofeedback*, *39*(3), 213–217.
36. Ding, X., Tang, Y.-Y., **Tang**, **R.**, & Posner, M. I. (2014). Improving creativity performance by short-term meditation. *Behavioral and Brain Functions*, *10*(1), 1–8.
37. Tang, Y.-Y., **Tang**, **R.**, & Posner, M. I. (2013). Brief meditation training induces smoking reduction. *Proceedings of the National Academy of Sciences*, *110*(34), 13971–13975.
38. Tang, Y.-Y., & **Tang**, **R.** (2013). Ventral-subgenual anterior cingulate cortex and self-transcendence. *Frontiers in Psychology, 4,* 76750.

Books and Chapters

1. Tang, Y.-Y., & **Tang**, **R.** (2021). Cross-Cultural Mental Health Promotion and Prevention for Global Mental Health. In J. Y. Chiao et al. (Eds.), *Oxford Handbook of Cultural Neuroscience and Global Mental Health* (pp. 506–514). Oxford University Press.
2. **Tang**, **R.**, & Tang, Y.-Y. (2021). Culture and Numerical Cognition. In J. Y. Chiao et al. (Eds.), *Oxford Handbook of Cultural Neuroscience and Global Mental Health*. Oxford University Press.
3. Tang, Y.-Y., & **Tang**, **R.** (2020). *The neuroscience of meditation: Understanding individual differences*. Academic Press.
4. Cheon, B. K., **Tang**, **R.**, Chiao, J. Y., & Tang, Y.-Y. (2018). The Cultural Neuroscience of Holistic Thinking. In J. Spencer-Rodgers & K. Peng (Eds.), *The Psychological and Cultural Foundations of East Asian Cognition: Contradiction, Change, and Holism* (pp. 181–212). Oxford University Press.
5. Tang, Y.-Y., & **Tang**, **R.** (2016). Chapter 14 - cultural neuroscience of moral reasoning and decision-making. In J. R. Absher & J. Cloutier (Eds.), *Neuroimaging personality, social cognition, and character* (pp. 281–287). Academic Press.

Conference Posters & Presentations

Underline denotes mentee.

Tang, R., Elman, J.A., Franz, C.E., Kremen, W.K. (2024). Early cortical microstructural neurodegeneration in aging is linked to vulnerability to Alzheimer's disease pathology. *Alzheimer's Association International Conference*, Philadelphia, Pennsylvania.

Tang, R., Elman, J.A., Franz, C.E., Kremen, W.K. (2023). Childhood Disadvantage Moderates Late Midlife Default Mode Network Cortical Microstructure and Visual Memory Association. *Dallas Aging and Cognition Conference*, Dallas, Texas.

Tang, R., Elman, J.A., Hagler, D., Puckett, O.K., Franz, C.E., Kremen, W.K. (2022). Brain Controllability of Cognitive Control Networks is Associated with Executive Functions in Older Adults. *Alzheimer's Association International Conference*, San Diego, California.

Tang, R., Elman, J.A., Hagler, D., Puckett, O.K., Franz, C.E., Kremen, W.K. (2022). Structural Controllability of Cognitive Control Networks Predicts Executive Functions in Older Adults. *Dallas Aging and Cognition Conference*, Dallas, Texas. COVID-19, CANCELLED.

Tang, R., Wang, X., Tang, Y.Y., Han, Y. (2020). Compensatory neural pathways in subjective cognitive decline. *AAIC Neuroscience Next*. Online Poster Session.

Tang, R., Etzel, J.A., Kizhner, A., Freund, M., Braver, T.S. (2020). Convergent Univariate and Multivariate Evidence for Task-General Fronto-Parietal Cognitive Control. *Organization for Human Brain Mapping Annual Conference*, Montreal, Canada. COVID-19, Online Poster Session.

Davis, I., **Tang, R.**, Braver, T.S. (2019). The Impact of Individual Preferences on Mindfulness Training States. *Washington University in St. Louis, Mind, Brain, and Behavior Research Symposium*, St. Louis, Missouri.

Tang, R., Braver, T.S. (2018). A College freshman mindfulness seminar to enhance psychological well-being and cognition. *International Symposium for Contemplative Research*, Phoenix, Arizona.

Tang, R. (2016). A novel and brief intervention improves self-control and promotes health behavior. *The 28th Annual Meeting of the Association for Psychological Science*, Chicago, IL.

Tang, R., Tang, Y.Y. (2014). Short-term intervention alters the resting state in combat veterans. *Organization for Human Brain Mapping Annual Conference*, Hamburg, Germany.

Tang, R., Hu, B., Tang, Y. (2012). Five hours of meditation changes skin conductance response and abdomen respiratory amplitude. *The 52nd Annual Meeting of the Society for Psychophysiological Research*, New Orleans, LA.

Tang, R., Tang, Y.Y. (2012). Brain ventricle volume correlates with effortful control in healthy young males. *The 21st Annual Computational Neuroscience Meeting*, Decatur, GA.

Tang, R., Rothbart MK, Posner MI. (2010). Perceptual sensitivity and efficiency of conflict resolution. *The 7th International Conference on Cognitive Science*, Beijing, China.

Invited Talks

2023 *"A Lifespan Perspective on Cognitive and Brain Aging"*
School of Behavioral and Brain Sciences, The University of Texas at Dallas.

2023 *"Understanding and Promoting Brain Health: Neural Mechanisms and Translational Applications".*
Department of Brain Health, University of Nevada, Las Vegas.

2022 *"Cognitive Control and Cognitive Aging: Neural Mechanisms & Translational Implications"*
Department of Psychology, Florida State University.

2021 *"A Neural Fingerprinting Approach to Test-Retest Reliability in Frontoparietal Cognitive Control Activation".*
A Bunch of Control Datablitzes (ABCD) (virtual).

2021 *"Frontoparietal Pattern Similarity Analyses of Cognitive Control in Monozygotic Twins"*
Washington University in St. Louis, Cognitive, Computational, and Systems Neuroscience Annual Retreat (virtual).

2016 *"The Cognitive Neuroscience of Mindfulness Meditation"*
Washington University in St. Louis, Mindfulness in Psychology and Eastern Philosophies Seminar (St. Louis, MO, USA).

Teaching, Mentoring, and Advising

Teaching

Introductory Psychological Statistics (Psych 300), *Washington University in St. Louis.*

Guest Lecturer & Assistant in Instruction (1 semester)

Experimental Psychology (Psych 301), *Washington University in St. Louis.*

Guest Lecturer & Assistant in Instruction (2 semesters)

Mindfulness: Science and Practice (Psych 111), *Washington University in St. Louis.*

Guest Lecturer & Assistant in Instruction (2 semesters)

Mentoring & Advising

Undergraduate Students

2019-2020 Scott Massey, *Washington University in St. Louis.*

2018-2019 Issie Davis, *Washington University in St. Louis.*
2017 Vivek Shah, *Washington University in St. Louis.*

Research Technicians

2020-2021 Rachel Brough, *Washington University in St. Louis.*
2020-2021 Allison Tay, *Washington University in St. Louis.*
2018 Sarah Myers, *Washington University in St. Louis.*

Professional Activities

Ad-hoc Journal Reviewer

Aging and Disease; Applied Psychology: Health and Well-Being; Biological Psychiatry; Brain and Behavior; Brain Connectivity; Brain and Neuroscience Advances; Cerebral Cortex; Cognitive, Affective, and Behavioral Neuroscience; Clinical Psychology Review; Current Opinion in Behavioral Sciences; eNeuro; Frontiers in Psychology; Journal of Alzheimer's Disease; Journal of the International Neuropsychological Society; Journal of Psychosomatic Research; iScience; Neurobiology of Aging; Neurobiology of Stress; NeuroImage; NeuroImage: Clinical; Neurology; Personality and Individual Differences; PloS One; Psychological Medicine; Quarterly Journal of Experimental Psychology; Science of the Total Environment; Scientific Reports; Social Cognitive and Affective Neuroscience

Professional Memberships

Alzheimer's Association, International Society to Advance Alzheimer's Research and Treatment

Association for Psychological Science

Organization for Human Brain Mapping