Top 10 Publications

Ranking. Papers are not listed chronologically. Instead they are ranked based on a combination of my perception of the importance of the publication for my own research program, the unique contribution that the publication makes to understanding the aging brain in general, and the usefulness of the findings/theory/new methods/materials for the broader field. Papers 1–6 and 10 were completed as an Assistant Professor, paper 7 was completed as a Post-Doc, and papers 8–9 were completed as a PhD student.

A note on authorship conventions. On all papers in this list, I was either the **first/lead author** (for which all of the following was true: developed project idea, wrote grant and obtained funding to support project, collected and analyzed data, wrote paper) or **last/senior author** (for which all of the following was true: developed project idea w/ trainee, wrote grant and obtained funding to support project, data analyzed in my lab by me or under my supervision, paper written with a trainee, data made publicly available online). Trainee authors that I mentored are marked with asterisks: *postdoc, **grad, ***undergrad/postbacc

Impact. Journal impact factors (IF) listed as 1 year / 5 year impact. Article impact factors calculated based on per year average of citations over the 2 years / 5 years following publication (analogous to how 1 year and 5 year IFs are calculated for journals).

1. Samanez-Larkin, G.R., Knutson, B. (2015) Decision making in the ageing brain: changes in affective and motivational circuits. *Nature Reviews Neuroscience*, 16(5), 278-289. PDF

   This review summarized the research I started as a graduate student and continued as a post-doc and assistant professor on decision making and aging. It presents a summary of emerging results and a neurobiologically-based theoretical framework that may help organize findings of age similarities and differences in decision making. It was an invited review in the highest impact factor journal in the field of Neuroscience. Journal IF: 32.6/38.7 Article IF: 29.5/TBD

2. **Karrer, T.M., **Josef, A.K., Mata, R., Morris, E.D., Samanez-Larkin, G.R. (2017) Reduced dopamine receptors and transporters but not synthesis capacity in normal aging adults: a meta-analysis. *Neurobiology of Aging*, 57, 36–46. PDF | data/code/materials

   This meta-analysis provided a quantitative summary of over 30 years of research on aging and dopamine function in healthy human adults. By aggregating incremental findings across mostly underpowered studies, we identified a novel preservation of one aspect of dopamine function with age: synthesis capacity. This work identified a potential mechanism by which dopaminergic function could be enhanced in older age. Journal IF: 4.5/5.1 Article IF: 20/TBD

3. *Seaman, K.L., ***Brooks, N., **Karrer, T.M., **Castrellon, J.J., *Dang, L.C., Hsu, M., Zald, D.H., Samanez-Larkin, G.R. (2018) Subjective value representations during effort, probability, and time discounting across adulthood. *Social Cognitive and Affective Neuroscience*, 13(5), 449–459. PDF | data/code/materials | neurovault

   This study demonstrated that functional neural representations of subjective value are stable and do not differ across adulthood across three different decision-making tasks. The study provided evidence for preservation in older age of value-related processing in the medial prefrontal cortex. Journal IF: 3.5/4.9 Article IF: 5/TBD

4. **Castrellon, J.J., *Seaman, K.L., ***Crawford, J.L., ***Young, J.S., *Smith, C.T., *Dang, L.C., Hsu, M., Cowan, R.L., Zald, D.H., Samanez-Larkin, G.R. (2019) Individual differences in dopamine are

associated with reward discounting in clinical groups but not in healthy adults. *Journal of Neuroscience*, 39 (2), 21-332. PDF | cover | data/code/materials | neurovault

This study presented an informative null effect (no association between dopamine receptors and discounting) in healthy adults that contradicted the hypothesis that differences in discounting with age are due to loss of dopamine. It was evidence against a theory of dopamine-mediated motivational decline with age. It also provided evidence that all researchers need to use caution when making claims about normal dopamine function from clinical samples, and vice-versa. Journal IF: 6.0 Article IF: TBD

5. *Seaman, K.L., *Gorlick, M.A., ***Vekaria, K.M., Hsu, M., Zald, D.H., Samanez-Larkin, G.R. (2016) Adult age differences in decision making across domains: Increased discounting of social and health-related rewards. *Psychology and Aging*, 31(7), 737-746. PDF | data

This study demonstrated that age differences in decision preferences can depend on the decision domain. Older adults were less willing to wait and more willing to accept lower probabilities for larger, immediate, more certain social and health rewards (compared to monetary rewards). Journal IF: 2.4/3.5 Article IF: 6.5/TBD

6. *Dang, L.C., ***Castrellon, J.J., ***Perkins, S.F., Le, N.T., Cowan, R.L., Zald, D.H., Samanez-Larkin, G.R. (2017) Reduced effects of age on dopamine D2 receptor levels in physically active adults. *NeuroImage*, 148, 123–129. PDF | data

This study demonstrated the neuroprotective effects of physical activity across adulthood. Moderate or higher levels of daily physical activity (assessed with pedometers in everyday life) were associated with a shallower decline in dopamine receptors with age in ventral striatum which is a neural hub for affective, cognitive, and motivational functions. This study, in part, inspired the new line of research in our lab on health behavior change. Journal IF: 5.4/7.1 Article IF: 7/TBD

7. Samanez-Larkin, G.R., Levens, S.M., Perry, L.M., Dougherty, R.F., Knutson, B. (2012) Frontostriatal white matter integrity mediates adult age differences in probabilistic reward learning. *Journal of Neuroscience*, 32(15), 5333–5337. PDF

This study identified an association between lower levels of white matter structural integrity from medial frontal cortical to striatal brain regions in older age and slower learning in a decision-making task. The study also documented a lack of age differences in the structure of mesolimbic connections from the midbrain to the striatum (later replicated in Leong et al 2016). The structural connections associated with learning are primarily glutamatergic whereas the preserved dopaminergic pathways were not correlated with learning. Journal IF: 6.0 Article IF: 12/12.8

8. Samanez-Larkin, G.R., Kuhnen, C.M., ***Yoo, D.J., Knutson, B. (2010) Variability in nucleus accumbens activity mediates age-related suboptimal financial risk taking. *Journal of Neuroscience*, 30(4), 1426–1434. PDF | cover | sup | comment

This study identified a novel measure of neural signal variability that mediated age differences in risky choice during a financial investment task. We innovated this variability measure and this was the first paper to present such analyses. It is now a relatively commonly used technique in cognitive neuroscience. Journal IF: 6.0 Article IF: 23.4/25

9. Samanez-Larkin, G.R., Gibbs, S.E.B., ***Khanna, K., Nielsen, L., Carstensen, L.L., Knutson, B. (2007) Anticipation of monetary gain but not loss in healthy older adults. *Nature Neuroscience*, 10(6), 787–791. PDF | sup

This study demonstrated an asymmetry in which older adults show less neural sensitivity to anticipated losses than younger adults but not to anticipated gains or outcomes (later replicated in Wu et al 2014). The first published paper on reward processing in the aging human brain. Recognized by the National Institute on Aging as one of the Top Ten Scientific Advances of 2007. Journal IF: 19.9/19.2 Article IF: 21/29.4

10. ***Holland, C.A.C., Ebner, N.C., Lin, T., Samanez-Larkin, G.R. (2019) Emotion identification across adulthood using the Dynamic FACES database of emotional expressions in young, middle-aged, and older adults. *Cognition and Emotion,* 33(2), 245–257. PDF | data/code/materials | stimulus database

This study qualified previous claims that older adults were less accurate in recognizing emotional facial expressions by showing that age differences are eliminated or minimized when using more naturalistic, dynamic socioemotional stimuli. It also presented a new stimulus set of over 1000 high-resolution, dynamic facial emotional stimuli available to the scientific community. Journal IF: 2.56/2.87 IF: TBD