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| BIOGRAPHICAL SKETCH Provide the following information for the key personnel and other significant contributors in the order listed on Form Page 2. Follow this format for each person.  **DO NOT EXCEED FOUR PAGES.** | | | | |
|  | | | | |
| NAME  Marie T. Banich | | POSITION TITLE  Professor, Dept. of Psychology & Neuroscience  Professor, Dept. of Psychiatry  Director, Institute of Cognitive Science | | |
| eRA COMMONS USER NAME  Banich.Marie | |
| EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)* | | | | |
| INSTITUTION AND LOCATION | DEGREE  *(if applicable)* | | YEAR(s) | FIELD OF STUDY |
| Tufts University, Medford, MA. | B.A. | | 12/77 | Psychology & Biology |
| Univ. of Chicago, Chicago, IL | Ph.D. | | 6/85 | Behavioral Sciences |

**A. Positions and Honors**

Professional Experience

1985-2000 Full/Associate/Assistant Professor**,** Department of Psychology, University of Illinois at Urbana-Champaign

1994 -2000 Co-Chair, Biological Intelligence Major Research Theme, Beckman Institute for Advanced Science and Technology, University of Illinois at Urbana-Champaign

2000-present Full Professor, Department of Psychology, University of Colorado at Boulder; Department of Psychiatry, University of Colorado Health Sciences Center

2004- 2016 Director, Institute of Cognitive Science, University of Colorado at Boulder

2010- present Executive Director, Intermountain Neuroimaging Center, University of Colorado at Boulder

2010- 2014 President, International Society for Behavioural Neuroscience

***Honors and Awards***

1985 NIH Postdoctoral Fellowship (declined);

1989 Beckman Fellow, Center for Advanced Study, University of Illinois;

1991 Psi Chi Undergraduate Teaching Award, Univ. of Ill.

1994 Arnold O. Beckman Research Award, Univ. of Ill.

1996 University Scholar, Univ. of Ill.;

2002-2006: Member, MacArthur Foundation Network on Adolescent Development and Juvenile Justice

2005 Justine & Yves Sergent Prize (to a leading female researcher in Cognitive Neuroscience)

2005-2006: Emerging Leaders Program, University of Colorado

2007 (Feb – May): Fulbright Senior Scholar, (University of Verona, Italy)

2009 Fellow, Association for Psychological Science (for outstanding achievement in Psychological Science)

2013-2014 James McKeen Cattell Sabbatical Award

**B. Publications** (> 160, H-index > 50) **\***represents a student or post-doc for whom I was the primary or co-primary supervisor

***Original Research & Reviews*** *(last 10 years)*

Reineberg, A. E., Gustavson, D. E., Benca, C., **Banich, M. T.**, & Friedman, N. P. (2018). The Relationship Between Resting State Network Connectivity and Individual Differences in Executive Functions. *Frontiers in Psychology*, *9*, doi:[10.3389/fpsyg.2018.01600](http://doi.org/10.3389/fpsyg.2018.01600)

\*Smith, L. L., **Banich, M. T.**, & Friedman, N. P. (2018). Individual differences in mixing costs relate to general executive functioning.. *J Exp Psychol Learn Mem Cogn*. doi:[10.1037/xlm0000613](http://doi.org/10.1037/xlm0000613)

Luciana, M., Bjork, J. M., Nagel, B. J., Barch, D. M., Gonzalez, R., Nixon, S. J., & **Banich, M. T.** (2018). Adolescent neurocognitive development and impacts of substance use: Overview of the adolescent brain cognitive development (ABCD) baseline neurocognition battery. *Developmental Cognitive Neuroscience*, *32*, 67-79. doi:[10.1016/j.dcn.2018.02.006](http://doi.org/10.1016/j.dcn.2018.02.006)

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Vargas, T., Snyder, H., **Banich, M.**, Newberry, R., Shankrnan, S. A., Strauss, G. P., & Mittal, V. A. (2018). Altered selection during language processing in individuals at high risk for psychosis. *Schizophrenia Research*, *202*, 303-309. doi:[10.1016/j.schres.2018.06.036](http://doi.org/10.1016/j.schres.2018.06.036)

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Casey, B. J., Cannonier, T., Conley, M. I., Cohen, A. O., Barch, D. M., Heitzeg, M. M., .. **Banich, M.T..** . Dale, A. M. (2018). The Adolescent Brain Cognitive Development (ABCD) study: Imaging acquisition across 21 sites. *Developmental Cognitive Neuroscience*, *32*, 43-54. doi:[10.1016/j.dcn.2018.03.001](http://doi.org/10.1016/j.dcn.2018.03.001)

**Banich, M. T.** (2018). Emerging themes in cognitive control: Commentary on the special issue of Psychophysiology entitled “Dynamics of Cognitive Control: A View Across Methodologies”. *Psychophysiology*, *55*(3), e13060. doi:[10.1111/psyp.13060](http://doi.org/10.1111/psyp.13060)

Gould, J. R., \*Reineberg, A. E., Cleland, B. T., Knoblauch, K. E., Clinton, G. K., **Banich, M. T.**, . . . Enoka, R. M. (2018). Adjustments in Torque Steadiness During Fatiguing Contractions Are Inversely Correlated With IQ in Persons With Multiple Sclerosis. *Frontiers in Physiology*, *9*, doi:[10.3389/fphys.2018.01404](http://doi.org/10.3389/fphys.2018.01404)

Iacono, W. G., Heath, A. C., Hewitt, J. K., Neale, M. C., **Banich, M. T.**, Luciana, M. M., . . . Bjork, J. M. (2018). The utility of twins in developmental cognitive neuroscience research: How twins strengthen the ABCD research design. *Developmental Cognitive Neuroscience* *32*, 30-42. doi:[10.1016/j.dcn.2017.09.001](http://doi.org/10.1016/j.dcn.2017.09.001)

\*de la Vega, A., Yarkoni, T., Wager, T. D., & **Banich, M. T.** (2018). Large-scale Meta-analysis Suggests Low Regional Modularity in Lateral Frontal Cortex. *Cerebral Cortex*, *28*(10), 3414-3428. doi:[10.1093/cercor/bhx204](http://doi.org/10.1093/cercor/bhx204)

Yamamoto, D.J., **Banich, M.T.**, Regner, M.F., Sakai, J.T. & Tanabe, J. (2017). Behavioral approach and orbitofrontal cortical activity during decision-making in substance dependence. *Drug and Alcohol Dependence, 180,* 234-240. doi: 10.1016/j.drugalcdep.**2017**.08.024

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\*de la Vega, A., Brown, M.S., \*Snyder, H.R., Singel, D., Munakata, Y., & **Banich, M.T.** (2014). Individual differences in the balance of GABA to glutamate in pFC predict the ability to select among competing options. *Journal of Cognitive Neuroscience, 26,* 2490-2502.

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\*Smolker, H.R., \*Depue, B.E., \*Reineberg, A.E., \*Orr. J.M., & **Banich, M.T.** (in press). Individual differences in regional prefrontal grey matter morphmetry and fractional anisotropy are associated with different constructs of executive function. *Brain Structure and Function*

\*Depue, B.E., Olson-Madden, J., Smolker, H.R., Rajamani, M., Brenner, L.A., & **Banich, M.T.** (2014) Reduced amygdala volume is associated with deficits in inhibitory control: A voxel and surface-based morphometric analysis of comorbid PTSD/mTBI. *Biomed Research International*, 2014:691505. doi: 10.1155/2014/691505.

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Dalwani, M.S., Tregellas, J.R., \*Andrews-Hanna, J.R., Mikulich-Gilbertson, S.K., Raymond, K.M., **Banich, M.T.,** Crowley, T.J., & Sakai, J.T. (2014). Default mode network activity in male adolescents with conduct and substance use disorder. *Drug and Alcohol Dependence, 134,* 242-250.

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\*Andrews-Hanna, J.R., \*Kaiser, R.H., Turner, A.E.J., \*Reineberg, A.E., \*Godinez, D., Dimidjian, S. & **Banich, M.T.** (2013). A penny for your thoughts: dimensions of self-generated thought content and relationships with individual differences in emotional wellbeing. *Frontiers in Psychology: Perception Science*, doi: 10.3389/fpsyg.2013.00900

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**C. Ongoing Research Support**

RO1 MH063207-10A1 (Hewitt) 12/1/2013-11/30/2018

**Neural Substrates of Executive Function: An fMRI Twin Study**

This study examines the neural correlates of genetic individual differences in three executive functions (prepotent response inhibition, working memory updating, and set shifting). A sample of 600 twins in their mid-twenties will be scanned using functional magnetic resonance imaging while they perform three executive function tasks, and both structural and functional neural measures will be correlated with executive function performance assessed at two prior time periods, as well as longitudinally collected measures of psychopathology such as depression and attention problems.

Role: Co-Investigator

R37 AG013038-19 (Seals) 4/01/2014-03/31/2019

**Nitrite Supplementation for Improving Physiological Function in Older Adults**

This study will determine if daily oral supplementation with a compound that increases sodium nitrite in the body improves vascular, motor and cognitive function in older adults. Further this project seeks to provide insight into the biological reasons by which supplementation with sodium nitrite, improve physiological function in older adults.

Role: Co-Investigator

**1R01MH105501 (Banich MPI) 6/01/2015-5/31/2020**

**Prefrontal Mechanisms of Selection: Disrupted in Internalizing Psychopathology?**

The goal of this grant is to use a multi-level approach (neurotransmitters levels, regional brain activation, behavioral performance, symptom levels) to understand brain processes involved in cognitive control, how they develop during adolescence, and how they may be affected by depression or anxiety.

U01 DA041120A (Banich MPI) 9/30/2015-5/31/2020

**ABCD-USA Consortium: Twin Research Project**

The focus of this project is to use neuroimaging and behavioral examination of twin pairs as a way to understand how genetic and environmental factors influence the effects of drugs on the adolescent brain.

1R21MH108848-01A1 (Banich MPI) 06/20/2015-03/31/2019

**Clearing the Contents of Working Memory: Mechanisms and Representations**

The goal of this project is to apply machine learning techniques to understand the neural mechanisms by which information is cleared from working memory and the way in which representations of such information are altered by these clearing processes.

P50 HD027802 (Center P.I., Willcutt; Project PI., Banich) 10/1/2017 – 6/30/2022

**Differential Diagnosis in Learning Disability: Project III Functional and Anatomical investigations of Domain-specific and Domain-General Alterations in Neural Systems underlying Math & Reading**

**Difficulty**

The goal of this high-risk/high-reward project is to investigate, using a new and novel theoretical perspective, the neural underpinnings of learning disability. In this project we posit that each of the three major processes that may underlie learning disability as proposed by our center – slowed processing speed, domain specific deficits (separately in reading and in math), and executive dysfunction - can each be linked to specific underlying neural processes.