

Miranda McDaniel  
Rollins Research Center Rm. 5062  
1510 Clifton Rd.  
Atlanta, Ga 30322  
678-977-3105 -- mjmcdan@emory.edu

## Education:

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Fall 2010-Spring 2014

### **Georgia Institute of Technology, Atlanta, Ga**

- Bachelor of Science in Biochemistry
- GPA: 3.71, Highest honors
- Research Option in Chemistry/Biochemistry

Fall 2014-Present

### **Emory University, Atlanta, Ga**

- PhD Student
- Molecular and Systems Pharmacology
- Scholar of Toxicology Track

## Research Experience:

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Undergraduate Research: January 2013-May 2014

### **Department of Chemistry and Biochemistry, Georgia Institute of Technology**

Barry Research Lab- Principal Investigator: Dr. Bridgette Barry

- Studying the proton coupled electron transfer reactions of photosystem II through the characterization of biomimetic beta-hairpin peptide models

Lab Rotations: September 2014- May 2015

### **Department of Pharmacology, Emory University**

Kukar Research Lab- Principal Investigator: Dr. Tom Kukar

- Studying the role of progranulin and transcription factor EB on the development of frontotemporal dementia

Weinshenker Research Lab- Principal Investigator: Dr. David Weinshenker

- Using DREADDs as a tool to investigate the role of norepinephrine on cocaine drug-seeking behavior

Miller Research Lab- Principal Investigator: Dr. Gary Miller

- Exploring the role of VMAT2 on MPTP vulnerability in dopamine neurons

Dissertation Research: May 2015-Present

### **Department of Pharmacology, Emory University**

Traynelis Research Lab- Principal Investigator: Dr. Stephen Traynelis

- Studying the role of NMDA receptors in various encephalopathies

## Publications:

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Undergraduate:

Pagba, C.V., McCaslin, T.G., Veglia, G., Porcelli, F., Yohannan, J., Guo, Z., **McDaniel, M.J.** and Barry, B.A., 2015. A tyrosine-tryptophan dyad and radical-based charge transfer in a ribonucleotide reductase-inspired maquette. *Nature communications*, 6.

Graduate:

Lohr, K. M., Chen, M., Hoffman, C. A., **McDaniel, M. J.**, Stout, K. A., Dunn, A. R., ... & Miller, G. W. (2016). Vesicular monoamine transporter 2 (VMAT2) level regulates MPTP vulnerability and clearance of excess dopamine in mouse striatal terminals. *Toxicological Sciences*, kfw106.

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Ogden, K.K., Chen, W., Swanger, S.A., **McDaniel, M.J.**, Fan, L.Z., Hu, C, Tankovic, A., Kusumoto, H., Kosobucki, G.J., Schulien, A.J., Su, Z., Pecha, J., Bhattacharya, S., Cohen, A.E., Aizenman, E., Traynelis, S.F., Yuan, H. (2017) Molecular Mechanism of Disease-Associated Mutations in the Pre-M1 Helix of NMDA Receptors and Potential Rescue Pharmacology. *PLoS genetics*, 13(1), e1006536.

Regan, M. C., Grant, T., **McDaniel, M. J.**, Karakas, E., Zhang, J., Traynelis, S. F., ... & Furukawa, H. (2018). Structural Mechanism of Functional Modulation by Gene Splicing in NMDA Receptors. *Neuron*, 98(3), 521-529.

Gibb, A., Ogden, K. K., **McDaniel, M.J.**, Vance, K. M., Kell, S. A., Butch, C., ... & Traynelis, S. F. (2018). A structurally-derived model of subunit-dependent NMDA receptor function. *The Journal of physiology*. Advance online publication.

Wells, G., Yuan, H., **McDaniel M.J.**, Kusumoto, H., Snyder, J.P., Liotta, D.C., Traynelis, S.F. (2018). The GluN2B-Glu413Gly NMDA receptor variant arising from a *de novo* *GRIN2B* mutation promotes ligand-unbinding and domain opening. Manuscript submitted for publication.

## Presentations and Posters:

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### Undergraduate:

Pagba, C.V., Yohannan, J., McCaslin, T.G., **McDaniel, M.J.**, and Barry, B.A. (2013) Proton Coupled Electron Transfer in Biomimetic Beta Hairpin Peptides. Southeast Regional Meeting of the American Chemical Society "SERMACS", Atlanta, GA.

**McDaniel, M.J.**, Pagba C.V., Yonannan J., McCaslin, T.G., and Barry, B.A. (2014) Proton Coupled Electron Transfer as Explored by the Tryptophan Cation Radical Formation in Biomimetic Peptides. Undergraduate Research Spring Symposium, Atlanta, GA.

### Graduate:

**McDaniel, M.J.**, Ogden, K.K., Chen, W., Swanger, S.A., Fan, L.Z., Hu, C, Tankovic, A., Kusumoto, H., Kosobucki, G.J., Schulien, A.J., Su, Z., Pecha, J., Bhattacharya, S., Cohen, A.E., Aizenman, E., Traynelis, S.F., Yuan, H. (2016) Evaluation of NMDA Receptor Human Mutations Suggests a Role for Pre-M1 Helix in Gating. Society for Neuroscience, San Diego, CA.

**McDaniel, M.J.**, Ogden, K.K., Chen, W., Swanger, S.A., Fan, L.Z., Hu, C, Tankovic, A., Kusumoto, H., Kosobucki, G.J., Schulien, A.J., Su, Z., Pecha, J., Bhattacharya, S., Cohen, A.E., Aizenman, E., Traynelis, S.F., Yuan, H. (2016) Evaluation of NMDA Receptor Human Mutations Suggests a Role for Pre-M1 Helix in Gating. Molecular and Systems Pharmacology Research Symposium, Atlanta, GA.

**McDaniel, M.J.**, Gibb, A., Ogden, K.K., Hansen, K.B., Vance, K.M., Yuan, H., Traynelis, S.F. (2017) Exploring the Function of NMDA Receptors with Non-Identical GluN2 Subunits. 5<sup>th</sup> Annual iGluR Retreat, New Haven, CT.

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**McDaniel, M.J.**, Ogden, K.K., Kell, S., Traynelis, S.F. (2018) Control of NMDA receptor channel gating by the pre-M1 helix. 6<sup>th</sup> Annual iGluR Retreat, Pittsburgh, PA.

### **Teaching Experience:**

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Spring 2016

**Emory University, Atlanta, GA**

Graduate Teaching Assistant

- Drug Metabolism and Toxicology

Fall 2016

**Emory University, Atlanta, GA**

Tutoring first-year students on Molecular and Systems Pharmacology curriculum

### **Leadership Experience:**

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- Co-organizer for Biennial MSP Retreat, Fall 2015
- Co-organizer for 6<sup>th</sup> Biennial MSP Research Symposium, Spring 2017
- Lead-organizer for MSP Alumni Symposium, Summer 2017 and Summer 2018

### **Academic Awards:**

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- HOPE Scholarship, Fall 2010-Spring 2011
- Zell Miller Scholarship, Fall 2012-May 2014
- Faculty Honors, Fall 2010, Fall 2013, Spring 2014
- Dean's List, Spring 2011-Spring 2013
- Graduated with Highest Honors
- Pharmacological Sciences Training Grant, Fall 2015-Fall 2016
- MSP Research Symposium, Poster Award: 2<sup>nd</sup> place, Spring 2017
- F31-Ruth L. Kirschstein Predoctoral Individual National Research Service Award, Spring 2018