

Marie Michenkova
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EDUCATION

Master of Science in Biomedical and Health Informatics, Spring 2022 (Expected)

Case Western Reserve University; Cleveland, OH

GPA: 4.0

Bachelor of Science in Neuroscience, 2019

University of Alabama at Birmingham; Birmingham, AL

GPA: 3.89; High Distinguished Honors in Science & Technology; Magna Cum Laude

RESEARCH EXPERIENCE

Michael Decker, Ph.D. – CWRU Center for Aerospace Physiology

MS thesis (start: 05/2021)

- Collect and analyze blood serum for inflammatory markers in response to stress in US Air Force Instructor Pilots (IPs), post-sortie
- Assess cognitive performance in IPs (e.g. Multidimensional Fatigue Inventory)
- Evaluate PFC brain activity through fNIRS
- Develop Bayesian statistical models (using R) to interpret these results

Walter Boron, MD, PhD. – CWRU Department of Biophysics and Physiology

Research Assistant 2 (05/2019 – present), Research Technician 3 (10/2018 – 05/2019)

- Execute non-survival mouse surgery to isolate renal proximal tubules (PTs) in compliance with IACUC
- Craft a set of concentric glass pipettes for perfusion and luminal collections
- Apply this set of pipettes, along with a set of various buffer solutions, to perfuse PTs and collect luminal perfusate
- Use of NanoFlo microfluorometer to assess bicarbonate reabsorption, $J_{\text{HCO}_3^-}$
- Perform C^{14} -inulin assays to determine fluid reabsorption, J_v
- Use R programming language to analyze RNAseq and generating plots

Mark O. Bevensee, Ph.D. – UAB Department of Cell, Developmental and Integrative Biology (CDIB)

Undergraduate Research Assistant (08/2016 – 08/2018)

- Care for and handle amphibians in compliance with IACUC
- Execute survival amphibian surgery to isolate oocytes
- Isolate cRNA for microinjection into oocytes
- Perform gel electrophoresis, qPCR, and DNA/RNA isolation
- Utilize two-electrode voltage clamp to assess ion transporter functionality in oocytes
- Perform single-oocyte chemiluminescence assay to determine functional expression at the cell membrane
- Assess pH with pH-sensitive dyes and microelectrodes
- Analyze and visualize data with GraphPad Prism and MS Excel

Laurence Bradley, Ph.D. – UAB School of Medicine Division of Clinical Immunology and Rheumatology

BS Thesis (08/2014 – 04/2018)

- Recruit and screen UAB participants

- Administer informed consent
- Direct cognitive and pain-sensitive assessments
- Develop and manage electronic database (RedCap) for data entry of sleep, mood, and pain-related questionnaires
- Assist during X-rays, MRI, and fMRI
- Training: CITI modules, HIPAA, IRB compliance

Mark O. Bevensee, Ph.D. & Lynn E. Dobrunz, Ph.D. – UAB CDIB and UAB Department of Neurobiology

Undergraduate Neuroscience Program Summer Research Academy Scholar (04/2017 – 08/2017)

- Execute mouse surgery to isolate brain tissue
- Section murine brain tissue by vibrating microtome
- Perform extracellular hippocampal recordings

PUBLICATIONS

Michenkova M et al. 2021 Carbon dioxide transport across membranes. *Interface Focus* 20200090. (doi: <https://doi.org/10.1098/rsfs.2020.0090>)

Boron WF, Bevensee MO, Thornell IM, **Michenkova M**, Taki S. 2021 Control of intracellular pH. In *Seldin and Giebisch's The Kidney: Physiology & Pathophysiology*, 6th edition. Academic Press. (Invited chapter; in preparation)

Michenkova M, Taki S, Boron WF. 2021 CO₂ sensing. *Frontiers in Physiology*. (Invited review; in preparation)

Michenkova M, Hossain R, Dowling A. 2021 Perturbation of COVID-19 to health care information systems. (In preparation)

Kusko D, Deutsch G, Deshpande R, Lai S, Staud R, **Michenkova M**, Gonzalez CE, Huang T, Sibille KT, Fillingim RB, Goodin BR. 2021 Functional Brain Imaging During Rest and Pain: Differences According to Race and Knee Osteoarthritis. (In preparation)

Michenkova M & Bradley L. 2019 Cerebral Blood Flow Imaging in Osteoarthritis [*thesis*, BS in Neuroscience].

PRESENTATIONS

Cleveland Kidney Group, Oral presentation (March 2021)

Michenkova M. The roles of ANG II and AT_{1A} receptor on the CO₂- and HCO₃⁻ -induced effects on HCO₃⁻ reabsorption by mouse PTs; March 2021; Cleveland, OH.

Experimental Biology (April 2018)

Michenkova M, Thornell IM, Peng JB, Bevensee MO. The oculocerebrorenal syndrome of Lowe protein (OCRL) inhibits the Na/Bicarbonate cotransporter NBCe1 expressed in *Xenopus laevis* oocytes. Poster session presented at Experimental Biology; April 2018; San Diego, CA.

UAB Summer Research Academy oral presentation (August 2017)

Michenkova M, Dobrunz LE, Bevensee MO. Regulation of pH via electrogenic sodium-bicarbonate cotransporter (NBCe1) in ischemia. Oral presentation at: UAB Summer Research Honors Academy; August 2017; Birmingham, AL.

The 29th Annual Ost Undergraduate Research Competition (April 2017)

Michenkova M, Goodin BR & the Understanding Pain and Limitations in Osteoarthritic Disease (UPLOAD) Study Team. Obesity and symptomatic knee osteoarthritis. Poster session presented at: Ost Undergraduate Research Competition; April 2017; Birmingham, AL.

University of Alabama at Birmingham EXPO (April 2017)

Michenkova M, Goodin BR & the Understanding Pain and Limitations in Osteoarthritic Disease (UPLOAD) Study Team. Obesity and symptomatic knee osteoarthritis. Poster session presented at: UAB Spring 2017 EXPO; April 2017; Birmingham, AL.

ABSTRACTS

Michenkova M, Thornell IM, Peng JB, Bevenssee MO. The oculocerebrorenal syndrome of Lowe protein (OCRL) inhibits the Na/Bicarbonate cotransporter NBCe1 expressed in *Xenopus laevis* oocytes [abstract]. In Experimental Biology; April 2018; San Diego, CA.

PROFESSIONAL AFFILIATIONS

American Statistical Association
American Physiological Society
American Society of Nephrology

ACADEMIC HONORS AND AWARDS

American Society of Nephrology, Kidney STARS Award Recipient (2020)
Presidential Honor Roll (2016 – 2018)
Science and Technology Honors Program Scholar (2014 – 2018)
Undergraduate Neuroscience Program Scholar (2014 – 2018)
UAB International Student Scholarship (2014 – 2018)
UAB Undergraduate Neuroscience Program Research Academy Scholar (2017)
Patsy W. Collat Endowed Scholarship in Neuroscience (2017)
Dr. Aaron Lamar Scholarship (2017)
Science and Technology Honors Program Summer Scholarship (2017 – 2015)
International Undergraduate Academic Excellence Award (2016)
Joseph F. Volker International scholarship (2016)
College of Arts and Sciences Dean's Scholarship (2016)
National Alumni Society Dean's Scholarship (2015)
Caroline and Charles W. Ireland International Student Scholarship (2015)

EXTRACURRICULAR ACTIVITIES AND COMMUNITY SERVICE

CWRU COVID-19 Vaccination site, Volunteer (04/2021 – 05/2021)
Moderator and Judge for CWRU Undergraduate Research Symposium (SOURCE) (05/2021, 12/2020)
NephSim Nephrons Program (12/2020 – 12/2021)
Reviewer of CWRU's Summer Undergraduate Research Program applications SOURCE (03/2021)
COVID-19 Data Project Internship (10/2020-02/2021)
American Sign Language Level II (01/2020 – 04/2020)
American Sign Language Level I (10/2019 – 12/2019)
Equal Access Birmingham clinic, Volunteer (2017 – 2018)
UAB 3MT Thesis Competition, Judge (2017)
Delta Phi Omega, Philanthropy - Children's Education and Literacy (2016 – 2018)
American Red Cross volunteer and UAB Blood Drive organizer (2016 – 2017)

UAB Ambassador Program (2016 – 2017)
UAB Undergraduate Neuroscience Program Ambassador (2016 – 2017)
UAB Resident Assistant (2015 – 2017)
Alabama Brain Bee, Director (2014 – 2017)
Physician Shadowing – 100 hours (2014 – 2017)
UAB Honors College Leadership Council, President (2015 – 2016)
UAB New Student Orientation Leader (2015 – 2016)
UAB Student Alumni Society Leadership Council, member (2014-2016)
Central Alabama Regional Science & Engineering Fair, Judge (2015)
UAB Science Olympiad, Volunteer and Proctor (2015)

EMPLOYMENT HISTORY

Department of Physiology and Biophysics (05/2019 – present)

Research Assistant II – Boron Lab
Case Western Reserve University

Department of Physiology and Biophysics (10/2018 – 05/2019)

Lab Technician III – Boron Lab
Case Western Reserve University

Department of Chemistry (01/2017 – 04/2018)

Teaching Assistant
University of Alabama at Birmingham

Science and Technology Honors Program (08/2017 – 04/2018)

Teaching Assistant
University of Alabama at Birmingham

Starbucks Corporation (08/2014 – 04/2018)

Certified Barista
Birmingham, AL

International Student and Scholar Services (08/2014 – 08/2015)

Student Assistant
University of Alabama at Birmingham