CATHERINE FONDER
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EDUCATION

PhD. Iowa State University — September 2019 - Present
Major: Molecular, Cellular, and Developmental Biology
GPA: 4.0/4.0

BS University of Wisconsin – Green Bay — May 2019
Double major: Human Biology and Psychology
Emphasis in Health Sciences GPA:
3.6/4.0

HONORS AND AWARDS

David Gladson Scholarship Award — 2022
Brown Graduate Fellowship Award — 2021-2022
David Gladson Scholarship Award — 2021
Semester Highest Honors Spring — 2018
Semester Honors Fall & Spring — 2017

RESEARCH EXPERIENCE

Research Assistant, Iowa State University — 09/2019 – Present
Advisor: Dr. Don Sakaguchi

- Conduct studies evaluating the effect of external stimulation, focusing on the effect of electrical and magnetic stimulation, on the growth and differentiation of neural stem cells.
- Develop a Lung-on-Chip platform which will allow for an On-Chip evaluation of cellular responses to drug treatment to act as a drug screening platform for respiratory diseases
- Skills developed in this lab include: mammalian cell culture techniques, immunocytochemistry analysis, fluorescence and confocal microscopy analysis, and data collection and analysis.

Research Study, University of Wisconsin – Green Bay — 01/2019 – 05/2019
Advisor: Dr. Brian Merkel

- Research Assistant
- Study is looking to determine the effects of Echinacea supplements on the immune system. The neutrophil count of blood samples is taken both before and after one week of subjects taking echinacea supplements twice a day for one week and the neutrophil activation is measured.
- Skills developed as a result of working with this study include: understanding of working with the IRB due to working with human subjects, cell isolation, solution production, and data analysis.

TEACHING EXPERIENCE

Iowa State University, Ames, IA 08/2022 – 12/2022
Teaching Assistant, Biology

- Duty to instruct one session per week for the BIO 211 – Principles of Biology I Laboratory course designed for undergraduate Biology program students.
- Course content consists of plant and animal biodiversity, evolution, and ecology.

Iowa State University, Ames, IA 08/2020 – 12/2020
Teaching Assistant, Biology

- Duty to instruct two sessions per week for the BIO 211 – Principles of Biology I Laboratory course designed for undergraduate Biology program students.
- Course content consists of plant and animal biodiversity, evolution, and ecology.

University of Wisconsin – Green Bay, Green Bay, WI 01/2019 – 05/2019
Teaching Assistant, Chemistry

- Duty to hold study sessions for the course Bioorganic Chemistry once a week for the Spring 2019 semester.
- Course content consists of about $^{2}/_{3}$ of the semester focusing on topics organic chemistry and about $^{1}/_{3}$ on biochemistry topics.

CONFERENCES ATTENDED

Neuroscience 2021, the 50 Annual Meeting of the Society for Neuroscience, 11/2021

iBIO2 Virtual Symposium, 9/2021

18th Annual UW System Symposium for Undergraduate Research, Scholarly, and Creative Activity, 4/2019

Research Methods in Psychology Poster Session, 12/2017

ABSTRACT PRESENTED AT MEETINGS

C. Fonder, R. Yang, T. Sylvester, S. Peng, L. Que, D. Sakaguchi. Development of a Microfluidic 'Brain-on-Chip' Device as an *in vitro* Platform for 3D Neural System Development and Analysis. Presented at Neuroscience 2021, the 50 Annual Meeting of the Society for Neuroscience November 9, 2021

C. Fonder, R. Yang, T. Sylvester, S. Peng, L. Que, D. Sakaguchi. Development of a Microfluidic 'Brain-on-Chip' Device as an *in vitro* Platform for 3D Neural System Development and Analysis. Presented at iBIO2 Virtual Symposium September 1, 2021

Gordon R., Patel K., Behrens H., and Fonder C. The Effects of Oral Consumption of Echinacea on Human Neutrophils. Presented at 18th Annual UW System Symposium for Undergraduate Research, Scholarly, and Creative Activity, April 26, 2019

Fonder C., Sarkauskas M., Robbins A., Waupoose P. and Gurung R. Media News Can Either Make or Break Your Day. Presented at Research Methods in Psychology Poster Session December 7, 2017

PUBLICATIONS IN PREPARATION

Fonder C., Uz M., Mallapragada S., and Sakaguchi D. *Electrical Stimulation and the Differentiation of Neural Stem Cells and The Transdifferentiation of Mesenchymal Stem Cells for Nervous System Rescue and Repair Strategies*. In: Turksen K. (eds) Cell Biology and Translational Medicine, Advances in Experimental Medicine and Biology

PUBLICATIONS

Yang R., Fonder C., Sylvester T., Peng S., Jiles D., Sakaguchi D., and Que L. *A Microfluidic Chip for Growth and Characterization of Adult Rat Hippocampal Progenitor Cell Neurospheroids*. In: Journal of Microelectromechanical Systems (Volume: 31, Issue: 1, Feb. 2022)

Mao S., Fonder C., Rubby F., Yang, R., Phillips G., Sakaguchi D., and Que L. *A Microchip for Studying the Effects of Dopamine and Its Precursor on Neurospheroids*. In: 35th International Conference on Micro Electro Mechanical Systems (IEEE MEMS 2022) (January 9-13, 2022).