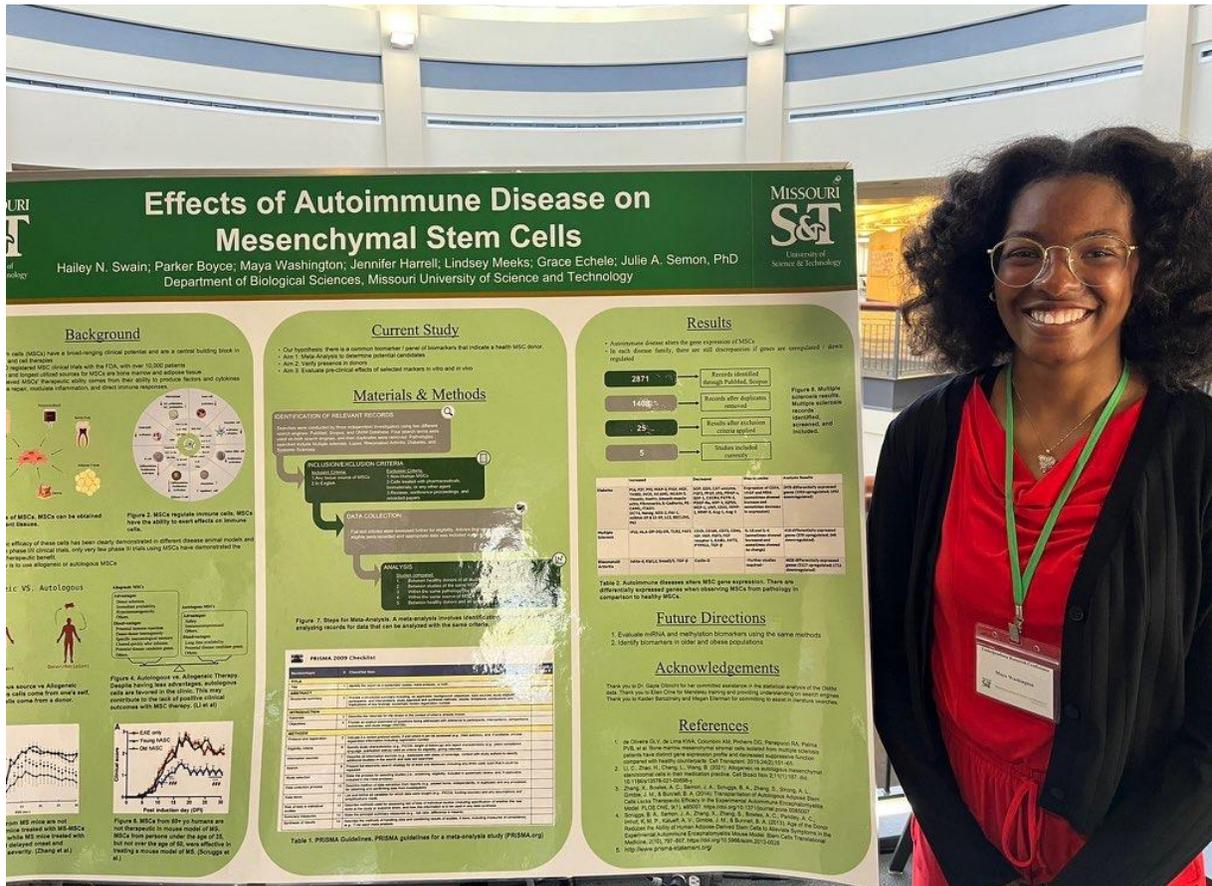


18th Annual Undergraduate Research Conference



Maya Washington presented “Effects of Autoimmune Disease on Mesenchymal Stem Cells” at the April 14th, 2022, Undergraduate Research Conference. Despite the promising pre-clinical studies of mesenchymal stem cells, or MSCs, in autoimmune disease, clinical results aren't quite as promising. Our hypothesis is that the lack of success in the clinic, at least partially, is due to the use of autologous cells to treat autoimmune disease, and MSCs from autoimmune patients aren't as therapeutic as MSCs from normal healthy patients. The aim of this project is to: 1) evaluate the effects of autoimmune diseases on MSCs and 2) identify biomarkers from non-therapeutic MSCs. The results from this study will provide insight as to the success, and lack thereof, of MSCs in the clinic.

Maya Washington is currently working on applying to medical school by studying for the MCAT and building interpersonal relationships with medical professionals in various specialties. She aims to apply knowledge acquired from working at an urgent care to her daily life.

A celebration of experiential learning at Missouri S&T

April 13, 2023
Havener Center



18th Annual Undergraduate Research Conference April 13, 2023

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18th Annual Undergraduate Research Conference

8:30am – 9:00am	<p>Registration (Upper Atrium)</p>
9:00am – 12:00pm	<p>Oral Sessions Arts & Humanities --- Engineering --- Social Sciences (Ozark Room)</p>
9:00am – 12:00pm	<p>Poster Sessions Engineering --- Sciences (section 2) (Upper Atrium)</p>
12:00pm – 1:00pm	<p>Welcome – Dr. Colin Potts Provost and Executive Vice Chancellor for Academic Affairs</p> <p>Luncheon & Keynote Address Dr. Michael Dennin University of California Irvine Professor of Physics and Astronomy Vice Provost for Teaching and Learning Dean of Division of Undergraduate Education</p> <p>Presents “A Random Walk through Physics Research: My Journey from Undergraduate Research to Vice Provost” (St. Pat’s B Ballroom)</p>
1:00pm – 4:00pm	<p>Oral Sessions Sciences (Ozark Room)</p>
1:00pm – 4:00pm	<p>Poster Sessions Research Proposals --- Sciences (section 1) --- Social Sciences (Upper Atrium)</p>
3:00pm – 4:00pm	<p>Reception (St. Pat’s B Ballroom)</p>
4:00pm – 5:00pm	<p>Awards Ceremony (St. Pat’s B Ballroom)</p>

*Judges Conference Room – (Mark Twain)

Keynote Speaker

Dr. Michael B. Dennin

Professor of Physics & Astronomy
 Dean of Division of Undergraduate Education
 Vice Provost for Teaching and Learning

Presents

“A Random Walk through Physics Research: My Journey from Undergraduate Research to Vice Provost”

Professor Dennin has been Professor of Physics and Astronomy at the University of California Irvine, since 1997, and was appointed the Vice Provost for Teaching and Learning and Dean, Division of Undergraduate Education in May 2015. He received his Bachelor’s Degree in Physics from Princeton University, and his PhD and Masters in Physics from UCSB. His research focuses on the dynamics of foams, Langmuir monolayers, modeling of ice mélange, and institutional issues in education. The studies in complex fluids are crucial for many applications including foam use in oil recovery as well as granular matter in the form of powders and pills in the medical industry. He is a Fellow of the American Physical Society, a Sloan Research Fellow and a Research Corporation Cottrell Scholar. He is a recipient of UCI Senate awards in all three categories: UCI Senate Distinguished mid-Career Award for Service, UCI Senate Distinguished Faculty Award for Teaching, and UCI Senate Distinguished Assistant Professor Award for Research. Professor Dennin has been very active in translating educational research to practical applications within the university. He is dedicated to public outreach in the area of science – teaching a number of Massive Open Online Courses (MOOCs), including co-teaching one based on the AMC television program *The Walking Dead*. He has appeared on numerous television programs – including *Science of Superman*, *Spider-man Tech*, *Batman Tech*, *Star Wars Tech*, and *Ancient Aliens*. You can find Prof. Dennin in the YouTube series *Fascinating Fights* (<http://bit.ly/1GDKVex>) debating the outcome of battles between pop icons. In addition, Prof. Dennin serves as an expert on the podcast *Fascinating Gadgets, Gizmos, and Gear-Based Technologies* where he explains how to make fictional technology a reality (<http://fgggbt.com>). Recently, he published a science outreach book on the intersection between science and faith: *Divine Science: Finding Reason at the Heart of Faith*, from Franciscan Media.



Conference Judges

The Office of Experiential Learning wishes to thank the faculty, staff, and students for their valuable contributions to the 18th Annual Missouri S&T Undergraduate Research Conference.

Dr. Viraj Ashok Athavale of Materials Science & Engineering

Dr. Aleksandr Chernatynskiy of Physics

Dr. Michael Dennin of University of California Irvine

Dr. Petra DeWitt of History & Political Science

Dr. Xiaosong Du of Mechanical & Aerospace Engineering

Dr. David Duvernell of Mechanical Engineering

Dr. Fateme Fayyazbakhsh of Mechanical & Aerospace Engineering

Dr. Rainer Glaser of Graduate Studies

Dr. Michel Gueldry of Arts, Languages, & Philosophy

Dr. Karen Head of English & Technical Communication

Dr. Halyna Hodovanets of Physics

Dr. Chulsoon Hwang of Electrical & Computer Engineering

Dr. Irina Ivliyeva of Arts, Languages, & Philosophy

Dr. Rachel Kohman of Kummer Institute

Dr. Kelly Liu of Geology & Geophysics

Mr. Michael Pleimann of Undergraduate Education

Dr. Daniel Reardon of Undergraduate Education

Ms. Elizabeth Roberson of English & Technical Communication

Dr. Andrea Scharf of Biological Sciences

Dr. Katie Shannon of Biological Sciences

Dr. Jose Sebastian Uribe Lopez of Chemical & Biochemical Engineering

Dr. Davide Viganò of Mechanical & Aerospace Engineering

Dr. Dave Westenberg of Biological Sciences

Oral Presentations

Thursday – April 13, 2023

Arts and Humanities

Name	Department	Time	Location
Brileigh Cates	Applied Mathematics	9:00-9:15AM	Ozark

Engineering

Name	Department	Time	Location
Grace Duong	Environmental Engineering	9:15-9:30AM	Ozark
Joshua Gary	Aerospace Engineering	9:30-9:45AM	Ozark
Jackson Piontek	Metallurgical Engineering	9:45-10:00AM	Ozark
Lucas Rackers	Ceramic Engineering	10:00-10:15AM	Ozark

Sciences

Name	Department	Time	Location
Hannah Bahn	Chemistry	1:00-1:15PM	Ozark
Megan Benkendorf	Applied Mathematics	1:15-1:30PM	Ozark
Samuel Hackett	Chemistry	1:30-1:45PM	Ozark
Maryann Lee	Geology and Geophysics	1:45-2:00PM	Ozark
Darrien McKenzie	Computer Science	2:00-2:15PM	Ozark
Gabriel Neura	Nuclear Engineering	2:30-2:45PM	Ozark
Shay Pelfrey	Biological Sciences	2:45-3:00PM	Ozark
Logan Sowadski	Physics	3:00-3:15PM	Ozark
Reece Beattie-Hauser Jonathan House	Physics	3:15-3:30PM	Ozark
Alexis Baiter Kathryn Zychinski	Biological Sciences	3:30-3:45PM	Ozark

Social Sciences

Name	Department	Time	Location
Jessica Frame	Psychology	10:30-10:45AM	Ozark

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Poster Presentations

Thursday – April 13, 2023

Engineering

Poster #	Name	Department	Time	Location
1	Jack Arbuckle	Engineering Management	9:00AM – 12:00PM	Upper Atrium
2	Joshua Caruso	Computer Science	9:00AM – 12:00PM	Upper Atrium
3	Kassandra Hayes	Chemical Engineering	9:00AM – 12:00PM	Upper Atrium
4	Aniruddh Kommareddy	Mechanical Engineering	9:00AM – 12:00PM	Upper Atrium
5	Caleb Moellenhoff	Chemical Engineering	9:00AM – 12:00PM	Upper Atrium
6	Wesley Moore	Nuclear Engineering	9:00AM – 12:00PM	Upper Atrium
7	Joseph Nguyen	Mechanical Engineering	9:00AM – 12:00PM	Upper Atrium
8	Evonne Siampos	Computer Engineering	9:00AM – 12:00PM	Upper Atrium
9	Kelly Zipfel	Environmental Engineering	9:00AM – 12:00PM	Upper Atrium
10	Ezekiel Allen Michael Davis	Electrical Engineering	9:00AM – 12:00PM	Upper Atrium
11	Daniel Barbosa Jack Lackman	Aerospace Engineering	9:00AM – 12:00PM	Upper Atrium
12	Brendan Crotty Avery Lyons	Mechanical Engineering Engineering Management	9:00AM – 12:00PM	Upper Atrium

Research Proposal

Poster #	Name	Department	Time	Location
13	Allie Dingfield	Mechanical Engineering	1:00 – 4:00PM	Upper Atrium
14	Chase Johnson	Engineering Management	1:00 – 4:00PM	Upper Atrium
15	Carly Fox Madison Holly	Chemical Engineering	1:00 – 4:00PM	Upper Atrium
16	James Barklage Josh Schmidt	Electrical Engineering	1:00 – 4:00PM	Upper Atrium

Sciences – section 1

Poster #	Name	Department	Time	Location
17	Emily Butts	Biological Sciences	1:00 – 4:00PM	Upper Atrium
18	Jesse Camacho	Chemical Engineering	1:00 – 4:00PM	Upper Atrium
19	Natalie Cummins	Biological Sciences	1:00 – 4:00PM	Upper Atrium
20	Autym Decker	Chemistry	1:00 – 4:00PM	Upper Atrium
21	Katharine Gray	Chemistry	1:00 – 4:00PM	Upper Atrium
22	Andrew Madsen	Physics	1:00 – 4:00PM	Upper Atrium
23	Jackson Marlett	Physics	1:00 – 4:00PM	Upper Atrium
24	Kaitlin Miles	Chemistry	1:00 – 4:00PM	Upper Atrium
25	Justin Nulsen	Chemistry	1:00 – 4:00PM	Upper Atrium
26	Amelia Pearson	Biological Sciences	1:00 – 4:00PM	Upper Atrium
27	Gabriel Riddle	Physics	1:00 – 4:00PM	Upper Atrium
28	Yaroslav Rynza	Chemical Engineering	1:00 – 4:00PM	Upper Atrium
29	Samuel Schrader	Physics	1:00 – 4:00PM	Upper Atrium
30	Matthew Shannon	Nuclear Engineering	1:00 – 4:00PM	Upper Atrium
31	Kazuma Taira	Biological Sciences	1:00 – 4:00PM	Upper Atrium
32	Elena Zobel	Biological Sciences	1:00 – 4:00PM	Upper Atrium

Sciences – section 2

Poster #	Name	Department	Time	Location
33	Amelia Markwell Brooke McCartney	Biological Sciences	9:00AM – 12:00PM	Upper Atrium
34	Christian Bigler Heath St. Dennis	Biological Sciences	9:00AM – 12:00PM	Upper Atrium
35	Zachary Alton Carly Brown	Physics	9:00AM – 12:00PM	Upper Atrium
36	Jamie Christensen Eric Deck Bennet Scott Dillon Thompson	Chemistry	9:00AM – 12:00PM	Upper Atrium
37	Emma Puetz Audrey Williams	Geology and Geophysics	9:00AM – 12:00PM	Upper Atrium
38	Erik Bergstrom Clare Koerkenmeier Molly Ripper Phuong Tran	Biological Sciences	9:00AM – 12:00PM	Upper Atrium
39	Arrie Gamble Rhys Timpe Sage Wood	Biological Sciences	9:00AM – 12:00PM	Upper Atrium

Social Sciences

Poster #	Name	Department	Time	Location
40	Sophie Firle Gemma Flores-Olivas	Psychology	1:00 – 4:00PM	Upper Atrium

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