

# 2022 CANNABIS RESEARCH CONFERENCE

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- Cannabis Cultivation July 20th, Dr. Sanghyuck Park


The Institute of Cannabis Research is accepting donations to support future cannabis research. You, our friends, colleagues and supporters, have the ability to help us continue with cutting edge research by donating to the ICR Research Fund. Please consider contributing to this important research to enhance our understanding of the applications and impacts of cannabis. All donations contributed are tax deductible. Please consider a year-end donation or feel free to contact the Foundation Office to learn of donations through wills, trusts, and etc.




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**2022 VIRTUAL CANNABIS RESEARCH CONFERENCE**  
AUGUST 8-10




 **A Virtual, Three-Day Conference**
 **Gain Valuable Insights**
 **Live Q & A with Cannabis Experts**

**THE CONFERENCE  
FEATURED SPEAKERS**



**LINDA A PARKER, PHD**  
MECHOULAM LECTURE



**RACHEL KNOX, MD, MBA**  
KEYNOTE

**Explore new cannabis research frontiers...**

This multi-disciplinary, three-day virtual conference attracts attendees both nationally and internationally.

The Cannabis Research Conference comprehensively explores the latest in cannabis science and innovation for applications in medicines, foods, materials, and textiles that can improve people's lives and better society.

The 2022 Virtual Cannabis Research Conference allows you to connect with the brightest innovators.

This virtual research conference will focus on unique and timely topics and will feature:

- Nearly 100 Live and On-Demand Presentations
- Virtual Poster Hall
- Much More!

There is no better time or place to connect with cannabis experts from around the globe while actively planning new research and business ventures.

**PROGRAM AREAS**

- Genetics, Growth, and Culture
- Human Health
- Quality Control, Chemistry & Analytics
- Livestock & Companion Animals
- Business & Economic Development
- Policy & Legal Landscape
- Materials & Product Manufacturing

**REGISTER NOW**

Questions? Contact:  
conferences@dplump.com

# ICR DIRECTOR



**Dr. Jeff Smith**

## Introduction of our New Interim Director of the Institute of Cannabis Research

The ICR is poised to welcome new leadership. After a little more than 4 years serving as Director of the ICR, Dr. Chad Kinney will be stepping away to serve as the Interim Provost at Colorado State University Pueblo, the host institution of the Institute. The ICR is fortunate to welcome Professor Jeff Smith as the Interim Director of the ICR. Dr. Smith is an accomplished neuroscientist with research expertise focused on learning and memory and neurodegenerative diseases. This includes multiple publications

in cannabis-related research (Montoya et al., 2020 in the *Journal of Cannabis Research*; Uhernik et al., 2018 in *Neurobiology of Learning and Memory*).

Dr. Smith's connection to the ICR is not new. He was part of the team that created the vision which led to the establishment of the ICR in 2016, as well as helped provide early leadership of the ICR as a member of the Institute's Steering Committee. Further, Professor Smith is an experienced leader on the CSU Pueblo campus as a former Director of the graduate program in the Biology Department and as the Chair of Biology. Dr. Smith will bring this expertise and experience to bear as the interim Director of the ICR. With the support of the ICR Staff, the ICR Governing Board, and continued guidance from Dr. Kinney, the Institute is positioned for continued success, growth, and impact.



## Journal of Cannabis Research

The *Journal of Cannabis Research* (JCR) is the official publication of the Institute of Cannabis Research. It is the only broadly multidisciplinary journal of cannabis research, encompassing not only clinical and scientific research, but also research into social, business, economic, legal, environmental, and ethical impacts of cannabis use and the changing legal status of cannabis. To learn more about the aims and scope of the journal as well as submission guidelines, please visit: [Journal of Cannabis Research](#)

Please see two recent articles here:

- [Characteristics of the Washington cannabis market from 2014 to 2016](#)
- [Development of scales to measure Lebanese university students' perceived knowledge about and attitudes about cannabis use: initial psychometric properties](#)



# ICR GOVERNING BOARD



**Dr. Sue Sisley**

## Introducing Dr. Sue Sisley, Member of the ICR Governing Board

Dr. Sue Sisley MD is an Arizona-based Internal Medicine/Psychiatry physician. Sue is also known for her pioneering policy reforms/efforts to end barriers to plant/fungi research.

She served as volunteer medical director for over 40 state Cannabis Industry operating licenses from Hawaii to New Jersey since 2009.

Sue has been fighting for quality real-world cannabis/mushroom samples to conduct FDA clinical trials. She is President of Scottsdale Research Institute & best known for FDA controlled trials with Vets & 1st responders examining safety/efficacy of inhaled marijuana flower for treating severe pain and PTSD. Sue has been conducting studies and

publishing outcomes on Cannabis for opioid reduction/substitution with colleagues at the University of Michigan College of Medicine.

Dr. Sisley has levied 3 Federal lawsuits against the DOJ/DEA over past few years to remove barriers blocking Cannabis/Botanical research. Each petition was successful in chipping away at this 52 year old government-enforced NIDA monopoly. The culmination of these Federal court cases resulted in Dr. Sisley finally being awarded her own DEA Schedule 1 bulk Manufacturer License which allows growing her own Cannabis Flower for any FDA-approved clinical trials.

The acquisition of this Federal Cannabis cultivation license represents a dream that she shared with her mother Hanna Sisley MD who was a renowned primary care physician — they were in practice together for 20 years serving as the only mother-daughter physician team in all of Arizona.

Only months later Dr. Sisley was granted the 1st DEA Schedule 1 Manufacturing License for natural psilocybin mushrooms (not synthetic production).

Dr. Sisley serves as President/Founder of Field to Healed Foundation, a 501c3 arm of SRI dedicated to studying botanical medicines for veterans & police/fire/EMTs to evaluate safety/efficacy of cannabis & psilocybin mushrooms for treating PTSD, pain, and potential for opioid reduction/substitution. SRI is cultivating both whole cannabis and whole psilocybin mushrooms — striving to meet GMP criteria for use in future clinical trials.... Preparing drug master files to submit to FDA for both. SRI can convert any of these harvests into extracted oil or tincture or distillate etc. With psilocybin mushrooms SRI has created a cryogenic extraction technique that can isolate the Psilocybin & Psilocin for precision dosing.

# ICR RESEARCH

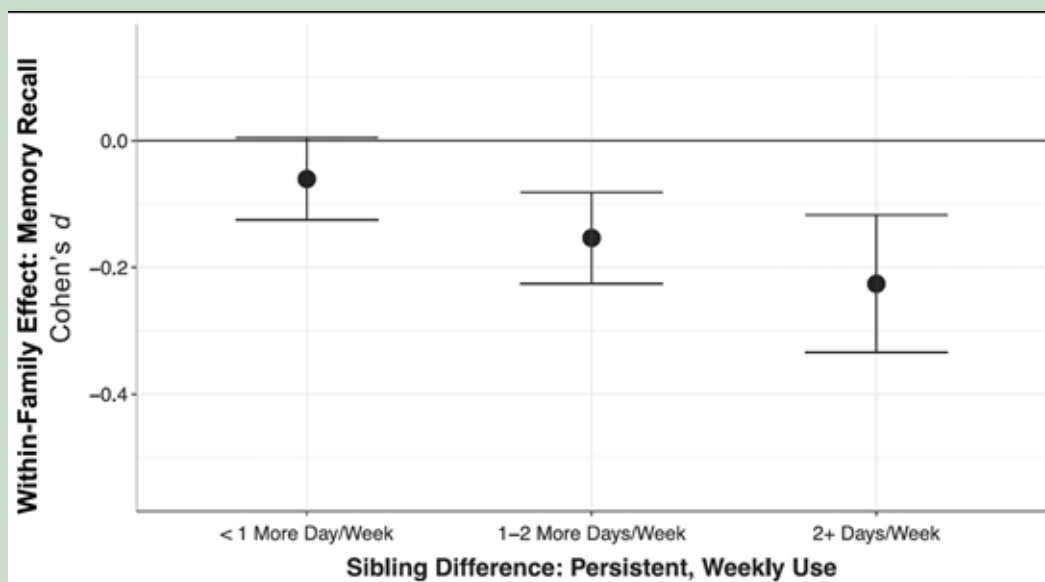
## Dr. Jarrod Ellingson, Assistant Professor, University of Colorado Anschutz Medical Campus

Dr. Jarrod Ellingson is an Assistant Professor in the Department of Psychiatry's Division of Addiction Science at the University of Colorado Anschutz Medical Campus. His research program leverages a rigorous study design to disentangle the consequences of cannabis use from important confounds. For example, comparing siblings to each other to control familial confounds, he has tested whether using more cannabis than one's siblings is associated with proportionally worse cognitive or mental health outcomes. Findings from these studies suggest that familial confounds cannot explain some long-term effects of cannabis use on decreased memory recall. However, these effects are not present when participants tend to use infrequently (e.g., 1-2 times/month), suggesting these consequences may rely on frequent use.

While informative, these and similar studies in the literature are limited in two important ways. First, they rely on subjective self-report of cannabis use. This



Dr. Jarrod Ellingson



limitation can be overcome by examining objective measures of cannabinoid exposure. Examining cannabinoid exposure also handles the substantial variability in the THC potency of cannabis products. Second, these effects have only been examined on a long-term scale e.g., past six months' use affecting mental health). To the extent that long-term effects exist, they may be driven by shorter-term effects of use. There are virtually no studies in the literature, family-controlled or otherwise, that examine the short-term effects of cannabis use. Thus, Dr. Ellingson's work, currently supported by a pilot grant from the Institute of Cannabis Research (ICR), examines the short-term effects of early-life cannabis use while controlling familial and individual confounds.

For this pilot study, Dr. Ellingson is recruiting individuals and sibling pairs in the Denver Metropolitan area to examine the mental health effects of early-life cannabis use. Participants complete three appointments, each assessing cannabinoid blood levels, other drug use, cognitive functioning, and psychiatric symptoms. Using these data, he will test whether participants with heavier cannabis use have worse mental health functioning, on average, compared to their siblings. Further, he is examining the short-term effects of adolescent cannabis use, such as whether functioning is affected by cannabis use in the days before the assessment. Findings will have implications for the short effects of cannabinoid exposure, including high-potency products, on daily functioning.



# UPCOMING WEBINARS



**Institute of Cannabis Research**  
at Colorado State University Pueblo

**Cannabis  
Research  
Webinar  
Series**



**Jefferson**  
Thomas Jefferson University

**Lambert Center for  
the Study of Medicinal  
Cannabis & Hemp**

**July Webinar:** The ICR and Lambert Center are pleased to host Professor Cecilia Hillard for the webinar on July 14th at 1:00PM MST [Register Here:](#)

**Title:** "Title: The role of endocannabinoid signaling in the regulation of mood and responses to stress"



**Dr. Cecilia J. Hillard**

Professor Cecilia Hillard is the Director of the Neuroscience Research Center and Associate Dean for Research at the Medical College of Wisconsin. As a highly active researcher, Dr. Hillard's laboratory primarily focuses on the pharmacology and biochemistry of cannabinoids and endocannabinoids. Her research focuses on cannabinoids, the receptors with which they interact, and the role of endocannabinoids in brain function, including biochemical mechanisms involved in the synthesis, release, and degradation of the endocannabinoids, the role of endocannabinoid signaling in the regulation of mood and responses to stress, and the roles of cannabinoids in the regulation of the immune response. Dr. Hillard is frequently named an Outstanding Medical Student Teacher, takes an active role in training and mentorship, and is the recipient of the Medical College of Wisconsin's highest honor, the Distinguished Service Award. In addition, Dr. Hillard was recently awarded the Lifetime Achievement Award from the International Cannabinoid Research Society.

**September Webinar:** The ICR and Lambert Center are pleased to host Dr. Hollis Karoly for the webinar on September 8th at 1:00PM MST [Registration available in late August from the ICR Website](#)

**Title:** "Exploring the Effects of Oral Cannabidiol on Blood Alcohol Level and Intoxication: Results from a Human Laboratory Study"

Dr. Hollis Karoly is a PhD, Clinical Psychology and Neuroscience, working at the University of Colorado Boulder. Broadly, her work aims to characterize the neural, molecular and behavioral mechanisms underlying the development of substance use disorders, to explore how functional impairments within specific systems (e.g., reward and control circuits in the brain) may serve to perpetuate disordered behavior, and, ultimately, to leverage knowledge of substance-induced neurobiological dysfunction to inform treatment. She is particularly interested in combining neuroimaging and molecular biology methods to explore the potential for cannabinoid compounds to mitigate alcohol and/or opiate-induced neuroimmune dysfunction, alleviate withdrawal symptoms and help to manage chronic pain.

Dr. Karoly completed her undergraduate degree at the University of Pennsylvania where she majored in Biological Basis of Behavior. She then came to the University of Colorado for graduate school, and completed her pre-doctoral internship at the Medical University of South Carolina. In her free time, she is a runner and recently-certified yoga teacher. She also enjoys hiking and camping in the beautiful Rocky Mountains with her partner and their two dogs.



**Dr. Hollis Karoly**

# UPCOMING WEBINARS



## CANNABIS CULTIVATION Webinar Series



**July Webinar:** The ICR Hemp Farmers Association is pleased to host Dr. Sanghyuck Park on Wednesday, July 20th at 11:00AM MST [Register Here](#)

**Title:** “Defensive Role of Cannabidiol (CBD) against Pest Insect Tobacco Hornworm *Manduca sexta* Through Disrupting Exoskeleton Development”

Dr. Park obtained his PhD in the Department of Plant, Soil and Microbial Sciences at Michigan State University. He completed two postdoctoral research associate trainings at the University of Arizona and USDA-ARS. With his expertise in plant cell & molecular biology, Dr. Park joined the ICR in 2017 as a Senior Scientist. He has been leading multi-tiered cannabis and cannabinoid research with ICR partners, as well as international collaborators. He published 25 research articles and received the ElSohly Award from the Cannabis Chemistry Subdivision, of the American Chemical Society in 2020, and was also awarded the Excellence in Innovation, Colorado State University - Fort Collins in 2022. He received a large national grant from South Korea and anticipates continuing his cannabinoids testing using a novel insect model system. Dr. Park is a member of the ICR Conference Planning Committee and serves as Chair of the ICR Hemp Farmers Association.



Dr. Sanghyuck Park

### A Deeper Look at Hemp – Scanning electron microscopy images presented by Dr. Eunsoo Kim, Visiting Scientist

#### The Morphology of Protein bodies and Lipid bodies in Hemp Seed

- Scanning electron microscopical (SEM) image of a cross-section of hemp seed showing numerous lipid (L) and protein bodies (PB) together on the cotyledon cells.
- The thin-walled, palisade cells of cotyledons contain numerous protein bodies. They are specifically stained with toluidine blue/basic fuchsin, and they vary from 1.8 to 5.1  $\mu\text{m}$  in diameter.
- Extracted lipid bodies of hemp seed stained with Sudan III are shown. Lipid bodies surrounded by a membrane with dimensions ranging from 0.8 to 3.2  $\mu\text{m}$  in diameter.

