

# ICR PARTNERSHIPS

## Institute of Cannabis Research and Thomas Jefferson Lambert Center for the Study of Medicinal Cannabis & Hemp



The Lambert Center for the Study of Medicinal Cannabis and Hemp at Thomas Jefferson University serves as a comprehensive resource for education, research, and clinical practice in the therapeutic use of cannabinoids and industrial hemp. Upon its launch in 2016, the center undertook a variety of initiatives to advance research, develop academic programs, and nurture innovation, through the generous support of Joy and Barry Lambert. Thomas Jefferson University is one of the first major health sciences university in the United States to provide a comprehensive academic resource for the medicinal application and business of cannabis and hemp, in keeping with Jefferson's nearly 200-year history of innovation in science and medical education.

The Lambert Center is located within the Institute for Emerging Health Professions (IEHP). The institute is based in Jefferson's College of Health Professions, which has focused since 1969 on educating healthcare professionals of the highest quality and ethical standards for

contemporary practice in the global community. In 2020, it expanded on its cannabis graduate certificate programs in Cannabis Medicine, Cannabis Science, and Cannabis Business and designed a new Master of Science in Medical Cannabis Science and Business.

These provide students with the knowledge in cannabis medicine, science, business, and policies, required to enter the cannabis industry, support patients, add to existing research, and develop innovative cannabis business models. The Jefferson hemp initiative at Kanbar College of Design, Engineering and Commerce is guided by Ronald Kander, PhD, Executive Dean of, aims to advance basic scientific knowledge about hemp and its utility to replace material in existing products and develop new biomedical and manufactured products and sustainable supply chains. Jefferson's hemp-focused research ranges from basic and translational science and clinical trials to industry-sponsored ideation and product development, tapping experts from numerous departments across the university.

The Lambert Center partners with ICR on a monthly research webinar focusing on a variety of cannabis-related subjects ranging from medical science to public policy and industrial perspectives to funding opportunities; serves on the Planning Committee for the ICR/Oregon State University's Global Hemp Innovation Center Annual Cannabis Research Conference, and is exploring educational opportunities between TJU and CSU.

### In this Issue

#### **Partnership Highlights**

- The Lambert Center, Thomas Jefferson University
- Ms. Ruth Charbonneau, RN, JD

#### **ICR Research Spotlight**

- Christopher Lowry, PhD

#### **JCR Highlights**

- Recently published articles

#### **Upcoming Webinars:**

##### **Cannabis Research Webinar Series:**

- **January 12th 1:00PM MST** Dr. Jordan Tishler
- **February 9th, 1:00PM MST** Ms. Shawn Hauser, Attorney

##### **Cultivation Webinar Series:**

- **February 15th, 11:00AM MST** Dr. Daniela Vergara

##### **A Deeper Look at Hemp**

- Dr. Eun-Soo Kim

# ICR PARTNERSHIP HIGHLIGHT

## Introducing the Leadership at the The Lambert Center for the Study of Medicinal Cannabis & Hemp



Dr. Laura Pontiggia, MS, PhD

The Lambert Center is overseen by a seasoned team of professionals who bring a wealth of administrative and leadership experience in healthcare research and higher education.

Laura Pontiggia, MS, PhD, Director of Academic Programs, IEHP, is a statistician who has held leadership posts in higher education administration. Before joining Jefferson in 2020, she was associate provost for academic partnerships and director of data science at the University of the Sciences.



Ms. Ruth Charbonneau, RN, JD

Ruth Charbonneau, RN, JD, is the Associate Director of the Lambert Center and Adjunct Professor, Institute for Emerging Health Professions. Prior to joining TJU, she provided regulatory consulting services on issues related to healthcare licensing and operations. She also served in executive leadership teams for several administrations within New Jersey state government, most recently as the Chief of Staff for the Department of Health. She was a New Jersey Governor's Fellow, and in her various management and oversight responsibilities within state government she was responsible for policy and research, health data analysis, and for legal and regulatory oversight including the development of the initial rules governing New Jersey's medicinal marijuana program. Before working in government, Charbonneau began her career as a nurse and worked in a variety of settings and specialty areas, gaining an understanding of healthcare systems. She received an RN diploma from Faulkner Hospital School of Nursing, a bachelor's degree in psychology from Clark University, and a JD from Case Western University School of Law.

Follow Us on our Facebook and LinkedIn





# JOURNAL OF CANNABIS RESEARCH

## 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:

- [High-throughput methods to identify male Cannabis sativa using various genotyping methods](#)
- [Role of the endocannabinoid system in the pathophysiology of endometriosis and therapeutic implications](#)

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.

[Donate Here](#)

# ICR RESEARCH



Our funded FY23 Research Studies have been announced. Funded projects focus on topics related to cannabis research, including biology, chemistry, physiology, and agronomy; medical and clinical research; and public health and harm reduction/societal impacts. These projects have an anticipated start date of October 1st. Please find the link to all of the FY23 awardees here:

<https://www.csupueblo.edu/institute-of-cannabis-research/research/research-studies/index.html>

## Christopher Lowry, PhD

Associate Professor, Integrative Physiology, University of Colorado Boulder

Preventative and treatment effects of broad-spectrum cannabidiol (CBD) in a rat model of comorbid autism and epilepsy: A mechanistic study

Over 50% of children with autism spectrum disorder (ASD) show sub-clinical epileptic spikes by adolescence and 5-40% develop chronic epilepsy. Similarly, approximately 30% of children with epilepsy are also diagnosed with ASD. As a likely etiology, the role of inflammation in epilepsy is under intense investigation and there is increasing evidence for inflammation in the comorbidity of autism and epilepsy. Broad-spectrum cannabidiol (CBD) is a major bioactive component of marijuana that lacks the euphoria/intoxication associated with delta-9-tetrahydrocannabinol (THC)-related cannabinoids yet has been shown to have powerful anti-inflammatory effects in the brain. These anti-inflammatory effects introduce the possibility of its use in preventing and/or treating certain neurological disorders associated with inflammation, specifically ASD and epilepsy



Dr. Christopher Lowry

to be studied in this project. We hypothesize that the marked comorbidity between autistic behavior and epilepsy reflects limbic hyperexcitability produced by neuroinflammation. Yet, until now, there has been no preclinical animal model of comorbid autism and epilepsy, requisite to study mechanisms (e.g., neuroinflammation) and possible interventions. The primary aim of this project is to determine if administration of CBD during maternal or postnatal periods can prevent development of a comorbid ASD/epilepsy phenotype. In this project we will answer three questions: 1) Does maternal administration of CBD reduce comorbid ASD/epilepsy in rat pups? 2) Does postnatal (PN10-PN30; before epileptic spikes appear; administration of CBD reduce comorbid ASD/epilepsy in rat pups? 3) Does combined maternal and postnatal administration of CBD reduce comorbid ASD/epilepsy in rat pups? Successful outcomes may lead to novel approaches for prevention of comorbid ASD/epilepsy in children of high-risk mothers.

# 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

**January Webinar:** The ICR and Lambert Center are pleased to host Dr. Jordan Tishler for the webinar on January 12th at 1:00PM MST ([Video now on our webpage HERE:](#))

**Title:** “Why We Need a More Medical Medical-Cannabis System”



Dr. Jordan Tishler

Dr. Tishler is a Cannabis Specialist. Through his training in Internal Medicine and years of practice as an Emergency Physician, Dr. Tishler brings his knowledge, reason, and caring to patients here at inhaleMD, and through his advocacy work at the local and national levels.

Dr. Tishler graduated from both Harvard College and Harvard Medical School, trained at the Brigham and Women's Hospital, and is faculty at both the Brigham and Women's Hospital and Harvard Medical School. He has spent many years working with the underserved, particularly providing care for Veterans. Having treated countless patients harmed by alcohol and drugs, his observation that he had never seen a cannabis overdose lead Dr. Tishler to delve deeply into the science of cannabis safety and treatment.

Dr. Tishler is also a parallel entrepreneur working for patients' wellbeing in the corporate space, helping to elevate dosing and safety profiles of medication, and helping to establish best practice for bringing new Cannabis products to market.

Dr. Tishler is a frequent speaker and author on a variety of topics related to the medical applications of cannabis. He is the President of the Association of Cannabis Specialists which aims to educate clinicians, lawmakers, and the industry about best practices and needed tools for proper patient care.

**February Webinar:** The ICR and Lambert Center are pleased to host Dr. Shawn Hauser, for the webinar on February 9th at 1:00PM MST [Register Here:](#)

**Title:** “Cannabis Legislative and Policy Update”



Ms. Shawn Hauser

Shawn Hauser is a partner at Vicente Sederberg and co-chair of the firm's Hemp and Cannabinoids Department as well as a leader in the firm's psychedelics and emerging therapies practice. Shawn helps cannabis, hemp, and psychedelics businesses navigate the intersections between state and federal law including cannabis and psychedelics laws and food and drug laws as they evolve. Her practice includes regulatory compliance, licensing, general business representation, investment, policy reform and strategic guidance to best position businesses for success at the at state, national, and international levels.

Shawn has presented cannabis law and policy to many local, federal, and international agencies, including the Food and Drug Administration and UK Parliament. She is on the Board of Directors of the International Cannabis Bar Association, and was on the steering committee for the American Hemp Campaign, a project of Vote Hemp which was instrumental in legalizing hemp in Texas in 2019. In 2023, Shawn was recognized by her peers in the "Best Lawyers" list for her work in cannabis law.

Since directing Sensible Colorado's local government implementation team following the passage of Amendment 64, Shawn remains active in policy work with local and state governments in Colorado and Texas and is passionate in supporting the development and implementation of cannabis, hemp, and psychedelics regulations that advance the cannabis industry in a dynamic and responsible manner. After attending law school at the University of Denver, Shawn was an associate attorney at McAllister, Darnell & Gottlieb PC, one of the first marijuana-focused law firms in Colorado.



# UPCOMING WEBINARS



## CANNABIS CULTIVATION Webinar Series

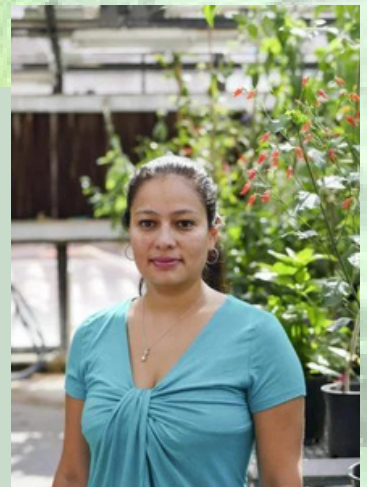


**February Webinar:** The ICR Hemp Farmers Association is pleased to host Dr. Daniela Vergara on Wednesday, February 15th, at 11:00AM MST [Register Here](#)  
Title: "The upstream genes in the biochemical pathway"

Dr. Daniela Vergara is an evolutionary biologist, data analyst, educator, scientific writer, and public speaker. In addition to her multiple publications, she founded and directs a non-profit organization, the Agricultural Genomics Foundation (AGF; [AgriculturalGenomics.org](http://AgriculturalGenomics.org)). AGF aims to make hemp and cannabinoid science available to a broad public. Vergara has been part of scientific teams at private companies including Steep Hill, Inc. who are a global leader in agricultural testing, and the biotech company Front Range Biosciences. Dr. Vergara recently joined the Harvest New York Extension Team from Cornell University as an 'Emerging Crop Specialist' to help hemp farmers with their crop.

Dr. Vergara's scientific publications include the comparison of the cannabinoids by the federally produced Cannabis to that produced by the private market. These results were featured in news platforms such as The Atlantic, Science, and FiveThirtyEight. Recently, she published a comparison between the genome of these federally produced varieties to the genome of the varieties found in the private markets. Some of her other scientific publications are a compilation of the existing genomic tools available for Cannabis research that was featured in Science, and the maternally inherited genomes (chloroplast and mitochondria). Vergara has authored these publications along with collaborators from the private sector in the Cannabis industry as well as academics from several institutions worldwide.

Vergara is also an international consultant and policy advisor and has advised companies in the US and Latin America. Additionally, she has worked as an expert witness for multiple legal cases in the US and abroad. Dr. Vergara is a scientific writer in both Spanish and English and has translated her scientific work in Spanish for a broad public in Hispanic Countries.



Dr. Daniela Vergara

The scanning electron microscopy technique enables the deeper investigation of cannabis tissues (e.g., flower formation, trichome, pollen, and root development) and the in-situ observation of dynamic developmental processes. The technique will be essential to better understand the cannabis growth and development, as well as cannabinoid production.

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

#### Structure of Cannabis Fruit

This scanning electron micrograph shows the internal structure of Cannabis fruit. The pericarp of the fruit surrounds an embryo consisting of two cotyledons (C) and a radicle (R). Cotyledons have two distinct layers, the isodiametric cell layer (ICL), and the palisade cell layer (PCL). They are approximately equal in width but differ in length, the shorter one being 13  $\mu\text{m}$ , the longer 40  $\mu\text{m}$ , relatively. The short cells face the outside functions both for strengthening cells and storing granules, however, the long cells mainly preserve more storage granules inside of the cotyledons.

