

Consent Agenda March Governing Board Meeting:

Meeting Minutes

February 11, 2022 12:00 – 1:00 pm

Meeting By Zoom: <https://csupueblo.zoom.us/j/95780770453>

Meeting Minutes:

In attendance: Dr. Kinney, Dr. Bidwell, Dr Mottet, Ms. Contreras, Mr. Rogers, Mr. Pace, Dr. Hasan, Dr. Zeiger, Dr. Reuter, Mr. Lord, Ms. Minnich, Mr. Dieter Raemdonck, and Mr. Spears,

I. Welcome (12:00-12:03pm) Dr. Bidwell

II. Consent Agenda (12:03-12:08pm) Dr. Bidwell

a. Minutes from 01/14/2022

- Approved with addition of Dr. Joanna Zeiger to the attendance

b. RFA Launch

III. Introduction of New Staff Member (12:08-12:10pm) Dr. Kinney

- Ms. Ashley Minnich

IV. Contract Updates (12:10-12:20pm) Dr. Bidwell and Dr. Kinney

a. DHE – moving forward with Gov. Relations Rep and MedPharm research contracts

b. Vyripharm

- Dr. Kinney sent out agreement to Governing Board – excited by opportunity – will provide an advanced testing lab in Chemistry Building - Vyripharm will provide required instrumentation and equipment (estimated \$1.5 - 2 million value) – after installation and validation the lab will be operated in a fee-for-service model with revenue to make this lab sustainable and some F&A for ICR and CSU Pueblo – provide the ICR as a resource for testing – provide research resources to external clients – Vyripharm made arrangements with DEA for schedule 1 license, which is in the process of being pursued
- Dr. Reuter – how long and what are the negotiating details? Hasn't heard of a successful model yet for a DEA license with allowable exceptions.- Dr. Kinney discussed previous unsuccessful experience the ICR had in pursuing a Schedule 1 license with an exception – but at least there is a mechanism for pursuing exceptions
- Dr. Kinney stresses that all activities will be federally compliant and DEA licensing is part of that
- Dr. Mottet – can students work in this lab? Dr. Kinney – yes, and cannabis samples will not be stored in this lab or directly accessible to students- a safe meeting DEA requirements is available for sample storage for this application
- Dr. Hasan – asks about testing – Dr. Kinney says facility hopefully will be testing lab for others outside of the agreement employing a fee for service model.
- Dr. Sisley discusses testing for cannabis only (limited demand) – extractions allowed but analytical lab can't then send to researchers – must destroy material (required)
- Dr. Kinney adds that every lot of hemp has to be tested under the new USDA rules – insufficient testing capacity within the CDA to carry this out in a manner similar to how this was being handled prior to 2022.
- Ms. Contreras – just cautions that State Lab works with marijuana enforcement division – samples get forwarded to State – also use as regional lab if needed - CDPHE or Colo. Dept. of Revenue would handle

V. Team of Dieter Raemdonck and Amber Valdez – Gov. Rel. Rep. (12:20-12:35pm) Dr. Bidwell

a. Introduction

- Dieter is an attorney in Denver, lobbyist for 10 years – slightly more Republican (worked for Mike May) while Amber more of a Democrat – will talk with leadership members once budget is unveiled
- Pueblo delegation – There is a bit of a disadvantage with Leroy Garcia leaving – will look for opportunities to raise profile of ICR – avenue to outreach with data driven answers – would like to see ICR be site for meeting with legislatures – getting in from of them -they like to take tours, so getting them involved and then showing them the expertise
- Dr. Kinney discusses JBC topics – keeping ICR at forefront of cannabis research is support we can use and getting budget to JBC and moving forward
- Dieter will open lines of communications with legislators and stay in touch with them
- Will host pre-session meeting with Pueblo delegation – they (Dieter and Amber) would do this for the ICR as it is easiest to go through them for updates
- Hasan would like an email with names of legislators to contact on behalf of the ICR
- Dr. Zeiger asks if they intend to keep us apprised on monthly basis- Yes, will update regularly – could be opportunity for GB members to offer testimony but standing by for now
- Dr. Reuter asks if any materials are needed – Dieter will ask for these specific materials in time – Bills are the focus of legislator right now – will need fact sheets with who you are what you do and what we can do – Chad will provide this and send electronic copy to all
- Dr. Sisley suggests we host an event to build rapport – Dieter agrees that an open house meet and greet presented at the Day at the Capital would be good opportunity to host a lunch
- Dr. Sisley also likes the idea of a tour
- Dr. Bidwell agrees that funded investigators are great resource – utilize their expertise
- Mr. Pace asks if we are working with Amber or Dieter - Dieter says both will be available for meetings, testimony, and etc.
- Cinnamon – more follow-up to come!

b. Remainder of the Legislative Term (priorities and strategies)

VI. F&A Distributions (12:35-12:40pm) Dr. Kinney

- 12.5% of F&A collected on external grants awarded to ICR to come back to the ICR – the ICR to be the equivalent of a department when it comes to F&A distribution.
- Sr. Scientist responsible for this – part of his salary being funded by external sources

VII. Preliminary Budget Discussion (12:40-12:55pm) Dr. Bidwell and Dr. Kinney

a. Rough Budget Outline (fixed costs and flexible funds) – FY23

- Rough analysis and fixed costs – research covers the largest portion of the budget, then salaries, etc. – after that \$150 -\$250,000 could be used for other initiatives
- Maybe continue with lobbying support, Marketing and communications, emerging scientist awards - Board considers these uses of the flexible funds to be a high priority
- Dr. Bidwell asks for high level input from the Board – input needed for draft proposal to bring to meeting
- Dr. Sisley suggests augmenting our legislative and PR efforts and outreach – maybe combine and host events? Create bigger presence not limited to online. Board supports this as a priority.
- Dr. Mottet supports this level of elevation – suggests continued focus on involvement of students to develop next generation of researchers and supporting the Emerging Scientist and other similar programs.

- Ms. Contreras suggests CDPHE would like health monitoring study of hospitalizations due to cannabis and prioritizing public health studies– research needed to complete knowledge gap
- b. Priorities could be used for new initiatives – FY23

VII. Public Comment (12:55-1:00pm) Dr. Bidwell

- William – Hemp networking with Israel – Nirit Bernstein is top person in the field, initiatives are original, progressive and keep Colorado in the forefront especially medically
- Chad adds that Dr. Bernstein is collaborating as Co-Chair of brand new, hot off the press webinar series

VIII. Adjourn

Webinar Series Updates

December 2021, January 2022, February 2022

The second season of the Cannabis Research Webinar Series continued with Dr. Edgar Alfonso Romero-Sandoval in December, Dr. Staci Gruber in January, and Dr. Yasmin Hurd in February. The inaugural presentation for the Cannabis Cultivation Webinar Series began in February with Dr. Nirit Bernstein. Data for these four webinar presentations are provided here.

	December	January	February - Cannabis Research	February – Cannabis Cultivation
Attendance and Performance				
# Registered	89	109	142	90
# Attended	27	48	79	51
% Attendance Rate	30	44	56	57
YouTube Views	<i>not posted yet</i>	12	6	43
Survey Respondents				
	N/A	N/A	25	3
How Informed (based on registrations)				
ICR email blast	64	80	105	64
Website	0	9	6	3
Social media	3	2	2	1
Other email blast	5	0	0	0
Friend or colleague	8	11	16	15
Other	9	7	13	7
Background/Affiliation (based on registrations)				
Academia	N/A	46	60	45
Government/Public Official	N/A	12	18	5
Industry	N/A	15	14	24
Medical Professional	N/A	22	23	4
Public Health Professional	N/A	4	19	1
Other	N/A	10	8	11

Comments and Observations

- The attendance rates for the February webinars (56 % and 57%) are the highest of any webinar presentation. The next highest percentage of attendance was from the October 2020 webinar, at 55%. This could be in part because of the implementation in Zoom of an email reminder notification sent out to all registrants 1 hour before the webinar began for the February webinars.
- ICR email blasts continue to be the most effective tool for reaching interested individuals.
- Background information was not collected for registrants in December, however based on information from the other three webinars, registrants represent a range of backgrounds and are most represented as being involved in academia, the industry, or in the medical profession.
- The December webinar has not yet been made available to the public, and so has no listed YouTube views.
- Dr. Park specifically sent the link to the Cannabis Cultivation webinar recording to interested parties, which may account for the larger number of views for that webinar in a shorter period of time since posting compared to others.

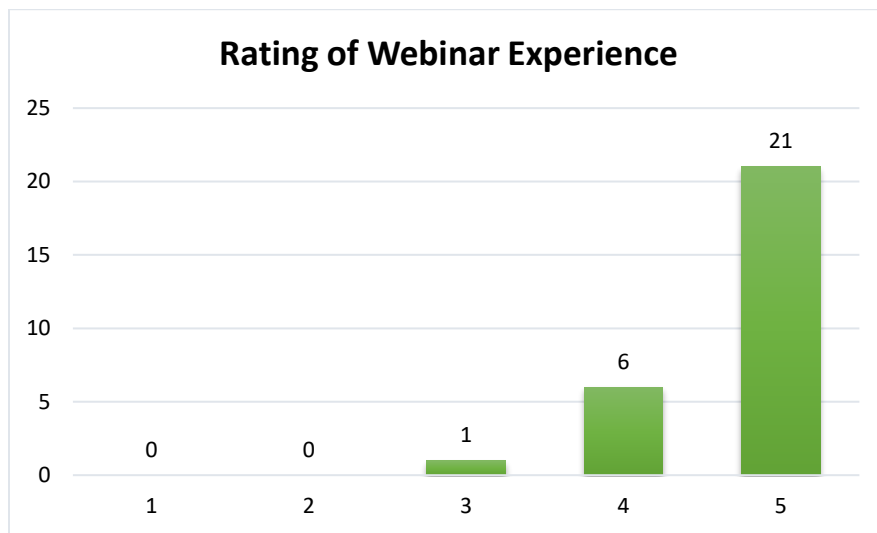
Webinar Surveys

Beginning with the February webinars, surveys requesting feedback from participants were posted in the chat at the beginning of the Q&A portion of the webinar. These surveys collected information on the attendees' overall experience with the webinar and the topic they would be most interested in seeing for future webinars.

There was a total of 28 responses between the two webinars for the month of February.

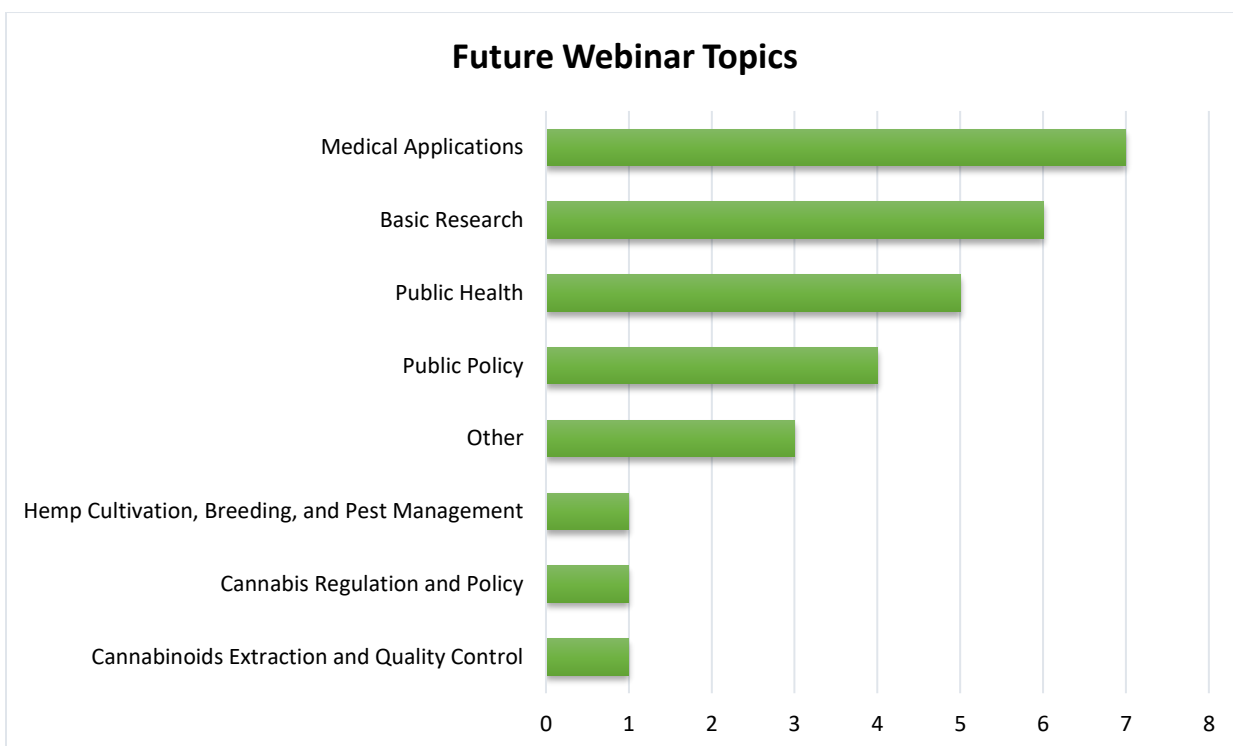
In comparison, the end of the year survey conducted for the entire first season of webinars received a total of 23 respondents.

This suggests that providing a more immediate route for webinar feedback is an effective method of gaining responses. We will continue to post links to surveys at the end of webinars and continue to monitor the responses received.



Overall, the responses from the webinar attendees was positive. Many positive comments were received from the webinar featuring Dr. Yasmin Hurd, a sample of which is provided below:

- This was a great topic, covering a wide range of unknowns in cannabis research. Thank you for bringing in Dr. Hurd.
- Yasmin was a fabulous presenter! I got to use my college biology/genetics degree for a change. She has done remarkable research that will be extremely helpful in my presentations to teens on cannabis use prevention. Thank you!
- Thank you for organizing such a good seminar series.
- Many thanks to ICR (and Dr. Hurd) for this informative presentation. Appreciate the knowledge share.



When asked to select a topic they were most interested in for future webinars, respondents favored medical applications and basic research over other listed topics.

Each respondent from the inaugural Cannabis Cultivation Webinar series selected a different topic (the available topic options for this webinar series differ from the Cannabis Research Webinar Series, and will likely be separated in future reports).

The topic category of “Other” consisted of the following responses:

- Parent and Family Education
- Cannabis and its effects on the teen brain in practical outcomes they can understand
- both basic science and medical science

Upcoming March Cannabis Research Webinar (3/10/2022)

Presenter: Dr. Simon Haroutounian

Topic: Cannabinoids for pain: is effectiveness in the eye of the beholder?

Dr. Simon Haroutounian is the Chief of Clinical Research for the Washington University Pain Center and Division of Clinical and Translational Research, an Associate Professor of Anesthesiology, and the Chief of Clinical Research at the Washington University Pain Center. Dr. Haroutounian obtained his BSc.Pharm and MSc.Pharm degrees, as well as his PhD, from the Hebrew University of Jerusalem. He has completed a Fulbright doctoral fellowship in pain outcomes research at the University of Utah, and a post-doctoral fellowship in clinical pain research at the Danish Pain Research Center in Aarhus, Denmark.

He has been involved in numerous studies and initiatives for understanding the mechanisms of cannabinoid medicated analgesia and synthesizing the evidence of the efficacy and safety of cannabis and cannabinoid-based medicine for the treatment of pain.

Dr. Haroutounian also serves on the International Association for the Study of Pain’s task force on cannabis and cannabinoid analgesia to systematically examine the evidence on analgesic pharmacology of cannabinoids and

preclinical evidence on their efficacy in animal models of injury-related or pathological persistent pain; the clinical efficacy of cannabis, cannabinoids, and cannabis-based medicines for pain; harms related to long-term use of cannabinoids; as well as societal issues and policy implications related to the use of these compounds for pain management.

Upcoming March Cannabis Cultivation Webinar (3/16/2022)

Presenter: Mitchell Westmoreland

Topic: Toward a sustainable approach to phosphorus fertilization in Cannabis cultivation

Mitchell Westmoreland is a Ph.D. candidate in the Crop Physiology Laboratory, currently under the directorship of Dr. Bruce Bugbee, at Utah State University. He received his B.S. in Biology from Utah State University in 2018, after which he worked for the USDA Forage and Range Research Laboratory in Logan, UT before beginning his graduate work. His research deals with the cultivation and physiology of medical Cannabis, with a focus on the influence of electric lighting, mineral nutrition, and temperature on flower yield and quality. Westmoreland teaches an undergraduate course on the science of medical Cannabis cultivation, as well as an online course that is open to the public. He has published in the journal PLoS One and has been an invited speaker at Cannabis Business Times' Cannabis Conference and is a member of The American Society for Horticultural Science and Sigma Xi, The Scientific Research Honor Society.

FY23 RFA – LOI Data (Deidentified)

PI Primary Organization	Type of Study	Proposed Duration of Project	Estimated Annual Budget	Estimated Total Budget	Funding Tier
Colorado State University Pueblo	Biology, Chemistry, Physiology, and Agronomy	2 years	Not Provided	\$ 45,000.00	\$0-\$50,000/yr
University of Colorado Boulder	Clinical/Medical Research	1 year	N/A	\$ 100,000.00	\$50,000-\$100,000/yr
University of Colorado Anschutz Medical Campus	Meta-Analysis	1.5 years	Not Provided	\$ 100,000.00	\$50,000-\$100,000/yr
Colorado State University Pueblo	Biology, Chemistry, Physiology, and Agronomy	2 years	\$ 60,000.00	\$ 120,000.00	\$50,000-\$100,000/yr
Colorado State University Pueblo	Biology, Chemistry, Physiology and Agronomy	2 years	Not Provided	\$ 150,000.00	\$50,000-\$100,000/yr
University of Colorado Anschutz Medical Campus	Clinical/Medical Research	2 years	Not Provided	\$ 177,000.00	\$50,000-\$100,000/yr
University of Northern Colorado	Clinical/Medical Research	1 year	N/A	\$ 197,114.32	\$50,000-\$100,000/yr
University of Colorado Boulder	Pharmacology and Dosing; Biology, Chemistry, Physiology and Agronomy; Medicinal & Clinical Research; Public Health and Harm Reduction	3 years	Not Provided	\$ 275,000.00	\$50,000-\$100,000/yr
University of Colorado Anschutz Medical Campus	Public Health and Harm Reduction	2 years	\$ 100,000.00	\$ 200,000.00	\$50,000-\$100,000/yr
Colorado State University Pueblo	Agricultural and Crop Safety	2 years	\$ 139,861.00	\$ 244,971.00	\$100,000-\$150,000/yr
Nonprofit Research Organization	Public Health and Harm Reduction	2 years	\$ 100,110.00	\$ 400,000.00	\$150,000-\$200,000/yr
Colorado State University Pueblo	Skin Biology and Toxicology	2 years	Not Provided	\$ 400,000.00	\$150,000-\$200,000/yr
Colorado State University Pueblo	Biology, Computer Science	3 years	Not Provided	\$ 480,000.00	\$150,000-\$200,000/yr
Colorado State University	Biology, Chemistry, Physiology and Agronomy	3 years	\$ 200,000.00	\$ 600,000.00	\$150,000-\$200,000/yr
University of Colorado Boulder	Biology, Chemistry, Physiology, and Agronomy	3 years	Not Provided	\$ 600,000.00	\$150,000-\$200,000/yr
University of Colorado Anschutz Medical Campus	Clinical/Medical Research	3 years	\$ 200,000.00	\$ 600,000.00	\$150,000-\$200,000/yr
University of Colorado Anschutz Medical Campus	Laboratory / Animal model study	3 years	\$ 200,000.00	\$ 600,000.00	\$150,000-\$200,000/yr
Colorado State University Pueblo	New submission, Economic Development and Impact	3 years	\$ 200,000.00	\$ 600,000.00	\$150,000-\$200,000/yr
State Issued Marijuana Research and Development License Holder	Pharmacology and Dosing & Biology, Chemistry, Physiology, and Agronomy	3 years	\$ 200,000.00	\$ 600,000.00	\$150,000-\$200,000/yr
University of Colorado Anschutz Medical Campus	Public Health and Harm Reduction	3 years	\$ 200,000.00	\$ 600,000.00	\$150,000-\$200,000/yr
Colorado State University	Clinical/Medical Research	3 years	Not Provided	\$ 715,000.00	\$200,000-\$400,000/yr
University of Colorado Boulder	Clinical/Medical Research	3 years	\$ 300,000.00	\$ 900,000.00	\$200,000-\$400,000/yr
University of Colorado Anschutz Medical Campus	Clinical/Medical Research	3 years	\$ 300,000.00	\$ 900,000.00	\$200,000-\$400,000/yr
University of Colorado Anschutz Medical Campus	Clinical/Medical Research	2 years	Not Provided	\$ 950,000.00	\$400,000-\$500,000/yr
University of Colorado Boulder	Clinical/Medical Research	3 years	\$ 500,000.00	\$ 1,500,000.00	\$400,000-\$500,000/yr
University of Colorado Boulder	Clinical/Medical Research	3 years	\$ 500,000.00	\$ 1,500,000.00	\$400,000-\$500,000/yr
Colorado State University	Medical and Clinical Research; Pharmacology and Dosing; Human Observational	3 years	Not Provided	\$ 1,500,000.00	\$400,000-\$500,000/yr

This is the overview of the approved review process for the competitive research funding competition:

From HB19-1311:

(d) THE GOVERNING BOARD, IN CONSULTATION WITH THE INSTITUTE'S DIRECTOR:

(I) MUST FUND RESEARCH THROUGH AN OPEN, COMPETITIVE PROCESS USING NATIONAL BEST PRACTICES; AND

(II) MAY AWARD RESEARCH FUNDS TO:

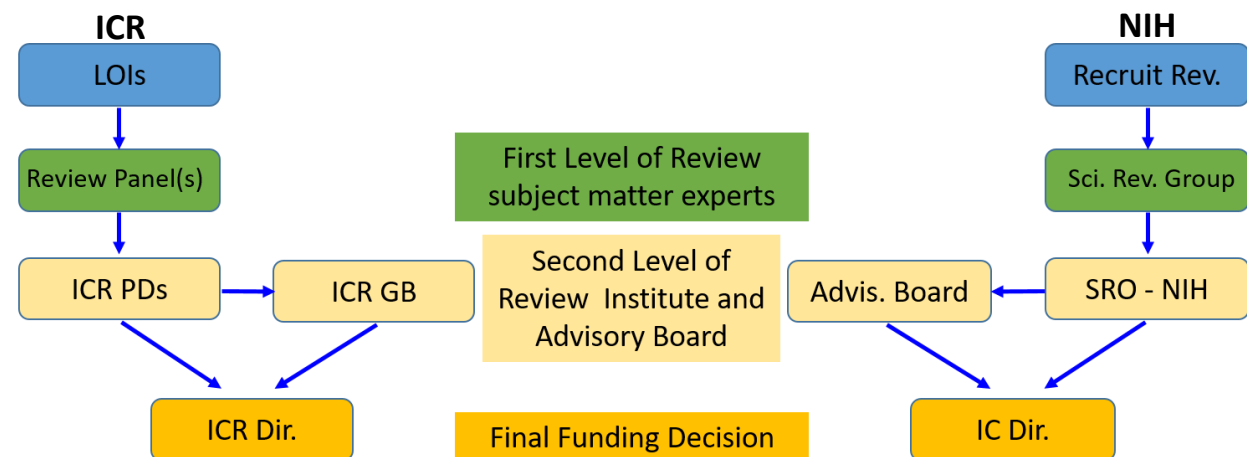
(A) ANY NOT-FOR-PROFIT COLORADO-BASED RESEARCH ENTITY;

(B) ANY COLORADO INSTITUTION OF HIGHER EDUCATION AND ANY RESEARCH ENTITY ASSOCIATED WITH SUCH INSTITUTION; OR

(C) A RESEARCH ENTITY THAT HAS A MARIJUANA RESEARCH AND DEVELOPMENT LICENSE PURSUANT TO SECTION 44-11-408, THAT IS OPERATING IN COMPLIANCE WITH THE REQUIREMENTS OF SECTION 44-11-408, AND IS CONDUCTING THE RESEARCH WITH A COLORADO INSTITUTION OF HIGHER EDUCATION.

Review Flow Chart Modeled after NIH Review process.

Adapted from information at: <https://grants.nih.gov/grants/peer-review.htm>



LOI = Letter of Intent
ICR PDs = ICR Program Directors
ICR GB = ICR Governing Board

SRO = Scientific Review Officer
IC Dir = Institute and Center Director

Summary:

The first level of review (peer review) is carried out by a Scientific Review Group (SRG; Review Panel for ICR). Comprised of external experts but led by a staff member. ICR Team will recruit sufficient subject matter experts to evaluate applications. As an incentive, the ICR will offer registration to the Cannabis Research Conference 2021 to reviewers.

The second level of review is performed by Institute Staff (ensure initiatives and budget are met) and Institute and Center (IC) National Advisory Councils or Boards (ICR Governing Board). IC Councils or Boards are composed of both scientific and public representatives chosen for their expertise, interest, or activity, and will review proposals recommended for funding by the SRG (Review Panel for ICR).

Only applications that are recommended for approval by both the SRG (Review Panel) and the Advisory Council or Board (ICR Gov. Board) may be recommended for funding. Final funding decisions are made by the IC Director (ICR Director).

Recommendation for Managing ICR Gov. Board COI: Any Board member associated with an application that is to be considered by the Governing Board among the slate of proposals for funding will recuse themselves from participating in the second level of review. If one or more Board member is associated with an application for this funding opportunity, all proposals coming to the ICR Governing Board should be for blind review to eliminate potential COI.

Recommended Model for Managing Review Conflict of Interest - From NIH:

<https://grants.nih.gov/policy/peer/peer-coi.htm>

Grants Reviews

Situation: Grant Reviews



Proposed reviewer **may not be on the study section if :**

- The reviewer is named on the application in a major professional role
- The reviewer is a member of an NIH Advisory Council
- The reviewer (or close family member) would receive a direct financial benefit if the application is funded



Proposed reviewer **may be on the study section but **may not** review certain applications and must leave the room when:**

- The PI or others on the application with a major role are from the reviewer's institution or institutional component (e.g., department)
- Within in the past three years, the reviewer has been a collaborator or has had any other professional relationship (e.g., served as a mentor) with any person on the application who has a major role
- The application includes a letter of support or reference letter from the reviewer
- The reviewer serves as a member of the advisory board for the project under review
- The reviewer has an indirect financial interest from the applicant institution or PD/PI of over \$10,000 in honoraria, stocks, and fees during the course of the last year or during the project period



Proposed reviewer **may be on the study section and **may** review specific applications without a waiver if: (not considered COIs)**

- An application originates from an institution where the reviewer has collaborators, but the reviewer's collaborators are not listed on the application
- The reviewer has an indirect financial interest of less than \$10,000
- The reviewer freely donates reagents or other materials to the proposed project, and these reagents or materials would also be available to other researchers
- The reviewer, as well as a person with a major role on the proposed project, contributes data, reagents, specimens, etc., to the same repository or database
- The reviewer is a member of a research network that involves a person with a major role on the proposed project
- The reviewer is a co-author of a non-research publication (e.g., review, commentary) or a mega-multi-authored publication with a person with a major role on the proposed project.

Note: A Federal employee serving as an NIH peer reviewer is responsible for obtaining any clearance required by his employing institute, agency, or office.



NIH

National Institutes of Health
Office of Extramural Research

- **Appearance of a COI:** Any situation that could cause a reasonable person with all the relevant facts to question the impartiality of the reviewer or that leads a reviewer to question his or her objectivity means that the reviewer:
 - May not participate in the evaluation of that grant application.
 - May not serve on the study section where that R&D contract proposal is evaluated.

- **Study section membership:** An application from a member of a study section that meets regularly may not be reviewed by that member's study section.
- **Applications in response to a Request for Applications (RFA):** An individual who is listed on an application submitted to an RFA with a major professional role may not serve on a study section evaluating any applications from that same RFA.

Certifying COI (NIH Approach):

Each NIH peer reviewer must certify, under penalty of perjury (US Code Title 18 chapter 47 section 1001), that to the best of his or her knowledge he/she has disclosed all conflicts of interest that he or she may have with the applications or R&D contract proposals; he or she fully understands the confidential nature of the review process and agrees:

- (1) to destroy or return all materials related to it;
- (2) not to disclose or discuss the materials associated with the review, the evaluation, or the review meeting with any other individual except as authorized by the Scientific Review Officer (SRO) or other designated NIH official;
- (3) not to disclose procurement information prior to the award of a contract; and
- (4) to refer all inquiries concerning the review to the SRO or other designated NIH official.

Research Priorities & Proposed Budget for FY2022-2023

Sang Park, Ph.D
Senior Scientist / Research Liaison
Institute of Cannabis Research
Colorado State University - Pueblo

Project 1. High-throughput Screening of Therapeutic Effects of Minor Cannabinoids using a Novel Insect Model System

The insect model has a long history in research in insect physiology, biochemistry, neurobiology, and drug interaction studies. Among the insect model systems, the PI focused on the tobacco hornworm, *Manduca sexta*, as a novel insect model system for cannabinoid research. Our previous study proved that the insect system was efficient to test the efficacy and toxicity of cannabidiol (CBD). Thus Dr. Park proposes exploiting the system to investigate pharmacological functions of minor cannabinoids, particularly studies involving non-CB receptor mediated pharmacokinetics. The aim of this study is to investigate therapeutic potentials of minor cannabinoids and its combinational (synergistic vs. antagonistic) effects when supplemented with CBD.

Project 2. Humidity Effects on Cannabis Cultivation and Cannabinoid Yields

Unlike other abiotic stresses, humidity effects on cannabis cultivation and cannabinoid profiles have not been fully understood. Our previous studies on different hemp varieties showed that the growth and cannabinoid profiles were significantly dependent upon the humidity level during the vegetative- and flowering stage. If funding is allowed, high CBD-yielding variety will be tested under the controlled environment to examine how the humidity level affects on hemp cultivation and cannabinoid production, as well as soil microbial communities.

Project 3. Evaluating the Rhizosphere Microbiome Composition of Hemp Varieties

This study aims to assess the microbial composition in the rhizosphere of high- and low CBD yielding varieties of *Cannabis* sp.. Metagenomics will be employed to catalog the microbial profiles with molecular markers 16SrDNA (region V3-V4), and Internal Transcribed Spacer 2. It is anticipated that Cannabis growth and cannabinoids production are closely associated with the composition of microbial communities, and the microbial composition will be also affected not only by plant's genetics and exudates, but also by soil nutritional and environmental conditions.

Budget Plan for FY22-23 (July 1, 2022 – June 30, 2023)

	Supplies / Service fee	Student Researcher			Total
		Postdoctoral research associate (part-time)	Graduate student	Undergraduate student	
<u>Project 1</u>	\$5,000 (cannabinoid isolates, insect cultivation, publication fee)	\$5,000 (TBD)	\$13,000 (M.S. TBD)	\$3,000 (TBD)	\$26,000
<u>Project 2</u>	\$4,000 (hemp cultivation, cannabinoid HPLC, publication fee)		\$15,000 (Ph.D candidate, Carolina Ingrid)		\$4,000
<u>Project 3</u>	\$5,000 (soil microbial/nutrient test, cannabinoid HPLC, publication fee)				\$20,000
					\$50,000