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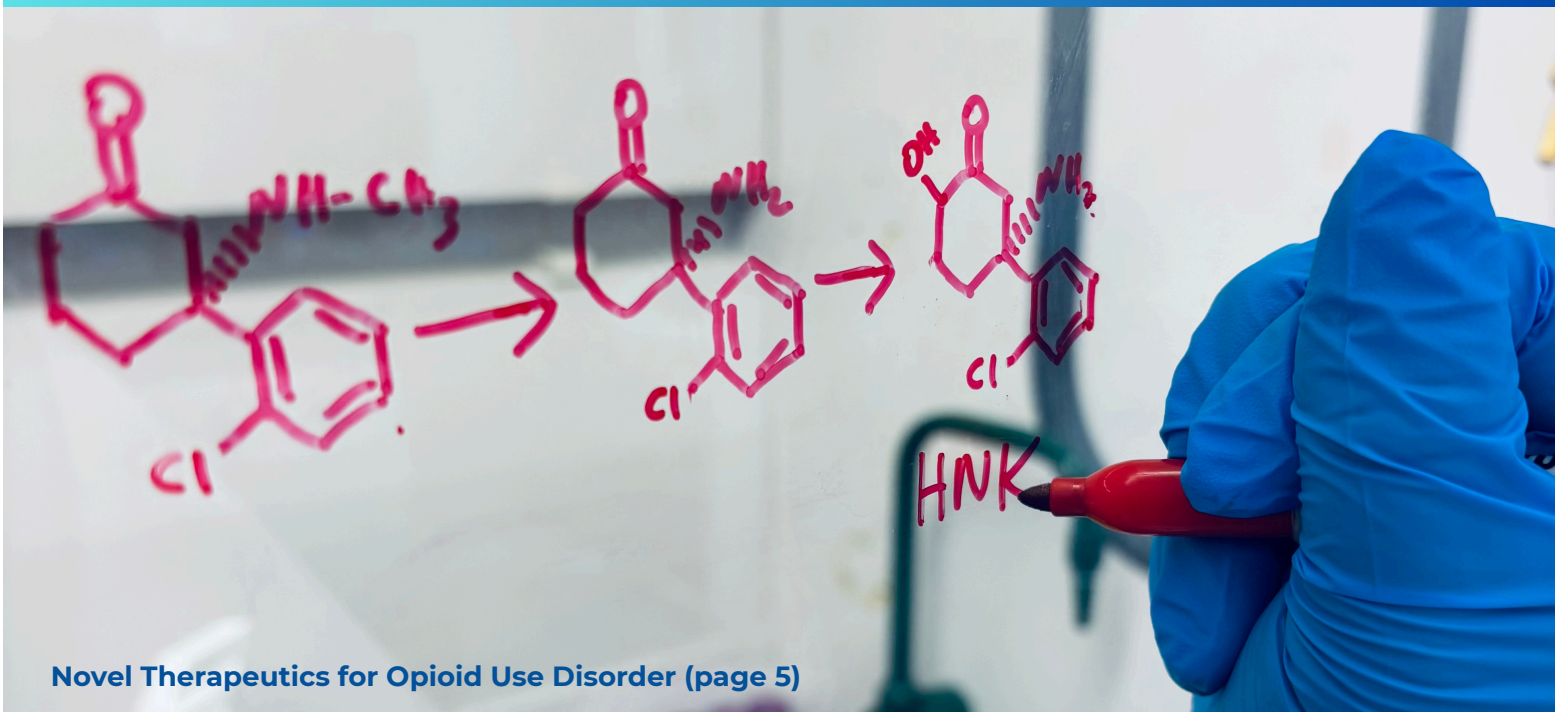
CASI Newsletter

Center for Addiction Science and Innovation



Novel Therapeutics for Opioid Use Disorder (page 5)

Welcome to the inaugural newsletter from the Center for Addiction Science and Innovation (CASI). Inside, discover our latest research, events, awards, and what's ahead.

The Center for Addiction Science and Innovation (CASI) is dedicated to advancing our understanding of substance use disorders through cutting-edge research, interdisciplinary collaboration, and training the next generation of addiction scientists.

This issue highlights the remarkable progress our team has made over the first year. From launching new interdisciplinary collaborations to engaging the community through outreach events, CASI continues to create opportunities for scientific discovery and innovation. We also celebrate our travel award recipients and reflect on our inaugural CASI Research Symposium, which brought together faculty and trainees from more than 10 departments to share research and strengthen collaborations.

We invite you to explore these pages and learn more about how CASI is shaping the future of addiction research and treatment.

Inside:

DIRECTOR'S MESSAGE

A Message from Our Director

Dear Colleagues,

It is my pleasure to welcome you to the first edition of the CASI Newsletter. The Center for Addiction Science and Innovation was founded with a vision to transform our understanding of substance use disorders through rigorous, interdisciplinary research and to translate those discoveries into real-world treatments.

Over the past year, we have made tremendous strides. Our collaborative research projects have brought together investigators from chemistry, pharmacology, neurobiology, and psychology. Our seed grant program has launched promising new lines of research, and our travel awards have enabled trainees to present their work on international stages.

I am especially proud of our community engagement efforts, including the CASI Research Symposium and the Brain Awareness event that introduced hundreds of community members to the neuroscience of addiction. As you read through these pages, I hope you share my excitement for what we have accomplished and what lies ahead.

> **CASI was created to bring together researchers from diverse disciplines because the most challenging problems in addiction cannot be solved by one field alone."**
>
> — Gregory C. Sartor, Ph.D.
> CASI Director

20+
Faculty Members

6
Travel Awards Distributed

2
Seed Grants Awarded

CASI SEED GRANT AWARDS

The CASI Seed Grant Award supports innovative research projects across the spectrum of substance use disorders. Our first two awardees tackle this challenge from unique angles. One uses immersive virtual reality to study environmental triggers in alcohol use disorder, while the other targets RNA modifications to discover new treatments for cocaine addiction.

Seed Grant 1: Using Virtual Reality Technology to Study Alcohol Use Disorder

Robert S. Astur, PhD
Associate Professor in Psychological Sciences

Environmental cues, such as places associated with alcohol drinking, can trigger craving and increase the risk of relapse. Robert Astur's lab in the Department of Psychology is developing a virtual reality model that recreates these learned alcohol-environment associations in humans, directly translating a widely used animal research paradigm called conditioned place preference. By pairing immersive virtual environments with alcohol or placebo, researchers will examine how alcohol-associated contexts influence behavior in the absence of alcohol. This innovative platform will help bridge preclinical and clinical research, providing a powerful new tool for testing medications designed to reduce cue-induced craving and relapse.

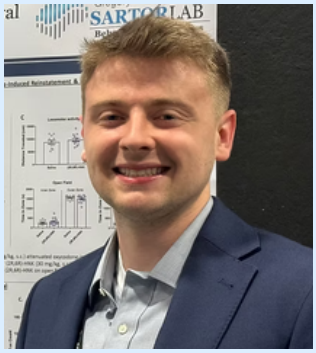
Seed Grant 2: RNA-targeted Therapeutics for Cocaine Use Disorder

Cocaine use disorder is a devastating, relapsing condition with no FDA-approved medications, creating a critical need for new therapeutic strategies. Gregory Sartor's lab in the Department of Pharmaceutical Sciences is exploring novel mechanisms involving RNA modifications, an emerging layer of biological regulation that controls how genes function in the brain. In collaboration with Dan Fabris's lab in the Department of Chemistry, they identified cocaine-induced changes in RNA modifications that may contribute to persistent drug-related alterations in the brain. Building on these discoveries, the Sartor lab is now partnering with Kyle Hadden's lab in Medicinal Chemistry to develop small molecule inhibitors that target this pathway and evaluate their potential as future treatments for cocaine addiction.

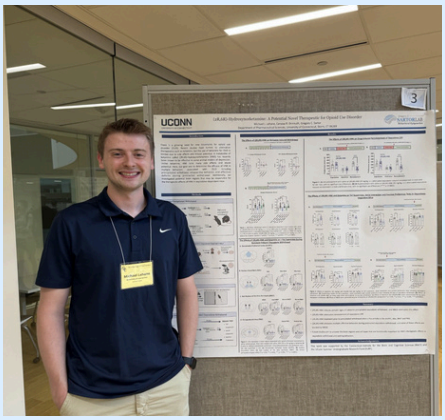
Afshin Seyednejad (PhD student in the Sartor lab) presents his research on RNA modifications in cocaine use disorder.

Interested in CASI seed funding? Applications for the next round of funding open in January. Visit CASI's website for seed grant details.

CASI Trainee Spotlight



Michael Lehane, a 4th year graduate student in the Pharmacology and Toxicology PhD program, has made significant contributions to the discovery and development of (2R,6R)-hydroxynorketamine (HNK) as a potential novel treatment for opioid use disorder. His research demonstrated that HNK can reduce opioid-seeking behavior and alleviate withdrawal symptoms in preclincal models. Over the past year, Michael shared his findings at three conferences, including the Gordon Research Conference on the Neurobiology of Psychedelics (middle photo), the New England Addiction Neuroscience Research Conference (bottom photo) and the American Society for Pharmacology and Experimental Therapeutics (ASPET) conference. His work was published in *Psychopharmacology*, and he received a National Institute of Health NRSA Fellowship in recognition of his outstanding research accomplishments.



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CASI Researchers Identify HNK as a Potential Treatment for Opioid Use Disorder

Preclinical evidence supports HNK as a safe, effective, and non-addictive treatment option.

What is HNK?

HNK (hydroxynorketamine) is a naturally occurring metabolite of **ketamine**.

HNK is an **investigational** drug that can be administered directly. It is not necessary to give ketamine to achieve HNK's therapeutic effects. Preclinical studies show **promise** for treating opioid dependence and other neuropsychiatric disorders.

NOT A CONTROLLED SUBSTANCE

Unlike ketamine, HNK is not a controlled substance.

NO MISUSE POTENTIAL

Preclinical studies indicate that HNK has no abuse liability or misuse potential.

GOOD SAFETY PROFILE IN HUMANS

HNK has been tested in humans and has shown a favorable safety profile.

HNK IS BEING TESTED CLINICALLY FOR OTHER DISORDERS

Depression

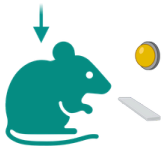
Obsessive Compulsive Disorder (OCD)

Chronic Pain

PRECLINICAL EVIDENCE: HNK IMPROVES KEY SYMPTOMS OF OUD

In rodent models of opioid dependence, HNK:

1 PREVENTS RELAPSE-LIKE BEHAVIOR (REINSTATEMENT OF OPIOID SEEKING)



HNK reduces cue-induced opioid-seeking behavior.

2 REDUCES SOMATIC SYMPTOMS OF OPIOID WITHDRAWAL

HNK decreases physical withdrawal symptoms.

3 REDUCES AFFECTIVE SYMPTOMS ASSOCIATED WITH PROTRACTED OPIOID WITHDRAWAL

HNK reduces depression-like behaviors during protracted withdrawal.

THE TAKEAWAY: *HNK represents a novel and promising therapeutic option for opioid use disorder.*

- HNK shows promise for treating OUD and other disorders.
- HNK has a favorable safety profile.
- HNK does not have side effects associated with ketamine.
- HNK improves key symptoms of OUD in preclinical models.

Learn more about CASI's therapeutic research at https://addiction.center.uconn.edu/research/

CASI Travel Awards

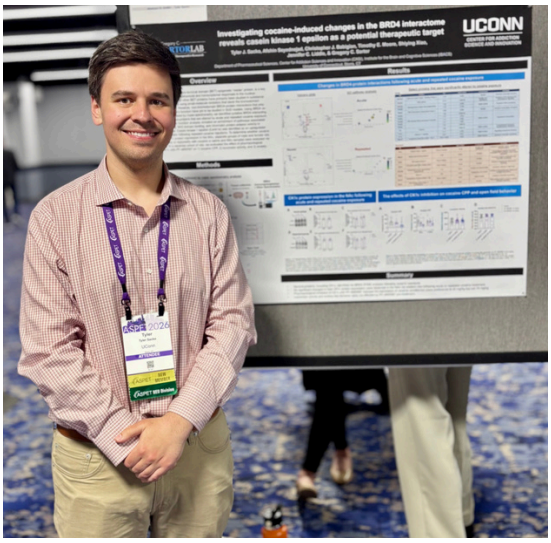
The CASI Travel Award Program supports trainees presenting addiction-related research at national and international scientific conferences. Recently, these awards enabled PhD students to present their work at major meetings, including the American Society for Pharmacology and Experimental Therapeutics (ASPET), the Society of Behavioral Medicine (SBM), and the International Cannabinoid Research Society (ICRS). In addition to sharing their research, recipients built professional networks, received valuable feedback from experts in the field, and returned with insights that will strengthen their ongoing research.

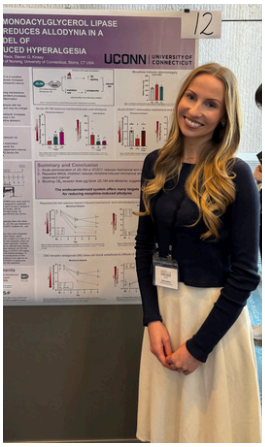
"The CASI Travel Award enabled me to present my research at the ICRS 2026 Symposium in France, receive valuable feedback from leading researchers in the cannabinoid field, and connect with members of the global cannabinoid research community."

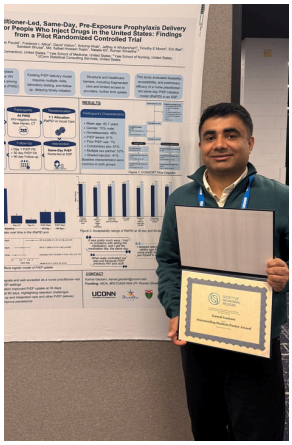
— Maria Jaakson, PhD Student

"Thankful to CASI for the Travel Award, which enabled me to present my research at the Society of Behavioral Medicine (SBM) Annual Meeting and connect with like-minded people advancing behavioral and addiction science."

— Md. Safaet Hossain Sujan, PhD Student



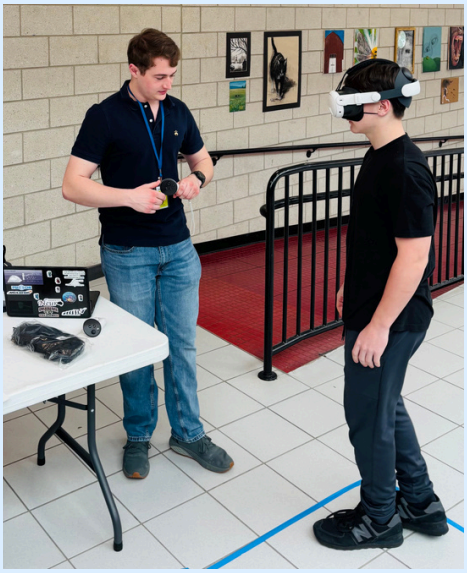




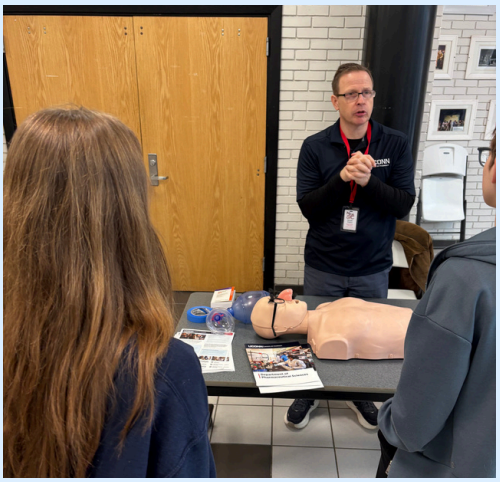
Top: Tyler Sacko (PhD student in Pharmacology and Toxicology) presented his poster at the American Society for Pharmacology and Experimental Therapeutics (ASPET) Conference in Minneapolis.
Middle: Matt Reck (PhD student in Behavioral Neuroscience) gave a presentation at the International Cannabinoid Research Society (ICRS) conference in Dijon, France.
Bottom Left: Maria Jaakson (PhD student in Behavioral Neuroscience) presented a poster at ICRS.
Bottom Right: Kamal Gautam (PhD student in Health Promotion Sciences) won the Outstanding Student Poster Award at the Society of Behavioral Medicine meeting in Chicago.

Questions? Contact us at casi@uconn.edu

Community Outreach



CASI joined members of UConn's neuroscience community in hosting a **Brain Awareness Event** at E.O. Smith High School in Storrs. Students rotated through interactive stations where they received hands-on naloxone training for opioid overdose, explored the neural circuits underlying reward and addiction, and examined the biological, psychological, and social factors that contribute to the opioid epidemic. Other learning stations engaged students in a wide array of interactive neuroscience activities, including demonstrations of brain recordings (EEG) and stimulation methods (TMS) and virtual reality setups used for behavioral research. Participants also explored neuron physiology, viewed human brain sections under the microscope, and took part in interactive sessions on cognition and language.



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Visit CASI's website for the latest news and opportunities.

CASI in the News

A recent **UConn Today** article spotlights Sheldon Kasowitz's transformative $3 million gift to launch CASI and his commitment to advancing science-based solutions for addiction. The article highlights how CASI is uniting experts across neuroscience, pharmacology, medicinal chemistry, and clinical research to develop innovative, evidence-based approaches to preventing and treating substance use disorders. To view the article, click here or scan QR code.

CASI Peer-Reviewed Publications

- Sacko TJ, Seyednejad A, Engelhardt J, Sartor GC. (2026) The Selective Bromodomain and Extra-Terminal Domain (BET) Inhibitor RVX-208 Reduces Cocaine-Seeking Behaviour and Alters Proteomic Pathways in the Nucleus Accumbens. Addiction Biology. Jan;31(1):e70121. PMID: 41507765.

- Seyednejad A, Sacko TJ, Babigian CJ, Moore TE, Xiao S, Liddle JC, Sartor GC. (2026) Cocaine-Induced Changes in the BRD4 Interactome Identifies Casein Kinase 1 Epsilon as a Therapeutic Target. Journal of Neurochemistry. 2026 Jan;170(1):e70336. PMID: 41521463.

- Lehane MJ and Sartor GC. (2025) The effects of low-dose ketamine and (2R,6R)-Hydroxynorketamine on affective behaviors associated with protracted oxycodone withdrawal. Psychopharmacology (Berl). (in press). PMID: 41045335.

Donate to CASI

CASI was established through the generosity and vision of a UConn alumnus who recognized the urgent need for evidence-based treatments for substance use disorders. By supporting CASI, you are directly investing in breakthrough research and real-world solutions that bring hope to individuals and families suffering from this devastating condition. All donations are tax-deductible and directly fund our critical work to understand, prevent, and develop novel treatments for substance use disorders. **To make an immediate impact, simply scan the QR code or visit the CASI website to donate now.** To discuss larger gifts or to explore tailored giving opportunities, please contact Rachel Marshall at the UConn Foundation (rmarshall@foundation.uconn.edu).

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