

Grant Proposal Development

Scott Edwards, PhD
Professor of Physiology &
Vice Chair for Training and Mentoring

LSU Health NEW ORLEANS

School of Medicine Research Café Schedule

Date (12:00pm)	Topic	Lead Presenter
August 11, 2026	Extramural Funding Opportunities & Strategies	Peter Winsauer, PhD & Patricia Molina, MD, PhD
September 8, 2026	Intramural Funding Opportunities and Strategies	Peter Winsauer, PhD
October 13, 2026	LSU Health New Orleans School of Medicine Cores	Jiri Adamec, PhD
November 10, 2026	Grant Proposal Development (NIH Mechanisms)	Scott Edwards, PhD
December 8, 2026	SBIR/STTR Grants	Sunyoung Kim, PhD
January 12, 2027	Writing Specific Aims Pages	Nick Gilpin, PhD
February 16, 2027	Writing Research Strategy Sections	David Welsh, MD
March 9, 2027	Preparing NIH Biosketches, Budgets, and Budget Justifications	Peter Winsauer, PhD & Carly Pigg, CRA, CPRA, CFRA
April 13, 2027	Preparing Institutional Biosafety Committee (IBC) Protocols	Arnold Zea, PhD
May 11, 2027	Preparing and Submitting Institutional Review Board (IRB) Protocols	Jessica Rivera, MD, PhD
June 8, 2027	Basics of Submitting Extramural Fellowship & Career Development Applications	Scott Edwards, PhD & Liz Simon, PhD Sidney Vita, PhD & Amanda Pahng, PhD
July 13, 2027	Post-Award Activities	Carly Pigg, CRA, CPRA, CFRA & Sydney Vita, PhD

Learning Objectives



- Distinguish between different NIH activity codes and NIH funding mechanisms
- Recognize and describe the major components of a typical NIH grant proposal
- Navigate the NIH grant submission process and the necessary coordination with institutional offices

LSU Health
NEW ORLEANS

Why Should You Think About Grants Now?





- Grant writing presents an opportunity to demonstrate that you can envision a major research trajectory, balancing independence and collaborative skill.
- Grantsmanship can take time to develop, but once the skill is established, it is highly transferrable and immensely valuable to current and future employers.
- It is never too early or too late to start! Also, you're surrounded by investigators and collaborators who can help you turn your ideas into funded team science.

Some Major Extramural Funding Opportunities













NIH Extramural Research Funding

- The NIH's mission is to fund the best scientific projects to improve public health (sometimes the rich get richer).
- Approximately 80% of NIH budget is for extramural research.
- The merit of each application is reviewed by NIH's peer review system (including you and me).



Major NIH Funding Mechanisms

- Grants = where investigators are responsible for developing the concepts, methods, and approach for a research project.
  - Solicited = NIH institute seeks applications in a specific area
  - Unsolicited = Proposal idea initiated by the principal investigator
- Contracts = where the NIH institute is responsible for establishing the detailed requirements.
  - Principal investigators will submit a competitive bid offer

National Institutes of Health (NIH) Institutes & Centers

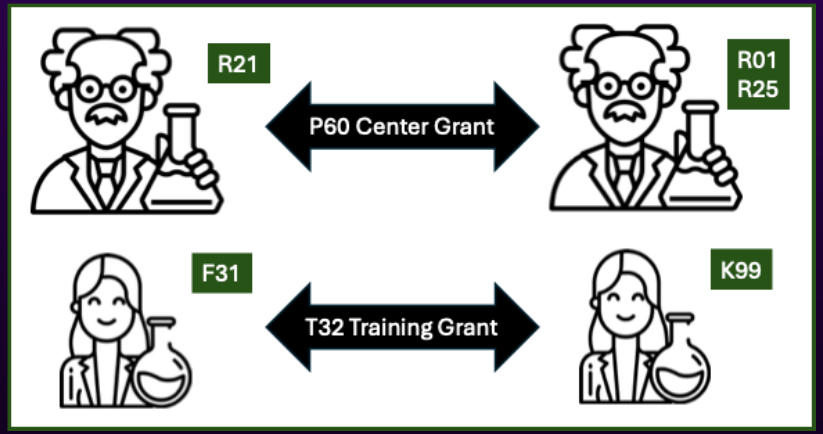
- 27 institutes and centers (congressional limit!)
- Most are specific to a disease of national interest:
  - National Cancer Institute (NCI)
  - National Heart, Lung, and Blood Institute (NHLBI)
  - National Institute on Drug Abuse (NIDA)
  - National Institute on Alcohol Abuse and Alcoholism (NIAAA)
  - National Institute on Mental Health (NIMH)
  - National Institute of General Medical Sciences (NIGMS)





NIH Extramural Activity Codes

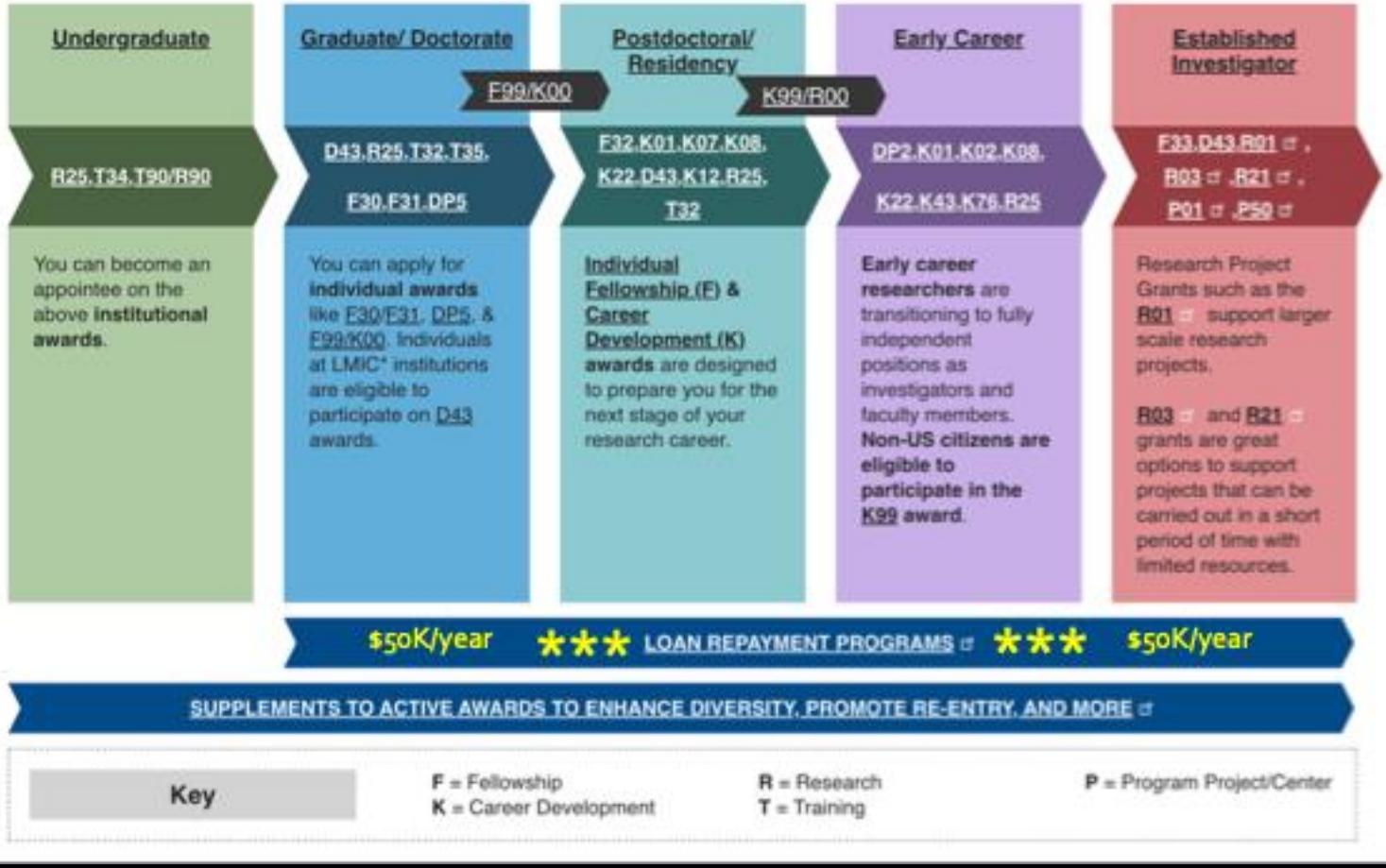
- Research Projects (R series)
- Career Development (K series)
- Fellowship Awards (F series)
- Training Programs (T series)
- Projects & Centers (P series)



NIH center & training grants often provide the fruitful environment for maximizing independent grant success

LSU Health NEW ORLEANS

NIH Funding Programs by Career Stage



Fellowship Award Programs



Provide stipend, tuition, and small institutional allowance

- F30 – Predoctoral fellowship for MD/PhD students
- F31 – Predoctoral fellowship for PhD students
- F32 – Postdoctoral fellowship
- F99/K00 – Transition from predoctoral to postdoctoral training

Basic science and clinical research faculty provide essential mentoring for these awards!

Career Development Awards (PhD Focus)

K01 Criteria (Mentored Career Development Award)

- **Eligibility Requirements:** Doctoral degree, faculty or equivalent position, U.S. citizen or permanent resident
- **Award Duration:** Five years
- **Due Dates:** Feb. 12, June 12, Oct. 12
- **Budget:** Up to $100,000 salary and $50,000 research support

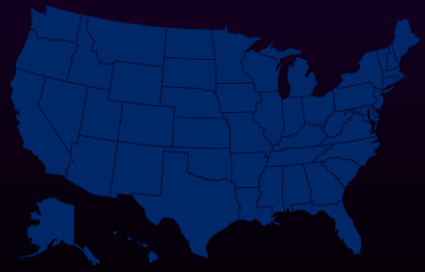
Often (not always) stay local

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K99 Criteria (Pathway to Independence Award)

- **Eligibility Requirements:** Doctoral degree, up to four years postdoctoral experience
- **Award Duration:** Two years postdoctoral
- **Due Dates:** Feb. 12, June 12, Oct. 12
- **Budget:** Up to $100,000 salary and $30,000 research support

Often (not always) leave



Research Project Grants & Budgets

- R01 – Discrete, specified major projects
  - $1.25M over five years (can be more)
- R03 - Preliminary, short-term projects
  - $50K (also consider internal SOM grant)
- R21 – Exploratory, developmental grants
  - $375K over two years
- R25 – Education & training projects
  - Up to $500K annually



New Investigators (NI) and Early-Stage Investigators (ESI)



- NI = Has not previously received a significant award from NIH
  - Perhaps previous funding from NSF or other source
- ESI = Within ten years of terminal degree or post-grad training
  - Terminal degree typically PhD or MD, & postdoc training
- Special privileged paylines for R01s:
  - Dr. Edwards was ESI in 2019, & NIAAA "paylines" were 18% vs. 28% ESI



Research Program Projects and Centers



LSU HEALTH SCIENCES CENTER
COMPREHENSIVE ALCOHOL-HIV/AIDS RESEARCH CENTER

- P01 – Research Program Project
- P50 – Specialized Center Grant (More Integrative)
- P60 – Comprehensive Center Grant (Includes Outreach)
- To support multipurpose units unified into a common theme within a particularly strong research community

NIH RM1
Collaborative Program Grants
Interdisciplinary Team Science
NO LONGER A LIMITED SUBMISSION
$500K–$900K/year
Expected annual direct costs
Up to 5 years
Requests up to $1.5M/year in direct costs
13 NIH institutes & centers
PAR-27-003

Small Business Grants



- R41/R42 = Small Business Technology Transfer (STTR)
  - Supports cooperative research projects between small business and research institutions. To establish merit and feasibility ideas with potential for commercialization.
- R43/R44 = Small Business Innovation Research (SBIR)
  - Supports projects to establish technical merit and feasibility that lead to commercial products and services.

Small Business (STTR/SBIR) Research Café Date: December 8, 2026

Formal NIH Training Programs

- T32 – Fund academic institution for training predoctoral and postdoctoral candidates.
  - T32 Biomedical Alcohol Research Training Program
- T35 – Provide short-term research training.
  - Summer student research experiences
  - T35 Medical Student Alcohol Research Internship

Basic science and clinical faculty provide essential mentoring!



Award-Winning
NIH/NIAAA T35 Medical Student
Alcohol Research Internship
Summer 2026 Cohort

Major Components of an NIH Proposal





Specific Aims Page

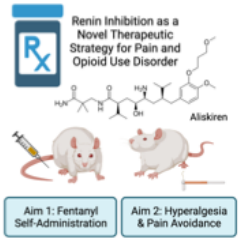
- Snapshot of entire project proposal with background and major research aims.
- Aims should be connected but not dependent on the success of each other.
- Introduce specific hypotheses and methods utilized.
- Many reviewers will start here!
- Note: move summary figure shown here to Research Strategy.

Research Café Date: Jan 12, 2027

Specific Aims

Opioid use disorder (OUD) is characterized by an escalation of opioid use over time and a parallel development of intense negative emotional states. Central to this conceptualization is the continued use of opioids to self-medicate both somatic and emotional pain in individuals suffering from OUD (Pahng and Edwards, 2021). Effective pain management is also a principal aim of medical care, with opioids remaining a frontline resource for analgesia in chronic pain patients. However, opioid exposure directed at alleviating pain can also render individuals more sensitive to nociceptive stimuli, a condition known as opioid-induced hyperalgesia. As a preclinical model of this phenomenon, extended access to self-administered opioids (Edwards et al., 2012), including prescription opioids, produces allodynia/hyperalgesia symptoms in rodents, suggesting a potentiation of pro-nociceptive systems. The elucidation of novel pathophysiological mechanisms driving the escalation of opioid use and subsequent opioid-induced hyperalgesia are desperately needed, spurring the NIH Helping to End Addiction Long-Term (HEAL) initiative to support the early-stage discovery of new pain and OUD targets.

We have identified **renin inhibition** as a highly promising strategy in accord with this initiative, particularly since FDA-approved renin inhibitors are clinically available and well tolerated in most individuals. The renin-angiotensin system (RAS) is a hormone cascade essential for the regulation of blood pressure, although a role in pain has also been described (Bessaguet et al., 2016) including contributions of the brain's RAS (Urmilla et al., 2021). The small molecule renin inhibitor aliskiren (brand names Tekturna and Rasilez) was FDA approved in 2007 for primary hypertension. More recent studies have described a beneficial role for aliskiren to reduce allodynia/hyperalgesia symptoms in a diabetic neuropathy pain model (Alkhudhayri et al., 2020), although its effects on opioid-related pain are unknown. Another critical dimension to both OUD and chronic pain is the affective or emotional pain component that may be reflected in an exaggerated avoidance of noxious stimuli (Shurman et al., 2010; Massaly et al., 2021). We have characterized an innovative behavioral assay to measure increases in pain avoidance-like behavior and associated neuroadaptations in opioid-dependent animals (Pahng et al., 2017; Pahng and Edwards, 2018). Our more recent work has examined sex differences in voluntary fentanyl use in animals given either extended access (long access, LgA) or limited access (short access, ShA) to fentanyl self-administration (Barattini et al., 2023). We have also confirmed the development and expression of mechanical allodynia in male rats during withdrawal from fentanyl self-administration. With this comprehensive model, we are prepared to meet the urgent challenge presented by the HEAL initiative to directly test our **overall hypothesis that renin inhibition will reduce the escalation of fentanyl self-administration and significantly alleviate hyperalgesia and pain avoidance-like behaviors in fentanyl self-administering animals**. We will test these predictions via two specific aims:



Specific Aim 1 – **Test the hypothesis that a renin inhibitor will reduce fentanyl self-administration in animals given extended access to the drug.** This aim will incorporate the LgA/ShA model of fentanyl self-administration to determine the efficacy of aliskiren (direct renin inhibitor) to alter escalated fentanyl intake in male and female rats. Experiments within this aim will also measure changes in plasma renin activity (PRA) in male and female rats receiving fentanyl via self-administration or passive administration.

Specific Aim 2 – **Test the hypothesis that a renin inhibitor will alleviate mechanical & thermal hyperalgesia and reduce pain avoidance-like behavior during fentanyl withdrawal.** This aim will incorporate von Frey (mechanical) and Hargreaves (thermal) measurements of allodynia/hyperalgesia along with a novel mechanical conflict avoidance assay to determine the efficacy of aliskiren to alleviate pain-related symptoms in male and female rats during withdrawal from fentanyl self-administration.

This proposal examines an FDA-approved therapeutic strategy (direct renin inhibition) to serve as a novel therapeutic avenue for the treatment of OUD and pain. These studies will be conducted in a research environment that features substantial expertise in behavioral neuroscience and neuropharmacology within a comprehensive physiology department and drug abuse center that will maximize the translational potential of these and future directions.

Research Strategy

- Provides an expanded layout of:
  - Background & Scientific Premise
  - Discussion of Innovation
  - Preliminary & Feasibility Data
  - Experimental Aims, Limitations, & Alternative Approaches
  - Methods & Statistical Analyses

Research Café Date: Feb 16, 2027

Research Strategy

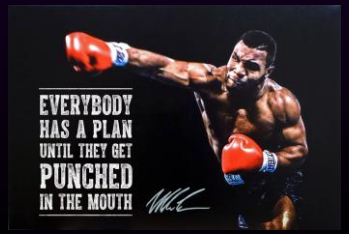
Excessive Opioid Use and the Paradoxical Worsening of Pain Symptoms Opioid exposure directed at alleviating pain also paradoxically renders individuals more sensitive to nociceptive stimuli, a condition known as opioid-induced hyperalgesia, or in cases where non-noxious stimuli become painful, allodynia (McGinn and Edwards, 2016). In accordance with this hypothesis, opioid exposure or self-administration in rodents leads to allodynia/hyperalgesia that is magnified with chronic or excessive exposure (Edwards et al., 2012). Given that chronic pain is well known to cause both emotional distress and a negative emotional state (Elman et al., 2013), opioid-induced allodynia/hyperalgesia may be an important co-morbidity closely associated with opioid use disorder (OUD) by facilitating negative reinforcement or self-medication processes (Volkow et al., 2019). Shurman and colleagues (2010) have further hypothesized that effective pain management with doses of opioids that are strictly titrated to the relief of pain represents the best treatment strategy from a clinical perspective, whereas any over-exposure to opioids in excessive amounts may lead to the recruitment of opponent motivational processes in terms of both pain (allodynia/hyperalgesia) and negative affect (termed hyperkatifeia). This aligns with DSM-V OUD criteria of escalated opioid use, severe withdrawal symptoms, and attempts to avoid withdrawal symptoms.

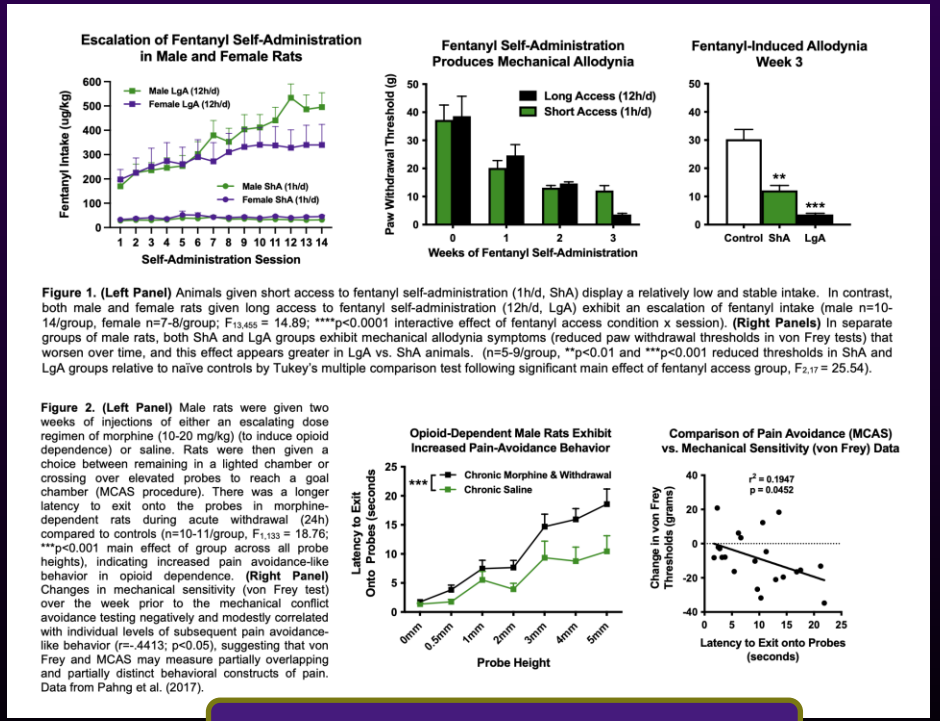
Animal Models of Prescription Opioid Use Disorder & Affective Pain A critical breakthrough in the ability to examine negative reinforcement theories of OUD has been the development and refinement of reliable animal models of escalated drug self-administration (Ahmed and Koob, 1998). For example, extended access to heroin self-administration (12h per day; Long Access [LgA]) leads to escalation of heroin intake and dependence in rats, while animals given restricted access (1 h per day; [ShA]) maintain a steady low level of use and may better model recreational drug users (Edwards et al., 2012; Edwards and Koob 2013). Importantly, direct comparison of LgA animals to ShA animals may allow for the revelation of mechanisms associated with the transition from initial opioid use to dependence (Edwards, 2016). Concurrent evaluation of this constellation of behaviors associated with excessive opioid intake allows for a remarkably valid and comprehensive analysis of addiction-related symptomatology with considerable face validity, allowing for the study of basic physiological mechanisms underlying each component as well as the preclinical development of novel therapeutic strategies (Edwards and Koob, 2012). A recent study (Wade et al. 2015) established parameters for ShA and LgA self-administration of the prescription opioid fentanyl in rats. Our preliminary data using these procedures demonstrates a significant development of mechanical allodynia during withdrawal that appears to correlate with fentanyl access (**Figure 1**). As pain is a multidimensional experience comprised of both somatic sensory and cognitive/motivational/affective components, we have also developed a valuable model of heightened pain avoidance behavior in the context of opioid dependence (**Figure 2**).

Justification for Targeting Renin Physiology for the Treatment of Pain and OUD A screen associated with a previous HEAL RFA revealed the renin receptor as a part of the understudied druggable proteome. After conducting a comprehensive search of the literature and consulting with our renal physiology and pharmacology colleagues, we considered the best strategy for intervention at the level of this target while incorporating a viable translational approach. While the renin receptor mediates much of the physiological activity of renin on target systems (including angiotensin production; Nguyen et al., 2022), directly inhibiting the receptor is not currently feasible outside of *ex vivo* application of dominant-negative peptidergic compounds that may not translate well. We instead believe that direct inhibition of renin itself would serve as an effective way to reduce renin receptor activity, and this strategy is all the more promising given our ability to inhibit this system via the FDA-approved therapy aliskiren. Moreover, a comprehensive study (Patel et al., 2013) demonstrated the antinociceptive efficacy of aliskiren (1-50 mg/kg) in the writhing test, formalin hind paw test, capsaicin-induced pain test, and orofacial pain test in mice as well as beneficial effects in models of post-operative pain and neuropathic pain in Sprague-Dawley rats (30-100mg/kg). A more chronic regimen of aliskiren (45 mg/kg per day for eight weeks) also attenuated neuropathic pain in diabetic Sprague-Dawley rats (Alkhudhayri et al., 2021), suggesting that analgesic tolerance does not develop with repeated treatment. Another study found that a similar dose range (15-60 mg/kg) reduced systemic inflammatory markers and pathological symptoms in two inflammation models in Wistar rats (Aziz et al., 2020). Less is known about how opioids may regulate renin release and activity. One study in newborns (24-48 hours old) of opioid-dependent mothers revealed hypertension in association with elevated plasma renin activity (Dube et al., 1981). Renin activity was also increased in rats experiencing naloxone-precipitated withdrawal (Delle et al., 1990). There is also considerable evidence for a brain RAS that could be particularly relevant to OUD and the cognitive/motivational/affective dimensions of pain, although the precise mechanisms are controversial (Sigmund et al., 2017) but could be explored in future work.

Elements of the Research Strategy

- Clear figures and experimental design
- Use rhetoric & references strategically
- Put words in the reviewer's mouth: "This work is innovative because…"
- State limitations of proposal
- List viable alternative approaches





Research Café Date: Feb 16, 2027

NIH Biographical Sketch

- Somewhat of a resumé and CV combo.
- For collaborative grants all associated personnel will submit an NIH Biosketch describing their role in the proposal.
  - Principle Investigator
  - Sponsor & Co-Sponsors
  - Collaborators & Consultants
- You will submit this anytime you are part of a formal NIH grant proposal in your career.
  - Make one now on SciENcv
  - Customize for each use!

Research Café Date: Mar 9, 2027

OMB No. 3145-0279 (Expiration Date 04/30/2027)

NIH BIOGRAPHICAL SKETCH COMMON FORM

Name: Edwards, Scott

Persistent Identifier (PID) of the Senior/Key Person: https://orcid.org/0000-0002-0865-7758

Position Title: Professor and Vice Chair of Physiology

Organization and Location: LSU Health New Orleans, New Orleans, Louisiana, United States

PROFESSIONAL PREPARATION

INSTITUTION AND LOCATION	DEGREE	Start Date	Completion Date	FIELD OF STUDY
The Scripps Research Institute, La Jolla, California, United States	Postdoctoral Fellow	07/2007	09/2013	Addictive Disorders
The University of Texas Southwestern Medical Center at Dallas, Dallas, Texas, United States	DOCTOR OF PHILOSOPHY	09/2000	05/2007	Neuroscience
The University of Texas at Austin, Austin, Texas, United States	BACHELOR OF SCIENCE	09/1995	05/2000	Biochemistry

Appointments and Positions

2026 - present	Professor and Vice Chair of Physiology, LSU Health New Orleans, New Orleans, Louisiana, United States
2019 - 2026	Associate Professor of Physiology, LSU Health New Orleans, New Orleans, Louisiana, United States
2013 - 2019	Assistant Professor of Physiology, LSU Health, New Orleans, Louisiana, United States

Products

Products Closely Related to the Proposed Project

1. Morris T, Cucinello-Ragland JA, Marks TJ, Prevost K, Glenn JF, Davenport GJ, Edwards S, Winsauer PJ. Distinct antinociceptive and conditioned behavioral effects are produced by individual cannabinoids and a cannabis-derived mixture. Pharmacol Biochem Behav. 2024 Feb;235:173692. PubMed PMID: 38128766.
2. Fucich EA, Stielper ZF, Cancienne HL, Edwards S, Gilpin NW, Molina PE, Middleton JW. Endocannabinoid degradation inhibitors ameliorate neuronal and synaptic alterations following traumatic brain injury. J Neurophysiol. 2020 Feb 1;123(2):707-717. PubMed Central PMCID: PMC7052644.
3. Stielper ZF, Fucich EA, Middleton JW, Hillard CJ, Edwards S, Molina PE, Gilpin NW. Traumatic Brain Injury and Alcohol Drinking Alter Basolateral Amygdala Endocannabinoids in Female Rats. J Neurotrauma. 2021 Feb 15;38(4):422-434. PubMed Central PMCID: PMC7875607.
4. Lee S, Edwards S. Alcohol and cannabis use for pain management: Translational findings of relative risks, benefits, and interactions. Physiol Behav. 2025 May 15;294:114867. PubMed Central PMCID: PMC13242101.
5. Orio L, Edwards S, George O, Parsons LH, Koob GF. A role for the endocannabinoid system in the increased motivation for cocaine in extended-access conditions. J Neurosci. 2009 Apr 15;29(15):4846-57. PubMed Central PMCID: PMC2688678.

Other Significant Products Highlighting Contributions to Science

1. Vendruscolo LF, Estey D, Goodell V, Macshane LG, Logrip ML, Schlosburg JE, McGinn MA, Zamora-Martinez ER, Belanoff JK, Hunt HJ, Sanna PP, George O, Koob GF, Edwards S, Mason BJ. Glucocorticoid receptor antagonism decreases alcohol seeking in alcohol-dependent individuals. J Clin Invest. 2015 Aug 3;125(8):3193-7. PubMed Central PMCID: PMC4563748.
2. Lee SS, Romero LM, Lammons JW, Klein JM, Edwards KN, Guidry JJ, Edwards S. Proteomic analysis of central amygdala systems regulated by mifepristone in the context of alcohol dependence. Neuropharmacology. 2026 Feb 1;283:110728. PubMed Central PMCID: PMC13293126.
3. Simon L, Edwards S, Molina PE. Pathophysiological Consequences of At-Risk Alcohol Use; Implications for Comorbidity Risk in Persons Living With Human Immunodeficiency Virus. Front Physiol. 2021;12:758230. PubMed Central PMCID: PMC8804300.

Personal Statement

I am a Tenured Professor and Vice Chair of Training and Mentoring in the Department of Physiology, with dual appointments in the Alcohol & Drug Abuse Center of Excellence (ADACE) and Neuroscience Center of Excellence (NCE) at LSU Health-New Orleans. My research laboratory is currently funded by NIDA R21, NIAAA P60 Research Component, and NIH contract support with projects that span rodent, non-human primate, and human research into alcohol-related disease processes. I am also Associate Director of our NIH/NIAAA-sponsored T32 and T35 training programs. With extensive expertise in the molecular pharmacology of alcohol and endocannabinoid signaling and medications development for alcohol use disorder, I am thrilled to formally join this multidisciplinary team that includes Dr. Janos Paloczi and Dr. Jason Gardner. This innovative work incorporates themes related to biological mechanisms I have investigated throughout my 30-year career in the biomedical sciences with a major focus on translational alcohol use disorder (AUD) models, closely related co-morbidities, and cannabis/endocannabinoid signaling mechanisms. I will leverage this investigative experience, along with my leadership positions at LSU Health New Orleans, toward meeting the collaborative research needs of Dr.Paloczi and Dr. Gardner for this highly promising R01 proposal.

Budget & Budget Justification

Business Manager

Budget Justification

Personnel:

Scott Edwards, PhD (LSU Health-New Orleans, 20-15% effort), Principal Investigator: Dr. Edwards has extensive experience using preclinical animal models to investigate the biochemical and behavioral pharmacological mechanisms underlying substance use disorder and will provide scientific direction and managerial oversight for technical staff and any trainees involved in the project in close collaboration with Dr. Amanda Pahng, who he has collaborated extensively with on the procedures contained within this proposal. His laboratory will conduct all behavioral and molecular assay experiments in close coordination and consultation with Dr. Pahng. He will also be responsible for preparation of progress reports, dissemination of findings, and preparation of all associated regulatory protocols.

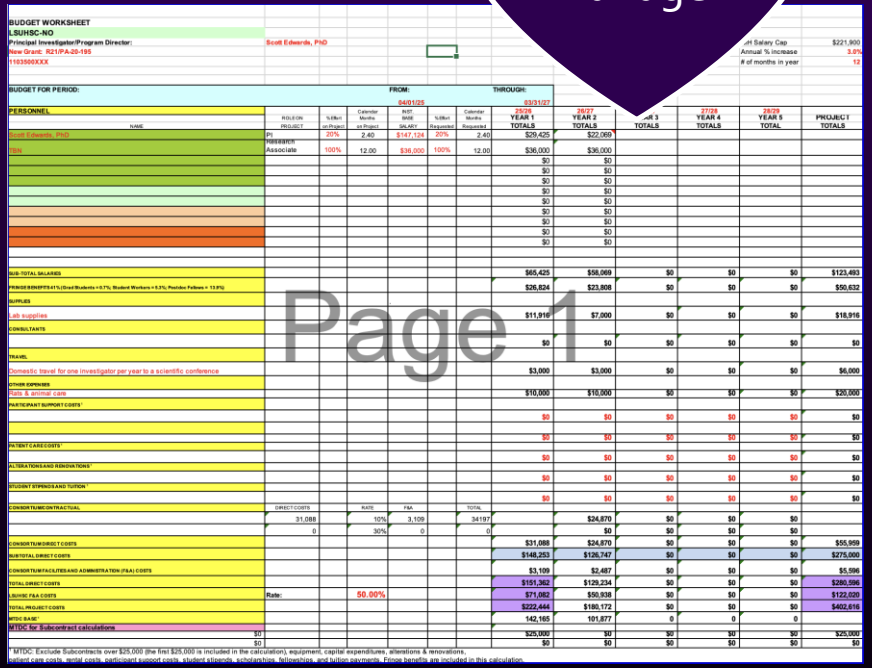
Amanda Pahng, PhD (Southeast Louisiana Veterans Health Care System and LSU Health-New Orleans, 25-20% effort), Principal Investigator: Dr. Pahng developed the use of the Mechanical Conflict Avoidance System (MCAS) to measure pain avoidance-like behavior in opioid-dependent animals and will consult and guide the conduction and interpretation of behavioral experiments (operant fentanyl self-administration and pain avoidance tasks). Dr. Pahng will also assist in the dissemination of findings and preparation of all regulatory protocols.

Research Associate 1, TBD (LSU Health-New Orleans, 100% effort): Funds are requested for a Research Associate 1 who will oversee and help conduct all surgical procedures, behavioral experiments, and renin activity assays. They will collect, organize, and report the data to Dr. Edwards and Dr. Pahng for analysis and dissemination.

Supplies, travel, and other expenses:

Materials and Supplies: Funds are requested to purchase rodents (n=200) and housing per diems. In addition, funds are requested for IV surgical supplies. Funds are also requested for aliskiren and plasma renin activity (PRA) analyses.

Travel: Funds are requested to support travel for one investigator per year to attend a scientific conference. We anticipate presenting our findings at the Society for Neuroscience.



BUDGET WORKSHEET
LSUHSC-NO
Principal Investigator/Program Director: Scott Edwards, PhD
New Grant: R21/PA-20-195
1183500XXX

BUDGET FOR PERIOD: FROM: 04/01/25 THROUGH: 03/31/27

PERSONNEL NAME	ROLE ON PROJECT	%Effort on Project	Calendar Months on Project	INST BASE SALARY	%Effort Requested	Calendar Months Requested	25/26 YEAR 1 TOTALS	26/27 YEAR 2 TOTALS	Year 3 TOTALS	27/28 YEAR 4 TOTALS	28/29 YEAR 5 TOTAL	PROJECT TOTALS
Scott Edwards, PhD	PI	20%	2.40	$147,124	20%	2.40	$29,425	$22,069				
TBN	Research Associate	100%	12.00	$36,000	100%	12.00	$36,000	$36,000				
							$0	$0				
							$0	$0				
							$0	$0				
							$0	$0				
							$0	$0				
							$0	$0				
							$0	$0				
							$0	$0				
							$0	$0				
SUB-TOTAL SALARIES							$65,425	$58,069	$0	$0	$0	$123,493
FRINGE BENEFITS 41% (Grad Students = 0.7%, Student Workers = 0.3%, Postdoc Fellows = 13.8%)							$26,824	$23,808	$0	$0	$0	$50,632
SUPPLIES												
Lab supplies							$11,916	$7,000	$0	$0	$0	$18,916
CONSULTANTS												
							$0	$0	$0	$0	$0	$0
TRAVEL												
Domestic travel for one investigator per year to a scientific conference							$3,000	$3,000	$0	$0	$0	$6,000
OTHER EXPENSES												
Rats & animal care							$10,000	$10,000	$0	$0	$0	$20,000
PARTICIPANT SUPPORT COSTS*												
							$0	$0	$0	$0	$0	$0
							$0	$0	$0	$0	$0	$0
PATIENT CARE COSTS*												
ALTERATIONS AND RENOVATIONS*							$0	$0	$0	$0	$0	$0
STUDENT STIPENDS AND TUITION *							$0	$0	$0	$0	$0	$0
CONSORTIUM/CONTRACTUAL	DIRECT COSTS		RATE	F&A		TOTAL						
	31,088		10%	3,109		34197		$24,870	$0	$0	$0	
	0		30%	0		0		$0	$0	$0	$0	
CONSORTIUM DIRECT COSTS							$31,088	$24,870	$0	$0	$0	$55,959
SUBTOTAL DIRECT COSTS							$148,253	$126,747	$0	$0	$0	$275,000
CONSORTIUM FACILITIES AND ADMINISTRATION (F&A) COSTS							$3,109	$2,487	$0	$0	$0	$5,596
TOTAL DIRECT COSTS							$151,362	$129,234	$0	$0	$0	$280,596
LSUHSC F&A COSTS	Rate:		50.00%				$71,082	$50,938	$0	$0	$0	$122,020
TOTAL PROJECT COSTS							$222,444	$180,172	$0	$0	$0	$402,616
MTDC BASE*							142,165	101,877	0	0	0	
MTDC for Subcontract calculations							$25,000	$0	$0	$0	$0	$25,000
$0							$0	$0	$0	$0	$0	$0

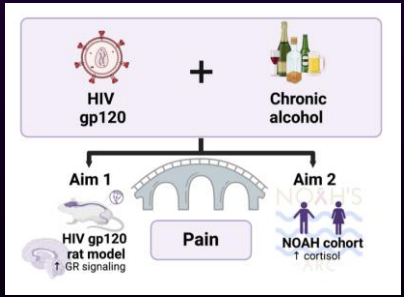
* MTDC: Exclude Subcontracts over $25,000 (the first $25,000 is included in the calculation), equipment, capital expenditures, alterations & renovations, patient care costs, rental costs, participant support costs, student stipends, scholarships, fellowships, and tuition payments. Fringe benefits are included in this calculation.

Page 1

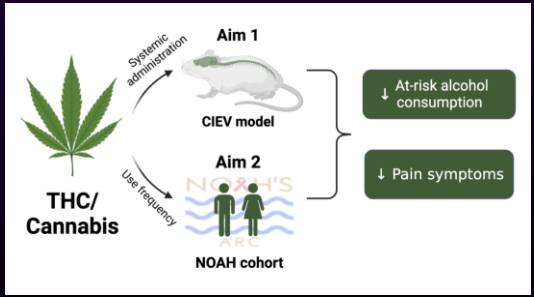
Budgets Research Café Date: Mar 9, 2027
Post-Award Research Café Date: July 13, 2027

Fellowship Specific Aims & Research Strategy

- Contributions from Sponsoring team, including conceptualizations & preliminary data.
- Keep in mind that the research should serve a training purpose in line with your goals.



Taylor Fitzpatrick-Schmidt
F30AA030941



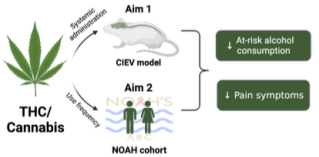
Stephanie Lee
F30AA031900

Contact PD/PI: Lee, Sumin

Specific Aims

Alcohol use disorder (AUD) affects more than 10% of the United States population (SAMHSA, 2023). AUD is a psychiatric disorder characterized by escalated alcohol use and the potentiation of negative motivational states. Alcohol is also well known for its analgesic effects (Thompson et al., 2017), although excessive use leads to increased pain sensitivity (or hyperalgesia) during withdrawal (Edwards et al., 2012, 2020). Chronic pain affects over 20% of the global population and contributes to the development and severity of both psychiatric illness and AUD, although effective pharmacological treatments for these conditions remain severely limited (Rikard et al., 2023). In recent years, many individuals have turned to recreational or medicinal cannabis for management of chronic pain and related health conditions. Specifically, delta-9-tetrahydrocannabinol (THC), the main psychoactive component of cannabis, may offer a promising avenue for treating pain, a common cause of excessive drinking in individuals with AUD. While some support for the motivated use and utility of cannabis to reduce alcohol drinking exists at the clinical level, there is an urgent need to understand both the anti-hyperalgesic efficacy of cannabis/THC in the context of alcohol dependence and how use may either mitigate or worsen the risk of escalated drinking and AUD (Risso et al., 2020).

Our previous preclinical work has shown a functional role for the central amygdala (CeA) in the promotion of hyperalgesia and escalation of alcohol drinking in a preclinical animal model of AUD. As an extension of my NIAAA T35 Summer Research Fellowship examining biobehavioral outcomes of acute alcohol in the context of chronic inflammatory pain (Cucinello-Ragland et al., 2023), I recently analyzed a proteomics data set that compared CeA protein expression in alcohol-dependent vs. non-dependent rats of both sexes. My analysis revealed significant changes in several canonical pathways affected by alcohol, including the endocannabinoid (eCB) neuronal synapse pathway in both sexes. Our findings indicate that chronic alcohol exposure produces a state of endocannabinoid system dysregulation that may underlie the potential therapeutic efficacy of cannabis/THC in individuals suffering from AUD and AUD-related pain. These preliminary results underscore the need for more comprehensive investigations to understand the intricate interplay between the eCB system, pain symptoms, and alcohol use. **My overall hypothesis is that activation of the cannabinoid system will be associated with a reduction in pain symptoms and alcohol use.** This hypothesis will be examined with specific aims combining a preclinical animal model of AUD and a cross-sectional examination of a clinical cohort of cannabis-using individuals that exhibit various levels of alcohol drinking and AUD risk.



Specific Aim 1: Test the hypothesis that delta-9-THC administration alleviates hyperalgesia and reduces escalated alcohol self-administration in alcohol-dependent male and female rats. Using the chronic, intermittent ethanol vapor (CIEV) procedure, I will determine the dose-dependent pharmacological efficacy of delta-9-THC systemic administration on pain-related behaviors (mechanical/thermal hypersensitivity and pain avoidance) and alcohol self-administration in alcohol-dependent rats of both sexes. This work will be guided by Dr. Scott Edwards (Sponsor) and Dr. Nicholas Gilpin (Co-Sponsor), who have a rich collaborative history.

Specific Aim 2: Test the hypothesis that cannabis use is associated with reduced pain symptoms and reduced at-risk alcohol use in men and women. I will utilize both self-reported and empirical measures of mechanical and thermal nociceptive sensitivity to quantify pain symptoms in the NIAAA-funded Comprehensive Alcohol Research Center (CARC; PI Dr. Patricia Molina, Co-Sponsor) New Orleans Alcohol Use in HIV (NOAH) cohort. To determine recent and at-risk alcohol use, I will examine circulating phosphatidylethanol (PEth) levels (objective biomarker of recent alcohol use), lifetime drinking history (LDH), Addiction Severity Index (ASI), and Alcohol Use Disorder Identification Test (AUDIT) scores. To determine the incidence and frequency of cannabis use, I will utilize self-report, ASI, and Cannabis Use Disorder Identification Test (CUDIT) data. Correlational analyses of data from our established baseline cohort (n=365, 31% female) will be followed by more stringent logistical regression and longitudinal analyses to determine important relationships and contributing variables (***see Letter of Support from Dr. Tekeda Ferguson, Director of CARC Data Analysis Core***).

This research training plan will provide valuable new information on the utility and efficacy of cannabis/THC interventions for the treatment of AUD and related pain symptoms in men and women while facilitating the career development of a future physician-scientist focused on a translational research career in the clinical neurosciences.

Timeline for Proposed Training:

	G2 (2024 – 25)	G3 (2025 – 26)	M3 (2026 – 27)	M4 (2027 – 28)
Research	Experiments and Analysis for Aim 1 & Aim 2; Lab Technical and Analytical Skills; Preliminary Exam; Manuscript 1; Manuscript 2	Manuscript 3; Dissertation and Defense; Manuscript 4	Basic Science & Clinical Seminars; Complete Any Unfinished Manuscripts	
Clinical Training	Monthly Empirical Pain Tests for NOAH Cohort; *Back to Medicine* Talks; Biweekly Volunteer at Student-Run Community Clinic (SRCC); Monthly Volunteer with Freestanding Communities (Local Health Outreach Organization); Monthly MD/PhD Forum for Community Building, Clinical Vignettes, and Research Updates; Monthly CARC ICC Meetings (Including Dr. Welsh & Dr. Ferguson)		Clinical Clerkships	
Professional Development	RSA Conference; ICRS; SEMSS; Society for Neuroscience Conference; American Physiology Summit; Weekly Student Work in Progress (SWIP) Meetings; Weekly Edwards Lab Meetings & 1-on-1 Meetings with Dr. Edwards; Monthly Co-Sponsors Lab Meetings	RSA Conference; SEMSS; Society for Neuroscience Conference; American Physiology Summit	RSA Conference; Small Group Medical Ethics Discussions; HIPAA Privacy Training	RSA Conference
Coursework	Perspectives in Alcohol Research; Weekly Seminar & Journal Club; Biostatistics; Scientific Writing; Endocrinology; Responsible Conduct of Research II; Neurophysiology of Behavior; Ethics in Biomedical Sciences		Clinical Courses	



Fellowship (F) & Career Development Award (K) Research Café Date: June 8, 2027

Other Parts of an Extramural Grant App

- Vertebrate Animals & Human Subjects
- Facilities & Resources
- Biohazards and Select Agents
- Authentication of Key Resources
- Data Management & Sharing Plan
- Training in the Responsible Conduct of Research



Always try to re-purpose from an existing document!

Office of Research Services (ORS)

Facilitating timely intramural review of grant proposals, research agreements and research protocols for submission to review committees, sponsors or funding agencies

Ensuring conduct of research in compliance with regulatory policies and ethical standards, thus safeguarding the rights and welfare of both researchers and human and animal research participants



LSU Health NEW ORLEANS



Communicate Your Intention to Submit Early!

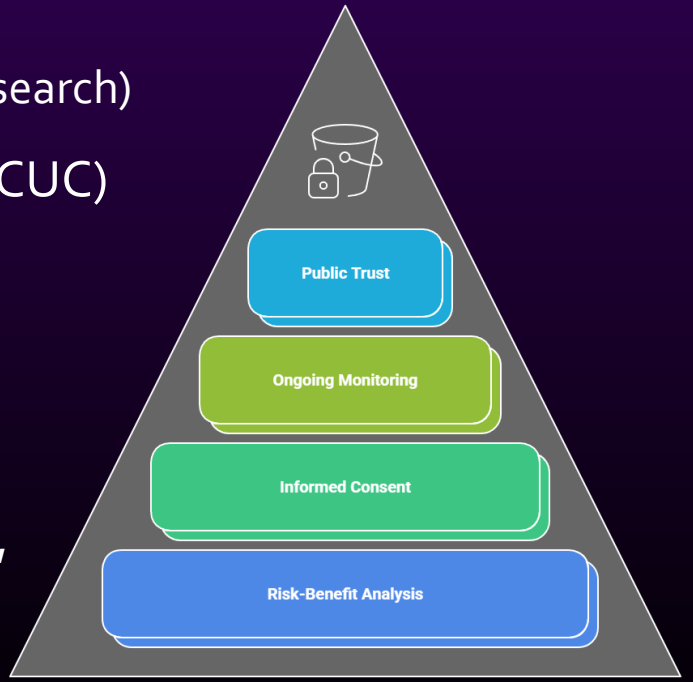


NOI is Due to ORS 20 Business Days Before Submission Due Date!

Institutional Regulatory Bodies

Research Café Dates
IBC – April 13, 2027
IRB – May 11, 2027

- Institutional Review Board (IRB)
  - Human subjects research (including educational research)
- Institutional Animal Care and Use Committee (IACUC)
  - Care and responsible use of live vertebrate animals
- Institutional Biosafety Committee (IBC)
  - Recombinant or synthetic nucleic acid molecules
  - Also pathogens, infectious materials, select agents, biological toxins, and other biohazards



Some Steps to Get Started

Respect and Rely on Your Colleagues!



- Have your institution register you with NIH eRA Commons
  - eRA Commons ID is required to submit grants
  - eRA Commons will allow you to track grant status
- Appreciate the time it takes to prepare grants & get funded
  - Getting funded can take a year even if everything goes perfectly
  - Respect all internal deadlines for processing submissions
  - You can submit six NIH grants per year (recycle preliminary data & diversify targets)
  - Utilize departmental and institutional resources for pre-review of grant proposals