

National Institute on Drug Abuse

# 2009 Summer Research with NIDA for Underrepresented Students



*“Providing students  
with valuable drug  
abuse research  
experiences”*



## PROGRAM

Summer Research with the National Institute on Drug Abuse (NIDA) encourages students from groups underrepresented in the sciences to pursue careers in biomedical and behavioral research. Through the program, high school and undergraduate students from underrepresented groups are introduced to the exciting field of substance abuse and addiction research via research placements with some of our most distinguished scientists. Students work with leading investigators for 8–10 weeks during the summer. The experience may include formal courses, participation in meetings, data collection, data analysis, interviewing, laboratory experiments, manuscript preparation, library research, literary reviews, and much more.

Summer Research with NIDA is now in its thirteenth year. Since the program's inception in 1997, more than 600 students have gained valuable experience in substance abuse and addiction research, and more than 200 sites have participated.

## ELIGIBILITY

This program emphasizes placing applicants who are from groups underrepresented in the biomedical and behavioral sciences (including African Americans, Hispanics, American Indians/Alaska Natives, and Asian/Pacific Islanders), although all can apply. Applicants must be currently enrolled in high school or college and in good academic standing.

Applicants must be at least 15 years of age and **citizens or permanent residents of the United States (no exceptions)**. **Applicants under the age of 18 can only be placed at research sites within daily-commuting distance from their home.**

Individuals who have participated in the Summer Research with NIDA program for two summers are not eligible to apply.

## SCOPE OF SUPPORT

Students will receive stipends for the summer based on the rate agreed upon with each research site, not to exceed \$10.00 per hour for undergraduate students (for a maximum stipend of \$4,000 for 10 weeks) and \$8.00 per hour for high school students (for a maximum stipend of \$3,200 for 10 weeks). Graduating high school seniors will be paid at the high school level. Please note that your research site will set up your pay schedule and method.

In cases where students are placed at distance sites, investigators can request up to \$2,500 for travel and per diem expenses. Assistance can be provided to students for costs associated with lodging. In most cases, investigators/research sites will locate/secure housing for students. If lodging is available at the research site, it is indicated in the site description.

## APPLICATION PROCEDURES

Please review the opportunities listed in this brochure under the sections for Social Sciences and Life Sciences and read the complete project descriptions at [www.drugabuse.gov/pdf/sposummer.pdf](http://www.drugabuse.gov/pdf/sposummer.pdf). After reviewing the descriptions, indicate on the application form the three sites that best meet your research interests or experience. **A complete application package, including your application, a transcript, two letters of recommendation, and a brief statement of your research career interest, is due to NIDA on March 17, 2009.** Please refer to the application form for mailing information and other details.

## Application Form

### Personal Information

Name:

Date of Birth:

Current Address: Street

City

State

Zip

Current Phone:

E-Mail:

Alternate E-Mail:

Permanent Address: Street

City

State

Zip

Permanent Phone:

Ethnicity:

U.S. Citizen or  
Permanent Resident?  Yes  
 No

Sex:  Male  
 Female

### Academic Information

School Presently Attending:

High School  College/University

Fr.  So.  Jr.  Sr.

Major:

Minor:

GPA for Major:

Cumulative GPA:

### Site Selections

Openings for summer research projects appear in two categories: Social Sciences and Life Sciences. Provide your top three choices, by number, in order of preference.

[1] \_\_\_\_\_ [2] \_\_\_\_\_ [3] \_\_\_\_\_

Do you have any schedule conflicts with the time period of the selections above?  Yes\*  No

\*If yes, please explain:

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## Qualifications

Indicate your qualifications for the area of research you have chosen (Pay close attention to the **site's description and preferred student attributes**):

I have read the project descriptions online and I meet the qualifications outlined in them.

\_\_\_\_\_  
Please Sign Here

**Please attach the following items to this form:**

**1. Transcript.**

Please submit an official transcript from your school.

**2. Statement of Research Career Interest.**

Submit a statement that describes your interest in substance abuse/addiction research, career plans, and educational plans beyond your undergraduate studies. Do not exceed one page.

**3. Two Letters of Recommendation.**

Submit letters of recommendation from an advisor and/or your teacher(s) or professor(s).

A complete application package, including your application, a transcript, two letters of recommendation, and a brief statement of your research career interest, is due to NIDA on **March 17, 2009**. If necessary, your school can send your transcript separately. All other items must be sent together. To ensure NIDA's timely receipt of your application package, you should mail your package at least 3–4 days in advance of the due date to:

**Regular Mail:**

Flair Lindsey, Program Analyst  
Special Populations Office  
National Institute on Drug Abuse  
6001 Executive Boulevard, Room 4216  
MSC 9567  
Bethesda, MD 20892-9567  
(301) 443-0441 (o)  
(301) 480-8179 (f)  
flindsey@nida.nih.gov

**Fedex:**

Flair Lindsey, Program Analyst  
Special Populations Office  
National Institute on Drug Abuse  
6001 Executive Boulevard, Room 4216  
Rockville, MD 20852





# Social Sciences



# **Social Sciences**

**Ideal for, but not limited to, students with majors/interests in psychology, sociology, anthropology, behavioral research, health psychology, social work, psychiatry, public health, and counseling**

**Investigator:** Scott Okamoto, Ph.D.  
**Institution:** Hawaii Pacific University, Honolulu, Hawaii  
**Research Area:** Social Work  
**Project Title:** Ecological Factors and Drug Use of Native Hawaiian Youth  
**Start Date, Program Length:** June 1, 2009 — 10 Weeks  
**Housing Available:** No  
**Student Attributes:** Seeking undergraduate student with a major in psychology, social work, or another allied discipline. Students with expertise in Hawaiian language and/or culture are preferred.

1

**Project Description:**

Research assistants will work on a multi-year grant focused on the environmental factors associated with the drug use in Native Hawaiian youth. These positions will provide students with opportunities for an applied research experience on a study that utilizes both qualitative and quantitative methodologies. This project involves field work for students with interests and skills in the social sciences.

**Investigator:** James L. Sorensen, Ph.D.  
**Institution:** University of California, San Francisco, San Francisco, California  
**Research Area:** Racial/Ethnic Health Disparities in Substance Abuse Treatment  
**Project Title:** Behavioral Research on Health Disparities in Substance Abuse Treatment  
**Start Date, Program Length:** June 1, 2009 — 10 Weeks  
**Housing Available:** Yes  
**Student Attributes:** Seeking undergraduate students with majors in psychology or a related social science. Candidates with an interest in an academic career in the social sciences or public health are preferred.

2

**Project Description:**

The Summer Research Training Program with NIDA at the University of California, San Francisco (UCSF) is a 10-week program for undergraduate students interested in substance abuse research. The goal of the program is to provide students with an advanced research experience in applied settings. Students will work with investigators affiliated with the California-Arizona Node of the NIDA Clinical Trials Network, which conducts high-quality multi-site clinical trials of substance abuse treatment and guides the development, dissemination, and adoption of evidence based treatments in the field.

In addition to participating in NIDA clinical trials, the California-Arizona Node has recently received funding to address research on racial and ethnic health disparities. As part of the summer research training experience, students will work with investigators at UCSF who are affiliated with the California-Arizona Node. Students will work on research projects and attend workshops and seminars to help them develop their skills as clinical researchers. Students will work on an individualized research project that will be presented as a poster and oral presentation at the broader UCSF Summer Research Training Program.

Research studies are conducted at clinics that are part of the San Francisco General Hospital (SFGH) Division of Substance Abuse and Addiction Medicine and community treatment programs affiliated with the California-Arizona Node. Examples of research projects funded by the NIDA Clinical Trials Network in which students may participate include (1) Health Disparities in African American and Latino Drug Users; (2) Cultural, Organizational, and Psychological Barriers that Deter Asian American and Pacific Islander Drug Users from Seeking and Enrolling in Substance Abuse Treatment; and (3) Secondary Data Analysis of NIDA Clinical Trials Network Studies to Identify Racial/Ethnic Differences in Substance Abuse Treatment Outcomes.

## 3

**Investigator:** Carlos Blanco, M.D., Ph.D.  
**Institution:** New York State Psychiatric Institute, New York, New York  
**Research Area:** Epidemiology and Services Research  
**Project Title:** Epidemiology and Services Studies in Substance Use Disorders  
**Start Date, Program Length:** June 1, 2009 — 10 Weeks  
**Housing Available:** No  
**Student Attributes:** Seeking undergraduate students with training in psychology or epidemiology. Students should have essential qualities of the ability to work independently (with appropriate supervision) and strong motivation.

**Project Description:**

This project encompasses a wide range of activities and fields, using epidemiology and health services research to examine the causes and mechanisms of substance use disorders and psychiatric disorders. Some of the work focuses on minority populations (e.g., race or gender). A key goal of this internship is to help students write 1–2 manuscripts for submission to a peer reviewed scientific journal, allowing them to be a co-author on those papers.

## 4

**Investigator:** Steve Shoptaw, Ph.D.  
**Institution:** University of California, Los Angeles (UCLA), Los Angeles, California  
**Research Area:** Methamphetamine Abuse Treatment, HIV Prevention  
**Project Title:** UCLA Medication Development Unit for Stimulant Abuse  
**Start Date, Program Length:** June 1, 2009 — 10 Weeks  
**Housing Available:** Yes  
**Student Attributes:** Seeking high school and undergraduate students who ideally have career interests in substance abuse treatment or intervention development; want to work in a dynamic research lab; are able to maintain strict confidentiality of research participants' information; are willing to work on research involving substance users, gay and bisexual men, individuals at risk for HIV infection, or members of other socially stigmatized groups; have moderate experience working with Microsoft® Office Suite; are able to adhere to a regular work schedule; and are willing to work at an off-campus location in the Westwood area.

**Project Description:**

The major goal of this project is to implement an articulated clinical program of stimulant pharmacotherapy trials, which are oriented exclusively to the treatment of methamphetamine dependence. Students will be exposed to theories, methods, clinical issues, public health issues, and community-based research addressing substance abuse prevention and treatment for methamphetamine addiction and HIV/AIDS prevention, care and treatment. The research group includes addiction medicine, HIV medicine, psychology, sociology, and public health experts who can provide hands-on experience and training supervised by Principal Investigator Shoptaw.

## 5

**Investigator:** Natasha Slesnick, Ph.D.  
**Institution:** The Ohio State University, Columbus, Ohio  
**Research Area:** Treatment of Homeless Youth  
**Project Title:** Evaluation of Treatments for Homeless Youth: CRA, MET and Case Management  
**Start Date, Program Length:** June 15, 2009 — 8 Weeks  
**Housing Available:** Yes  
**Student Attributes:** Seeking undergraduate students interested in working to improve



the life situation of troubled youth, especially those with multiple stressors associated with living on the streets, substance abuse, and history of child abuse, etc. Examples of majors consonant with this work include social work, counseling, psychology, and couples and family therapy.

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**Project Description:**

Substance abuse among homeless youth (between the ages of 14 and 20 years) is twice that of housed youth. Homeless youth also report a broader range and higher severity of substance-related, mental health, and family problems relative to housed youth. Shelters for runaways are overcrowded, and most shelters focus exclusively on crisis intervention and are, therefore, not equipped to treat youth for drug, alcohol, family, and related problems. To date, few studies have examined treatment effectiveness with this population. Given the high level of risk for health and psychological problems and their associated long-term social costs, there is a great need for identifying potent interventions. This study is a Stage II clinical trial examining outcome for three theoretically distinct interventions that have empirical bases: Community Reinforcement Approach, Case Management, and Motivational Enhancement Therapy. Homeless, street living youth are recruited from soup kitchens, shelters, and the streets and are engaged into the project. The research site is a drop-in center where homeless youth can receive food and rest and have access to showers and a washer/dryer. The relative effectiveness and therapeutic change process of the proposed interventions for homeless youth will be evaluated 3, 6, and 12 months after treatment and will include measures of substance use, homeless experiences, and mental health functioning. Students should be interested in social and behavioral sciences and will have the opportunity to participate in activities associated with project functioning.

<b>Investigator:</b>	Linda Mayes, M.D.
<b>Institution:</b>	Yale School of Medicine, New Haven, Connecticut
<b>Research Area:</b>	Parental and Adolescent Substance Abuse
<b>Project Title:</b>	Gender Differences in Adolescent Stress Response and Risk for Substance Use
<b>Start Date, Program Length:</b>	June 1, 2009 — 10 Weeks
<b>Housing Available:</b>	No
<b>Student Attributes:</b>	Seeking undergraduate students with majors in psychology or cognitive neuroscience.

**Project Description:**

Interns participating in this summer internship will have an opportunity to work on a number of research studies dealing with both children and adults, to attend lab meetings associated with these studies, and also to attend a series of ongoing research seminars about substance abuse. Longitudinal Studies of Prenatal Drug Exposure is the core research of the Mayes lab under the supervision of Linda Mayes and Michael Crowley. In this project, interns will learn (a) basic principles of neurocognitive assessment in school-age children and adolescents and practice administering tasks to control children; (b) principles of behavioral teratology and how to think about potentially toxic exposures during pregnancy; (c) basic methodology of longitudinal studies and especially guidelines regarding cohort maintenance; and (d) approaches to longitudinal data analysis.

Interventions for Drug-using Mothers is under the supervision of Nancy Suchman, Ph.D., a collaborator of the Mayes lab. This project studies a parenting intervention (Emotionally Responsive Parenting or ERP) for drug dependent mothers that aims to foster mothers' abilities to recognize children's emotional needs at different ages and mothers' capacities to be emotionally available to their children. Summer interns will learn (a) basic principles of designing intervention studies and specifically interventions for substance-using parents; (b) how to design evaluations for

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interventions; (c) assessments of parent-child interaction and attachment; and (d) principles of working with substance-abusing mothers in groups.

Electrophysiology of Developing Reward Systems in Prenatally Drug Exposed Adolescents, under the supervision of Linda Mayes and Michael Crowley, focuses on the behavioral and electrophysiological markers of developing reward systems in adolescence and the relation to heightened risk-taking behaviors including substance abuse. Summer interns participating in this research will learn: (a) concept of reward systems and dynamic relation to risk taking behavior as well as stress regulation; (b) behavioral and neurobiological basis of reward behavior; (c) approaches to assessing reward seeking behavior; and (d) basic principles of electrophysiology including dense array electroencephalography.

The primary mentors (Mayes and Crowley) will closely supervise the interns' experience in each of these settings through regular meetings. Interns will also regularly participate in weekly lab meetings, journal groups, and seminars and will have a set of guided readings for the summer.

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<b>Investigator:</b>	Alan J. Budney, Ph.D.
<b>Institution:</b>	University of Arkansas for Medical Sciences, Little Rock, Arkansas
<b>Research Area:</b>	Substance Abuse
<b>Project Title:</b>	Behavioral Treatment of Adolescent Marijuana Use
<b>Start Date, Program Length:</b>	June 1, 2009 — 8 Weeks
<b>Housing Available:</b>	Yes
<b>Student Attributes:</b>	Seeking an undergraduate student with a declared major in psychology or related field. Experience in a human subject laboratory setting is preferred. Student interests could entail addiction research, behavioral pharmacology, adolescent or adult substance abuse, developmental psychopathology, or related areas.

**Project Description:**

During an 8-week experience, the trainee will participate in up to two studies that are being conducted as part of NIDA-funded research projects examining behavioral treatments for adult and adolescent marijuana abusers. The overall goal of this internship will be to provide the trainee with an experience that will spark continued interest in addiction research and increased commitment to pursue a career that will further addiction science. The trainee will conduct readings on behavioral research methods, substance abuse etiology and treatment models, drug abuse psychopharmacology, developmental psychopathology, adolescent substance abuse, and behavioral parent training; meet with either Dr. Budney (PI) or Dr. Stanger (Co-PI) to discuss these materials and their daily experience in the research environment; receive extensive training in and observation of research procedures that are part of the research projects; review assessment, clinical, and outcome measures involved in clinical trials of adolescent and adult marijuana abuse (research staff and supervisors will review these procedures with the trainee so that the trainee obtains a solid understanding of their function and administration); observe staff, obtain informed consent and perform intake and follow-up assessments; learn about urine drug testing via reading and observation of urinalysis procedures and participate in the collection of ongoing assessments and urine specimens and monitoring of participants providing assessment information; review videotape of treatment and intervention sessions from these projects to gain an understanding of how empirically based treatments are delivered; assist with daily operations of these research project, which may include making clinical manuals, contacting research participants, reporting test results, entering data, making participant research binders, preparing specimens for shipping, and other miscellaneous tasks; develop a topic paper or perform an independent research project and prepare in journal format.

## 8

**Investigator:** Laura Elena O'Dell, Ph.D.  
**Institution:** The University of Texas El Paso, El Paso, Texas  
**Research Area:** Nicotine Addiction in Adolescent Rats  
**Project Title:** Nico-teen: Mechanisms of Nicotine Reward and Withdrawal During Adolescence  
**Start Date, Program Length:** June 18, 2009 — 10 Weeks  
**Housing Available:** Yes  
**Student Attributes:** Seeking undergraduate students with psychology and/or biology backgrounds and an interest in addiction and learning behavioral techniques. Students should be comfortable working with rodent models.

**Project Description:**

This research project is centered on neural mechanisms that mediate addiction to nicotine and alcohol. This laboratory combines various neurochemical techniques (in vivo microdialysis coupled with HPLC) with behavioral models (self-administration and conditioned place preference) to study the neural basis of addiction. Specific areas of interest include animal models of excessive alcohol intake; propensity of addiction related to various disease states, such as diabetes; developmental factors and sex differences influencing nicotine intake and withdrawal; behavioral interaction and neurochemical mechanisms mediating co-abuse of nicotine and alcohol.

## 9

**Investigator:** Ronald Braithwaite, Ph.D.  
**Institution:** Morehouse School of Medicine, Atlanta, Georgia  
**Research Area:** HIV, Substance Abuse, Criminal Justice  
**Project Title:** Morehouse-MIDARP  
**Start Date, Program Length:** June 8, 2009 — 10 Weeks  
**Housing Available:** No  
**Student Attributes:** Seeking high school and undergraduate students interested in research on people from disadvantaged backgrounds. Students must be culturally sensitive and have the ability to relate to others across racial and ethnic groups. Students must have an interest in women's health and HIV, substance abuse, and reducing risky sexual behaviors.

**Project Description:**

This research project provides an opportunity for students to do field work and to learn about the criminal justice system. There will be opportunities to do survey work, interviews, data entry, data analysis, and report writing.

## 10

**Investigator:** Nancy Petry, Ph.D.  
**Institution:** University of Connecticut Health Center, Farmington, Connecticut  
**Research Area:** Substance Abuse, Gambling, Health Psychology  
**Project Title:** Treatment of Substance Abuse, Gambling Disorders  
**Start Date, Program Length:** June 2009 — 10 Weeks  
**Housing Available:** No  
**Student Attributes:** Seeking high school and undergraduate students with a major in psychology.

**Project Description:**

This research project involves investigating behavioral treatments for addictive disorders. Students can observe and participate in assessment evaluations and therapy administration, as well as data entry and management. Possibilities exist for assisting in writing reports for publication.

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**Investigator:** Robert Philibert, M.D., Ph.D.  
**Institution:** The University of Iowa, Iowa City, Iowa  
**Research Area:** Genetics  
**Project Title:** The Role of Epigenetics in Substance Use  
**Start Date, Program Length:** June 1, 2009 — 10 Weeks  
**Housing Available:** Yes  
**Student Attributes:** Seeking high school and undergraduate students with laboratory experience and a focus in the life or physical sciences.

**Project Description:**

The Psychiatric Genetics Laboratory in the Department of Psychiatry is a fully equipped translational biology facility with over 10,000 DNA samples, 3,000 lymphoblast cell lines, and a complete genotyping, real time PCR, and cell culture facilities.

# 12

**Investigator:** Jorge Delva, Ph.D.  
**Institution:** University of Michigan, Ann Arbor, Michigan  
**Research Area:** Substance Abuse, Mental Health  
**Project Title:** Drug Use in Latin American Youth: Longitudinal Study from Infancy to Adolescence  
**Start Date, Program Length:** June 1, 2009 — 8 Weeks  
**Housing Available:** Yes  
**Student Attributes:** Seeking high school and undergraduate students interested in substance abuse and mental health research. Students must be interested in learning basic, and potentially some advanced statistics. Candidates with a familiarity with Microsoft® Word, knowledge of Spanish, and interest in Latin American culture are preferred.

**Project Description:**

This project is centered on a longitudinal study of drug use in Santiago, Chile. Extensive data on psychosocial factors (e.g., mental health status, peer relations, relationship with parents, religiosity, perceptions of community characteristics, etc.) is being collected. These factors may be associated with an adolescent's risk of using tobacco, alcohol, and other drugs. The study involves interviewing adolescents and one of their caregivers. By the summer, Dr. Delva anticipates having over 600 families enrolled. Student interns will help analyze data and contribute to the writing of scientific manuscripts.

# 13

**Investigator:** E. Sherwood Brown, M.D., Ph.D.  
**Institution:** UT Southwestern Medical Center, Dallas, Texas  
**Research Area:** Bipolar Disorder and Substance Dependence  
**Project Title:** Citicoline for Bipolar Disorder and Cocaine Dependence  
**Start Date, Program Length:** June 1, 2009 — 8 Weeks  
**Housing Available:** No  
**Student Attributes:** Seeking high school and undergraduate students interested in psychology or medicine who want to see how patient-based research is done.

**Project Description:**

This research team examines the treatment of patients with bipolar disorder and substance dependence. Day-to-day activities include phone screening of potential participants, diagnostic interviews, and administration of mood, neurocognitive and substance use assessments. Students in this laboratory will learn how clinical research is conducted.

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<b>Investigator:</b>	Charles P. O'Brien, M.D., Ph.D.
<b>Institution:</b>	University of Pennsylvania, Philadelphia, Pennsylvania
<b>Research Area:</b>	Psychiatry Addictions
<b>Project Title:</b>	Center for Research on Improving the Treatment of Drug Abuse
<b>Start Date, Program Length:</b>	June 1, 2009 — 10 Weeks
<b>Housing Available:</b>	Yes
<b>Student Attributes:</b>	Seeking undergraduate students interested in behavioral health or related sciences.

**Project Description:**

The University of Pennsylvania will provide daily supervision through monitored activities; secured dormitory housing accommodations; and secured placement positions supervised by professional and responsible investigators, junior investigators, and staff. The program will be a 10-week, 40-hours-a-week placement, supervised by a principal investigator and a designated program director. The program will consist of (1) formal coursework in Psychiatry 105 (didactics), diagnosis and treatment of substance abuse, MCAT and GRE training classes (optional); (2) participation in meetings with weekly speaker sessions hosted by various investigators from the field; (3) data collection activities and data analysis with active research study preparation, including case report form (CRF) work and assessments (may include patient contact); (4) laboratory experience/experiments including animal research; (5) library research; (6) meetings with mentors and other group activities; and (7) final oral presentations. The program will provide mentorship for participating students in which medical school entrance and research careers related to substance abuse/addiction research are discussed.

<b>Investigator:</b>	Jennifer Lauby, Ph.D.
<b>Institution:</b>	Philadelphia Health Management Corp., Philadelphia, Pennsylvania
<b>Research Area:</b>	HIV Prevention among Men Who Have Sex With Men (MSM)
<b>Project Title:</b>	Addressing Young Men's Substance Use and HIV Risk
<b>Start Date, Program Length:</b>	June 8, 2009 — 8 Weeks
<b>Housing Available:</b>	No
<b>Student Attributes:</b>	Seeking undergraduate student with special science or public health course work, interest in HIV and LGBT populations, and experience with data analysis using SPSS or SAS.

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**Project Description:**

Young men who have sex with men (YMSM) have unique needs for targeted and tailored HIV prevention messages. HIV infection rates among MSM remain high, particularly among men under the age of 30 and for black YMSM, whose HIV infection rates are over four times those of white YMSM. The use of drugs and alcohol has been linked to increased sexual risk for HIV among MSM yet no intervention addressing substance use and sexual risk within this population has been rigorously evaluated.

Philadelphia Health Management Corporation (PHMC) is developing, implementing, and evaluating a community-level intervention for black and white substance-using MSM between the ages of 15 and 29. The intervention, implemented with the collaboration of the Mazzone Center (a community service organization), is designed to change both social norms and risk behavior using persuasive media communication and interpersonal networking as primary intervention strategies.

The proposed project aims to (1) examine patterns and contexts of episodic substance use among YMSM; (2) compare patterns of substance use for black and white YMSM and differences by age, sexual identity, and socio-economic status; (3) clarify the association between patterns and contexts of substance use and sexual risk behaviors; (4) evaluate the efficacy of a community-level intervention for substance-using YMSM to decrease sexual risk for HIV through strengthening



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social norms, increasing perceived risk, and enhancing self-efficacy and positive attitudes to HIV prevention; (5) measure the differential impact of intervention messages on sexual risk behavior for subgroups of YMSM; and (6) determine if a reduction in substance use leads to a decrease in sexual risk behaviors.

During the formative research phase in the first year of the project, qualitative data was obtained through focus groups and in-depth interviews to refine the conceptual model and the media materials. Starting in the second year, the intervention evaluation collected quantitative data from YMSM in both Philadelphia, Pennsylvania and the comparison community of Baltimore, Maryland, using geocoding and census tract data to control for demographic and socio-economic differences. A Solomon four-group design is used to collect data from panel and cross-sectional samples in intervention and comparison communities.

Four annual waves of interviews (baseline, 12, 24, and 36 months) will enable the research team to examine exposure to the intervention, changes in norms and behavior, and long-term intervention effects. A total of 650 men will be interviewed in Philadelphia and 400 in Baltimore. The data will be analyzed using multivariate techniques, including generalized linear models (GLM), repeated measures analyses, and cumulative logic models. The study results will provide needed information on substance use and sexual risk of black and white YMSM and have direct implications for implementing effective interventions to this high-risk population.

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<b>Investigator:</b>	Bradley Donohue, Ph.D.
<b>Institution:</b>	University of Nevada, Las Vegas, Nevada
<b>Research Area:</b>	Substance Abuse and Child Neglect and HIV
<b>Project Title:</b>	Concurrent Drug Abuse Treatment & HIV Prevention in Child Neglect in Mothers
<b>Start Date, Program Length:</b>	June 1, 2009 — 10 Weeks
<b>Housing Available:</b>	Yes
<b>Student Attributes:</b>	Seeking senior-level undergraduate students with at least a 3.5 GPA and an interest in pursuing a career in clinical psychology or related discipline.

### Project Description:

The Achievement Center, housed within the University of Nevada, Las Vegas, is conducting a controlled treatment outcome study involving mothers who have been identified to abuse drugs and neglect their children. The experimental condition involves family behavior therapy (FBT) for substance abuse with an innovative HIV prevention component integrated throughout the treatment. Treatments are comprehensive; implemented within patient homes; and include child, parent, and family interventions. The control condition involves community services as usually provided.

The positions offered would permit students to participate in on-going work experiences relevant to data management, development of program methods, assistance in child management during treatment sessions, attendance to research meetings, and other opportunities. Students are advised to review the Achievement Center website for information about the program, <http://www.unlv.edu/centers/achievement/> or call 702-895-2468. There are many opportunities to perform hands-on applied research initiatives with more than 20 undergraduate and graduate students, including construction of safety skill stories for children and integrating healthy lifestyle intervention components into the FBT framework.

**Investigator:** Wenzhe Ho, M.D., M.P.H.  
**Institution:** The Children's Hospital of Philadelphia, University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania  
**Research Area:** Drug Abuse and Immunology of HIV/HCV Infection  
**Project Title:** Drug Abuse, Innate Immunity and HIV/HCV  
**Start Date, Program Length:** June 7, 2009 — 10 Weeks  
**Housing Available:** No  
**Student Attributes:** Seeking undergraduate students who have had basic research work experience.

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**Project Description:**

Dr. Ho is a viral immunologist who has extensive experience in studying the interactions of drug abuse with immune system and viral infections. His interest is centered on human immunodeficiency virus (HIV) and hepatitis C virus (HCV). Since injection drug users (IDUs) are the single largest risk group for HCV infection and the co-infections with HIV and HCV are frequently found in IDUs, these two pathogens are also likely to be responsible for the highest infectious disease morbidity and mortality rates among IDUs. Dr. Ho's research laboratory has been investigating the role of drug abuse in the immunopathogenesis of HIV and/or HCV diseases. The laboratory uses in vitro, ex vivo and in vivo models to directly address the question whether abused drugs, such as opioids, have the ability to impair host cell innate immunity and enhance HIV and/or HCV infection and replication.

This research lab's studies have demonstrated that morphine has the ability to suppress host innate immunity against both HIV and HCV. Recently this lab reported that intracellular type 1 IFN mediated innate immunity has a key role in inhibiting HIV or HCV replication. Extending these studies, the research team is now interested in examining the role of the interactions of drug abuse with innate immunity in HIV/HCV replication in the CNS and other systems. In addition, with the support from NIDA, Dr. Ho has successfully established international research projects in Wuhan and Guangxi, China to study the in vivo impact of substance abuse on HIV/HCV infection. The investigation of the impact of drug abuse on the host defense mechanism against HIV/HCV will contribute to a basic understanding of host immune processes and ultimately further the design and development of innate immunity-based treatment for drug-abusing patients infected with HIV and/or HCV.

**Investigator:** Hilary Blumberg, M.D.  
**Institution:** Yale School of Medicine, New Haven, Connecticut  
**Research Area:** Neuroimaging, Brain Development and Stress  
**Project Title:** Stress, Neurodevelopment and the Emergence of Addictive Behaviors in Adolescence  
**Start Date, Program Length:** June 2009 — 10 Weeks  
**Housing Available:** Yes  
**Student Attributes:** Seeking undergraduate students with a major in either neuroscience or psychology. Students with an interest in molecular biology (genetics component), physics or computer science (neuroimaging component) are also welcome. Helpful attributes include excellent interpersonal skills for interaction with research participants and computer skills for analyzing data.

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**Project Description:**

This research program uses multi-modality magnetic resonance imaging (MRI) brain scanning techniques, including functional magnetic resonance imaging (fMRI) and diffusion tensor imaging (DTI) to study the development of the brain in adolescents. The research is centered on investigating

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how genetic factors and exposure to psychosocial stressors might lead to shifts in the development of parts of the brain that regulate emotions and impulses and, therefore, increase risk for substance abuse as well as symptoms of depression and impulsive behaviors.

# 19

**Investigator:** Sonia Minnes, Ph.D.  
**Institution:** Case Western Reserve University, Cleveland, Ohio  
**Research Area:** Behavioral Teratology  
**Project Title:** Cocaine Exposed Children at School Age  
**Start Date, Program Length:** June 1, 2009 — 10 Weeks  
**Housing Available:** Yes  
**Student Attributes:** Seeking undergraduate student interested in psychology, medicine, or one of the behavioral sciences. Students that have an interest in an academic career and who are looking for research experience in developmental outcomes related to prenatal drug exposure are preferred. Students should have a strong interest in working with children.

**Project Description:**

This longitudinal study of prenatal cocaine exposure is currently in its 14th consecutive year. The focus of the study is on cognitive and mental health outcomes of prenatally cocaine/polydrug-exposed children and the environmental correlates that contribute to the outcomes, either positively or negatively. During the summer of 2009, the study will involve analyzing 12-year outcome and longitudinal data. The summer intern will work directly with a mentor on an individual research topic and give a formal presentation of the research results to the entire research group upon completion of the summer program.

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**Investigator:** Judy A. Andrews, Ph.D.  
**Institution:** Oregon Research Institute, Eugene, Oregon  
**Research Area:** Etiology of Substance Use  
**Project Title:** Childhood and Adolescent Predictors of Substance Abuse in Emerging Adulthood  
**Start Date, Program Length:** June 1-8, 2009 — 8-10 Weeks  
**Housing Available:** Yes  
**Student Attributes:** Seeking undergraduate students interested in psychology and pursuing a career in research in psychology or in another related field (such as biology).

**Project Description:**

The students will work with investigators on a longitudinal study understanding why children and emerging adults use and abuse substances. Participants started in the study when they were in the first through fifth grade. They are now in high school and three years post high school. Students will work with staff to learn to assess participants in the lab and to pose questions that can be answered with a rich data set. The lab assessments that students will help with include an assessment of cortisol reactivity, a biological marker of stress. The students will also learn about all ongoing projects at the Institute and will have the opportunity to interact with others doing research at the Institute.

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<b>Investigator:</b>	William Latimer, Ph.D.
<b>Institution:</b>	Johns Hopkins University, Baltimore, Maryland
<b>Research Area:</b>	HIV Prevention Among Substance Users
<b>Project Title:</b>	Adapt IFCBT into HIV Prevention Intervention
<b>Start Date, Program Length:</b>	June 1, 2009 — 8 Weeks
<b>Housing Available:</b>	Yes
<b>Student Attributes:</b>	Seeking second- and third-year undergraduate students with a major in social sciences such as psychology, sociology, health education or a major in allied health, for example nursing, with plans to pursue graduate training in the social sciences or public health. It is expected that each student will have completed at least one semester of coursework in research methods and statistics and have a minimum GPA of 3.0.

**Project Description:**

Summer Research with NIDA at the Johns Hopkins Bloomberg School of Public Health is an eight-week program for undergraduate students interested in gaining public health research experience. The goal of this intense eight-week program is two-fold. First, it is designed to provide students with knowledge in the areas of drug dependence epidemiology, substance abuse prevention and treatment, and HIV prevention among adolescents and adults. Special attention is given to understanding disparities and reducing HIV rates among females and African American substance users. Second, the program is designed to build skills in research methodology (e.g., research design, literature searches, data analysis, and manuscript preparation). Students will benefit from formal instruction, participation in research meetings as well as enrichment activities led by experts in the field of substance use and HIV prevention at Johns Hopkins University.

The program will be comprised of activities organized under five distinct headings: (1) mentorship and research meetings; (2) specialized training in cognitive-behavioral and family-based HIV intervention among substance abusing pregnant women; (3) course work and seminars in addiction and infectious disease; (4) research methods; and (5) manuscript preparation. Clinical experiences will be complemented by didactic instruction on relevant theoretical underpinnings and empirical findings in the fields of drug abuse treatment, family and cognitive behavioral therapy, and HIV prevention during weekly supervision and research meetings. Further, coursework in research methods will provide students with the tools which will facilitate their development into young researchers. These activities are geared toward an active integration of knowledge and skills in the areas of drug abuse and HIV prevention.

<b>Investigator:</b>	Jean C. Beckham, Ph.D.
<b>Institution:</b>	Durham Veterans Affairs Medical Center, Durham, North Carolina
<b>Research Area:</b>	Nicotine, PTSD
<b>Project Title:</b>	Optimizing Smoking Cessation Interventions in Post-traumatic Stress Disorder
<b>Start Date, Program Length:</b>	June 8, 2009 — 8 Weeks
<b>Housing Available:</b>	No
<b>Student Attributes:</b>	Seeking undergraduate students who are age 18 or older with an interest in psychology, genetics, medicine, data management, and/or public health. Appropriate majors and areas of interest include biology, psychology, pre-med, computer science, mathematics, sociology, or English.

**Project Description:**

The goal of this research program is to assist in the development of methods and strategies for quitting in cigarette smokers with post-traumatic stress disorder (PTSD). Dr. Beckham's lab has

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seven active research projects affiliations with a number of other research labs. PTSD is an anxiety disorder that can occur after an individual has been through a traumatic event. Individuals with PTSD smoke at a higher rate, and evidence suggests that they have trouble quitting smoking. Dr. Beckham's lab is attempting to assist these PTSD smokers by identifying biological and psychosocial mechanisms of smoking, smoking cessation, and relapse that may be present in this group.

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<b>Investigator:</b>	Sherry Deren, Ph.D.
<b>Institution:</b>	National Development and Research Institutes, Inc., New York, New York
<b>Research Area:</b>	Drug Addiction, HIV/AIDS
<b>Project Title:</b>	High Risk Drug Use & HIV: Learning From the NYC Epidemic
<b>Start Date, Program Length:</b>	June 1, 2009 — 10 Weeks
<b>Housing Available:</b>	No
<b>Student Attributes:</b>	Seeking undergraduate students with excellent grades and strong letters of support from their academic teachers/advisors. Students should have an interest in the social/behavioral sciences with experience or interest in work related to HIV/AIDS, clinical infectious diseases, or substance use. Working knowledge of computers and programs such as Microsoft® Word, PowerPoint and Excel are essential. Skills related to literature searches, data management, and use of library and Internet resources would be helpful.

### Project Description:

This NIDA-funded P30 Center for Drug Use and HIV Research (CDUHR) provides a research infrastructure for over 25 socio-behavioral research projects related to drug use, HIV, and other clinical infectious diseases among vulnerable populations. The Center's theme is An Interdisciplinary Approach to HIV and Other Infectious Diseases. CDUHR is organized into five cores: infectious diseases, theoretical synthesis, interdisciplinary research methods, dissemination, and administration. The Center houses investigators from various disciplines (e.g., psychology, sociology, anthropology, medicine, epidemiology, and statistics) and a wide range of projects including HIV surveillance studies, development and evaluation of HIV prevention interventions for at-risk groups, using computer-based technologies to enhance interventions, and hepatitis-related studies.

Students participating in the Summer Research with NIDA program at CDUHR will assist in various Center and project activities. The students will be closely mentored by experienced project staff to gain an understanding of advanced behavioral research. Students may learn to enter, code, or analyze quantitative and qualitative data in programs such as SPSS, SAS, Excel or ATLAS.ti. They may be involved in helping to recruit or interview research participants or work on manuscripts for publication through library and internet searches, careful checking of references, etc. Students will acquire experience not only in the preparation of manuscripts for publication but also the formulation and preparation of research findings to be presented at scientific meetings. Students will be required to attend certain NDRI seminars or courses where they will learn about drug use, HIV/AIDS, and other related issues.

The goal of the program is to provide research skills and an understanding of research project components and management. In addition, they will learn the various modes of investigation (qualitative, quantitative), tools needed, instrumentation, and theoretical background that guide particular research studies.



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<b>Investigator:</b>	Linda B. Cottler, Ph.D., M.P.H.
<b>Institution:</b>	Washington University School of Medicine, St. Louis, Missouri
<b>Research Area:</b>	Psychiatric Epidemiology
<b>Project Title:</b>	Prescription Drug Misuse, Abuse and Dependence
<b>Start Date, Program Length:</b>	June 8, 2009 — 10 Weeks
<b>Housing Available:</b>	Yes
<b>Student Attributes:</b>	Seeking undergraduate students with an interest in addictive behavior and in the social context of that behavior. Students with a special interest in drug addictions, psychiatric problems, comorbidity and HIV prevention are encouraged to apply. This position requires a professional attitude toward internship, including commitment to work a 40-hour week during regular business hours. The ideal student should have an understanding of literature searches with library internet databases. As this is applied research with real people, dependability, reliability, and confidentiality are critical. Students would benefit from previous exposure to survey methods and statistics, but previous experience is not required. Finally, students with an interest in understanding and preventing common life problems will find this a challenging and rewarding opportunity to learn both the substance and process of the research enterprise.

**Project Description:**

This psychiatric epidemiology research office is involved in many different projects, all involving persons who use a variety of drugs and alcohol with possible mental health problems. The prescription drug abuse project is an attempt to stimulate research in this area and to understand the populations most at risk for abuse and its consequences. Dr. Cottler is a nationally known investigator in the epidemiology of addictive substances, risk behavior, and co-occurring mental illness. Students will be exposed to state-of-the-art diagnostic assessments developed in this office and their use in a variety of populations. Computerized interviewing techniques are used and students will have a chance to familiarize themselves with the diagnostic interviews through data entry. Students will be involved with others in the office in some data analysis.

This program is especially strong in methodology, and students will be exposed to the many areas in research in which methodological quality must be created and maintained. Students will have some clerical duties initiating them into the research process. Students will also have an opportunity to gain an understanding of the ethical issues and complexities of research involving human subjects.

<b>Investigator:</b>	Adrian S. Dobs, M.D., M.H.S.
<b>Institution:</b>	Johns Hopkins University School of Medicine, Baltimore, Maryland
<b>Research Area:</b>	Endocrinology
<b>Project Title:</b>	Serum Sex Hormones and Cardiovascular Risk in the MACS
<b>Start Date, Program Length:</b>	June 1, 2009 — 10 Weeks
<b>Housing Available:</b>	No
<b>Student Attributes:</b>	Seeking high school and undergraduate students interested in endocrinology, public health, and clinical trials.

**Project Description:**

This research project's overall goal is to understand the relationship between sex hormones and cardiovascular disease (CVD) and its risk factors in men who are HIV positive and illicit drugs users (IDUs). Several studies have documented premature and accelerated CVD progression in these populations. Although this may be a consequence of the underlying viral mechanisms, anti-retroviral drug therapy, or IDU, the research team seeks to document other mechanisms to explain the

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increased susceptibility to atherosclerotic disease and metabolic abnormalities in this population. This research team was one of the first groups to report an increased prevalence of hypogonadism in HIV-infected men, which was eventually found to result in poor quality of life, decreased lean body mass and increased visceral adiposity. Several population-based studies have now found that low serum testosterone (T) is associated with increased mortality in men. Low serum T may be a risk factor for CVD through increased visceral adiposity (leading to glucose intolerance and diabetes mellitus), inflammation or a more direct effect on the vasculature.

The MACS cohort already has in place a sub study to document early atherosclerosis in about 1,000 men, measuring carotid intima medial thickness (CIMT) and coronary calcium (CAC) scores. The overall hypothesis is that men who are HIV positive with low serum T levels are more likely to have pre-clinical CVD. The studies specific aims are: (1) to examine the associations of sex hormones with the severity of atherosclerosis in HIV infected and IDU men with adjustment for classical atherosclerosis risk factors and (2) to measure the association of sex hormone levels with prevalence, levels, and changes in modifiable CV risk factors (inflammatory markers, lipids, lipoproteins, diabetes, and blood pressure), with adjustment for status and markers of disease stage and components of HIV therapy.

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**Investigator:** Russell W. Brown, Ph.D.  
**Institution:** East Tennessee State University, Johnson City, Tennessee  
**Research Area:** Psychopharmacology  
**Project Title:** Amphetamine Sensitization in a Model of Schizophrenia  
**Start Date, Program Length:** June 1, 2009 — 10 Weeks  
**Housing Available:** Yes  
**Student Attributes:** Seeking high school and undergraduate students with backgrounds in psychology and biology and/or chemistry. Students should have a strong interest in neuroscience, especially behavioral neuroscience. An interest in psychopharmacology helps, but it is not required, nor is a chemistry background necessary. As long as the students are motivated and interested the interaction is typically very positive. Dr. Brown has helped to place a total of eight undergraduate students into behavioral neuroscience or neuroscience Ph.D. programs since arriving at East Tennessee State University in 2000.

**Project Description:**

This laboratory studies the behavioral consequences of dopamine D2 supersensitization, a phenomenon known as D2 receptor priming. The dopamine D2 receptor is primed through neonatal quinpirole (a dopamine D2/D3 agonist) treatment during the first 3-4 weeks of life in a rat. Essentially, priming of the D2 receptor increases the sensitivity of this receptor, which is relevant to several clinical conditions including schizophrenia, attention-deficit hyperactivity disorder (ADHD), obsessive-compulsive disorder (OCD), and bipolar disorder, not to mention the long-term effects of drug abuse. The lab has found that neonatal quinpirole treatment produces a number of performance deficits in cognitive, motor, and sensory tasks, results in significant decreases of choline acetyltransferase (ChAT), nerve growth factor (NGF), brain-derived nerve growth factor (BDNF) in brain areas that are important in addiction (nucleus accumbens), and cognition (hippocampus).

One of this lab's most prominent findings has been that acute or chronic amphetamine (street name: speed) results in a robust four-fold to five-fold increase in dopamine release in the nucleus accumbens of D2 receptor-primed rats as compared to non D2 receptor-primed rats that have received amphetamine. Behaviorally, amphetamine produces a significant increase in the locomotor response in these animals as well, and this effect—somewhat surprisingly—is more prominent in males as compared to females.

Recently, in collaboration with colleagues at Vanderbilt, this lab has shown that neonatal quinpirole treatment results in significant decreased expression of a regulator of G-protein signaling (RGS), RGS9, in the frontal cortex, nucleus accumbens, and striatum. RGS9 co-localizes with dopamine D2 receptors, and this finding is consistent with post mortem findings in schizophrenics. A new secondary line of research involves studying the social defeat stress model in the mouse.

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**Investigator:** Henry H. Brownstein, Ph.D.  
**Institution:** NORC at the University of Chicago, Bethesda, Maryland  
**Research Area:** Retail Drug Market Dynamics  
**Project Title:** The Dynamics of Methamphetamine Markets: A Systematic Approach to the Process  
**Start Date, Program Length:** June 8, 2009 — 10 Weeks  
**Housing Available:** No  
**Student Attributes:** Seeking undergraduate student interested in social and behavioral research. Classes in research methods, statistics, and social sciences are desirable. Students should be interested in learning more about data collection and analysis, and have experience in research classes or working with professors on research projects. There will be opportunities to work with various types of data doing interesting work in a fast paced and exciting research environment.

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**Project Description:**

The aim of this research is to study the dynamics of the methamphetamine (MA) market through a three-stage approach including a national survey of police agencies, semi-structured interviews with narcotics officers in 75 counties or cities, and culminating in a set of comprehensive process studies of MA markets in nine different cities or counties. The process studies will include in-depth interviews, focus groups, and systematic observations with a variety of stakeholders. The stakeholders will include people arrested on drug charges; people in drug treatment; people who have had experience buying or selling MA; community organizers, advocates, and service workers who know about the local drug trade; narcotics police who respond to local MA markets as crime; and local health officials and drug treatment counselors who respond to those markets to minimize or eliminate any threats to the health of the people in the community. During the summer of 2009, Dr. Brownstein's research team we will be analyzing survey data, working with interview data, and beginning the process studies. The student intern will work with the team in all aspects of the research.

**Investigator:** Steven Schinke, M.S.W., Ph.D.  
**Institution:** Columbia University, New York, New York  
**Research Area:** Prevention  
**Project Title:** Drug Abuse Prevention Among Girls  
**Start Date, Program Length:** June 1, 2009 — 10 Weeks  
**Housing Available:** No  
**Student Attributes:** Seeking mature undergraduate students that will initiate direct study participant contact in arranging intervention delivery and measurement completion.

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**Project Description:**

Recent years have witnessed a narrowing gender gap in patterns of substance use among American youth. Girls in this country are using tobacco, alcohol, and other drugs at disquietingly high rates. Gender differences in risk and protective factors for substance use may in part explain why girls are not responding favorably to drug abuse prevention messages. New approaches to preventing drug use that respond to these risk and protective factors among girls are needed. One promising

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direction for such new approaches is to strengthen girls' communications with their mothers. Yet, formidable barriers exist to implementing mother-daughter prevention programs. For programs to reach and impact large numbers of girls, they must be delivered with fidelity; be engaging, affordable, and flexible; meet tight scheduling demands; and be culturally sensitive. Computer-mediated, family-based intervention fits these requirements.

This study will test such interventions with poor, minority girls and their mothers in greater New York City. Study aims are to (1) develop and test the efficacy of a computer-delivered girl-specific intervention (GSI) compared to no intervention in preventing girls' substance use; (2) test the efficacy of GSI to improve girls' coping, refusal skills, mood management, conflict resolution, problem solving, self-efficacy, body esteem, normative beliefs, social supports, conduct problems, and mother-daughter communication and relate these mediating factors to girls' substance use behavior; (3) test the efficacy of GSI to improve mothers' family rituals, rules against substance use, mother-daughter affect, and communication with their daughters and relate these mediating factors to girls' substance use behavior; (4) test the effects of dose on participants' outcomes; (5) determine if intervention effects differ by ethnic-racial group; and (6) quantify the costs of intervention development and delivery.

The study will occur in three phases. In a 12-month preparation phase, the research team will refine and complete intervention and measurement protocols; conduct usability, logistic, and pilot testing; and recruit and assign participants to study arms. A 12-month implementation phase includes pretest, intervention delivery, process data collection, and posttest. And follow up in the last 36 months will involve longitudinal measurements of girls and mothers, booster session development and delivery, and data analyses.

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<b>Investigator:</b>	Mary McKay, Ph.D.
<b>Institution:</b>	Mount Sinai School of Medicine, New York, New York
<b>Research Area:</b>	AIDS Prevention Education and Alcohol and Drug Abuse Prevention with Families in NYC Shelters
<b>Project Title:</b>	HIV Outreach to Homeless Parents and Early Adolescents (HOPE)
<b>Start Date, Program Length:</b>	June 1, 2009 — 10 Weeks
<b>Housing Available:</b>	No
<b>Student Attributes:</b>	Seeking undergraduate students interested in working in community based research with inner-city families. Students with majors in the social sciences (i.e. psychology, sociology, social work) would be best suited for this position. Students with previous experience in facilitation or data entry are a plus, although training in these areas will be provided. Candidates who are bilingual in English and Spanish are also highly desirable.

### Project Description:

The Community Collaborative Board has been delivering HIV prevention programming in the Bronx, one of the areas in New York City and the United States most affected by the AIDS epidemic. The board has provided a setting for a true collaboration between researchers and community members. One of the many programs developed by the board is the HOPE (HIV Outreach for homeless Parents and Early Adolescents) program. The HOPE program is a family-based HIV and drug abuse prevention program for early adolescent youth (ages 11–14) and their adult caregivers living in homeless shelters in New York City. Students will have the opportunity to be involved in data collection, data entry, and may have an opportunity for article publication. Students will also have an opportunity to work on other projects such as Multiple Family Groups (MFG) and project Step-Up.

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<b>Investigator:</b>	Katherine Pears, Ph.D.
<b>Institution:</b>	Oregon Social Learning Center, Eugene, Oregon
<b>Research Area:</b>	Preventive Intervention with Child Welfare Populations
<b>Project Title:</b>	KITS: School Readiness in Foster Care Efficacy Trial
<b>Start Date, Program Length:</b>	June 1, 2009 — 10 Weeks
<b>Housing Available:</b>	No
<b>Student Attributes:</b>	Seeking upper level undergraduate students interested in the fields of psychology, sociology, and education. It's important for students to have experience with and/or a high level of interest in working with young children and their families. Students will have an opportunity to assist with data collection, learning several of Kids in Transition to School (KITS) assessment tools (such as the Woodcock-Johnson Tests of Academic Achievement, Dynamic Indicators of Basic Early Literacy Skills, and the Concepts about Print Test). This work requires a high-level of attention to detail and the ability to learn very structured tasks within a specified timeframe. It also requires patience and the ability to learn and use effective behavior management skills to help the children complete the assessments. Students will be required to complete training in working with human research subjects and in maintaining confidentiality.

**Project Description:**

Oregon Social Learning Center (OSLC), located in the Eugene-Springfield, Oregon metropolitan area, is a collaborative, multidisciplinary center dedicated to increasing the scientific understanding of social and psychological processes related to healthy development and family functioning. OSLC scientists apply that understanding to the design and evaluation of interventions that strengthen children and families. The KITS project is a 5-year randomized efficacy trial of a preventive intervention to enhance psychosocial and academic school readiness in foster children as they enter school. The KITS research evaluation starts each spring with a pre-intervention assessment and continues with an assessments in the late summer and fall and follow-up assessments at the end of Kindergarten, 1st grade, and 2nd grade. Students will have the opportunity to participate in a large scale research project and to observe how science is used to develop effective interventions. Students will receive training and experience in conducting the laboratory assessments that comprise the KITS evaluation, with a focus on the first and second grade follow-up assessments that occur in July and August.

<b>Investigator:</b>	Uma Rao, M.D.
<b>Institution:</b>	University of Texas Southwestern Medical Center at Dallas, Dallas, Texas
<b>Research Area:</b>	Adolescent Mood and Addictive Disorders
<b>Project Title:</b>	Neuronal Risk Markers for Nicotine Dependence in Youth
<b>Start Date, Program Length:</b>	June 1, 2009 — 8-10 Weeks
<b>Housing Available:</b>	No
<b>Student Attributes:</b>	Seeking undergraduate students with an interest in psychology or biomedical sciences. Students should have an interest or experience in tracing neuro-anatomical structures, collecting behavioral data for neuro-imaging studies, and acquiring and processing functional MRI data.

**Project Description:**

This project seeks to identify characteristics of brain function that predict the risk for development of nicotine dependence (ND) in adolescents. It employs a prospective design and utilizes functional

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magnetic resonance imaging (fMRI) to identify possible abnormalities in the reactivity of specific brain regions to cognitive challenges in youth at high and low risk for ND.

The research team hypothesizes that altered responsivity of the brain circuits involved in motivational-reward processes to cognitive stimuli will be related to the development of ND in a longitudinal study and that the observed brain changes are more prominent in the high risk group. The adolescents also will participate in follow-up studies of fMRI assays (after the onset of ND in those who develop it) to determine if, and to what extent, changes in brain function occur as a consequence of ND by comparing the baseline and follow-up measurements. The longitudinal design will distinguish pre-existing vulnerability markers for smoking and ND from changes in brain function due to chronic smoking.

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<b>Investigator:</b>	Yih-Ing Hser, Ph.D.
<b>Institution:</b>	University of California, Los Angeles, (UCLA), Los Angeles, California
<b>Research Area:</b>	Behavioral Sciences
<b>Project Title:</b>	Summer Internship Program at UCLA CALDAR
<b>Start Date, Program Length:</b>	Early June – Early July 2009 (start date is flexible) — 10 Weeks
<b>Housing Available:</b>	No
<b>Student Attributes:</b>	Seeking high school and undergraduate students with an interest in psychology, sociology, criminology, public health, public policy, social work, statistics, or other related fields. Students should be available to participate in the program for 10 weeks starting any time between early June and early July 2009. Students should have the following: basic computer skills using Word, Excel, and PowerPoint; ability to communicate clearly and effectively, both verbally and in writing; ability to calculate simple mathematics; ability to perform library searches by topic for creating a thorough and comprehensive summary of current research and theory; ability to establish and maintain cooperative working relationships; ability to set priorities and meet goals and deadlines; basic organizational and time management skills; and experience working in an office based setting.

### Project Description:

The Summer Internship Program at the UCLA Center for Advancing Longitudinal Drug Abuse Research (CALDAR) is an ideal setting for students to learn about cutting edge behavioral research and its application in real world settings. The program will be directed by Yih-Ing Hser, Ph.D., a senior principal investigator with extensive experience in a diverse collection of fields such as the long term patterns and consequences of drug abuse, treatment processes and outcomes, health services research, and research methodology. The program will provide an intellectually stimulating environment for investigating drug use behavior as it relates to socioeconomic and attitudinal factors as well as how drug use behavioral patterns may be influenced by critical events that occur over the life course, such as entry into drug treatment, experiences with the criminal justice system, co-occurrence of mental illness, and exposure to health and social service systems.

Ample opportunities for educational enrichment and mentorship, in addition to weekly performance feedback and academic development, will be provided. Students will be encouraged to audit at least one relevant course offered during the UCLA summer session. Students will also participate in weekly project meetings with research staff, attend scientific talks given by established researchers, complete a training session on best practices for research conduct, and contribute to the planning and coursework development of a Young Investigators Seminar for the 2010 CALDAR Summer Institute.

In addition to these activities, students will be introduced to basic concepts of data collection and analysis for the behavioral sciences, assist with manuscript preparation and library research, be exposed to drug abuse research literature, and provide general research support. Of equal importance, the program will be a forum for youth to connect with leading experts from multiple disciplines to explore educational and career opportunities in the behavioral sciences. More information about the CALDAR staff and activities can be found at [www.caldar.org](http://www.caldar.org).

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<b>Investigator:</b>	Theodore C. Friedman, M.D., Ph.D.
<b>Institution:</b>	The Charles Drew University of Medicine & Sciences, Los Angeles, California
<b>Research Area:</b>	Opiates, Nicotine, Cocaine, Marijuana
<b>Project Title:</b>	Minority Institution's Drug Abuse Research Development Program
<b>Start Date, Program Length:</b>	June 1, 2009 — 10 Weeks
<b>Housing Available:</b>	Yes
<b>Student Attributes:</b>	Seeking undergraduate students with skills in the following areas: molecular biology, animal handling, and computer programs (Excel, Word, and PowerPoint). For the social sciences projects, only computer skills are needed.

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**Project Description:**

The Charles R. Drew University is a site of the MIDARP (Minority Institutions Drug Abuse Research Development Program). Dr. Theodore Friedman is the Program Director. The overall goals of the MIDARP are to (1) develop the drug abuse research at Drew, (2) provide research development support and experiences to faculty and staff to facilitate independent drug abuse research careers, (3) foster interest in drug abuse research for students and residents and provide them research experiences, and (4) provide for continued drug abuse research funded by NIDA or other agencies.

The MIDARP program specifically encourages the development of underrepresented faculty and students. The theme of its training and education component is "Addiction is a brain disease and it matters." The MIDARP incorporates expertise at Drew in both the basic and clinical aspects of substance abuse and has elected to not limit the area of substance growth at Drew. All projects related to the theme of substance abuse as a disease of the brain are encouraged. Although the MIDARP's primary projects are both basic science projects related to mechanisms of opiate addiction, the aims of this program are to increase all aspects of substance abuse research (basic science, translation, clinical and survey research), based on the interests of the faculty.

Motivated students will have an opportunity to engage in research on a number of research projects spearheaded by Dr. Theodore Friedman and his colleagues. There are four exciting basic science research projects and one survey project underway. Social science studies are also available with collaborators. The primary projects include: Addiction Parameters and Opiate Biosynthesis in PC2 Knockout Mice; Endogenous b-endorphin/Enkephalin and Cocaine Addiction; Cardiac Consequences of Prenatal Cocaine Exposure; Cellular and Behavioral Consequences of Developmental Exposure to NMDA and; the Mechanisms of the Nicotine-induction of Insulin Resistance.

Housing is available at nearby California State University-Dominguez Hills, and students will be given the opportunity to present at the fourth annual Drew Substance Abuse Research Day. Come enjoy a great summer in sunny Los Angeles and learn about drug addiction research.

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<b>Investigator:</b>	Margot Kushel, M.D.
<b>Institution:</b>	University of California, San Francisco (UCSF), San Francisco, California
<b>Research Area:</b>	Pain and Prescription Opioid Analgesic Use and Misuse
<b>Project Title:</b>	Pain and Misuse of Prescription Opioids in a Community Based HIV Infected Cohort
<b>Start Date, Program Length:</b>	June 1, 2009 — 10 Weeks
<b>Housing Available:</b>	No
<b>Student Attributes:</b>	Seeking an undergraduate student who is interested in pursuing a career in medicine, behavioral research, or public health. Additionally, student should have an interest in the care of vulnerable populations. A preferred background includes experience in a research or service setting with vulnerable populations, such as homeless persons, people with substance abuse disorders, mental health problems or those with HIV infection.

**Project Description:**

This research study investigates pain and opioid analgesic use and misuse in a cohort of HIV-infected homeless and marginally housed adults in San Francisco (the Pain/Opioid Study). This is a behavioral study, which uses epidemiological methodology. The bulk of the study's data derives from questionnaires conducted with HIV infected homeless and marginally housed adults as well as their primary healthcare providers (described more below). This project would be appropriate for a student interested in gaining experience in observational/behavioral research, particularly in marginalized populations with high rates of illicit substance use.

Data collection for this study began in September 2007 and will continue through the summer of 2009. To contribute to this project, a summer student will be involved in the following (flexible depending on interests and skills): conducting interviews with study participants at a community-based field site; assisting researchers in literature reviews to prepare background summaries for manuscripts; attending all research team meetings and works-in-progress sessions; preparing documents for a mailed questionnaire assessing primary care providers experience managing chronic pain; entering data using Microsoft® Access and web-based databases; and preparing data tables and PowerPoint slides for manuscripts and presentations. The long-term goal of the Pain/Opioid Study is to improve pain management while reducing the risk of opioid analgesic (e.g. Vicodin, OxyContin, MS Contin) misuse in patients with coexisting substance use disorders.

This study takes advantage of a preexisting cohort of HIV-infected homeless and marginally housed persons (the REACH [Research in Access to Care for the Homeless] cohort), sampled from a population with high rates of past and current illicit substance use and higher rates of pain than the general population. During the two-year study the research team is administering quarterly interviews and analyzing urine samples to examine factors associated with adequacy of pain treatment and the development of aberrant behaviors relating to use of opioid analgesics. Ultimately, the goal is to improve understanding of factors associated with aberrant behavioral use of opiate analgesics, so that the team can develop interventions that improve pain control while limiting misuse of pain medicines.

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<b>Investigator:</b>	Howard A. Liddle, Ed.D.
<b>Institution:</b>	University of Miami Miller School of Medicine – The Center for Treatment Research on Adolescent Drug Abuse (CTRADA), Miami, Florida
<b>Research Area:</b>	Adolescent Substance Abuse Treatment
<b>Project Title:</b>	CJ-DATS Detention to Community (DTC) Study: 18- and 24-Month Outcomes

<b>Start Date, Program Length:</b>	June 1, 2009 — 9 Weeks
<b>Housing Available:</b>	Yes
<b>Student Attributes:</b>	Seeking undergraduate students with an interest in the field of addiction/adolescent drug abuse intervention science and/or family therapy. A declared major is not necessary, but the candidate should demonstrate an interest and/or skills in the social sciences and research. The candidate should also possess a strong work ethic, excellent organizational skills, a mature attitude, a strong team orientation, and be able to attend to a number of assignments concurrently. He or she also needs to be reliable and efficient, and be able to demonstrate a positive attitude in the face of challenging work in this complex and ever-changing research environment. This research site appreciates an individual who expresses a willingness to learn new skills, responds well to feedback (and provides appropriate feedback to supervisors when faced with obstacles), and who seeks and persists with new learning goals. Students will be expected to carry themselves as young professionals and to interact and work collaboratively with a diverse research team including faculty, clinicians, project coordinators, research associates, administrative staff, and other students.

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**Project Description:**

The Center for Treatment Research on Adolescent Drug Abuse (CTRADA) is part of the Department of Epidemiology and Public Health at the University of Miami Miller School of Medicine. Its administrative, research, and service programs are housed on the campus of the University of Miami Miller School of Medicine/Jackson Memorial Medical Center, which is located at the intersection of several ethnic minority, inner city metropolitan Miami communities. CTRADA's overarching goal is to conduct treatment research on adolescent drug abuse. The Center develops, tests, and disseminates effective interventions for drug-abusing and juvenile justice-involved adolescents and their families. CTRADA has extensive expertise in developing science based family interventions and training strategies, and success in transporting effective treatments into practice settings. The Centers Director, Howard Liddle, Ed.D., is an internationally recognized family psychologist, an expert in family-based treatment for adolescent drug and alcohol abuse, and an innovator in therapist training and treatment dissemination.

Dr. Liddle is the developer of an evidence-based treatment model for teen substance abuse and delinquency, Multidimensional Family Therapy (MDFT; Liddle, 2002), which is recognized as a best practice by USDHHS, NREPP, CSAP/OJJDP, Drug Strategies, Communities that Care, and NIDA. Over the past 20 years, Dr. Liddle and colleagues have conducted a series of clinical studies designed to develop, refine, and test different versions of the MDFT approach with diverse groups of substance abusing youth. CTRADA was established in 1991 with a center award from the National Institute on Drug Abuse (NIDA) and was the first clinical research center funded by the National Institutes of Health (NIH) to focus on adolescent substance abuse treatment. CTRADA has been part of the University of Miami School of Medicine since 1996. CTRADA is funded by grants from NIDA and the Center for Substance Abuse Treatment (CSAT). The fundamental orientation of CTRADA's investigators is the development, refinement, and evaluation of treatments for drug abusing adolescents. CTRADA investigators also aim to develop a greater understanding of treatment factors and patient and family characteristics that increase or decrease the likelihood of treatment success with a broad range of adolescent drug abuse (ADA) populations. Through the dissemination of information on successful treatment models to the local and national drug abuse community, CTRADA serves as a national resource to NIDA for matters related to the treatment of ADA. CTRADA clinicians also provide training in science-based family therapy at the local, national, and international level.

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**Investigator:** Adeline Nyamathi, Ph.D., A.N.P., F.A.A.N.  
**Institution:** University of California, Los Angeles (UCLA),  
Los Angeles, California  
**Research Area:** Substance Using Homeless Youth  
**Project Title:** An Arts Intervention for Drug-Using Homeless Youth  
**Start Date, Program Length:** June 1, 2009 — 10 Weeks  
**Housing Available:** Yes  
**Student Attributes:** Seeking high school and undergraduate students with an artistic side who are interested in working with homeless youths ages 16–24.

**Project Description:**

In the proposed investigation, researchers, homeless youth, and staff from a large drop-in site in Los Angeles frequented by homeless youth, along with the California Institute of the Arts program, will participate in the development, pilot testing, and evaluation of a youth-centered drug-use and health-promoting intervention program.

# 37

**Investigator:** Christina Hoven, Dr.P.H., M.S.W.  
**Institution:** Research Foundation for Mental Hygiene – Columbia University,  
New York, New York  
**Research Area:** Child Psychiatric Epidemiology  
**Project Title:** Maternal Incarceration and Course of Child Psychopathology in the South Bronx  
**Start Date, Program Length:** June 1, 2009 — 10 Weeks  
**Housing Available:** Yes  
**Student Attributes:** Seeking junior and senior undergraduate students with a major in psychology, public health, social work, sociology, anthropology, or other related social sciences. Preferably, applicants should reside in the greater New York metropolitan area (including Long Island, New Jersey, or Connecticut). Students from underrepresented populations are highly encouraged to apply. Fluency in Spanish and interest in urban minority communities is desirable.

**Project Description:**

The Department of Child Psychiatry at Columbia University, in affiliation with the New York State Psychiatric Institute, is looking for participants in the Summer Research with NIDA program. This internship involves getting acquainted with the research process in child psychiatric epidemiology. The main objective of the research study in question is to better understand how a mother's involvement with the criminal justice system (CJS) may influence the general health and mental health of her children. More specifically, this research study investigates the impact over time of maternal involvement with the CJS on children's substance use/abuse/dependence and psychopathology and the development of risk behaviors possibly leading to the child's involvement with juvenile justice and/or CJS. The summer interns will be part of a research team, which performs a variety of assignments ranging from more organizational components indispensable to large research projects, data entry, review of interviews, and participation in fieldwork. This program offers an excellent experience for students interested in pursuing graduate level work in psychology, public health, related medical fields, or sociology.



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**Investigator:** Christina Hoven, Dr.P.H., M.S.W.  
**Institution:** Research Foundation for Mental Hygiene – Columbia University, New York, New York  
**Research Area:** Child Psychiatric Epidemiology  
**Project Title:** Paternal Criminal Justice Involvement and Substance Use in Children and Adolescents  
**Start Date, Program Length:** June 1, 2009 — 10 Weeks  
**Housing Available:** Yes  
**Student Attributes:** Seeking junior and senior undergraduate students with a major in psychology, public health, social work, sociology, anthropology or other related social sciences. Preferably, applicants should reside in the greater New York metropolitan area (including Long Island, New Jersey and Connecticut). Students from underrepresented populations are highly encouraged to apply. Fluency in Spanish and interest in urban minority communities is desirable.

**Project Description:**

The Department of Child Psychiatry at Columbia University, in affiliation with the New York State Psychiatric Institute, is looking for participants in the Summer Research with NIDA program. This internship involves getting acquainted with the research process in child psychiatric epidemiology. The main objective of the research study in question is to better understand how a father's involvement with the criminal justice system (CJS) may influence the general health and mental health of their children. More specifically, this research study investigates the impact over time of paternal involvement with the CJS on their child's substance use/abuse/dependence and psychopathology and the development of risk behaviors possibly leading to the child's involvement with juvenile justice and/or CJS. The summer interns will be part of a research team, which performs a variety of assignments ranging from more organizational components indispensable to large research projects, data entry, review of interviews, and participation in fieldwork. This program offers an excellent experience for students interested in pursuing graduate level work in psychology, public health, related medical fields, or sociology.

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**Investigator:** Marc A. Zimmerman, Ph.D.  
**Institution:** University of Michigan, Ann Arbor, Michigan  
**Research Area:** Substance Use's Influence on Youth Development: Health and Social Well-being from Adolescence Into Young Adulthood  
**Project Title:** Longitudinal Study of School Dropout and Substance Use  
**Start Date, Program Length:** June 1, 2009 — 8 Weeks  
**Housing Available:** Yes  
**Student Attributes:** Seeking undergraduate students that are responsible, diligent, and interested in pursuing a graduate degree in the social sciences (e.g., social, community, or developmental psychology, sociology, and/or social work) or life sciences (e.g., medicine and/or public health). Applicants must have a strong interest in substance use and/or youth development. Some experience in social science research is preferred. Potential applicants must have taken at least one semester of statistics as part of their undergraduate degree, as much of the work will focus on strengthening their quantitative skills.

**Project Description:**

The Flint Adolescent Study (FAS) is an interview study of 850 ninth graders conducted in collaboration with the Projects for Urban and Regional Affairs and Flint Community Schools. The goal of the study is to explore the protective factors associated with school dropout and alcohol and substance use. Students were sampled from the four main public high schools in Flint, Michigan. The

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study followed youth for four years beginning in the fall of 1994 and obtained a 90% response rate from Year 1 to Year 4. The Year 1 sample includes 679 African-American youth (80%), 145 white youth (17%) and 26 mixed African-American and white youth (3%). The sample is evenly divided by males and females. The sample reflects the overall student body in the Flint High Schools.

In order to study those students most at risk for leaving school before graduation, individuals with grade point averages of 3.0 and below were selected for interviews. Information obtained from the youth were concentrated in several key areas including participation in church, school, and community organizations; social support and influence of family and friends (including mentoring); self-esteem, stress, and psychological well being; delinquent and violent behaviors; alcohol and substance abuse; sex behavior and child bearing; school attitudes and performance; family structure and relationships; driving behavior (beginning in Year 3); attachment style (beginning in Year 3); and racial identity (beginning in Year 3). Information was also collected about parental education and occupation.

Census tract and block information is also linked to the youths' data and used to explore how neighborhood effects are associated with youths' well-being. The research study applies life-span and resiliency perspectives to carry out longitudinal analyses. This research study identifies assets and resources in youth's lives. FAS data has guided the development of public health interventions through the University of Michigan's Prevention Research Center (<http://www.sph.umich.edu/prc>). Students interested in studying how social and behavioral factors influence youths' substance use and well-being are encouraged to apply. As part of a mentored experience, students will (1) conduct a literature review to develop and answer a research question of interest, (2) enhance their proficiency in statistical methods through mini-workshops and collaboration in FAS data analyses, (3) strengthen their ability to write a scientific paper, and (4) be encouraged to consider their mentored projects' implications for public health practice. Students will also be encouraged to participate in on-going learning seminars and activities in the University of Michigan-Ann Arbor campus.

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**Investigator:** Norweeta G. Milburn, Ph.D.  
**Institution:** UCLA Semel Institute for Neuroscience and Human Behavior – Center for Community Health, Los Angeles, California  
**Research Area:** Substance Abuse and HIV  
**Project Title:** Recruiting, Engaging, and Retaining Families for Interventions to Prevent HIV Transmission  
**Start Date, Program Length:** June 4, 2009 — 10 Weeks  
**Housing Available:** No  
**Student Attributes:** Seeking an undergraduate student who is pursuing a degree in the behavioral and/or social sciences (preferably in psychology or public health). Student should be interested in HIV/AIDS, substance use, family interventions, and at-risk communities. A student who has had liaison skills with minority communities is an ideal candidate. Student should be familiar with organizational databases such as Access, Excel, and SPSS. Past research experience in literature review and research design is a plus.

**Project Description:**

Student intern will engage in a research study which develops and tests an enhanced protocol for a family-based intervention dealing with substance use among African American youth in the probation court system. This enhanced protocol will be media based and the ultimate goal is to recruit, engage, and retain families in an evidence based intervention. The research consists of two phases. Phase I is developmental work to tailor the family based intervention and enhanced protocol

to African American youth. Phase II is to pilot the enhanced protocol and family based evidence intervention in the probation court system. This program is a best fit for individual who is interested in behavioral interventions, substance abuse, and HIV. Selected individual will be working at the UCLA Semel Institute for Neuroscience and Human Behavior Center for Community Health, a research center that focuses on developing and implementing behavioral interventions for high risk populations (e.g., homeless adolescents, delinquent youth, etc.). Selected individual will gain experience in research design, implementation, data analysis, and dissemination.

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**Investigator:** Gregory Kirk, M.D., Ph.D.  
**Institution:** Johns Hopkins School of Public Health, Baltimore, Maryland  
**Research Area:** Infectious Diseases, HIV, IV Drug Use  
**Project Title:** The Natural History of HIV Infection Among Injection Drug Users  
**Start Date, Program Length:** June 1, 2009 — 10 Weeks  
**Housing Available:** No  
**Student Attributes:** Seeking undergraduate students with the ability to work with a range of people, including those who are indigent, drug using, mental health challenged, and homeless. Students should be able to interact compassionately and without judgment. Studies in health-related fields are optimal, but not required.

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**Project Description:**

The ALIVE Study works with an underserved cohort of IV drug users from the Baltimore metropolitan area who are both HIV positive and negative. It involves visits to a clinic every six months where participants are given a series of questionnaires related to their behaviors and medical history. Students will monitor participants as they answer these questions on a computer. They will also take vital signs (blood pressure, height, and weight) and record data on the assessment of physical functioning of participants.

**Investigator:** Eloise Dunlap, Ph.D.  
**Institution:** National Development and Research Institutes, Inc., New York, New York  
**Research Area:** Social Issues: Drug Addiction, Criminology, Deviance  
**Project Title:** Disruption and Reformulation of Illicit Drug Markets Among New Orleans Evacuees  
**Start Date, Program Length:** June 1, 2009 — 10 Weeks  
**Housing Available:** No  
**Student Attributes:** Seeking high school and undergraduate students who have excellent grades in all subjects and strong letters of support from their teachers and academic advisors. Students must demonstrate their interest in learning about such social problems as addiction, poverty, deviance, crime, and criminality. They must have knowledge of computers and a good handle on using software programs, especially Microsoft® Word for Windows. Students also should have good writing skills and a working knowledge of searching library and Internet resources. They will be expected to perform an assortment of research related tasks, such as entering and coding data in advanced data bases, which will require them to learn to operate highly sophisticated programs such as SPSS, FileMaker® Pro, Microsoft® Excel, and PowerPoint. They will have the opportunity to assist with the preparation of manuscripts for publication and research findings for presentations at scientific meetings. Students will also be required to attend certain NDRI

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seminars and/or Training Institute courses, where they will learn about drug use, HIV/AIDS, and a number of social problems. The goal of the program is to provide both specific research skills and an overall understanding of research project components and management.

**Project Description:**

This program involves behavioral research and requires students with interests and skills in the social sciences. The objective of the study is to systematically investigate changes in illicit drug markets due to Hurricane Katrina and the subsequent flooding of New Orleans. In the aftermath of the storm, almost the entire population of New Orleans became evacuees in other host communities, including Houston. In both New Orleans and Houston, ethnographers are conducting observations of illicit drug markets and completing personal qualitative interviews with respondents over a three-year period. They are also conducting focus group interviews at each site, with each group composed of evacuees involved in specific illicit drug markets (heroin, crack, marijuana and other substances). This research will document the disruption of New Orleans illicit drug markets, the impact of evacuee drug users on Houston's drug markets, and the anticipated reformulation of drug markets in New Orleans. The study will improve scientific understanding of how illicit drug markets function in the wake of a major disaster and provide policy guidance about how to further weaken such markets in the future.

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**Investigator:**

Christopher J. Evans, Ph.D.

**Institution:**University of California, Los Angeles (UCLA),  
Los Angeles, California**Research Area:**

Addiction Consortium

**Project Title:**

Addiction Research

**Start Date, Program Length:**

June 1, 2009 — 10 Weeks

**Housing Available:**

Yes

**Student Attributes:**

Seeking motivated high school and undergraduate students with an interest in addiction research. A phone interview will be conducted.

**Project Description:**

Through the UCLA Brain Research Institute, this program will match students with faculty working on two NIDA-funded centers at UCLA—one in the area of opioids and the other in psychostimulants. Research in these centers spans molecular to clinical studies. Students will be matched to specific projects within these centers based on their interests.

The Developmental Center for Translational Research on Addictions integrates preclinical studies to directly inform clinical research on drug addiction and complementarily leveraging clinical insights to help target basic science approaches. The Center links basic scientists who have made significant contributions to knowledge of the neurobiological components of addiction with clinical investigators who are at the forefront in treatment research. The theme of the developmental center is impaired inhibitory control as a therapeutic target for methamphetamine (MA) dependence. The four research projects in this Center aim to do the following: (1) delineate the neural circuitry underlying deficits in inhibitory control in MA-dependent human subjects, (2) relate deficits in inhibitory control to drug-taking behavior using a human laboratory model of MA self administration, (3) establish and characterize (behaviorally and neurochemically) a non-human primate model for investigating inhibitory control deficits characteristic of MA abuse, and (4) characterize regional brain neurochemical effects of pharmacological manipulations aimed at modulating response inhibition in a rodent model for MA dependence.

The research objectives of the Center for Study of Opioid Receptors and Drugs of Abuse (CSORDA) are to gain insights into the mechanisms of action of endogenous opioids and opioid drugs at their

cognate receptors with the goal of discerning fundamental processes contributing to behaviors such as analgesia, addiction, tolerance and withdrawal. The Center has four integrated components, which will investigate the activity of opioid ligands at the molecular, cellular, and behavioral levels utilizing complementary methodologies and shared resources. The Components of CSORDA will specifically investigate (1) the regulation of trafficking and signaling of mu and delta receptors in vivo by high resolution imaging of mice expressing fluorescent receptors, (2) the basis for mu ligand-directed signaling and receptor trafficking using primary dorsal root ganglia cells from wild-type as well as receptor and arrestin-deficient mice, (3) the role of the endogenous opioid system in goal-directed and habitual behaviors both in drug free and opioid dependent conditions and, (4) the functional regulation of transcripts in the striatonigral and striatopallidal projection neuron circuits and their relation to opioid drug reward center.

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<b>Investigator:</b>	Jeffrey H. Samet, M.D., M.A., M.P.H.
<b>Institution:</b>	Boston Medical Center, Boston University School of Medicine, Boston Massachusetts
<b>Research Area:</b>	Substance Abuse Treatment, Primary Care, HIV Prevention and Treatment, Psychiatric Comorbidities, Violence
<b>Project Title:</b>	Clinical Addiction Research and Education Unit Summer Research Program
<b>Start Date, Program Length:</b>	June 1, 2009 — 10 Weeks
<b>Housing Available:</b>	No
<b>Student Attributes:</b>	Seeking undergraduate students with a declared or intended pre-med major. Students should have an interest in learning about addiction medicine, psychiatric conditions related to substance use, and HIV.

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### Project Description:

The goal of the Boston University School of Medicine/Boston Medical Center summer research program within the Clinical Addiction Research and Education Unit is to expose and engage bright students in the world of addiction medicine research. Ongoing research studies that students may be involved with include brief interventions for substance users in the primary care setting, interaction between substance use and victimization from gun shots or stabbing and association psychiatric conditions, methadone treatment, and progression of HIV disease among Russian heroin users. Students will participate in a research project, have an opportunity for clinical observation, and join other students in a weekly seminar focusing on various aspects of clinical addiction research.

### Mentored Research Project

Students will gain experience in social science research by observing or participating in discussions of research design, subject interviewing, data collection, data entry, data analysis, and data presentation. Students may be involved in literature search and reviews to contribute to manuscript and grant preparations with the opportunity for publication co-authorship. Students will be invited to participate in weekly study team meetings. Previous students have worked on substance use research projects involving data collection via medical record review and face-to-face interview and co-authored scientific articles.

### Clinical Component

This program is run by primary care internists. Students will acquire clinical exposure in harm reduction, screening, diagnosing and treating patients with drug and alcohol problems through multiple observer experiences including a methadone maintenance clinic, office-based opioid treatment with buprenorphine program and needle exchange program. The student will have weekly opportunities to shadow physicians and other expert care providers in various addiction treatment/services settings including: primary medical care clinic, methadone maintenance clinic,



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primary care-based opioid treatment program with buprenorphine, HIV clinic-based substance abuse treatment program, needle exchange program, hospital wide screening and brief intervention counseling program, and victim of violence advocacy program.

### Weekly Seminars

Students will participate in eight 75-minute didactic/case presentations about addiction medicine over the summer with other students working within the Clinical Addiction Research and Education Unit. Potential topics include office-based opioid treatment with buprenorphine; methadone maintenance 101; substance abuse, HIV, and HCV; substance abuse and intimate partner violence; chronic pain and substance abuse; chronic disease management of substance user; substance abuse and co-morbid mental illness; HIV prevention in Russian substance users; site visit to homeless healthcare clinic; and stimulants.

# 45

**Investigator:** Bess Marcus, Ph.D.  
**Institution:** The Miriam Hospital, Providence, Rhode Island  
**Research Area:** Physical Activity and Smoking Cessation  
**Project Title:** Using a YMCA Exercise Program to Enhance Nicotine Dependence Treatment for Women  
**Start Date, Program Length:** June 8, 2009 — 8 Weeks  
**Housing Available:** No  
**Student Attributes:** Seeking undergraduate students with an interest and experience in physical activity and/or smoking cessation programs. Early evening availability is a must with at least one day per week working until 8 p.m. Students should have good organizational and interpersonal skills.

### Project Description:

Commit to Quit is a randomized-controlled quit smoking study, designed by women, for women. The Miriam Hospital and the Providence Network YMCA's have teamed up to offer an exciting new smoking cessation study. As part of a comprehensive quit smoking study, this program addresses the unique concerns of women including weight control and stress management. This study compares cognitive behavioral therapy (CBT) smoking cessation treatment plus a program of regular exercise to CBT smoking cessation treatment plus contact control. In order to promote transportability to the YMCA, the study uses the YMCA's existing Personal Fitness Program, which is guided by trained staff and requires participants to exercise three times per week at the local YMCA. The student researcher will help with the smoking cessation and physical activity research study. Interns prepare intervention and assessment materials, enter data, assist with follow-up assessments, assist with an orientation session, represent the study out in the community, distribute flyers/posters, and perform other related tasks as needed.

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**Investigator:** Emmalee S. Bandstra, M.D.  
**Institution:** University of Miami, Miami, Florida  
**Research Area:** Prenatal Cocaine Exposure; Adolescent Drug Involvement  
**Project Title:** Sex and Gender Influences on Drug Involvement in Adolescence  
**Start Date, Program Length:** June 1, 2009 — 8-10 Weeks  
**Housing Available:** Yes  
**Student Attributes:** Seeking undergraduate students who have an educational background in pre-medicine, psychology, behavioral science, epidemiology, public health, or a related field. Students should have an interest in pursuing future careers or further education in empirical research or medicine. Students should display an ability to communicate with various audiences using exceptional

interpersonal, written, and oral communication skills. The ideal candidates should have excellent organizational skills and attention to detail.

**Project Description:**

The Perinatal Chemical Addiction Research and Education (C.A.R.E) program at the University of Miami Miller School of Medicine has conducted research and service involving prenatally substance-exposed infants and children since 1988. Directed by Emmalee S. Bandstra, M.D., Professor of Pediatrics and Obstetrics and Gynecology, Perinatal C.A.R.E. is the academic home for 4 full-time child-clinical psychology faculty members, a full-time psychology assistant scientist, a part-time pediatrician and over 50 professional and support staff. The program operates in approximately 7,000 sq. ft. of support space, including 20 offices and 38 workstations in the newly designed Clinical Research Building (CRB) on the University of Miami medical campus. Funded by NIDA since 1990, the program houses the Miami Prenatal Cocaine Study, a longitudinal study on the long-term effects of prenatal cocaine exposure on the neuropsychological, emotional/behavioral, and educational functioning of a large representative cohort of adolescent African Americans, born at term and followed since birth. Recently, the program was awarded an NIH Office of Research on Women's Health (ORWH) Specialized Center of Research on Addiction and Health in Women, Children and Adolescents grant to foster the development of translational research on risk for drug taking in adolescent males and females with and without exposure to cocaine and other drugs.

The clinical project within this Center, entitled Sex and Gender Influences on Drug Involvement in Adolescence, seeks to answer important questions about previously understudied hypothesized sex and gender differences in drug involvement through late adolescence as well as the outcomes of female (versus male) offspring exposed to drugs in utero.

Within the Perinatal C.A.R.E. program there are also several service projects including the Starting Early Starting Smart/Healthy Start service initiative and the Families First Network. Evaluating the effectiveness of services and determining best practices for strengthening families through a strong research and performance evaluation component is a core mission across all projects within the Perinatal C.A.R.E. Program. Interns will learn about the effects of prenatal drug exposures on child outcomes, risk/protective factors for adolescent drug involvement, and the design/conduct of longitudinal research. Interns will observe and assist in most aspects of the research process including literature review, data collection, data management and quality assurance, data analysis, and manuscript preparation. Interns will be provided with the necessary training to carry out this variety of job roles and will receive ongoing guidance and mentoring from senior staff. In addition, interns will have multiple opportunities for lectures and/or workshops related to the area of drug abuse offered through various University of Miami resources such as the Center for Family Studies, Pediatric Research, and the Department of Psychiatry.

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<b>Investigator:</b>	Colleen A. Redding, Ph.D.
<b>Institution:</b>	University of Rhode Island/CPRC, Kingston, Rhode Island
<b>Research Area:</b>	Nicotine Addiction
<b>Project Title:</b>	Optimal TTM Tailoring for Population Smoking Cessation
<b>Start Date, Program Length:</b>	June 1, 2009 — 10 Weeks
<b>Housing Available:</b>	Yes
<b>Student Attributes:</b>	Seeking undergraduate students with a background in psychology or social science. Some statistics experience is preferred.

**Project Description:**

This research study is recruiting smokers, assessing them on many smoking-related variables, and providing them with differently tailored self-help materials (printed and mailed to them at home) to

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see how different levels of tailoring impact smoking cessation across groups. In the past, this research team found that a high level of tailoring is effective in helping about 22–25% of smokers quit. This study will determine whether the research team can help that many smokers quit with less tailoring and will also show the team whether they can help more smokers quit with more tailoring in one group.

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**Investigator:** Saul Shiffman, Ph.D.  
**Institution:** University of Pittsburgh, Pittsburgh, Pennsylvania  
**Research Area:** Smoking, Addiction, Psychology, Social Science  
**Project Title:** Understanding Emerging Patterns of Non-Daily Smoking: Field and Lab Assessments  
**Start Date, Program Length:** June 1, 2009 — 10 Weeks  
**Housing Available:** No  
**Student Attributes:** Seeking undergraduate students with an interest in gaining experience in social and behavioral science research (in particular, addiction). Keen attention to detail and ability to closely follow instructions (i.e., adhere to study protocol) will be required. Familiarity with Microsoft® Office programs (Word, Excel, and Access) is preferred, as is knowledge of general research concepts and procedures.

**Project Description:**

The behavior of American smokers is changing. According to a national survey (BRFSS), 25% of all adult smokers don't smoke every day, an increase of over 40% over five years. Intermittent smoking (ITS) patterns could be quite different from traditional daily smoking, but ITS behaviors aren't yet thoroughly understood. This project compares ITS and daily smokers. First, smokers carry electronic diaries (palm devices) to track triggers associated with smoking and non-smoking for three weeks in a real-time, naturalistic field study. Additionally, the project shows visual cues in the lab to assess craving and gather smoking-characteristics data using extensive questionnaires.

All study participants will be followed over a period of up to 3 years in order to help the research team learn what best predicts changes in smoking patterns over time. Students assisting laboratory staff on this project may be asked to (1) aid in determining eligibility of interested smokers for the study (via structured telephone interview), (2) schedule study participants' visits, (3) code and enter data collected during participants' study sessions (including both paper forms and video data), and (4) assist research team in preparation of materials for study sessions. As some duties will involve interacting with study participants, applicants should be comfortable in speaking by phone to persons from diverse populations. In addition, ability to follow precise study procedures will be necessary.

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**Investigator:** Sherry McKee, Ph.D.  
**Institution:** Yale University School of Medicine, New Haven, Connecticut  
**Research Area:** Psychiatry, Human Behavioral Pharmacology  
**Project Title:** Modeling Stress-precipitated Smoking Behavior for Medication Development  
**Start Date, Program Length:** June 8, 2009 — 8–10 Weeks  
**Housing Available:** Yes  
**Student Attributes:** Seeking undergraduate students with declared majors of psychology, biology, public health, sociology, and/or pharmacology. Preferred student research interests include substance use, tobacco, and stress.

**Project Description:**

There are several openings for undergraduate students. This research program consists of human laboratory studies examining the effect of stress on smoking lapse behavior. Stress has been identified as a primary mechanism involved in smoking relapse. Few studies to date have examined smoking behavior in response to stress. This research program's studies models the ability to resist smoking following stress in the laboratory. They also study whether medications that are known to reduce individuals' responses to stress can increase the ability to resist smoking following stress. Findings from these projects will have important treatment implications for improving rates of smoking cessation by identifying mechanisms that underlie stress-related smoking lapses. This research program involves behavioral work, which requires students to have interests and skills in the social (and/or life) sciences. A typical day will include participation in a variety of activities associated with conducting human laboratory studies. Students will be invited to attend summer research seminars and will participate in laboratory meetings. It is this program's hope that this experience will enrich students' current studies and that they may develop an interest in biomedical research as they pursue their future career goals.

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<b>Investigator:</b>	Jean J. Schensul, Ph.D.
<b>Institution:</b>	Institute for Community Research, Hartford, Connecticut
<b>Research Area:</b>	Adolescent and Young Adult Drug Use Including Ecstasy and Sexuality
<b>Project Title:</b>	MDMA and Sexual Risk Among Hidden Networks of Youth and Young Adults
<b>Start Date, Program Length:</b>	June 1, 2009 — 10 Weeks
<b>Housing Available:</b>	Yes
<b>Student Attributes:</b>	Seeking upper-level undergraduate students with a background in qualitative data collection and an interest in adolescence, campus life, drug use, and sexuality to help us and learn in the following areas: tracking and collecting internet and other archival information on Ecstasy, helping to code in-depth interviews on the lives and drug and sex careers of youth and young adults, collecting information about the environments in which youth use Ecstasy (this might include background information on shelter and campus enforcement of drug policies, and helping to put together a multimedia presentation on study results for use in focus group discussions about implications and intervention.

**Project Description:**

The study is a three-year study of ecstasy use and other party drugs in relation to sexual risk. The study tries to answer the question of whether, how, and in what ways ecstasy—known as a sexual enhancer—actually contributes to unprotected sex. The study utilizes a mix of qualitative methods including ethnographic fieldwork and recruitment, focus groups, and in-depth interviews. The study population is multiethnic, including teens ages 18–20 and young adults from different ethnic/racial backgrounds and lifestyles (campus, LGTBQ, shelter-residing, young workers, etc) who use ecstasy. The study has collected focus group data from these groups on their perceptions of ecstasy and its association with sexual risk and protection. The study is now interviewing 100 young people about their relationships, drug use, lifestyles, ecstasy-use history and current use of ecstasy with their sexual partners. During the summer of 2009 the study will be finishing interviews with ecstasy users, and in-depth interviews with people who can help to explain the context of the places where they get and use ecstasy. The study will also be coding and analyzing data and summarizing it for community presentations. These interviews are very interesting and offer a lens for understanding the lives of ecstasy users, the reasons for using ecstasy at a time when it is not commonly used or readily available, and provide the basis for publications and other science-based presentations to public audiences.

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# Life Sciences



# **Life Sciences**

**Ideal for, but not limited to, students with majors/interests in biology (molecular/cell), neurobiology, psychobiology, neuroscience, behavioral neuroscience, pharmacology, chemistry, biochemistry, and brain imaging**

**Investigator:** Sulie L. Chang, Ph.D.  
**Institution:** Seton Hall University, South Orange, New Jersey  
**Research Area:** NeuroAIDS, Neuroimmune Axis in Health and Diseases Including Drug Addiction  
**Project Title:** Morphine Actions on the Immune System  
**Start Date, Program Length:** June 1, 2009 — 10 Weeks  
**Housing Available:** Yes  
**Student Attributes:** Seeking high school and undergraduate students with a major in biochemistry or biomedical engineering. Students should have an intention to pursue a career in the biomedical field including medical school, graduate school in neuroscience, or immunology.

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**Project Description:**

This program has two phases: one involves basic laboratory work requiring students with interests and skills in molecular and cellular biosciences and the other involves animal behavioral work requiring students with interests and skills in handling animal experiments.

Since 1989, Dr. Chang's NIDA-funded research has been in the field of neuroimmune pharmacology of drug abuse and HIV infection. The overall goal of her current research is to investigate the interactive effects of drugs of abuse, such as morphine, and bacterial endotoxin on the brain-immune axis in the presence of HIV infection using the HIV-1Tg rat and human cell culture models and a mouse model injected with a chimeric EcoHIV vector.

The research interns will have ample opportunities to learn cutting-edge methodology and experimental protocols including quantitative RT-PCR and quantitative fluorescence microscopy. In addition, the students will be able to explore how one can correlate the genetic information with the behavioral measures using the experimental animals.

**Investigator:** Linda R. Watkins, Ph.D.  
**Institution:** University of Colorado at Boulder, Boulder, Colorado  
**Research Area:** Glial Regulation of the Effects of Drugs of Abuse  
**Project Title:** Exploring the Potential of Glia for Regulating Clinical Relevant Opioid Actions  
**Start Date, Program Length:** June 1, 2009 — 10 Weeks  
**Housing Available:** No  
**Student Attributes:** Seeking high school and undergraduate students interested in neuroscience. Students with prior experience with laboratory animals are preferred.

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**Project Description:**

This research explores whether non-neuronal cells called glia contribute to the negative consequences of drugs of abuse, such as reward, respiratory depression, suppressing pain control, etc.

**Investigator:** Steve Shoptaw, Ph.D.  
**Institution:** University of California, Los Angeles (UCLA), Los Angeles, California  
**Research Area:** Methamphetamine Abuse Treatment, HIV Prevention  
**Project Title:** UCLA Medication Development Unit for Stimulant Abuse  
**Start Date, Program Length:** June 1, 2009 — 10 Weeks  
**Housing Available:** Yes  
**Student Attributes:** Seeking high school and undergraduate students who ideally have career interests in substance abuse treatment or intervention development; want to work in a dynamic research lab; are able to

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maintain strict confidentiality of research participants' information; are willing to work on research involving substance users, gay and bisexual men, individuals at risk for HIV infection, or members of other socially stigmatized groups; have moderate experience working with Microsoft® Office Suite; are able to adhere to a regular work schedule; and are willing to work at an off-campus location in the Westwood area.

### Project Description:

The major goal of this project is to implement an articulated clinical program of stimulant pharmacotherapy trials, which are oriented exclusively to the treatment of methamphetamine dependence. Students will be exposed to theories, methods, clinical issues, public health issues, and community-based research addressing substance abuse prevention and treatment for methamphetamine addiction and HIV/AIDS prevention, care and treatment. The research group includes addiction medicine, HIV medicine, psychology, sociology, and public health experts who can provide hands-on experience and training supervised by Principal Investigator Shoptaw.

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<b>Investigator:</b>	Linda Mayes, M.D.
<b>Institution:</b>	Yale School of Medicine, New Haven, Connecticut
<b>Research Area:</b>	Parental and Adolescent Substance Abuse
<b>Project Title:</b>	Gender Differences in Adolescent Stress Response and Risk for Substance Use
<b>Start Date, Program Length:</b>	June 1, 2009 — 10 Weeks
<b>Housing Available:</b>	No
<b>Student Attributes:</b>	Seeking undergraduate students with majors in psychology or cognitive neuroscience.

### Project Description:

Interns participating in this summer internship will have an opportunity to work on a number of research studies dealing with both children and adults, to attend lab meetings associated with these studies, and also to attend a series of ongoing research seminars about substance abuse. Longitudinal Studies of Prenatal Drug Exposure is the core research of the Mayes lab under the supervision of Linda Mayes and Michael Crowley. In this project, interns will learn (a) basic principles of neurocognitive assessment in school-age children and adolescents and practice administering tasks to control children; (b) principles of behavioral teratology and how to think about potentially toxic exposures during pregnancy; (c) basic methodology of longitudinal studies and especially guidelines regarding cohort maintenance; and (d) approaches to longitudinal data analysis.

Interventions for Drug-using Mothers is under the supervision of Nancy Suchman, Ph.D., a collaborator of the Mayes lab. This project studies a parenting intervention (Emotionally Responsive Parenting or ERP) for drug dependent mothers that aims to foster mothers' abilities to recognize children's emotional needs at different ages and mothers' capacities to be emotionally available to their children. Summer interns will learn (a) basic principles of designing intervention studies and specifically interventions for substance-using parents; (b) how to design evaluations for interventions; (c) assessments of parent-child interaction and attachment; and (d) principles of working with substance-abusing mothers in groups.

Electrophysiology of Developing Reward Systems in Prenatally Drug Exposed Adolescents, under the supervision of Linda Mayes and Michael Crowley, focuses on the behavioral and electrophysiological markers of developing reward systems in adolescence and the relation to heightened risk-taking behaviors including substance abuse. Summer interns participating in this research will learn: (a) concept of reward systems and dynamic relation to risk taking behavior as well as stress regulation; (b) behavioral and neurobiological basis of reward behavior; (c) approaches

to assessing reward seeking behavior; and (d) basic principles of electrophysiology including dense array electroencephalography.

The primary mentors (Mayes and Crowley) will closely supervise the interns' experience in each of these settings through regular meetings. Interns will also regularly participate in weekly lab meetings, journal groups, and seminars and will have a set of guided readings for the summer.

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<b>Investigator:</b>	Alan J. Budney, Ph.D.
<b>Institution:</b>	University of Arkansas for Medical Sciences, Little Rock, Arkansas
<b>Research Area:</b>	Substance Abuse
<b>Project Title:</b>	Behavioral Treatment of Adolescent Marijuana Use
<b>Start Date, Program Length:</b>	June 1, 2009 — 8 Weeks
<b>Housing Available:</b>	Yes
<b>Student Attributes:</b>	Seeking an undergraduate student with a declared major in psychology or related field. Experience in a human subject laboratory setting is preferred. Student interests could entail addiction research, behavioral pharmacology, adolescent or adult substance abuse, developmental psychopathology, or related areas.

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#### Project Description:

During an 8-week experience, the trainee will participate in up to two studies that are being conducted as part of NIDA-funded research projects examining behavioral treatments for adult and adolescent marijuana abusers. The overall goal of this internship will be to provide the trainee with an experience that will spark continued interest in addiction research and increased commitment to pursue a career that will further addiction science. The trainee will conduct readings on behavioral research methods, substance abuse etiology and treatment models, drug abuse psychopharmacology, developmental psychopathology, adolescent substance abuse, and behavioral parent training; meet with either Dr. Budney (PI) or Dr. Stanger (Co-PI) to discuss these materials and their daily experience in the research environment; receive extensive training in and observation of research procedures that are part of the research projects; review assessment, clinical, and outcome measures involved in clinical trials of adolescent and adult marijuana abuse (research staff and supervisors will review these procedures with the trainee so that the trainee obtains a solid understanding of their function and administration); observe staff, obtain informed consent and perform intake and follow-up assessments; learn about urine drug testing via reading and observation of urinalysis procedures and participate in the collection of ongoing assessments and urine specimens and monitoring of participants providing assessment information; review videotape of treatment and intervention sessions from these projects to gain an understanding of how empirically based treatments are delivered; assist with daily operations of these research project, which may include making clinical manuals, contacting research participants, reporting test results, entering data, making participant research binders, preparing specimens for shipping, and other miscellaneous tasks; develop a topic paper or perform an independent research project and prepare in journal format.

<b>Investigator:</b>	Laura Elena O'Dell, Ph.D.
<b>Institution:</b>	The University of Texas El Paso, El Paso, Texas
<b>Research Area:</b>	Nicotine Addiction in Adolescent Rats
<b>Project Title:</b>	Nico-teen: Mechanisms of Nicotine Reward and Withdrawal During Adolescence
<b>Start Date, Program Length:</b>	June 18, 2009 — 10 Weeks
<b>Housing Available:</b>	Yes
<b>Student Attributes:</b>	Seeking undergraduate students with psychology and/or biology backgrounds and an interest in addiction and learning behavioral

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techniques. Students should be comfortable working with rodent models.

**Project Description:**

This research project is centered on neural mechanisms that mediate addiction to nicotine and alcohol. This laboratory combines various neurochemical techniques (in vivo microdialysis coupled with HPLC) with behavioral models (self-administration and conditioned place preference) to study the neural basis of addiction. Specific areas of interest include animal models of excessive alcohol intake; propensity of addiction related to various disease states, such as diabetes; developmental factors and sex differences influencing nicotine intake and withdrawal; behavioral interaction and neurochemical mechanisms mediating co-abuse of nicotine and alcohol.

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**Investigator:**

Chitra Mandyam, Ph.D.

**Institution:**

The Scripps Research Institute, La Jolla, California

**Research Area:**

Methamphetamine Self-Administration and Adult Neurogenesis

**Project Title:**

Regulation of Adult Neurogenesis by Methamphetamine

**Start Date, Program Length:**

June 4, 2009 — 8 Weeks

**Housing Available:**

No

**Student Attributes:**

Seeking undergraduate students interested in performing animal behavior studies. Students must be aware of any allergies he/she has to rodents.

**Project Description:**

Research has recently indicated that methamphetamine self-administration (a highly abused psychostimulant in the Southern California region with street names such as speed, meth, chalk, ice, crystal, and glass) decreases gliogenesis in the adult rodent medial prefrontal cortex and neurogenesis in the adult rodent hippocampus. Ongoing research in this laboratory will determine the underlying cellular and molecular mechanisms contributing to methamphetamine-induced decreases in cortical and hippocampal plasticity. This lab uses techniques such as self-administration behavior, immunohistochemistry, confocal microscopy, in situ hybridization, and western blotting to answer research questions. Comprehension of how psychostimulants such as methamphetamine act to inhibit new precursors or progenitors in the adult brain will likely shed light on the basic mechanisms regulating adult neural stem cells. These findings will improve the understanding of the complex mechanisms by which psychostimulants affect brain function and may help generate better therapies to treat methamphetamine addiction.

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**Investigator:**

Nancy Petry, Ph.D.

**Institution:**

University of Connecticut Health Center, Farmington, Connecticut

**Research Area:**

Substance Abuse, Gambling, Health Psychology

**Project Title:**

Treatment of Substance Abuse, Gambling Disorders

**Start Date, Program Length:**

June 2009 — 10 Weeks

**Housing Available:**

No

**Student Attributes:**

Seeking high school and undergraduate students with a major in psychology.

**Project Description:**

This research project involves investigating behavioral treatments for addictive disorders. Students can observe and participate in assessment evaluations and therapy administration, as well as data entry and management. Possibilities exist for assisting in writing reports for publication.

**Investigator:** Fletcher A. White, Ph.D.  
**Institution:** Loyola University, Chicago, Illinois  
**Research Area:** Mechanisms of Opioid-induced Hyperalgesia  
**Project Title:** Chemokine-mediated Modulation of Opioid-Induced Pain  
**Start Date, Program Length:** June 1–8, 2009 — 10 Weeks  
**Housing Available:** No  
**Student Attributes:** Seeking high school and undergraduate students interested in clinical and basic neuroscience.

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**Project Description:**

Opioids, such as morphine, currently represent the best option for the management of severe pain and chronic pain states. However, many undesirable side effects are common and include nausea, vomiting, itching, and constipation. One side effect, in particular, experienced by some patients is paradoxical pain and is reported by many individuals including some palliative care patients. The mechanisms associated with paradoxical pain are thought to be due to morphine-induced cellular adaptations in nervous system not associated with pain relief.

These cellular adaptations include increased signaling by a group of factors called chemotactic cytokines (chemokines) and their receptors. Chemokines and their receptors are largely thought to influence immune system function during inflammation and disease (e.g. migration of immune cells to injury), but can also facilitate transmission of HIV infection. Chemokine receptors are also expressed on cells of the nervous system and are thought to directly or indirectly regulate signaling in neurons and glial cells. Chemokine receptors in the nervous system also participate in pathological, inflammatory, and neurodegenerative conditions, such as multiple sclerosis, experimental autoimmune encephalitis, Alzheimer's disease, HIV infection, demyelination, brain injury, and tumors.

**Investigator:** Robert Philibert, M.D., Ph.D.  
**Institution:** The University of Iowa, Iowa City, Iowa  
**Research Area:** Genetics  
**Project Title:** The Role of Epigenetics in Substance Use  
**Start Date, Program Length:** June 1, 2009 — 10 Weeks  
**Housing Available:** Yes  
**Student Attributes:** Seeking high school and undergraduate students with laboratory experience and a focus in the life or physical sciences.

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**Project Description:**

The Psychiatric Genetics Laboratory in the Department of Psychiatry is a fully equipped translational biology facility with over 10,000 DNA samples, 3,000 lymphoblast cell lines, and a complete genotyping, real time PCR, and cell culture facilities.

**Investigator:** Masako Isokawa, Ph.D.  
**Institution:** University of Texas at Brownsville, Brownsville, Texas  
**Research Area:** Neuroscience  
**Project Title:** Cannabinoid Mobilization in Neurons  
**Start Date, Program Length:** June 1, 2009 — 8 Weeks  
**Housing Available:** No  
**Student Attributes:** Seeking high school students or undergraduate students with a major in biology or basic life science and those who have genuine interest in gaining basic knowledge in science rather than in pursuing medical practice.

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**Project Description:**

This lab investigates a molecule that is produced in the brain and enhances eating behavior according to one's food preference. The research team is interested in how this molecule may interact with drugs of abuse in the brain cells leading to substance abuse and addiction.

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**Investigator:** Jianren Mao, M.D., Ph.D.  
**Institution:** Massachusetts General Hospital, Harvard Medical School, Boston, Massachusetts  
**Research Area:** Prescription Drug Abuse  
**Project Title:** Translational Research on Prescription Drug Abuse  
**Start Date, Program Length:** June 1, 2009 — 8–12 Weeks  
**Housing Available:** No  
**Student Attributes:** Seeking high school and undergraduate students interested in neuroscience and neuroimaging; clinical study; rodent surgery and behavioral testing; Western blot; RT-PCR; HPLC; microdialysis; and immunohistochemistry.

**Project Description:**

This program provides a unique opportunity to interact with a group of physician-scientists who are studying the neurobiological mechanisms of drug abuse and its interaction with pain. The program provides active participation in both preclinical and clinical studies and access to the state-of-the-art neuroscience and neuroimaging technologies.

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**Investigator:** E. Sherwood Brown, M.D., Ph.D.  
**Institution:** UT Southwestern Medical Center, Dallas, Texas  
**Research Area:** Bipolar Disorder and Substance Dependence  
**Project Title:** Citicoline for Bipolar Disorder and Cocaine Dependence  
**Start Date, Program Length:** June 1, 2009 — 8 Weeks  
**Housing Available:** No  
**Student Attributes:** Seeking high school and undergraduate students interested in psychology or medicine who want to see how patient-based research is done.

**Project Description:**

This research team examines the treatment of patients with bipolar disorder and substance dependence. Day-to-day activities include phone screening of potential participants, diagnostic interviews, and administration of mood, neurocognitive and substance use assessments. Students in this laboratory will learn how clinical research is conducted.

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**Investigator:** Charles P. O'Brien, M.D., Ph.D.  
**Institution:** University of Pennsylvania, Philadelphia, Pennsylvania  
**Research Area:** Psychiatry Addictions  
**Project Title:** Center for Research on Improving the Treatment of Drug Abuse  
**Start Date, Program Length:** June 1, 2009 — 10 Weeks  
**Housing Available:** Yes  
**Student Attributes:** Seeking undergraduate students interested in behavioral health or related sciences.

**Project Description:**

The University of Pennsylvania will provide daily supervision through monitored activities; secured dormitory housing accommodations; and secured placement positions supervised by professional

and responsible investigators, junior investigators, and staff. The program will be a 10-week, 40-hours-a-week placement, supervised by a principal investigator and a designated program director. The program will consist of (1) formal coursework in Psychiatry 105 (didactics), diagnosis and treatment of substance abuse, MCAT and GRE training classes (optional); (2) participation in meetings with weekly speaker sessions hosted by various investigators from the field; (3) data collection activities and data analysis with active research study preparation, including case report form (CRF) work and assessments (may include patient contact); (4) laboratory experience/experiments including animal research; (5) library research; (6) meetings with mentors and other group activities; and (7) final oral presentations. The program will provide mentorship for participating students in which medical school entrance and research careers related to substance abuse/addiction research are discussed.

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**Investigator:** Rae Nishi, Ph.D.  
**Institution:** University of Vermont, Burlington, Vermont  
**Research Area:** Developmental Neurobiology  
**Project Title:** Nicotinic Acetylcholine Receptors in Neural Development  
**Start Date, Program Length:** June 1, 2009 — 8 Weeks  
**Housing Available:** Yes  
**Student Attributes:** Seeking undergraduate student with a passion for research and a strong curiosity about molecular and cellular neurobiology. Students who are presently majoring in biology, biochemistry, zoology, neuroscience, or physiological psychology are preferred.

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#### Project Description:

The participant will join students in University of Vermont's Summer Neuroscience Undergraduate Research Program (see <http://www.uvm.edu/~annb/?Page=summerfellowships.html>). The program includes a once a week class for 1.5 hours on topics in neuroscience and a number of extracurricular activities. Research in this laboratory requires skills in biology, neurobiology, or biochemistry. Projects involve investigating nicotinic signaling during embryonic development in chicken embryos. This is a multidisciplinary laboratory with opportunities to learn methods such as cell culture, immunohistochemistry, confocal imaging, and molecular biology. Summer undergraduate students may work with a more experienced trainee in the lab or on an independent research project depending upon their level of experience.

**Investigator:** Jia Bei Wang, M.D., Ph.D.  
**Institution:** University of Maryland, School of Pharmacy, Baltimore, Maryland  
**Research Area:** Molecular Pharmacology, Neuropsychological Behavior and Disease  
**Project Title:** MOR Phosphorylation in Opioid Tolerance and Dependence  
**Start Date, Program Length:** June 1, 2009 — 10 Weeks  
**Housing Available:** No  
**Student Attributes:** Seeking undergraduate student interested in biomedical research. Students should have a declared major in one of the biological sciences, such as biology, biochemistry, molecular biology, psychology, or neuroscience.

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#### Project Description:

Conducted in a molecular pharmacology laboratory, this project's research is centered on the neuronal mechanisms underlying the effects of opioids and CNS stimulants. The research has focused on questions concerning the role of opioid receptor phosphorylation in mediating the signal transduction and behavioral effect of morphine and other abused drugs. The students will receive training and mentorship on how to conduct basic research, especially in cellular, molecular, and behavioral aspects of drug abuse research; receive education in the fundamental principles behind the design of experiments; and perform their own experimental research project. The students will

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also be introduced to the multidisciplinary nature of the research through interactions with other members of the principal investigator's laboratory and within the department. In addition, students are encouraged to attend weekly group meetings and journal clubs that will expose them to a variety of research topics and methodologies in basic and clinical aspects of health issues, including drug abuse, as well as the opportunity to learn to be critical and creative in scientific research.

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**Investigator:** Howard Gu, Ph.D.  
**Institution:** Ohio State University, Columbus, Ohio  
**Research Area:** Cocaine Addiction  
**Project Title:** Cocaine and Monoamine Transporters  
**Start Date, Program Length:** June 1, 2009 — 10 Weeks  
**Housing Available:** Yes  
**Student Attributes:** Seeking undergraduate students who are highly motivated and are interested in learning and participating in the analysis of mouse behaviors and the basic techniques in molecular biology.

**Project Description:**

Cocaine is a powerful psycho stimulant and an addictive drug of abuse. Currently, there is no pharmacological treatment for cocaine addiction partly because the mechanisms of cocaine actions are not clear. Cocaine has three high affinity targets in the brain: the dopamine transporter (DAT), serotonin transporter (SERT), and norepinephrine transporter (NET). After entering the brain, cocaine binds and blocks the functions of the transporters and produces complex biochemical changes and behavioral responses. Repeated cocaine use leads to long-term changes in the brain and addiction.

To study the role of each cocaine target in cocaine addiction, this research lab has altered the amino acid sequence of DAT so that it does not respond to cocaine anymore. A knock-in mouse line, which carries the cocaine resistant DAT mutant, was engineered. These mice, with DAT resistant to cocaine, no longer like cocaine. The results indicate that cocaine inhibition of DAT is required for cocaine reward. Therefore, chemical compounds that prevent cocaine inhibition of DAT should be effective in blocking cocaine effects. Such compounds have great potential to be developed into effective drugs treating cocaine addiction. The lab is in the process of analyzing more details of how these mice respond to cocaine. The lab has also made the second knock-in mice with a cocaine-resistant NET and is working on generating the third mouse line carrying a mutant SERT. These mice enable the lab to investigate how each of the cocaine targets contributes to the addictive properties of cocaine.

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**Investigator:** Wenzhe Ho, M.D., M.P.H.  
**Institution:** The Children's Hospital of Philadelphia, University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania  
**Research Area:** Drug Abuse and Immunology of HIV/HCV Infection  
**Project Title:** Drug Abuse, Innate Immunity and HIV/HCV  
**Start Date, Program Length:** June 7, 2009 — 10 Weeks  
**Housing Available:** No  
**Student Attributes:** Seeking undergraduate students who have had basic research work experience.

**Project Description:**

Dr. Ho is a viral immunologist who has extensive experience in studying the interactions of drug abuse with immune system and viral infections. His interest is centered on human immunodeficiency virus (HIV) and hepatitis C virus (HCV). Since injection drug users (IDUs) are the single largest risk group for HCV infection and the co-infections with HIV and HCV are frequently found in IDUs, these two pathogens are also likely to be responsible for the highest



infectious disease morbidity and mortality rates among IDUs. Dr. Ho's research laboratory has been investigating the role of drug abuse in the immunopathogenesis of HIV and/or HCV diseases. The laboratory uses in vitro, ex vivo and in vivo models to directly address the question whether abused drugs, such as opioids, have the ability to impair host cell innate immunity and enhance HIV and/or HCV infection and replication.

This research lab's studies have demonstrated that morphine has the ability to suppress host innate immunity against both HIV and HCV. Recently this lab reported that intracellular type 1 IFN mediated innate immunity has a key role in inhibiting HIV or HCV replication. Extending these studies, the research team is now interested in examining the role of the interactions of drug abuse with innate immunity in HIV/HCV replication in the CNS and other systems. In addition, with the support from NIDA, Dr. Ho has successfully established international research projects in Wuhan and Guangxi, China to study the in vivo impact of substance abuse on HIV/HCV infection. The investigation of the impact of drug abuse on the host defense mechanism against HIV/HCV will contribute to a basic understanding of host immune processes and ultimately further the design and development of innate immunity-based treatment for drug-abusing patients infected with HIV and/or HCV.

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**Investigator:** Adrian S. Dobs, M.D., M.H.S.  
**Institution:** Johns Hopkins University School of Medicine, Baltimore, Maryland  
**Research Area:** Endocrinology  
**Project Title:** Cognitive Consequences of Endocrine Dysfunction in IDU  
**Start Date, Program Length:** June 1, 2009 — 10 Weeks  
**Housing Available:** No  
**Student Attributes:** Seeking high school and undergraduate students interested in endocrinology, public health, and clinical trials

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**Project Description:**

The ubiquitous distribution of sex steroid receptors throughout the brain suggests that gonadal hormones are important modulators of cognitive function. Endocrine abnormalities in the hypothalamic-pituitary-gonadal axis have been documented in injection drug users (IDUs) and are likely due to a combination of direct drug effects and associated co-morbidities. The overall hypothesis of this research is that there is cognitive dysfunction in IDUs due to CNS alterations secondary to hypogonadism associated with IDUs, and that poor performance on standardized cognitive tests can be improved by administering sex steroid replacement. The following specific aims are proposed: (1) to document the gonadal hormonal milieu in a population of IDUs, and to understand the relationship of that milieu to cognitive performance and quality of life (QOL); (2) to characterize patterns of cognitive performance and QOL in a defined population based on IDUs and HIV status using standardized cognitive testing and; (3) to evaluate the safety and efficacy of sex hormone replacement therapy (either testosterone in men or estrogen in women) on cognitive performance and QOL in a subgroup of hypogonadal IDUs.

Two studies are proposed: a cross-sectional study of IDUs to evaluate patterns of cognitive performance in relation to their gonadal hormone milieu and a randomized, placebo-controlled, clinical trial in which hypogonadal IDUs will be administered sex hormone replacement to determine the effects on cognitive performance and QOL. Carried out by a multidisciplinary team with extensive experience in studying IDU populations, endocrine abnormalities, and performance on cognitive tasks influenced by sex steroids, these research studies will yield better understanding of the relationship between drug use and cognition, and also expand understanding of the effects of sex steroids on cognitive performance, in an under-studied population.

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**Investigator:** Adrian S. Dobs, M.D., M.H.S.  
**Institution:** Johns Hopkins University School of Medicine, Baltimore, Maryland  
**Research Area:** Endocrinology  
**Project Title:** Serum Sex Hormones and Cardiovascular Risk in the MACS  
**Start Date, Program Length:** June 1, 2009 — 10 Weeks  
**Housing Available:** No  
**Student Attributes:** Seeking high school and undergraduate students interested in endocrinology, public health, and clinical trials.

**Project Description:**

This research project's overall goal is to understand the relationship between sex hormones and cardiovascular disease (CVD) and its risk factors in men who are HIV positive and illicit drugs users (IDUs). Several studies have documented premature and accelerated CVD progression in these populations. Although this may be a consequence of the underlying viral mechanisms, anti-retroviral drug therapy, or IDU, the research team seeks to document other mechanisms to explain the increased susceptibility to atherosclerotic disease and metabolic abnormalities in this population. This research team was one of the first groups to report an increased prevalence of hypogonadism in HIV-infected men, which was eventually found to result in poor quality of life, decreased lean body mass and increased visceral adiposity. Several population-based studies have now found that low serum testosterone (T) is associated with increased mortality in men. Low serum T may be a risk factor for CVD through increased visceral adiposity (leading to glucose intolerance and diabetes mellitus), inflammation or a more direct effect on the vasculature.

The MACS cohort already has in place a sub study to document early atherosclerosis in about 1,000 men, measuring carotid intima medial thickness (CIMT) and coronary calcium (CAC) scores. The overall hypothesis is that men who are HIV positive with low serum T levels are more likely to have pre-clinical CVD. The studies specific aims are: (1) to examine the associations of sex hormones with the severity of atherosclerosis in HIV infected and IDU men with adjustment for classical atherosclerosis risk factors and (2) to measure the association of sex hormone levels with prevalence, levels, and changes in modifiable CV risk factors (inflammatory markers, lipids, lipoproteins, diabetes, and blood pressure), with adjustment for status and markers of disease stage and components of HIV therapy.

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**Investigator:** Hilary Blumberg, M.D.  
**Institution:** Yale School of Medicine, New Haven, Connecticut  
**Research Area:** Neuroimaging, Brain Development and Stress  
**Project Title:** Stress, Neurodevelopment and the Emergence of Addictive Behaviors in Adolescence  
**Start Date, Program Length:** June 2009 — 10 Weeks  
**Housing Available:** Yes  
**Student Attributes:** Seeking undergraduate students with a major in either neuroscience or psychology. Students with an interest in molecular biology (genetics component), physics or computer science (neuroimaging component) are also welcome. Helpful attributes include excellent interpersonal skills for interaction with research participants and computer skills for analyzing data.

**Project Description:**

This research program uses multi-modality magnetic resonance imaging (MRI) brain scanning techniques, including functional magnetic resonance imaging (fMRI) and diffusion tensor imaging (DTI) to study the development of the brain in adolescents. The research is centered on investigating how genetic factors and exposure to psychosocial stressors might lead to shifts in the development of parts of the brain that regulate emotions and impulses and, therefore, increase risk for substance abuse as well as symptoms of depression and impulsive behaviors.

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**Investigator:** Ping-Yee Law, Ph.D.  
**Institution:** University of Minnesota, Minneapolis, Minnesota  
**Research Area:** Regulation of Opioid Receptor Signal Transduction  
**Project Title:** G Proteins and Opioid Receptor Functions  
**Start Date, Program Length:** June 1, 2009 — 10 Weeks  
**Housing Available:** Yes  
**Student Attributes:** Seeking undergraduate student with a major in biology and interest in exploring graduate studies in neuropharmacology or neuroscience.

**Project Description:**

Agonist-dependent signaling is an emerging concept in GPCR signaling. The opioid receptor exhibits agonist-dependent pathway selective signaling. By controlling the membrane microdomain distribution of the receptor, the cellular consequences of the receptor activation by different agonists varied. Cellular consequences include the opioid agonist control of adult neurogenesis. Determining the mechanism for agonist-dependent signaling will allow better understanding of drug addiction. Diverse approaches are used in this lab's studies ranging from the behavioral studies dealing with drug effects on memory acquisition and retention to cellular and molecular studies with primary neuron cultures.

**Investigator:** Russell W. Brown, Ph.D.  
**Institution:** East Tennessee State University, Johnson City, Tennessee  
**Research Area:** Psychopharmacology  
**Project Title:** Amphetamine Sensitization in a Model of Schizophrenia  
**Start Date, Program Length:** June 1, 2009 — 10 Weeks  
**Housing Available:** Yes  
**Student Attributes:** Seeking high school and undergraduate students with backgrounds in psychology and biology and/or chemistry. Students should have a strong interest in neuroscience, especially behavioral neuroscience. An interest in psychopharmacology helps, but it is not required, nor is a chemistry background necessary. As long as the students are motivated and interested the interaction is typically very positive. Dr. Brown has helped to place a total of eight undergraduate students into behavioral neuroscience or neuroscience Ph.D. programs since arriving at East Tennessee State University in 2000.

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**Project Description:**

This laboratory studies the behavioral consequences of dopamine D2 supersensitization, a phenomenon known as D2 receptor priming. The dopamine D2 receptor is primed through neonatal quinpirole (a dopamine D2/D3 agonist) treatment during the first 3-4 weeks of life in a rat. Essentially, priming of the D2 receptor increases the sensitivity of this receptor, which is relevant to several clinical conditions including schizophrenia, attention-deficit hyperactivity disorder (ADHD), obsessive-compulsive disorder (OCD), and bipolar disorder, not to mention the long-term effects of drug abuse. The lab has found that neonatal quinpirole treatment produces a number of performance deficits in cognitive, motor, and sensory tasks, results in significant decreases of choline acetyltransferase (ChAT), nerve growth factor (NGF), brain-derived nerve growth factor (BDNF) in brain areas that are important in addiction (nucleus accumbens), and cognition (hippocampus).

One of this lab's most prominent findings has been that acute or chronic amphetamine (street name: speed) results in a robust four-fold to five-fold increase in dopamine release in the nucleus accumbens of D2 receptor-primed rats as compared to non D2 receptor-primed rats that have received amphetamine. Behaviorally, amphetamine produces a significant increase in the locomotor response in these animals as well, and this effect—somewhat surprisingly—is more prominent in males as compared to females.

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Recently, in collaboration with colleagues at Vanderbilt, this lab has shown that neonatal quinpirole treatment results in significant decreased expression of a regulator of G-protein signaling (RGS), RGS9, in the frontal cortex, nucleus accumbens, and striatum. RGS9 co-localizes with dopamine D2 receptors, and this finding is consistent with post mortem findings in schizophrenics. A new secondary line of research involves studying the social defeat stress model in the mouse.

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**Investigator:** Marco Ramoni, Ph.D.  
**Institution:** Harvard Center for Genetics and Genomics, Boston, Massachusetts  
**Research Area:** Genomics and Bioinformatics  
**Project Title:** Genomic Prediction of Nicotine Dependence  
**Start Date, Program Length:** June 1, 2009 — 10 Weeks  
**Housing Available:** No  
**Student Attributes:** Seeking undergraduate students with a strong quantitative background in mathematics, statistics, engineering or computer science (together with basic programming skills). Interest and some knowledge of genetics are preferred. Good writing and communication skills are essential.

**Project Description:**

The overarching goal of this project is to identify the genetic factors that influence the risk of nicotine dependence in an individual. To do so, the research project analyzes over 40,000 genetic variants in a cohort of 1,600 people using advanced artificial intelligence techniques to identify the complex web of factors that predispose an individual to nicotine dependence and develop a genetic model able to predict the degree of dependence of a subject. This summer program also hosts undergraduate students from the MIT UROP program and high-school students from the MIT/RSI program.

# 75

**Investigator:** Paul J. Wellman, Ph.D.  
**Institution:** Texas A&M University, College Station, Texas  
**Research Area:** Perinatal Lead and Cocaine  
**Project Title:** Heavy Metal and Drug Self-Administration: Mechanisms  
**Start Date, Program Length:** June 1, 2009 — 10 Weeks  
**Housing Available:** No  
**Student Attributes:** Seeking high school and undergraduate students with life science backgrounds who are interested in behavioral analyses and molecular bases of drug addiction.

**Project Description:**

There are two major components to this lab experience. In the first, students gain expertise in cocaine self-administration using a rat model. In the second, students gain expertise in the microdialysis technique (assays of dopamine as well as glutamate).

# 76

**Investigator:** Judy A. Andrews, Ph.D.  
**Institution:** Oregon Research Institute, Eugene, Oregon  
**Research Area:** Etiology of Substance Use  
**Project Title:** Childhood and Adolescent Predictors of Substance Abuse in Emerging Adulthood  
**Start Date, Program Length:** June 1-8, 2009 — 8-10 Weeks  
**Housing Available:** Yes  
**Student Attributes:** Seeking undergraduate students interested in psychology and pursuing a career in research in psychology or in another related field (such as biology).

**Project Description:**

The students will work with investigators on a longitudinal study understanding why children and emerging adults use and abuse substances. Participants started in the study when they were in the first through fifth grade. They are now in high school and three years post high school. Students will work with staff to learn to assess participants in the lab and to pose questions that can be answered with a rich data set. The lab assessments that students will help with include an assessment of cortisol reactivity, a biological marker of stress. The students will also learn about all ongoing projects at the Institute and will have the opportunity to interact with others doing research at the Institute.

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<b>Investigator:</b>	Amelia J. Eisch, Ph.D.
<b>Institution:</b>	University of Texas Southwestern Medical Center, Dallas, Texas
<b>Research Area:</b>	Neuroscience
<b>Project Title:</b>	Drugs of Abuse and Hippocampal Plasticity
<b>Start Date, Program Length:</b>	June 8, 2009 — 10 Weeks
<b>Housing Available:</b>	Yes
<b>Student Attributes:</b>	Seeking undergraduate students with a major or interest in neuroscience or psychology. Successful candidates should have a drive to learn more about the brain; a history of volunteering or employment that demonstrates commitment, patience, and maturity; an ability to listen and follow directions coupled with a creative streak; and excellent grades, particularly in laboratory classes. Experience in a laboratory is not necessary; however, dedication, enthusiasm, and persistence are.

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**Project Description:**

Every summer, the Eisch Laboratory in the Department of Psychiatry at the University of Texas Southwestern Medical Center almost doubles in size as they welcome high school and undergraduates from across Texas and the United States to become part of their basic research projects focusing on the effects of drugs of abuse on the brain. Due to support from a NIDA R25 grant, local funds, and the passion lab members have for mentoring, the Eisch Laboratory has implemented a structured 8–10 week program to immerse students in substance abuse research. More specifically, the program introduces students interested in the brain to the many techniques modern neuroscientists use to study the effects of drugs on the brains of laboratory animals.

NIDA summer students are welcomed to this extremely active research environment. This research experience's approaches are diverse: working with animals that self-administer drugs like cocaine or morphine, behavioral analysis to examine the effects of drugs on memory systems, and detailed cellular and molecular analysis of the lab's many transgenic mice. Students will work daily with a senior graduate student or postdoctoral mentor and will meet weekly with Dr. Eisch to discuss progress and literature in the field. Students will leave the Eisch Lab with an excellent understanding of neuroanatomy, immunohistochemistry, and the basic action of drugs of abuse and will also learn how to read and review a scientific paper, fundamentals of animal research, research ethics, and essentials of laboratory etiquette.

<b>Investigator:</b>	Gary Aston-Jones, Ph.D.
<b>Institution:</b>	Medical University of South Carolina, Charleston, South Carolina
<b>Research Area:</b>	Neuroscience
<b>Project Title:</b>	Neuroscience of Addiction
<b>Start Date, Program Length:</b>	June 1, 2009 — 10 Weeks
<b>Housing Available:</b>	No
<b>Student Attributes:</b>	Seeking undergraduate students with a biology or psychology major who are interested in working with animals and doing bench lab

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work. Students should also be interested in neuroscience, behavior, and addiction.

### Project Description:

This research project investigates changes in the brain that occur during exposure to drugs of abuse and that underlie addiction. Animals are trained to self-administer drugs such as cocaine. The research team then examines changes in behavior and in the brain's anatomy and physiology. Methods include staining brain tissue for different neurochemicals and transmitters, analyses of rat behavior associated with addiction, and electrophysiology of specific brain neurons. This research project aims to identify and test new treatments for addiction.

# 79

### Investigator:

Howard Gu, Ph.D.

### Institution:

Ohio State University, Columbus, Ohio

### Research Area:

Mechanism of Drug Addiction

### Project Title:

Cocaine and Monoamine Transporters

### Start Date, Program Length:

June 1, 2009 — 10 Weeks

### Housing Available:

Yes

### Student Attributes:

Seeking undergraduate students with experience in chemistry/biology laboratories.

### Project Description:

There are a host of drug abuse and addiction research opportunities at Ohio State University. Below are descriptions of various labs accepting student interns. Students will be matched with labs which are “best fit” for their background and interest.

Dr. Anand's laboratory studies the mechanisms by which nicotine, acting via nicotinic receptors, modulates the synaptic plasticity of the brain. The focus of the laboratory is to identify and characterize proteins that modulate the biogenesis and functions of nicotinic receptors. The laboratory uses molecular, cellular, electrophysiological, imaging techniques, and transgenic animals. Knowledge gained from such studies is expected to reveal mechanisms underlying nicotine dependence in tobacco abuse and also mechanisms underlying nicotinic receptor dysfunctions in autism, schizophrenia, Parkinson's, and Alzheimer's disease.

Dr. Bohn's laboratory is particularly interested in the impact of drugs of abuse on one's overall health. For example, opioid narcotics, such as morphine and oxycontin, are potent pain relievers but carry with them the risk of certain undesired effects. These effects are wide ranging from addiction to dependence to constipation, and in the most severe conditions respiratory failure. This laboratory utilizes genetically modified mouse models to determine how to go about designing better drugs that would preserve desired effects (pain relief) and eliminate side effects of such compounds.

Dr. Gu's laboratory employs technologies from molecular biology, cell culture to making novel genetically modified animal models and examining these animals with behavioral tests. The main focus is to understand why cocaine is addictive and how cocaine produces reward in humans and animals. Another aim is to develop treatments for cocaine toxicity and cocaine addiction.

Dr. Sadee's laboratory focuses on the genetic causes of drug addiction and genetic factors in treatment response. The laboratory uses a novel approach to finding the responsible genes and functional polymorphisms that affect their expression in the central nervous system (CNS). These basic research findings are then translated into clinical trials to test the relevance of the newly discovered genetic variants.

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<b>Investigator:</b>	Elisabeth J. Van Bockstaele, Ph.D.
<b>Institution:</b>	Thomas Jefferson University, Philadelphia, Pennsylvania
<b>Research Area:</b>	Neuroscience
<b>Project Title:</b>	Opioid Modulation of the Coeruleo-Cortical Pathway
<b>Start Date, Program Length:</b>	June 1, 2009 — 8 Weeks
<b>Housing Available:</b>	Yes
<b>Student Attributes:</b>	Seeking an undergraduate student who is eager to learn neuroanatomical techniques including the collection and process of tissues for immunofluorescence and immunoelectron microscopy studies. These techniques will allow the student to study interactions between stress and drug abuse, specifically opiate addiction.

**Project Description:**

Dr. Van Bockstaele's laboratory is located at Thomas Jefferson University in Philadelphia, Pennsylvania. This location is home to the medical, graduate, pharmacy, and health professions colleges as well as Thomas Jefferson University Hospital. The research laboratory is located in the Jefferson Hospital for Neurosciences and is part of the Farber Institute for Neuroscience dedicated to the study and understanding of neurological disorders.

Within this laboratory, numerous ongoing basic research projects address questions related to stress and drug abuse. The student selected for this research opportunity will have the chance to study interactions between stress and endogenous opioid systems. This laboratory uses a rat model to characterize the points at which these systems interact, since stress has been identified as risk factor for drug abuse and conversely abuse of opiates many predispose individuals to stress-related psychiatric disorders. Therefore, basic research techniques including immunofluorescence and electron microscopy are used to pinpoint specific sites at which these systems interact in the brainstem nucleus locus coeruleus. This bilateral nucleus is the major source of the neurotransmitter norepinephrine which has many roles in the brain including the maintenance of attention, emotion, wakefulness, learning, and anxiety. The norepinephrine system is sensitive to both stress and drug abuse therefore it is important to identify the points at which the stress and endogenous opiate systems interact to affect behavior.

<b>Investigator:</b>	Marc A. Zimmerman, Ph.D.
<b>Institution:</b>	University of Michigan, Ann Arbor, Michigan
<b>Research Area:</b>	Substance Use's Influence on Youth Development: Health and Social Well-being from Adolescence Into Young Adulthood
<b>Project Title:</b>	Longitudinal Study of School Dropout and Substance Use
<b>Start Date, Program Length:</b>	June 1, 2009 — 8 Weeks
<b>Housing Available:</b>	Yes
<b>Student Attributes:</b>	Seeking undergraduate students that are responsible, diligent, and interested in pursuing a graduate degree in the social sciences (e.g., social, community, or developmental psychology, sociology, and/or social work) or life sciences (e.g., medicine and/or public health). Applicants must have a strong interest in substance use and/or youth development. Some experience in social science research is preferred. Potential applicants must have taken at least one semester of statistics as part of their undergraduate degree, as much of the work will focus on strengthening their quantitative skills.

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**Project Description:**

The Flint Adolescent Study (FAS) is an interview study of 850 ninth graders conducted in collaboration with the Projects for Urban and Regional Affairs and Flint Community Schools. The goal of the study is to explore the protective factors associated with school dropout and alcohol and

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substance use. Students were sampled from the four main public high schools in Flint, Michigan. The study followed youth for four years beginning in the fall of 1994 and obtained a 90% response rate from Year 1 to Year 4. The Year 1 sample includes 679 African-American youth (80%), 145 white youth (17%) and 26 mixed African-American and white youth (3%). The sample is evenly divided by males and females. The sample reflects the overall student body in the Flint High Schools.

In order to study those students most at risk for leaving school before graduation, individuals with grade point averages of 3.0 and below were selected for interviews. Information obtained from the youth were concentrated in several key areas including participation in church, school, and community organizations; social support and influence of family and friends (including mentoring); self-esteem, stress, and psychological well being; delinquent and violent behaviors; alcohol and substance abuse; sex behavior and child bearing; school attitudes and performance; family structure and relationships; driving behavior (beginning in Year 3); attachment style (beginning in Year 3); and racial identity (beginning in Year 3). Information was also collected about parental education and occupation.

Census tract and block information is also linked to the youths' data and used to explore how neighborhood effects are associated with youths' well-being. The research study applies life-span and resiliency perspectives to carry out longitudinal analyses. This research study identifies assets and resources in youth's lives. FAS data has guided the development of public health interventions through the University of Michigan's Prevention Research Center (<http://www.sph.umich.edu/prc>). Students interested in studying how social and behavioral factors influence youths' substance use and well-being are encouraged to apply. As part of a mentored experience, students will (1) conduct a literature review to develop and answer a research question of interest, (2) enhance their proficiency in statistical methods through mini-workshops and collaboration in FAS data analyses, (3) strengthen their ability to write a scientific paper, and (4) be encouraged to consider their mentored projects' implications for public health practice. Students will also be encouraged to participate in on-going learning seminars and activities in the University of Michigan-Ann Arbor campus.

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<b>Investigator:</b>	Sudhansu K. Dey, Ph.D.
<b>Institution:</b>	Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio
<b>Research Area:</b>	Endocannabinoid and Pregnancy
<b>Project Title:</b>	Aspects of Endocannabinoid Signaling in Pregnancy
<b>Start Date, Program Length:</b>	June 1, 2009 — 10 Weeks
<b>Housing Available:</b>	No
<b>Student Attributes:</b>	Seeking an undergraduate student interested in basic biomedical research and in pursuing a career in research. The ideal student will show dedication to his/her work.

### Project Description:

Does enhanced anandamide signaling compromise sperms fertilizing capacity? Marijuana is the most commonly used illicit drug. Although there is some indication that reproductive functions in males are impaired in chronic marijuana users, the genetic evidence and underlying causes remain unknown. This lab desires to see whether genetic loss of Faah that encodes fatty acid amide hydrolase (FAAH) results in elevated levels of anandamide, an endocannabinoid, in the male reproductive system, leading to compromised fertilizing capacity of sperm. Besides unveiling a new regulatory mechanism of sperm function, this study has clinical significance in male fertility.

**Investigator:** Haley E. Melikian, Ph.D.  
**Institution:** University of Massachusetts Medical School, Worcester, Massachusetts  
**Research Area:** Molecular Neurobiology  
**Project Title:** Trafficking and Regulation of Monoamine Transporters  
**Start Date, Program Length:** June 1, 2009 — 10 Weeks  
**Housing Available:** No  
**Student Attributes:** Seeking undergraduate students with a major in neuroscience, biochemistry and/or molecular biology. Students must have completed organic chemistry and biochemistry introductory coursework.

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**Project Description:**

Extracellular neurotransmitter concentrations profoundly impact neuronal signaling, behavior, and the progression of neuropsychiatric disorders. Studies in this laboratory focus on the cellular and molecular mechanisms controlling neuronal monoamine transporters. These plasma membrane proteins remove serotonin, dopamine, and norepinephrine from the synapse following their release and thus are key determinants of synaptic transmission. Monoamine transporters are the primary target of drugs of abuse, such as cocaine and amphetamines, and of therapeutic agents such as antidepressants. These potent drugs block transporter function, resulting in increased extracellular monoamine levels and enhanced post-synaptic responses, suggesting a central role for transporters in mechanisms underlying drug abuse and affective disorders. This lab currently studies the cellular and molecular mechanisms that control monoamine transporter function. Students participating in the program will receive hands-on training in cellular, molecular, and biochemical approaches to studying the nervous system, including site-directed mutagenesis, immunoblotting, cell culture, microscopy, and PCR.

**Investigator:** Stephen C. Ekker, Ph.D.  
**Institution:** Mayo Clinic, Rochester, Minnesota  
**Research Area:** Nicotine Genetics  
**Project Title:** Mechanism Underlying Nicotine Sensitization  
**Start Date, Program Length:** June 1, 2009 — 10 Weeks  
**Housing Available:** Yes  
**Student Attributes:** Seeking high school and undergraduate students with a background in genetics. Alternatively, students could have a background in behavioral sciences and/or neuroscience. An ideal team would include students from both areas.

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**Project Description:**

We have developed the zebrafish as a model for nicotine response and genetics. With the Mayo's Nicotine Dependence Center, we are exploring the basic biology of nicotine addiction while working to identify new therapeutic strategies. Participation in this program provides a range of research opportunity from basic science to human genetics.

**Investigator:** Uma Rao, M.D.  
**Institution:** University of Texas Southwestern Medical Center at Dallas, Dallas, Texas  
**Research Area:** Adolescent Mood and Addictive Disorders  
**Project Title:** Neuronal Risk Markers for Nicotine Dependence in Youth  
**Start Date, Program Length:** June 1, 2009 — 8–10 Weeks  
**Housing Available:** No  
**Student Attributes:** Seeking undergraduate students with an interest in psychology or biomedical sciences. Students should have an interest or experience

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in tracing neuro-anatomical structures, collecting behavioral data for neuro-imaging studies, and acquiring and processing functional MRI data.

### Project Description:

This project seeks to identify characteristics of brain function that predict the risk for development of nicotine dependence (ND) in adolescents. It employs a prospective design and utilizes functional magnetic resonance imaging (fMRI) to identify possible abnormalities in the reactivity of specific brain regions to cognitive challenges in youth at high and low risk for ND.

The research team hypothesizes that altered responsivity of the brain circuits involved in motivational-reward processes to cognitive stimuli will be related to the development of ND in a longitudinal study and that the observed brain changes are more prominent in the high risk group. The adolescents also will participate in follow-up studies of fMRI assays (after the onset of ND in those who develop it) to determine if, and to what extent, changes in brain function occur as a consequence of ND by comparing the baseline and follow-up measurements. The longitudinal design will distinguish pre-existing vulnerability markers for smoking and ND from changes in brain function due to chronic smoking.

# 86

### Investigator:

Martin Wessendorf, Ph.D.

### Institution:

University of Minnesota, Minneapolis, Minnesota

### Research Area:

Pain, Analgesia, Drug Abuse

### Project Title:

Neurobiology of Pain, Analgesia and Drug Abuse

### Start Date, Program Length:

May 28, 2009 — 10 Weeks

### Housing Available:

Yes

### Student Attributes:

Seeking freshmen or sophomore undergraduate students with an interest in research careers. All students must have passed at least one year of college chemistry; an advanced placement (AP) equivalent would also be considered. Biology or neuroscience courses are a plus. Cumulative GPA must be at least 3.2 on a 4.0 scale.

### Project Description:

Students in the Summer Research with NIDA program at University of Minnesota will be included as participants in the Neuroscience component of the long-standing Life Sciences Summer Undergraduate Research Program (LSSURP). General information on this program can be found at [http://www.cbs.umn.edu/main/summer\\_research/](http://www.cbs.umn.edu/main/summer_research/).

After a brief orientation, the NIDA program will begin with a three-credit course in basic neurobiology (NSci 4185) presented at the Biological Research Station at Lake Itasca State Park in northern Minnesota. Though designed for undergraduate students, this course in both setting and organization, offers the best in a Woods Hole type experience. Each of the three weeks of the course covers a separate subject (e.g., hippocampus and learning, leech neurobiology, development, neuromuscular junction, etc.), providing training in basic neurobiology that will serve as a foundation for the summer's research. The course combines didactic instruction with intensive experience in different experimental preparations. The course strongly encourages independent investigation. In the past, student projects have examined questions as unique as determining the effects on neuromuscular junction of the venom from local wasps.

The remaining seven weeks will be spent in laboratory research with a NIDA-funded researcher at the University of Minnesota in the Twin Cities. Minnesota is home to a large and vibrant community working on the neurobiology of drug abuse and on the related areas of pain and analgesia, and students will be matched with a mentor in late spring. This will offer time for them to be in contact with the mentor, agree on a tentative research project, and receive background material and readings.



During the seven weeks, there will be weekly student seminars as well as numerous social activities with other LSSURP students. The program finishes with a student poster session and banquet. Beginning with an introduction to neurobiology in the North Woods of Itasca and culminating with state-of-the-art research at University of Minnesota in metropolitan Minneapolis-Saint Paul, this will be an unforgettable and highly positive experience for participating students. The program will begin on May 28, 2009, and will finish on August 8, 2009. While at Lake Itasca, students will be housed in cabins. During the seven weeks in the twin cities, students will be housed in dormitories on campus. Students will receive a stipend of \$4,000 for the summer.

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**Investigator:** Lisa Schrott, Ph.D.  
**Institution:** LSU Health Sciences Center, Shreveport, Louisiana  
**Research Area:** Animal Models of Drug Abuse  
**Project Title:** Animals Models of Factors Affecting Drug Addiction  
**Start Date, Program Length:** June 1, 2009 — 10 Weeks  
**Housing Available:** Yes  
**Student Attributes:** Seeking undergraduate students with a major or extensive coursework in psychology, neuroscience, or biology. At least one college level course in general biology and chemistry is desired. Previous experience in a research laboratory or in laboratory based classes will be helpful. Students must be willing and able to work with rodents.

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#### Project Description:

Students will be involved in laboratory based rodent experiments on the behavioral, neurochemical, and physiological consequences of exposure to opioids and psychostimulants. Behavioral approaches include measures of drug reinforcement, anxiety behavior, nociception and pain, and learning and memory. Opportunities will be available for the evaluation of neurochemical, hormone and protein changes as a consequence of drug exposure, using a wide variety of techniques including HPLC, ELISA, radioimmunoassay, and Western blot. Laboratory work will be supplemented by a weekly journal club that discusses recent research findings in the field. In addition, students will participate in a weekly career development program that features discussions on research ethics, careers in science, graduate education, data presentation, and writing skills. Regular social opportunities will also be provided for students.

**Investigator:** Z. Carl Lin, Ph.D.  
**Institution:** McLean Hospital, Belmont, Massachusetts  
**Research Area:** Pharmacogenetics  
**Project Title:** Pharmacogenetics of Transporters  
**Start Date, Program Length:** June 1, 2009 — 8 Weeks  
**Housing Available:** No  
**Student Attributes:** Seeking an undergraduate student that is careful and self-motivated. He/She should be interested in molecular and pharmacological techniques.

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#### Project Description:

This research utilizes molecular and cell biology technologies to understand genomic etiology of neuropsychiatric disorders, with three areas of focus: 1) identify genetic risk factors for human neuropsychiatric disorders, 2) develop therapeutic strategies based on genetic factors and epigenetic processes and 3) devise novel genetic approaches to helping understand environment gene interaction. A major focus of this lab's research and expertise is on polymorphisms in regulatory regions of central nervous system (CNS) genes. Abnormal gene expression is implicated in many human diseases. Genes can be regulated by a number of indirect and direct factors. Anomalous levels of transcription factors, chromosomal configuring, protein synthesis, degrading or DNA modifying

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enzymes, and signaling pathways all could influence gene expression levels. More directly, the five promoter regions are major contributors to regulated gene expression. These regions are candidate risk factors for attention deficit/hyperactivity disorder, addiction, depression, schizophrenia, and bipolar disorder. For example, the lab recently discovered a novel promoter haplotype of the human vesicular monoamine transporter 2 gene that displays relatively high promoter activity and provides protection against alcoholism.

Others have discovered that five promoter polymorphisms of the serotonin transporter gene regulate gene expression and are associated with various neuropsychiatric disorders, further supporting this area of the research's focus. This lab's goal is to clarify regulatory mechanisms of abnormal gene expression and link abnormal expression levels to pathophysiology of related diseases. Moreover, the lab desires to identify polymorphisms in regulatory regions of genes encoding neurotransmitter transporters and signaling molecules, which have reproducibly been associated with diseases. The therapeutic potential of identifying polymorphisms in regulatory regions is based on capacity to identify transcription factors that bind to polymorphic sites. If linked to pathophysiology, these factors can serve as medication targets to correct transcriptional activity, restoring normal levels of gene expression.

These DNA-based and protein-based approaches may eventually contribute to the growing field of individualized medicine. The lab is also interested in epigenetic mechanisms involved in dopaminergic function. Aging and environmental factors such as drug abuse likely remodel chromatin, perhaps in a brain region-specific manner. Such epigenetic imprinting could contribute to the process of addiction and to triggering relapse. One of lab's current projects is to investigate how aging influences gene expression profiling in different dopamine neurons in mice and what epigenetic events are involved in aging-related influences. In summary, this lab's research interests aim to clarify the roles of regulatory regions of genes implicated in the pathophysiology of monoamine-related disorders with the view of translating these findings into novel therapeutic approaches.

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<b>Investigator:</b>	Theodore C. Friedman, M.D., Ph.D.
<b>Institution:</b>	The Charles Drew University of Medicine & Sciences, Los Angeles, California
<b>Research Area:</b>	Opiates, Nicotine, Cocaine, Marijuana
<b>Project Title:</b>	Minority Institution's Drug Abuse Research Development Program
<b>Start Date, Program Length:</b>	June 1, 2009 — 10 Weeks
<b>Housing Available:</b>	Yes
<b>Student Attributes:</b>	Seeking undergraduate students with skills in the following areas: molecular biology, animal handling, and computer programs (Excel, Word, and PowerPoint). For the social sciences projects, only computer skills are needed.

### Project Description:

The Charles R. Drew University is a site of the MIDARP (Minority Institutions Drug Abuse Research Development Program). Dr. Theodore Friedman is the Program Director. The overall goals of the MIDARP are to (1) develop the drug abuse research at Drew, (2) provide research development support and experiences to faculty and staff to facilitate independent drug abuse research careers, (3) foster interest in drug abuse research for students and residents and provide them research experiences, and (4) provide for continued drug abuse research funded by NIDA or other agencies.

The MIDARP program specifically encourages the development of underrepresented faculty and students. The theme of its training and education component is "Addiction is a brain disease and it matters." The MIDARP incorporates expertise at Drew in both the basic and clinical aspects of substance abuse and has elected to not limit the area of substance growth at Drew. All projects

related to the theme of substance abuse as a disease of the brain are encouraged. Although the MIDARP's primary projects are both basic science projects related to mechanisms of opiate addiction, the aims of this program are to increase all aspects of substance abuse research (basic science, translation, clinical and survey research), based on the interests of the faculty.

Motivated students will have an opportunity to engage in research on a number of research projects spearheaded by Dr. Theodore Friedman and his colleagues. There are four exciting basic science research projects and one survey project underway. Social science studies are also available with collaborators. The primary projects include: Addiction Parameters and Opiate Biosynthesis in PC2 Knockout Mice; Endogenous b-endorphin/Enkephalin and Cocaine Addiction; Cardiac Consequences of Prenatal Cocaine Exposure; Cellular and Behavioral Consequences of Developmental Exposure to NMDA and; the Mechanisms of the Nicotine-induction of Insulin Resistance.

Housing is available at nearby California State University-Dominguez Hills, and students will be given the opportunity to present at the fourth annual Drew Substance Abuse Research Day. Come enjoy a great summer in sunny Los Angeles and learn about drug addiction research.

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<b>Investigator:</b>	Carmine J. Coscia, Ph.D.
<b>Institution:</b>	St. Louis University School of Medicine, St. Louis, Missouri
<b>Research Area:</b>	Opioid Signaling in Drug Addiction
<b>Project Title:</b>	Role of Opioids in Synaptogenesis
<b>Start Date, Program Length:</b>	June 1, 2009 — 10 Weeks
<b>Housing Available:</b>	Yes
<b>Student Attributes:</b>	Seeking high school and undergraduate students who are highly motivated with a curiosity for science. Students should have taken scientific courses in high school or major in science as undergraduates.

#### Project Description:

The mechanisms of astrocyte-neuron interactions in regulating brain development, function, and pathology are of fundamental importance and represent a major challenge of neurobiological research. Astrocytes are dynamic partners with neurons in the formation, function, and maintenance of synapses, the junctions of communication between neurons. This research study aims to delineate the underlying molecular mechanisms involved in the actions of the opiate drug of abuse morphine on astrocyte-neuron interactions.

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<b>Investigator:</b>	Xiangmin Xu, Ph.D.
<b>Institution:</b>	University of California, Irvine, California
<b>Research Area:</b>	Basic Neuroscience
<b>Project Title:</b>	Local Connections and in Vivo Physiology of Inhibitory Cortical Neurons
<b>Start Date, Program Length:</b>	June 1–8, 2009 (start date is flexible) — 8–10 Weeks
<b>Housing Available:</b>	Yes
<b>Student Attributes:</b>	Seeking high school and undergraduate students with some background in life science. Candidates should be organized, motivated, and detail-oriented and be able to work relatively independently and have a good teamwork attitude. An engineering background or hands on experience in putting together electrical and optical parts would be a great plus.

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## Project Description:

The overall interest of Dr. Xiangmin Xu's laboratory is to understand the organization and function of cortical circuits, with a particular emphasis on identified neuronal types and microcircuits. Currently, this laboratory focuses on inhibitory cortical neurons, as they appear to play a crucial role in the processing of sensory information, but understanding of the defined function of specific inhibitory cell types is only beginning to emerge. Dr. Xu's research team would like to further understand their functional roles and figure out what are the rules of different types of inhibitory neurons in sculpting information processing in cortical circuits. Projects are to investigate local inhibitory cortical circuits by using the combined approaches such as laser scanning photostimulation in vivo optical imaging and transgenic mice.

These research studies can have important implications for human health, as inhibitory interneurons and their activities are involved in the cortical mechanisms that regulate attention, learning, and memory. In addition, the research team hopes that these studies can also contribute to understanding underlying mechanisms related to drug addiction and dependence. Summer interns will learn to conduct related neuroscience research in animal models, and will also have opportunities to participate in setting up new electrophysiological and imaging experimental rigs.

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<b>Investigator:</b>	Ling Cao, M.D., Ph.D.
<b>Institution:</b>	University of New England, Biddeford, Maine
<b>Research Area:</b>	Drug Abuse and Chronic Pain – Neuroimmune Mechanisms
<b>Project Title:</b>	Effects of Various Drug Usages on Chronic Pain
<b>Start Date, Program Length:</b>	June 1, 2009 — 10 Weeks
<b>Housing Available:</b>	Yes
<b>Student Attributes:</b>	Seeking undergraduate students with a major in biological sciences and interest in the following fields: neuroscience, immunology, and/or pharmacology.

## Project Description:

Student interns will have an opportunity to participate in one of several ongoing research projects : 1)Chronic Morphine-induced Sensitization of Trigeminal Dura Sensitive Neurons; 2)Trigeminal Mechanisms of Cannabinoid Analgesia; 3)Discovery and Preclinical Development of Drug Candidates for the Treatment of Addiction and Chronic Pain; 4) Interaction between Opioid Treatment and Neuroimmune Responses in Nerve Injury or Viral Infection Induced Neuropathic Pain; and 5) Effects of Methamphetamine on the Neurotransmitter Release in the Prefrontal Cortex of Adolescent Rats Exposed to Prenatal Protein Malnutrition. Students will gain hands-on experience in basic lab work involving rodent behavioral testing and surgery, various lab techniques (such as immunohistochemistry, ELISA, western blotting), and data analysis and interpretation. Regular group research meetings will provide ample background knowledge in the related field.

# 93

<b>Investigator:</b>	Christina Hoven, Dr.P.H., M.S.W.
<b>Institution:</b>	Research Foundation for Mental Hygiene – Columbia University, New York, New York
<b>Research Area:</b>	Child Psychiatric Epidemiology
<b>Project Title:</b>	Maternal Incarceration and Course of Child Psychopathology in the South Bronx
<b>Start Date, Program Length:</b>	June 1, 2009 — 10 Weeks
<b>Housing Available:</b>	Yes
<b>Student Attributes:</b>	Seeking junior and senior undergraduate students with a major in psychology, public health, social work, sociology, anthropology, or other related social sciences. Preferably, applicants should reside in the greater New York metropolitan area (including Long Island,

New Jersey, or Connecticut). Students from underrepresented populations are highly encouraged to apply. Fluency in Spanish and interest in urban minority communities is desirable.

**Project Description:**

The Department of Child Psychiatry at Columbia University, in affiliation with the New York State Psychiatric Institute, is looking for participants in the Summer Research with NIDA program. This internship involves getting acquainted with the research process in child psychiatric epidemiology. The main objective of the research study in question is to better understand how a mother's involvement with the criminal justice system (CJS) may influence the general health and mental health of her children. More specifically, this research study investigates the impact over time of maternal involvement with the CJS on children's substance use/abuse/dependence and psychopathology and the development of risk behaviors possibly leading to the child's involvement with juvenile justice and/or CJS. The summer interns will be part of a research team, which performs a variety of assignments ranging from more organizational components indispensable to large research projects, data entry, review of interviews, and participation in fieldwork. This program offers an excellent experience for students interested in pursuing graduate level work in psychology, public health, related medical fields, or sociology.

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<b>Investigator:</b>	Christina Hoven, Dr.P.H., M.S.W.
<b>Institution:</b>	Research Foundation for Mental Hygiene – Columbia University, New York, New York
<b>Research Area:</b>	Child Psychiatric Epidemiology
<b>Project Title:</b>	Paternal Criminal Justice Involvement and Substance Use in Children and Adolescents
<b>Start Date, Program Length:</b>	June 1, 2009 — 10 Weeks
<b>Housing Available:</b>	Yes
<b>Student Attributes:</b>	Seeking junior and senior undergraduate students with a major in psychology, public health, social work, sociology, anthropology or other related social sciences. Preferably, applicants should reside in the greater New York metropolitan area (including Long Island, New Jersey and Connecticut). Students from underrepresented populations are highly encouraged to apply. Fluency in Spanish and interest in urban minority communities is desirable.

**Project Description:**

The Department of Child Psychiatry at Columbia University, in affiliation with the New York State Psychiatric Institute, is looking for participants in the Summer Research with NIDA program. This internship involves getting acquainted with the research process in child psychiatric epidemiology. The main objective of the research study in question is to better understand how a father's involvement with the criminal justice system (CJS) may influence the general health and mental health of their children. More specifically, this research study investigates the impact over time of paternal involvement with the CJS on their child's substance use/abuse/dependence and psychopathology and the development of risk behaviors possibly leading to the child's involvement with juvenile justice and/or CJS. The summer interns will be part of a research team, which performs a variety of assignments ranging from more organizational components indispensable to large research projects, data entry, review of interviews, and participation in fieldwork. This program offers an excellent experience for students interested in pursuing graduate level work in psychology, public health, related medical fields, or sociology.

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**Investigator:** Gregory Kirk, M.D., Ph.D.  
**Institution:** Johns Hopkins School of Public Health, Baltimore, Maryland  
**Research Area:** Infectious Diseases, HIV, IV Drug Use  
**Project Title:** The Natural History of HIV Infection Among Injection Drug Users  
**Start Date, Program Length:** June 1, 2009 — 10 Weeks  
**Housing Available:** No  
**Student Attributes:** Seeking undergraduate students with the ability to work with a range of people, including those who are indigent, drug using, mental health challenged, and homeless. Students should be able to interact compassionately and without judgment. Studies in health-related fields are optimal, but not required.

**Project Description:**

The ALIVE Study works with an underserved cohort of IV drug users from the Baltimore metropolitan area who are both HIV positive and negative. It involves visits to a clinic every six months where participants are given a series of questionnaires related to their behaviors and medical history. Students will monitor participants as they answer these questions on a computer. They will also take vital signs (blood pressure, height, and weight) and record data on the assessment of physical functioning of participants.

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**Investigator:** George F. Koob, Ph.D.  
**Institution:** The Scripps Research Institute, La Jolla, California  
**Research Area:** Neural Basis of Nicotine Dependence  
**Project Title:** Neurobiological Mechanisms of Nicotine Dependence  
**Start Date, Program Length:** June 1, 2009 — 10 Weeks  
**Housing Available:** No  
**Student Attributes:** Seeking undergraduate students with a major in psychology, cognition, biology or neuroscience, and high school students with an interest in animal behavior and/or brain anatomy.

**Project Description:**

This mini-program intends to give a comprehensive view of nicotine addiction research by giving the opportunity to work both on behavioral and molecular studies investigating the neuropsychological and neurobiological mechanisms underlying relapse to nicotine in an animal model. Experience will include behavioral testing in rats (mostly mornings) and brain tissue processing and measure of brain levels of specific proteins of interest (mostly afternoons). Experience will also include participation in lab meetings, journal club, data collection activities, and data analysis.

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**Investigator:** Jeffrey H. Samet, M.D., M.A., M.P.H.  
**Institution:** Boston Medical Center, Boston University School of Medicine, Boston, Massachusetts  
**Research Area:** Substance Abuse Treatment, Primary Care, HIV Prevention and Treatment, Psychiatric Comorbidities, Violence  
**Project Title:** Clinical Addiction Research and Education Unit Summer Research Program  
**Start Date, Program Length:** June 1, 2009 — 10 Weeks  
**Housing Available:** No  
**Student Attributes:** Seeking undergraduate students with a declared or intended pre-med major. Students should have an interest in learning about addiction medicine, psychiatric conditions related to substance use, and HIV.

**Project Description:**

The goal of the Boston University School of Medicine/Boston Medical Center summer research program within the Clinical Addiction Research and Education Unit is to expose and engage bright students in the world of addiction medicine research. Ongoing research studies that students may be involved with include brief interventions for substance users in the primary care setting, interaction between substance use and victimization from gun shots or stabbing and association psychiatric conditions, methadone treatment, and progression of HIV disease among Russian heroin users. Students will participate in a research project, have an opportunity for clinical observation, and join other students in a weekly seminar focusing on various aspects of clinical addiction research.

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**Mentored Research Project**

Students will gain experience in social science research by observing or participating in discussions of research design, subject interviewing, data collection, data entry, data analysis, and data presentation. Students may be involved in literature search and reviews to contribute to manuscript and grant preparations with the opportunity for publication co-authorship. Students will be invited to participate in weekly study team meetings. Previous students have worked on substance use research projects involving data collection via medical record review and face-to-face interview and co-authored scientific articles.

**Clinical Component**

This program is run by primary care internists. Students will acquire clinical exposure in harm reduction, screening, diagnosing and treating patients with drug and alcohol problems through multiple observer experiences including a methadone maintenance clinic, office-based opioid treatment with buprenorphine program and needle exchange program. The student will have weekly opportunities to shadow physicians and other expert care providers in various addiction treatment/services settings including: primary medical care clinic, methadone maintenance clinic, primary care-based opioid treatment program with buprenorphine, HIV clinic-based substance abuse treatment program, needle exchange program, hospital wide screening and brief intervention counseling program, and victim of violence advocacy program.

**Weekly Seminars**

Students will participate in eight 75-minute didactic/case presentations about addiction medicine over the summer with other students working within the Clinical Addiction Research and Education Unit. Potential topics include office-based opioid treatment with buprenorphine; methadone maintenance 101; substance abuse, HIV, and HCV; substance abuse and intimate partner violence; chronic pain and substance abuse; chronic disease management of substance user; substance abuse and co-morbid mental illness; HIV prevention in Russian substance users; site visit to homeless healthcare clinic; and stimulants.

<b>Investigator:</b>	Christopher J. Evans, Ph.D.
<b>Institution:</b>	University of California, Los Angeles (UCLA), Los Angeles, California
<b>Research Area:</b>	Addiction Consortium
<b>Project Title:</b>	Addiction Research
<b>Start Date, Program Length:</b>	June 1, 2009 — 10 Weeks
<b>Housing Available:</b>	Yes
<b>Student Attributes:</b>	Seeking motivated high school and undergraduate students with an interest in addiction research. A phone interview will be conducted.

**Project Description:**

Through the UCLA Brain Research Institute, this program will match students with faculty working on two NIDA-funded centers at UCLA—one in the area of opioids and the other in

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psychostimulants. Research in these centers spans molecular to clinical studies. Students will be matched to specific projects within these centers based on their interests.

The Developmental Center for Translational Research on Addictions integrates preclinical studies to directly inform clinical research on drug addiction and complementarily leveraging clinical insights to help target basic science approaches. The Center links basic scientists who have made significant contributions to knowledge of the neurobiological components of addiction with clinical investigators who are at the forefront in treatment research. The theme of the developmental center is impaired inhibitory control as a therapeutic target for methamphetamine (MA) dependence. The four research projects in this Center aim to do the following: (1) delineate the neural circuitry underlying deficits in inhibitory control in MA-dependent human subjects, (2) relate deficits in inhibitory control to drug-taking behavior using a human laboratory model of MA self administration, (3) establish and characterize (behaviorally and neurochemically) a non-human primate model for investigating inhibitory control deficits characteristic of MA abuse, and (4) characterize regional brain neurochemical effects of pharmacological manipulations aimed at modulating response inhibition in a rodent model for MA dependence.

The research objectives of the Center for Study of Opioid Receptors and Drugs of Abuse (CSORDA) are to gain insights into the mechanisms of action of endogenous opioids and opioid drugs at their cognate receptors with the goal of discerning fundamental processes contributing to behaviors such as analgesia, addiction, tolerance and withdrawal. The Center has four integrated components, which will investigate the activity of opioid ligands at the molecular, cellular, and behavioral levels utilizing complementary methodologies and shared resources. The Components of CSORDA will specifically investigate (1) the regulation of trafficking and signaling of mu and delta receptors in vivo by high resolution imaging of mice expressing fluorescent receptors, (2) the basis for mu ligand-directed signaling and receptor trafficking using primary dorsal root ganglia cells from wild-type as well as receptor and arrestin-deficient mice, (3) the role of the endogenous opioid system in goal-directed and habitual behaviors both in drug free and opioid dependent conditions and, (4) the functional regulation of transcripts in the striatonigral and striatopallidal projection neuron circuits and their relation to opioid drug reward center.

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<b>Investigator:</b>	Emmalee S. Bandstra, M.D.
<b>Institution:</b>	University of Miami, Miami, Florida
<b>Research Area:</b>	Prenatal Cocaine Exposure; Adolescent Drug Involvement
<b>Project Title:</b>	Sex and Gender Influences on Drug Involvement in Adolescence
<b>Start Date, Program Length:</b>	June 1, 2009 — 8–10 Weeks
<b>Housing Available:</b>	Yes
<b>Student Attributes:</b>	Seeking undergraduate students who have an educational background in pre-medicine, psychology, behavioral science, epidemiology, public health, or a related field. Students should have an interest in pursuing future careers or further education in empirical research or medicine. Students should display an ability to communicate with various audiences using exceptional interpersonal, written, and oral communication skills. The ideal candidates should have excellent organizational skills and attention to detail.

**Project Description:**

The Perinatal Chemical Addiction Research and Education (C.A.R.E) program at the University of Miami Miller School of Medicine has conducted research and service involving prenatally substance-exposed infants and children since 1988. Directed by Emmalee S. Bandstra, M.D., Professor of Pediatrics and Obstetrics and Gynecology, Perinatal C.A.R.E. is the academic home for 4 full-time

child-clinical psychology faculty members, a full-time psychology assistant scientist, a part-time pediatrician and over 50 professional and support staff. The program operates in approximately 7,000 sq. ft. of support space, including 20 offices and 38 workstations in the newly designed Clinical Research Building (CRB) on the University of Miami medical campus. Funded by NIDA since 1990, the program houses the Miami Prenatal Cocaine Study, a longitudinal study on the long-term effects of prenatal cocaine exposure on the neuropsychological, emotional/behavioral, and educational functioning of a large representative cohort of adolescent African Americans, born at term and followed since birth. Recently, the program was awarded an NIH Office of Research on Women's Health (ORWH) Specialized Center of Research on Addiction and Health in Women, Children and Adolescents grant to foster the development of translational research on risk for drug taking in adolescent males and females with and without exposure to cocaine and other drugs.

The clinical project within this Center, entitled Sex and Gender Influences on Drug Involvement in Adolescence, seeks to answer important questions about previously understudied hypothesized sex and gender differences in drug involvement through late adolescence as well as the outcomes of female (versus male) offspring exposed to drugs in utero.

Within the Perinatal C.A.R.E. program there are also several service projects including the Starting Early Starting Smart/Healthy Start service initiative and the Families First Network. Evaluating the effectiveness of services and determining best practices for strengthening families through a strong research and performance evaluation component is a core mission across all projects within the Perinatal C.A.R.E. Program. Interns will learn about the effects of prenatal drug exposures on child outcomes, risk/protective factors for adolescent drug involvement, and the design/conduct of longitudinal research. Interns will observe and assist in most aspects of the research process including literature review, data collection, data management and quality assurance, data analysis, and manuscript preparation. Interns will be provided with the necessary training to carry out this variety of job roles and will receive ongoing guidance and mentoring from senior staff. In addition, interns will have multiple opportunities for lectures and/or workshops related to the area of drug abuse offered through various University of Miami resources such as the Center for Family Studies, Pediatric Research, and the Department of Psychiatry.

<b>Investigator:</b>	Sherry McKee, Ph.D.
<b>Institution:</b>	Yale University School of Medicine, New Haven, Connecticut
<b>Research Area:</b>	Psychiatry, Human Behavioral Pharmacology
<b>Project Title:</b>	Modeling Stress-Precipitated Smoking Behavior for Medication Development
<b>Start Date, Program Length:</b>	June 8, 2009 — 8–10 Weeks
<b>Housing Available:</b>	Yes
<b>Student Attributes:</b>	Seeking undergraduate students with declared majors of psychology, biology, public health, sociology, and/or pharmacology. Preferred student research interests include substance use, tobacco, and stress.

**Project Description:**

There are several openings for undergraduate students. This research program consists of human laboratory studies examining the effect of stress on smoking lapse behavior. Stress has been identified as a primary mechanism involved in smoking relapse. Few studies to date have examined smoking behavior in response to stress. This research program's studies models the ability to resist smoking following stress in the laboratory. They also study whether medications that are known to reduce individuals' responses to stress can increase the ability to resist smoking following stress. Findings from these projects will have important treatment implications for improving rates of smoking cessation by identifying mechanisms that underlie stress-related smoking lapses. This

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research program involves behavioral work, which requires students to have interests and skills in the social (and/or life) sciences. A typical day will include participation in a variety of activities associated with conducting human laboratory studies. Students will be invited to attend summer research seminars and will participate in laboratory meetings. It is this program's hope that this experience will enrich students' current studies and that they may develop an interest in biomedical research as they pursue their future career goals.







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