

ANNUAL REPORT
JULY 1, 2006 – JUNE 30, 2007

SUBSTANCE ABUSE DIVISION

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2. Overview

Research in this Division, which began in 1992, focuses on antecedents and consequences of substance use and abuse, with particular emphasis on the development and testing of novel approaches to the treatment of substance abuse. Our resources include non-human primate studies; separate human research laboratories for studying heroin and prescription opioid analgesics, methamphetamine, marijuana, nicotine, alcohol, and pain, all located in NYSPI; a cocaine human research laboratory located in the Irving Center GCRC; an outpatient service (STARS) for clinical

trials for new medications; a novel residential laboratory for studying a variety of workplace and other drug-related issues; and a regional Node in the NIDA Clinical Trials Network creating research affiliations with four major community-based treatment providers in the New York Metropolitan area. Finally, the Biological Studies Unit (BSU) continues to be part of our Division, while providing infrastructure support (space, technical, clinical, and laboratory support) to investigators throughout NYSPI.

Our Division is supported by a number of NIH R01's as well as by a NIDA Medication Development Center that supports research using both laboratory models of substance abuse and traditional clinical trials research. A major strength of our Division is the ability to conduct initial safety and effectiveness studies using our both human laboratory models, with the results obtained then used to design our larger scale clinical trials. Our Division is also engaged in brain imaging research that is mapping neuroreceptors (particularly of serotonin and dopamine) in response to cocaine and heroin administration. We have recently added a novel clinical cognitive laboratory for the study of cognitive functioning in substance abusers and its relations to treatment outcome within our regional Node in the NIDA Clinical Trials Network.

Overall, the Division has approximately 127 employees including 25 MD or PhD. faculty, 7 faculty with K awards, and over 40 grants (including 1 Center, Postdoctoral Training Grant, and BSU) and contracts.

3. Current Research

Medications Development Research Center (P.I., Kleber, Co-P.I., Evans)

As part of Dr. Kleber's Medications Development Center grant, we have a mechanism for supporting pilot studies to promote research opportunities for our Research Fellows and junior faculty. Since the inception of this Center grant in 1994, 45 pilot studies have been funded. These pilot studies have been instrumental in obtaining grant funding including 11 R01's, 10 K Awards, 1 NARSAD award, and 1 R-21. These funded pilot studies have also resulted in 22 peer-reviewed publications, and over 55 presentations at scientific conferences, both national and international. Currently, we have 9 ongoing pilot studies.

Project 1 (P.I., Comer) Dr. Comer has developed a laboratory model of heroin abuse to evaluate new medications for opioid abuse and dependence, as well as improving outcome and acceptability of existing medications such as methadone and naltrexone. Her current research focus is to evaluate the relative abuse liability of heroin and prescription opioid medications such as fentanyl, oxycodone, buprenorphine, and morphine. The effectiveness of buprenorphine maintenance in reducing the reinforcing effects of the prescription opioids is also being examined.

Project 2 (P.I., Martinez) Dr. Martinez is using PET to measure mesolimbic dopamine type 1 and 2 receptors in cocaine addiction. The results show that long-term cocaine dependence is associated with a generalized decrease in dopamine type 2 receptors, and a loss of dopamine transmission in the striatum. Furthermore, this work has demonstrated that the loss of dopamine type 2 receptors is not associated with the cocaine taking behavior, whereas the loss of synaptic dopamine appears to confer a vulnerability to the priming effects of cocaine.

Project 3 (P.I., Nunes) Dr. Nunes and Dr. Raby explore pharmacological treatments for depressed cocaine abusers, currently assessing the efficacy of Remeron. Project also includes stress and its relationship to depression and drug use.

Project 4 (P.I., Haney) Dr. Haney and colleagues have tested the ability of potential treatment medications to decrease marijuana withdrawal and relapse in daily marijuana smokers. To date, dronabinol (oral THC) has been the most effective medication tested, in that it decreased symptoms of marijuana withdrawal at doses that produced no intoxication. Relapse to marijuana was most effectively attenuated by the combination of dronabinol and lofexidine, an α_2 noradrenergic agonist. In the past year, Dr. Haney has shown that the GABA_B receptor agonist, baclofen, tended to decrease marijuana withdrawal and relapse but the effects were not sufficiently robust to suggest clinical significance. Similarly, baclofen showed significant but modest effects in combination with smoked cocaine (Haney et al., 2006). An ongoing study is investigating the effects of mirtazapine on marijuana withdrawal and relapse.

Project 5 (P.I., Levin) During this ongoing 12-week, double-blind, placebo-controlled treatment trial, participants receive either active medication (dronabinol) or matching placebo in a “fixed flexible” dose schedule with the gradual dose titration. The specific aims of this research are to determine whether dronabinol is superior to placebo in promoting abstinence and reducing marijuana withdrawal symptoms.

Inpatient Laboratory Research With Human Participants

Residential Laboratory (P.I., Hart)

In their on-going characterization of drug use by the workforce, Dr. Hart and colleagues, are examining the effects of the "club drug" 3,4-methylenedioxymethamphetamine (MDMA) and methamphetamine on cognitive performance, mood, speech and measures of sleep. Workplace-related consequences of acute and repeated dosing of these popular club drugs are being investigated.

Methamphetamine Research Laboratory (P.I., Hart)

This laboratory studies the behavioral pharmacology of intranasal methamphetamine in humans in effort to better understand methamphetamine dependence and increase the available treatment options. Findings from a recently completed study in this lab indicated that intranasal methamphetamine produced orderly effects on psychological and physiological measures with a rapid onset of effects. The fact that the drug produced primarily positive effects on psychological measures without producing noticeable adverse consequences may help to explain anecdotal reports of intranasal methamphetamine abuse. The data also showed that methamphetamine plasma concentrations were dose-dependently increased several hours after drug administration, when measures of euphoria were returning to baseline levels. The dissociation between methamphetamine plasma concentrations with cardiovascular measures and positive subjective effects might have important implications for potential toxicity after repeated doses.

Marian W. Fischman Cocaine Laboratory

Four NIDA-funded grants support this research: "I.V. Cocaine Abuse Treatment: A Laboratory Analysis"(P.I. Foltin); "Sex Differences in Stress & Impulsivity in Cocaine Abusers" (P.I. Evans); "Translational Approach to Models in Relapse" (P.I. Foltin); and "Laboratory Analysis of Cocaine Abstinence" (P.I. Foltin). In addition, three K-training awards (Vadhan, Carpenter, Collins Reed) are also conducted, at least partially, in the laboratory. The goal is to better understand cocaine abuse and its treatment. We have been evaluating the efficacy of modafinil and aripiprazole to alter the subjective and reinforcing effects of cocaine. We are also continuing our behavioral studies on changes in the motivation to smoke cocaine during a cocaine “binge,” and on how environmental conditions affect the development of sensitization to smoke cocaine. We continue to

refine new procedures for modeling relapse to cocaine use, and looking at the effects of cocaine across the menstrual cycle. We are also continuing a long-term study comparing the subjective and reinforcing effects of cocaine under controlled laboratory conditions, in groups of abstinent cocaine abusers with symptoms (most likely substance-induced) of Major Depression, or no psychiatric comorbidity. We recently received funding to develop novel models of relapse to cocaine abuse. We also just received funding to examine the effects of stress and impulsivity on cocaine and to directly assess the role of sex differences.

Clinical Trials Network Node

The Long Island Node of the NIDA Clinical Trials Network (Dr. Edward Nunes, PI) has completed 6 clinical trials in which 321 participants were randomized. These clinical trials include a multisite trial of Motivational Enhancement Therapy for Spanish speaking patients, a multisite trial of buprenorphine for treatment of opiate dependence, and a multisite trial of cognitive behavioral therapy and nicotine replacement for smoking cessation among patients in treatment for drug dependence. The node is currently participating in newly initiated trials on methylphenidate for treatment of nicotine-dependent adults with ADHD, substance-dependent adolescents with ADHD, and a trial of algorithmic treatment with buprenorphine and behavioral interventions for prescription opioid dependence.

The Node is also leading 2 nationwide multisite randomized controlled trials (N = 400 each), one of Seeking Safety a cognitive behavioral intervention for drug dependent patients with PTSD (Dr. Denise Hien, Lead Investigator), and one of a skills based HIV risk reduction intervention for women in drug dependence treatment (Dr. Susan Tross, Lead Investigator); both have been completed and are in data analysis.

Motivational Interviewing Training Project

Funded by a NIDA R01 (Dr. Nunes, PI) this is a randomized trial comparing three different methods of training substance abuse clinicians in the skill of motivational interviewing—workshop alone, versus workshop plus one of two supervision methods. A supervision method designed specifically for this project involves supervisors listening live the trainees' interviews over the telephone, and giving real time feedback. Data collection is completed and data analysis has begun. Dissemination of new evidence-based treatments into community-based treatment is an important public health imperative, and this is among the first randomized trials examining different training/dissemination methods.

Buprenorphine Program

In September 2003, Dr. Kleber founded the Buprenorphine Program, one of the first of its kind in the country. The program has grown over the past 4 years, and is now housed with the Speciality Outpatient Clinics in the Department of Psychiatry. Led by Drs. Kleber, Gunderson, Manubay and Vosburg its objectives are 3-fold: to develop a model for induction stabilization and maintenance or detoxification via the partial agonist, buprenorphine; to develop a new model for training physicians about buprenorphine; and as a site for research and training. It has treated over 500 opioid dependent patients to date with most referred to physicians in the community and approximately 90 remaining at the Program for on-going maintenance. Approximately 50% were using primarily prescription opioids, 40% heroin, and 10% methadone at the time of admission.

The Program remains committed to physician training, and has continued to receive physicians from the U.S. and abroad to observe its methods. The program has led to research project initiation, including setting up a buprenorphine program in Internal Medicine primary care clinic at Columbia University Medical Center. Internal Medicine faculty and housestaff are able to learn

about and participate in buprenorphine treatment at this program as well. Dr. Gunderson is a nationally recognized mentor on buprenorphine treatment through the Physicians Clinical Support System, which is sponsored by the American Society of Addiction Medicine (ASAM) and Center for Substance Abuse Treatment (CSAT), Substance Abuse Mental Health Services Administration (SAMHSA). He also has directed buprenorphine training programs sponsored by ASAM and the American Psychiatric Association.

Imaging Studies

Dr. Diana Martinez's research uses Positron Emission Tomography to image dopamine receptors and dopamine transmission in addiction. Her current studies include three studies in human subjects and one in non-human primates. The human studies are: 1) imaging dopamine transmission in heroin addiction and investigating the correlation between neurobiology and heroin self-administration; 2) imaging the effect of a behavioral treatment for cocaine dependence on dopamine transmission; and 3) imaging dopamine depletion in cocaine dependence. Dr. Martinez is also a close collaborator on two other projects: one is the imaging of dopamine transmission in Bulimic patients (conducted with Dr. Allegra Broft in the eating disorders group) and the other is imaging the effects of alcohol on parameters of dopamine transmission (conducted with Dr. Anissa Abi-Dargham in the Division of Functional Brain Mapping). Dr. Martinez is also conducting a study to develop a new radiotracer to label the kappa receptor in non-human primates. Lastly, Dr. Martinez has been conducting fMRI studies in subjects who receive PET scans in order to investigate any correlations between these two modalities in addiction.

Outpatient Laboratory Research with Human Participants

Women's Research: Dr. Suzette Evans is the Director of the Women's Research Center in the Division on Substance Abuse, with Dr. Stephanie Collins Reed as the Co-Director. The primary research focus is related to women's health issues specifically related to substance abuse and the menstrual cycle. Dr. Evans has had a grant since 1995 to conduct human laboratory studies to assess vulnerability to drug and alcohol abuse in subgroups of women at increased risk for substance abuse problems. Over the last two years Dr. Evans and Dr. Reed have been conducting a series of studies on stress response and the effects of alcohol and d-amphetamine on measures of impulsivity in various groups of women, including women with childhood sexual abuse and women with bulimia nervosa. They are collaborating with Dr. Walsh, Director of the Eating Disorder Unit on this project and are also collaborating with Dr. Mary Jeanne Kreek, at Rockefeller University, to assess genetic associations in these women.

Opiates: Although buprenorphine is clearly effective in the treatment of opioid dependence, several epidemiological and clinical case studies have reported that buprenorphine itself may have abuse liability. The goal of this study by Drs. Comer and Collins was to compare the reinforcing effects of intravenously delivered buprenorphine and the buprenorphine/naloxone combination. The results demonstrated that the reinforcing effects did not differ for buprenorphine alone, compared to the combination. However, the subjective effects of the combination were less robust, suggesting that both buprenorphine alone and the combination have moderate abuse liability in non-opioid-dependent individuals. A subsequent study compared the relative abuse liability of intravenously delivered buprenorphine, a partial mu opioid agonist, and methadone, a full mu opioid agonist. There were no significant differences in the reinforcing and subjective effects of buprenorphine and methadone, suggesting that in non-opioid-dependent individuals, the abuse liability of the two drugs are equivalent. In a paper published this year, Dr. Comer reported that in opioid-dependent individuals buprenorphine produced positive subjective responses that were

similar to other mu opioid agonists, such as morphine, fentanyl, oxycodone, and heroin, but it was not self-administered at any dose tested. These data suggested that buprenorphine has lower abuse potential than other mu opioid agonists in individuals who are physically dependent on opioids.

Marijuana: Two recently published studies (Haney, 2005, 2007) have reported on the role of endogenous opioid peptides in mediating cannabis effects in humans. We have seen that the opioid antagonist, naltrexone, either enhances or decreases the intoxicating effects of dronabinol (oral THC), depending on naltrexone dose and the individual's experience with marijuana (long-term, daily marijuana smokers showed a different response from infrequent marijuana smokers). Preliminary data from an ongoing study in current marijuana smokers show that a wide range of naltrexone doses (12-100 mg) significantly increased the intoxicating effects of smoked marijuana. These data suggest that naltrexone would not be useful for the treatment of marijuana dependence. Further, marijuana smokers receiving naltrexone for the treatment of alcohol or opioid dependence may experience an enhanced response to marijuana.

Pain: Dr. Sullivan and Dr. Comer are carrying out a combined laboratory study and clinical trial to examine the growing problem of prescription opioid abuse among chronic pain patients. Participants diagnosed with moderate pain initially are admitted to the hospital and transitioned from their baseline prescription opioid to a standing daily dose of buprenorphine/naloxone. In the human subjects laboratory, participants have the opportunity to self-administer oxycodone and subjective, analgesic, physiologic, and performance effects are measured. Subsequently, patients are followed on an outpatient basis while maintained on Bup/Nx. A major goal of this study is to determine which variables collected in the laboratory most reliably predict subsequent relapse to opioid abuse. In addition, the utility of Bup/Nx in treating patients diagnosed with both chronic pain and substance abuse will be assessed. This is the first study to date examining opioid self-administration in persons with pain who have a history of opioid abuse and could provide important information about prescription opioid abuse liability in pain patients and a laboratory model for predicting likelihood to relapse. These questions are of immediate clinical relevance to the treatment of chronic pain with opioid therapy. In addition to examining the problem of prescription opioid abuse among chronic pain patients, Dr. Comer has completed studies examining the abuse liability of prescription opioids in normal, healthy volunteers compared to prescription opioid abusers. Participants were given the opportunity to self-administer orally-delivered oxycodone in both the presence and absence of experimental pain. Prescription opioid abusers self-administered oxycodone regardless of pain condition, while normal, healthy volunteers only self-administered oxycodone in the presence of experimentally-induced pain. This outcome was obtained even though both groups of participants reported equivalent levels of positive subjective responses. These data substantiate the clinical observation that non-drug abusers only use prescription opioids when clinically indicated whereas substance abusers use them under a wider variety of conditions. Future research will attempt to elucidate the etiology of this effect.

Nicotine: Dr. Bisaga is conducting several studies to elucidate the neurobiology of nicotine dependence in humans and to develop new pharmacotherapies. Laboratory models of smoking cessation and relapse to smoking have been developed, and additional procedures for modeling relapse are being refined. Bupropion, an effective smoking cessation medication reduced smoking behavior in the laboratory model of smoking cessation confirming its predictive validity. The current study is assessing the effect of bupropion in a laboratory model of relapse. Continuing work explores the role of NMDA receptor neurotransmission in effects of nicotine and is assessing therapeutic potential of the NMDA receptor antagonist memantine. Memantine was not effective in

the laboratory model of smoking cessation and currently we are assessing its role in the model of relapse.

Research with Non-human Primates: Under the direction of Drs. Foltin and Evans, the Division's pre-clinical studies in non-human primates continue with funding supplied by three grants from NIDA. One set of studies is examining variables affecting food seeking and food taking using pharmacological manipulations to determine mechanisms that underlay feeding behavior. Separate studies and grants (P.I. Evans) focus on the effects of cocaine and heroin across the menstrual cycle.

Clinical Treatment Studies: Our primary clinical research program, the Substance Treatment and Research Service (STARS), is conducted under the leadership of Dr. John Mariani. After expanding to space at 1775 Broadway in early 2006, STARS now operates approximately 50 hours per week at two locations: the main location is at 166th Street and the satellite location is at new space developed by the psychiatry department near Columbus Circle. Current treatment studies taking place at STARS involve problems with cocaine, marijuana, and opiates, as well as cognitive studies. During the past year five independently funded investigators had eight clinical trials open for enrollment. Approximately 500 potential participants attended an initial screening appointment and approximately 175 participants were enrolled into a clinical trial. With expanded capacity at the Columbus Circle site, and 3 additional new trials expected to begin enrollment, it is expected that recruitment volume will continue to increase over the next year.

STARS continues to be an important site for training of general psychiatry residents and addiction psychiatry fellows. Patients who are either ineligible for clinical trial participation or who complete a clinical trial and are in need of additional treatment are considered for referral to the NYSPI PGY3 psychiatry resident outpatient clinic. PGY3 psychiatry residents receive clinical supervision by Division on Substance Abuse clinical faculty. STARS also continues to provide a training opportunity for clinical psychology graduate students as part of their pre-doctoral internship experience at the NYSPI. In addition, Dr. Gunderson is currently conducting clinical research at Associates in Internal Medicine (AIM) clinic to assess the effectiveness of buprenorphine maintenance treatment of opioid dependence delivered in a primary care setting.

Cocaine Treatment Studies: Drs. Bisaga and Nunes have been conducting studies that test new medications' for cocaine dependence. A recently published controlled study of gabapentin showed that when combined with weekly individual relapse-prevention therapy, gabapentin 1600 mg bid was no more effective than placebo in the treatment of cocaine dependence. Drs. Evans and Levin have a new grant that will focus on cocaine treatment for women (grant). This small pilot treatment trial will assess the efficacy of oral micronized progesterone in women seeking treatment for their problems with smoked cocaine.

Opioid Treatment Studies: Drs. Nunes, Sullivan, and Bisaga have been conducting studies that aim to improve effectiveness of naltrexone in the treatment of opioid dependence. This includes studies testing adjunctive use of pharmacotherapies (memantine), behavioral therapies (Behavioral Naltrexone Treatment), or the extended release form of Naltrexone (Vivitrol). More effective strategies to detox from opioids and induct on naltrexone are also being developed.

In addition to the studies reported here, the Division has numerous other human laboratory and clinical trials involving the various drugs of abuse, which are not described because they are ongoing.

In addition to training medical students, psychiatry residents and fellows, the Division has continued to expand its substance abuse training for medical residents. Each month, four medical residents are spending two days at the substance abuse treatment program at which didactic and experiential learning is provided. After this experience, the medical housestaff spend an afternoon with several faculty members from the Substance Abuse Division and learn about additional pharmacologic and nonpharmacologic treatment strategies for their addicted patients.

Dr. Frances Levin, as the P.I. of the Research Fellowship in Substance Abuse Disorders, organizes the training for the research fellowship and as well, as well as the substance abuse curriculum for medical students. Drs. Levin coordinates a course for second and third year psychiatric residents. In addition, she and Dr. Gunderson have collaborated to receive CSAT support for curriculum development to teach medical housestaff how to diagnose and manage DSM-IV opioid use disorders among patients receiving prescription opioids for chronic non-malignant pain. The curriculum is case-based and conducted in small groups at the AIM primary care clinic. Dr. Levin continues to serve as the substance abuse course director for the Clinical Practice Course for the first and second year medical students and coordinates the substance abuse section of the pharmacology course for the second year medical students.

The purpose of this fellowship is to train candidates for careers in clinical research in substance abuse and dependence. This past year we had five Fellows: Benjamin Nordstrom, MD, Shabnam Shakibaie Smith, MD, Jennifer Hanner, MD, S. Robert Vorel, MD, PhD, and Soteri Polydorou, MD. In July 2007, two fellows joined our group: Benjamin Bryan, MD and Ziva Cooper, PhD. Drs. Benjamin Nordstrom and Shabnam Shakibaie Smith graduated from the Fellowship June 30, 2007. Dr. Nordstrom is pursuing a PhD in Criminology at U Penn and working at the U Penn substance abuse research program; Dr. Shakibaie Smith is a faculty member with the Division on Substance Abuse.

Awards/Honors

Suzette Evans was named President of Division 28 (Psychopharmacology and Substance Abuse) in the American Psychological Association.

Erik Gunderson received the 2007 Ambulatory Medicine Teacher of the Year Award from the Department of Internal Medicine, Columbia University College of Physicians and Surgeons.

Margaret Haney (1) was elected an Associate Member of the American College of Neuropsychopharmacology, and (2) was appointed as a member of the NIH Study Section: NIDA L Medication Development Research Subcommittee.

Carl Hart was elected a Fellow, Division 28 (Psychopharmacology and Substance Abuse) in the American Psychological Association.

Herbert Kleber became a member of the Executive Council of the newly formed Betty Ford Institute. In addition, after serving 10 years on the APA Council on Addiction as member and Vice Chair, he became a Consulting member of the Council.

Frances Levin received noteworthy honors: 1) APA, Council on Addiction Psychiatry; 2) Best Doctors® in America; 3) Who's Who in America; 4) Executive Committee of the Faculty Council

Edward Nunes was elected to the Board of Directors of the College on Problems of Drug Dependence.

Nehal Vadhan received two awards: 1) Young Investigator Travel Award to the annual meeting of the American Psychological Association from the Clinical Trials Network, National Institute on Drug Abuse; 2) NIH Loan Repayment Award (renewal).

Shabnam Shakibai Smith received two awards in 2007: NIDA Director’s Travel Award to attend the College on Problems of Drug Dependence and The American Psychiatric Association’s Junior Investigators Colloquium Award.

Maria Sullivan was awarded a supplemental Diversity Fellowship grant (RO1 DA020448) which supports the training and supervision of Dr. Jeanne Manubay, whom Dr. Sullivan is mentoring in the evaluation and treatment of prescription opioid dependence with Suboxone in the context of chronic pain. Dr. Sullivan was also elected to serve as an Addiction Psychiatry Committee Member for the American Board of Psychiatry and Neurology. She is serving a four-year term in preparing and reviewing examination questions for the subspecialty certification in Addiction Psychiatry.

4. Grants

Name	Title	Sponsor
Aharonovich E.	Cognitive Deficits: Treatment Outcome In Cocaine Abusers	DA14091-03
Aharonovich E.	Cognition In Cocaine Dependence: Assessment & Therapy	I K23 DA 016743
Bisaga A.	Memantine Naltrexone Treatment for Opioid Dependence	1 R01 DA15822
Bisaga A.	Developing Medication For Tobacco Addiction: NMDA Agents	DA017572-02
Carpenter K	An Experimental Model of Human Language and Cognition in Drug Dependence	K23 DA021850-01
*Collins-Reed S.L.	Sex Differences & Impulsivity: Effect of Drug History & Stimulant Administration	1 K01 DA022282-01
Comer S.	Sustained-release Naltrexone for Opioid Dependence: Longitudinal Study in Humans	DA022222-01
*Comer S.	Prescription Opioid Effects in Drug and Non-drug Abusers	DA016759
Comer S.	Relationship between Infusion Duration and Reinforcing Effects of Intravenous Oxycodone in Heroin-Dependent Individuals	Grunenthal GmbH
Comer S.	Effect of Tablet Mechanical Stability on Drug Preference and Relative Street Value of Oxycodone Controlled-release (CR) Tablets in Experienced Oxycodone CR Abusers	Grunenthal GmbH
*Comer S.	Reinforcing Effects of Intravenous	Schering-

	Buprenorphine versus Buprenorphine/Naloxone in Buprenorphine-maintained Intravenous Drug Users (P05207)	Plough
*Evans S.	Sex Differences in Stress & Impulsivity in Cocaine Abusers	DA021242-01A2
*Evans S.	Progesterone Treatment for Cocaine Dependent Women	DA022218-01
Evans S.	Vulnerability to Anxiolytic Abuse in Women	DA009114-12
Foltin R.	IV Cocaine Abuse Treatment: A Laboratory Model	DA06234-15
Foltin R.	Laboratory Analysis Of Cocaine Abstinence	DA008105-14
*Foltin R.	Translational Approach to Models in Relapse	DA021319-1A1
*Foltin R.	Anorectic Drugs: Abuse & Behavioral Mechanisms of Action	DA04130-19
Gunderson E.	Buprenorphine for Opioid Dependence in Primary Care	5 K23 DA20000
*Gunderson E.	Treatment Strategies for Prescription Drug Misuse and Abuse	CSAT Contract # 270-05-0109
Haney M.	Medication Development For Marijuana Relapse	R01 DA019239-03
*Haney M.	Modafinil and DRD4 Genotype in a Human Laboratory Model of Cocaine Relapse	R01 DA023650-01
Hart C.	Intranasal Methamphetamine: A Pharmacotherapy Model	1 R01 DA019559
Hart C.	Drug Effects on Behavior: Workplace Implications	R01 DA003476-21
Kleber H.	Novel Medication Approaches For Substance Abuse	DA09236-14
Kleber H.	Improving Drug Abuse Treatment By Research & Training	K05 DA14284-07
Levin F.	Treatment of Substance Abuse & Psychiatric Comorbidity	5 K02 DA000465
Levin F.	Atomoxetine for Marijuana-Abusing ADHD Adolescents	1 R01 DA019233
Levin F.	Combined Pharmacotherapies for Cocaine Dependence	R01 DA022217
Levin F.	Research Fellowship in Substance Abuse Disorders	T32 DA007294
Levin F.	Marijuana Dependence & Depression: Venlafaxine Treatment	DA15451-02
*Levin F.	Extended Release of Mixed Amphetamine Salts for Adult ADHD and Cocaine Dependence	R01 DA023652-01
Mariani J.	Anticonvulsant Pharmacotherapy for Sedative-Hypnotic Use Disorders	K23 DA021209
Martinez D.	Imaging the Neurobiology of a Behavioral Treatment for Cocaine	R01 DA020855

Martinez D.	PET Imaging of Mesolimbic Dopamine in Heroin Dependence	R01 DA016788
Nunes E.	Opiate Dependence: Combined Naltrexone/Behavior Therapy	DA10746-10
Nunes E.	Drug Abuse Treatment Development and Research Mentoring	K24 DA022412-01
Nunes E.	Study of Pathological Gamblers	Pfizer, Inc.
Nunes E.	MI Training: Live Supervision By Tele-Conference	DA016950-04
*Nunes E.	CU Partners: NY/Long Island Regional Node	U10 DA13035-06
Papp L.	Effects Of L-830982 Immediate Release Formulation And Lorazepam On CO2 Induced Anxiety In Healthy Males	L-830982
Papp L.	Effexor XR In Late Life Anxiety	TH0600B2-922
Papp L.	Keppra (Levetiracetam) And CO2 Induced Anxiety In Patients With Panic Disorder	UCB Pharma, Inc.
Sullivan M.	Opiate & Nicotine Dependence - Medications & Therapy	DA00433-05
Sullivan M.	Subcontract W/St. Luke's Roosevelt: Adherence Therapy For Opioid Abusing Pain Patients	St Luke's
*Sullivan M.	Diversity Fellowship Grant Supplement	R01 DA020448
Sullivan M.	Predictors of Relapse to Prescription Opioid Abuse Among Pain Patients	R01 DA020448
Vadhan N.	Neuropsychological Effects of Binge-Smoked Cocaine	1 K01 DA019933-01A1

* New Grants

5. Significant Contributions

Adam Bisaga: Has initiated and has been leading the team implementing electronic clinical information system in the research clinic. Velos eResearch is a computerized study management and data entry system, which enables seamless management of screening process and all clinical trials at the two STARS locations. Data is now collected and organized directly within this system, which will improve the quality of research data collected.

Sandra Comer: Prescription opioid abusers self-administer oxycodone regardless of pain condition while normal volunteers only self-administer it under experimentally induced pain.

Richard Foltin: Developed a model for studying binge-eating behavior in non-human primates.

Erik Gunderson: 1) Demonstrated the effectiveness of buprenorphine treatment for opioid dependence in naturalistic primary care clinic setting. 2) Developed with Dr. Levin a curriculum

for medical housestaff to improve primary care recognition and management of prescription opioid use disorders among patients with chronic pain.

Margaret Haney: Demonstrated that a clinical dose of aripiprazole significantly increased cocaine craving, self-administration and intoxicating effects in cocaine abusers. These data suggest that administering aripiprazole to psychiatric patients who abuse cocaine may result in increased cocaine use.

Frances Levin: Compared baseline characteristics and treatment outcome between cocaine-dependent patients with major depressive disorder (MDD), those with attention-deficit/hyperactivity disorder (ADHD), and those with cocaine dependence (CD) without comorbid disorders in randomized clinical trials. The diagnosis and treatment of co-occurring disorders such as depression and ADHD may be important components of treatment planning for CD and the baseline level of cocaine use should be included as a covariate in studies evaluating the impact of such treatment.

John Mariani: Rates of ASPD did not differ between cannabis- and cocaine-dependent individuals.

Eric Rubin: Cocaine-dependent individuals with comorbid major depression and a comparison group were studied during inpatient abstinence. Contrary to expectations from prior literature, cocaine users with depression did not experience more severe mood symptoms during early abstinence than did those free of major depression. Brain activity data (FDG-PET) collected from these participants is now being examined for clinical correlations.

Nehal Vadhan: 1) Demonstrated that marijuana acutely slows down performance on a decision-making task, but does not acutely impair the advantageousness of those decisions, in experienced marijuana users. 2) Demonstrated that cocaine-dependent treatment seekers exhibited greater attentional bias towards cocaine-related stimuli than cocaine-dependent nontreatment seekers. 3) Examined stimulus-response learning in long-term cocaine users, and found that cocaine users' learning was impaired when required to learn new stimulus discriminations while simultaneously maintaining established stimulus discriminations.

6. Publications

Agosti, V., Levin, F.R. One-year follow-up of suicide attempters treatment for drug dependence. *American Journal on Addictions* 15:293-296, 2006.

Agosti, V., Levin, F.R. One-year post-treatment outcome of cannabis dependent adolescents. *Addictive Disorders and Their Treatment*, 15(4): 363-370, 2006.

Agosti, V., Levin, F.R. Predictors of abstinence among marijuana dependent adolescents. *American Journal of Drug and Alcohol Abuse*, 33: 81-88, 2007.

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