Highlights and Program Priorities

Division of Clinical Neuroscience & Behavioral Research

Joseph Frascella, Ph.D.

September 4, 2013
Provide a translational approach within a clinical research context to advance our understanding of Brain, Behavior & Health in Drug Abuse and Addiction through Neuroscience, Development, and Treatment.
Division of Clinical Neuroscience and Behavioral Research (DCNBR)

Major Programs

BRAIN

Clinical Neuroscience

Human Development

Behavioral Treatment

BEHAVIOR

HEALTH
DCNBR Organization

Office of the Director
Joseph Frascella, PhD
Director
David Thomas, PhD
Deputy Director
Barbara Usher, PhD
Special Assistant

Women & Sex/Gender Differences Research Program
Cora Lee Wetherington, PhD
Director

Clinical Neuroscience Branch
Steven Grant, PhD

Behavioral & Brain Development Branch
Cheryl Boyce, PhD

Behavioral & Integrative Treatment Branch
Lisa Onken, PhD
DCNBR Staff

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Yu ‘Woody’ Lin, PhD

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**Behavioral & Integrative Treatment Branch**
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Will Aklin, PhD  
Jessica Chambers, PhD  
Debra Grossman, MA

**Support Staff**
Justin Drott  
Carolyn Tucker
Women & Sex/Gender Differences
Research Program
NIDA’s Women & Sex/Gender Differences Mini-Program, “Focus on Women & Sex/Gender Differences,” for CPDD

- Contains CPDD program listings related to women & sex/gender differences
- NIDA funding opportunities in this area
- Listing of current and prior travel award recipients

NIDA’s Women and Sex/Gender Differences Junior Investigator Travel Award Program for CPDD:

- Annual Program began in 1999
- Designed to promote entry of junior investigators into drug abuse research on women and sex/gender differences
- This year: 51 applications received – 27 junior investigators supported

These efforts were led by Dr. Samia Noursi & supported by Drs. Cora Lee Wetherington, Lynda Erinoff and Joe Frascella
NIDA participated in ORWH FOA, “OD TPA-12-958, Administrative Supplements for Research on Sex/Gender Differences”

- Purpose: promote sex/gender analysis of data
- Cost limit: $100K (direct + indirect)
- Duration: 1 year funding
- Set aside: $3.5M

Response to the FOA from NIH grantees:

- 250 applications submitted to 21 NIH Institutes/Centers
- 40 submitted to NIDA – largest # of all ICs

ORWH funded 35 supplements → at least 1 per each the 21 ICs

- 4 awards made to NIDA
- ORWH funded 2 additional awards to NIDA via End-of-Year funds → total of 6 supplements funded by ORWH

NIDA funded 4 additional supplements → **Total of 10 NIDA supplement awards ~ $1M**
NIDA participated in ORWH FOA, “OD TPA-12-958, Administrative Supplements for Research on Sex/Gender Differences”

- Supplements funded in all 4 NIDA program divisions
- Large breath of methodologies & topics
  - Animal model, human lab, epidemiology, clinical trial
  - Genetics, neurobiology, human brain imaging, vaccine development, rodent HIV model

<table>
<thead>
<tr>
<th>PI</th>
<th>Topic – Sex Differences in:</th>
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</thead>
<tbody>
<tr>
<td>Berns, Greg</td>
<td>Neurobiology of uncertainty</td>
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<tr>
<td>Corbin, Joshua</td>
<td>Development of the basal telencephalic limbic system</td>
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<tr>
<td>Kenny, Paul</td>
<td>Genetic mechanisms of nicotine reinforcement</td>
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<tr>
<td>Koob, George</td>
<td>Stress systems underlying cocaine addiction</td>
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<td>Kosten, Tom</td>
<td>Methamphetamine vaccine; preclinical rodent</td>
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<td>Muscat, Joshua</td>
<td>SES and smoking exposure in Appalachia; metabolism</td>
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<tr>
<td>Plebani, Jennifer</td>
<td>Varenicline for treatment of cocaine dependence: Phase II</td>
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<tr>
<td>Rauh, Virginia</td>
<td>Brain imaging of children with prenatal tobacco exposure</td>
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<tr>
<td>Tarter, Ralph</td>
<td>Transmissible liability index for cannabis use in preadolescents</td>
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<tr>
<td>Volsky, David</td>
<td>Mouse model of HIV-1 infection and drug abuse</td>
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Goals:

• Review the body of evidence on screening and counseling for IPV in health care settings
• Discuss insights on challenges & barriers to screening and intervention for IPV, including:
  ➢ Culturally competent screening and counseling practices
  ➢ Past and ongoing experiences of trauma
  ➢ The intersection of IPV and substance abuse
  ➢ The effects of screening and counseling on related health, safety, and outcomes related to social and emotional well-being

Co-Chairs:

• Nancy Lee, MD, Deputy Assistant Secretary for Health-Office on Women’s Health (OWH)
• Marylouise Kelley, PhD, Family Prevention and Services Program (ACF)
• Samia Dawud Noursi, PhD, Women and Sex/Gender Differences Research Program (NIDA)
Clinical Neuroscience Branch
Clinical Neuroscience Branch
Overview

Mission
• Human Experimental Research
• From Genes to Neurobiology to Behavior

Classic Areas of Interest
• Effects of acute and chronic drug administration
• Biological risk factors (genetics, personality, brain dysfunction)
• Normative function related to substance abuse (reinforcement learning; cognition; decision-making, brain and genetic factors)
• Translation of preclinical discoveries to human research
• Human pain research
• Neurobiology of HIV/AIDS
• Training and promotion of career development (I/START, Blueprint Neuroimaging T90/R90, K’s, and T’s)
Clinical Neuroscience Branch
Brain Pattern Predicts Relapse

Treatment Seeking Methamphetamine Abusers

- R Insula
- R Middle Frontal Gyrus
- R Inferior Frontal Gyrus
- R Middle Temporal Gyrus
- R Inferior Parietal Lobule
- R Posterior Cingulate
- L Cingulate Gyrus

% Signal Difference

Paulus et al., Arch. Gen Psychiat 62:7, 2005
• Responders had near normative DA release

• No Change Pre vs. Post Treatment!
Changing Specific Brain Regions in Smokers & Functional Effects

Neurofeedback
• “Reduction of Cue-Induced Craving Through Realtime Neurofeedback in Nicotine Users: The Role of Region of Interest Selection and Multiple Visits”
  - K01DA027756 (Hanlon, PI); R33DA026085 (Brady, PI)

TransCranial Magnetic Stimulation
• “Repetitive Transcranial Magnetic Stimulation of the Dorsolateral Prefrontal Cortex Reduces Nicotine Cue Craving”
  - Li et al., *Biological Psychiatry* 73, 2013
  - R21DA026085 (Hanlon, PI)

Meditation
• “Brief Meditation Training Induces Smoking Cessation”
  - Tang et al., *PNAS* 2013 e-pub 2013
  - R21DA0306 (Tang, PI)
Clinical Neuroscience Branch

Future

• Temporal course of recovery of brain and behavioral dysfunction during abstinence
  – “Once the cloth is dyed, does it wash out? And if so, how long”
  – Which changes contribute to abstinence or relapse?
  – Do some changes represent compensatory processes

• Behavioral & Biological Markers that predict:
  – Vulnerability, continued abstinence, treatment outcome, or relapse
  – Pain and response to analgesics

• Individual Differences:
  – Do all users of a given drug exhibit the same dysfunctions

• New Methods and Approaches
  – Behavioral/cognitive paradigms
    o Social Neuroscience, Neuroeconomics
  – Regional Brain Interventions
    o TMS, Neurofeedback, Behavioral, Meditation
  – New analytic methods
    o Complex and Dynamic Systems, Connectome, BRAIN Initiative
  – Big Data: Aggregation and sharing of brain imaging data for increased sample
  – Size and secondary analysis (PAR12-204)

• Increase in Cannabis Usage

• Challenge: Extension, Validation, and Replication of Discoveries
PURPOSE:

• to facilitate the entry of investigators to the area of neuroimaging, including both new investigators and established investigators seeking to adopt neuroimaging methodologies in their research programs
Addresses need for pilot neuroimaging data for:
- Early-stage investigators at new institution
- Drug abuse researchers getting into imaging
- Imagers getting into drug abuse clinical research

Unique to NIDA
One-year R03 with $175k directs (orig $150k)
Launched February 2002: PAR-02-058
Current: PAR-12-066
Clinical Neuroscience Branch
I/START

- Total of 83 I/STARTs awarded
- 16 awards from initial PAR

| ANDERSEN, SUSAN L | LIU, YIJUN |
| ANDERSON, CARL M | MCCLERNON, FRANCIS JOSEPH |
| BEER, JENNIFER | NIERENBERG, JAY |
| GRUBER, STACI A | O'NEILL, JOSEPH |
| HESTER, ROBERT | PILLAY, SRINIVASAN S |
| HUETTEL, SCOTT A | TOMASI, DARDO G. |
| KNUTSON, BRIAN | WEISSMAN, DANIEL HOWARD |
| LEE, BUYEAN | WHITE, TARA L |

➢ Subsequent Success of I/START Grantees
- 30 received one or more R01 awards
- 25 received one or more R21 awards
- M. Delgado received PECASE award
Publications Crediting I/STARTs

• 102 total publications in PUBMED
  – PNAS
  – J Neuroscience
  – Nature Neuroscience
  – Biological Psychiatry
Behavioral & Integrative Treatment Branch
Behavioral & Integrative Treatment Branch

Major Program Goals:

• Produce effective and ultimately community friendly behavioral treatments for drug abuse and addiction

• Determine the best ways to promote medication adherence for HIV and drug abuse treatments

• Determine the best way to treat pain
The NIH Stage Model of Intervention Development: A Bidirectional / Translational Conceptual Framework

Stage Model

- **Stage I** (early treatment development) – new therapy development, refinement or modification of existing therapy, manualization of treatment, and obtainment of pilot data on treatment to determine if it is promising

- **Stage II** – involves efficacy testing, typically through RCTs

- **Stage III** – determines not just IF a treatment can work in a community setting, but also HOW TO GET IT TO WORK.
  - can involve efficacy testing in a community setting with community therapists
  - can also involve the development of training procedures to train community treatment providers to deliver the treatment
  - can also lead to the modification of a treatment for the community – to make the treatment more “community-friendly”
Goal of the NIH Stage Model

To produce the best, most implementable interventions possible...
Intervention Development

Expectation

Develop

Efficacy

Effectiveness
Intervention Development

Develop

Efficacy

Effectiveness

Reality
Intervention Development:

What would need to change for efficacious interventions to be effective?
The NIH Stage Model of Intervention Development:
A Bidirectional / Translational Conceptual Framework

Onken, Carroll, Shoham, Cuthbert & Riddle (in press)
In Clinical Psychological Science

Adapted from:
Rounsaville, Carroll, & Onken (2001)
Important Considerations

• Treatment development – not complete with efficacy – not complete until intervention reaches its maximum level of potency

• The treatment must be maximally implementable with a max number of people in the population for whom it was developed
The NIH Stage Model

Further Considerations

• Translational model

• Tx development:
  - iterative and recursive
  - progression through the Stages is not necessarily (or even usually) linear

• Keeps implementation and potency as the ultimate goal

• Emphasizes theory and the role of basic science

• Emphasizes importance of understanding mechanisms or processes of behavior change at every Stage
Stage Model

Stage I: Intervention Generation/Refinement

Stage II: Efficacy (Research Clinics)

Stage III: Efficacy (Community Clinics)

Stage IV: Effectiveness

Stage V: Implementation & Dissemination

*Stage 0: Basic research

Caution
BITB Research Areas*

➢ Treatment Research for Youth, Adolescents and Adults
  • Combined Behavioral and Pharmacological Treatments
  • Medication/Treatment Adherence
  • Complementary and Alternative Treatments
  • Screening + Brief Intervention + Referral to Treatment (SBIRT)
  • Treatment for Individuals with Comorbid Conditions
  • Treatment Research in Community Settings
  • Cognitive Remediation
  • Research to Understand the Mechanisms of Behavior Change
  • Integration of Neuroscience & Tx; Neurobiological mechanisms of Tx
  • Enhancing Tx Implementability (computerized treatments, therapist training)
  • HIV Prevention in Drug Abuse Treatment

➢ Adherence to HIV Treatment

➢ Treatment of Pain

* Research to understand mechanisms of behavior change cuts across all of the areas above
Mechanisms Research

Research aimed at determining how interventions work and involves identifying the mechanism(s) through which an intervention is exerting its effects.

Why is this important?

• Identifying mechanisms to determine how to boost treatment effects by emphasizing the most potent aspects of treatments

• Understanding mechanisms helps enhance Tx implementability by knowing which elements of the treatment to retain when modifying the treatment to make it more efficient, less costly, & easier to administer
Delay Discounting (DD)

Overview

• Delay discounting – the decrease in value of a reward as a function of the delay of its receipt

• Excessive discounting of future rewards observed in a variety of disorders, including substance use disorders

• DD is strongly related to substance use and treatment response

Exemplary Findings

• Delay discounting scores predict treatment outcomes for substance abusing adolescents (Stanger et al., 2012)

• Executive Function Therapy for Stimulant Addiction (Bickel)
Integration of Neuroscience and Treatment Research

Integration of neuroscience research findings (e.g., brain development, cognitive, affective and social neuroscience) to enhance development of innovative, efficacious, potent and implementable drug abuse treatments

Exemplary Findings

• The functions of specific brain regions underlying cognitive control relate differentially to discrete outcomes for the treatment of cocaine dependence (Brewer et al., 2008)

• Neurocircuitry underlying cognitive control in behavioral treatment outcome may provide insight into the mechanisms of behavioral therapies for cocaine dependence (Brewer et al., 2008)

• A study assessing functional brain activity before and after behavioral treatment in SUD patients showed improved task performance and reduced Stroop-effect-related BOLD signal change in regions implicated in cognitive control, impulse control and motivational salience (DeVito et al., 2012)
Cognitive Remediation

Overview

• Chronic drug use is associated with deficits in cognitive functioning (e.g., attention, working memory, and response inhibition)

• Evidence suggests reduced cognitive functioning predicts poorer engagement in substance abuse treatment and worse treatment outcomes

• Cognitive remediation holds promise but remains to be determined if cognitive enhancement improves drug abuse treatment outcomes

Ongoing Research

• Cognitive Remediation and Work Therapy in the Initial Phase of Substance Abuse Treatment (Bell)

• Improving Adherence and Cognition in Substance-Using HIV Patients (Cohen)

• Adapted Cognitive/Affective Remediation for Cannabis Misuse in Schizophrenia (Eack)

• Cognitive Training for Nicotine Dependence (Lerman)

• Matching Cognitive Remediation to Cognitive Deficits in Substance-Abusing Inmates (Newman)

• Cognitive Training in Adolescents during Treatment for Substance Use Disorders (Mintzer)
Overview

• D-cycloserine facilitates the learning and memory processes associate with CBT in individuals with panic disorder

• Administration of cognitive enhancers may boost the effect of behavioral treatment for drug abuse and dependence

Ongoing Research

• Neural Basis of Adjunct Use of a Cognitive Enhancer in Treating Cocaine Addiction (Kennedy)
Overview

Refining, modifying, or adapting treatments to make them more implementable is a major goal.

Examples of research aimed at enhancing treatment implementability include:

• Intervention refinement research with the goal of paring down treatments to their essential elements to increase simplicity and improve transportability.

• Research that capitalizes on technology to reduce cost, staff time/training, increase reach, and assure fidelity of interventions.

• Development and testing of therapist training materials, for inclusion as part of a treatment under development.

• Efficacy studies conducted in real world settings to test if the intervention is efficacious when administered by community practitioners.
Enhancing Treatment Implementability

Ongoing Research – Technology

- **Computer-based** Training in Cognitive Behavioral Therapy: Web-based delivery of CB (Carroll)
- **Computer-based** MI to Engage Smokers Living with HIV in Tobacco Quitline Treatment (Brown)
- A **Computer-based** Intervention for Women with Substance Use and IPV in the ED (Choo)
- **Twitter-enabled Mobile Messaging** for Smoking Relapse Prevention (Pechmann)
- Targeting Tobacco Cessation During Treatment for Cannabis Use (Budney)
- **Technological Innovations** in Behavioral Treatment for Cigarette Smoking (Dallery)
- **Mobile Continuing Care** Approach for Youth (Gonzales)
- Family Therapy via **Video Teleconference** for Substance-Abusing Rural Adolescents (Ozechowski)
- Delivering Psychosocial Treatment to Substance Abusers via **Mobile Technologies** (Acosta)
- A Real-time, Contextual Intervention using PDAs to Reduce Marijuana Use in Youth (Shrier)
- **Technology-based** Treatments for Substance Use Disorders (Marsch)
- Indirect Assessment and Intervention for Perinatal Drug Use (Ondersma)
Overview

Essential is testing of promising behavioral interventions in real-world settings, with community-based providers – prior to effectiveness trials to maximize the probability of success and to pave the way toward implementation.

Exemplary Findings

- Combined behavioral MI and CBT significantly increased the likelihood of continued abstinence 3 weeks after release from prison compared to a control (25% vs. 7%) (Clarke, 2013)

- A tailored group smoking cessation intervention for HIV-infected smokers conducted in an HIV clinic had nearly double the quit rate of controls (19.2% vs. 9.7%) 3-months post quit (Moadel et al, 2012)

- HealthCall, a technology-based extension of MI to reduce non-injection drug use is feasible and acceptable to patients in resource-limited HIV primary care settings and can extend patient involvement in brief intervention with little additional staff time (Aharonovich, 2012)

- A school-based brief intervention for drug abusing youth was effective in reducing drug use behaviors (Winters et al., 2012)
Future Directions

• Identifying (neurobehavioral) targets/mechanisms of efficacious treatments to identify critical components

• Enhancing implementability of treatments by:
  – incorporating technology
  – making treatments less-costly
  – developing therapist training materials

• Increasing link between neuroscience and treatment development to improve the potency of treatment

• Research aimed at improving treatment of patients with psychiatric comorbidities (e.g., smokers with schizophrenia)

• Using medications to boost effects of behavioral treatment (i.e., cognitive enhancers)
Behavioral and Brain Development Branch
Behavioral and Brain Development

Developmental translational research to understand sensitive periods of behavioral and brain development for risk and/or resilience for drug abuse
Developmental Translational Research

Focus Areas

Human Brain and Behavioral Development
- Developmental Cognitive and Social Neuroscience
- Development and the Etiology of Drug Use/Abuse and Other Risk Behaviors

Integrating Neuroscience and Behavior
- Informing Novel Prevention and Developmental Interventions
- Increasing Efficacy of Prevention and Developmental Interventions

Environment and Drug Exposures across Development
- Prenatal Exposure to Drugs
- Consequences of Drug Use/Abuse on Youths
- Environmental Influences on Neurobehavioral Development
- HIV/AIDS, Substance Use and Developmental Comorbidity (e.g., alcohol, mental health and other problems)
- Attentional Disorders
- Child Abuse and Trauma
Addiction is a Developmental Neurobiological Disease
Addiction Is a Developmental Disease
starts in childhood and adolescence

% in Each Age Group to Develop First-time Dependence

Age for tobacco, alcohol, and THC dependence, as per DSM IV

Critical time points during childhood and adolescence to understand mechanisms, trajectories, prevention and treatments for drug abuse addiction.
Early Drug Use by Adolescents Associated with Poor Adult Outcomes

Outcomes assessed at age 32

Among those without history of conduct problems, drug exposure led to:

• More than triple risk of substance dependence
• Almost 3x risk of herpes infection
• Nearly 4x risk of early pregnancy
• About 3x the number of criminal convictions

Source: Odgers et al., 2008
Research Initiatives and Activities

• Child Abuse and Trauma

• Executive Functioning
  – Attention, Regulation and Addiction
  – Mindfulness

• Integrating Neuroscience into Adolescent Treatment

• Comorbidity
  – Alcohol, Drug Abuse and Attentional Disorders

• Marijuana and Harm among Youth

• Other
  – Neuroimaging harmonization
  – Data aggregation, archives and dissemination
Child Abuse and Trauma
Child Abuse, Drug Abuse and Development

Brain deficits
- in the function and structure of lateral and ventromedial fronto-limbic brain areas and networks that mediate behavioral and affect control

Parental substance abuse
- places children at risk for neglect, abuse, and health and behavioral problems, including poor socialization, attention deficit hyperactivity disorder, depression, and substance use disorders
- 1/3 to 2/3 of child maltreatment cases involve substance abuse
- children of parental substance abuse reported as 3x more likely to be abused and more 4x more likely to be neglected

Drug abuse treatment
- 2/3 people in treatment for drug abuse report child abuse or neglect

www.childfare.gov
Neuroscience and Child Maltreatment: Expert Panel

• Held on May 3-4, 2012, Rockville, MD convened by Commissioner Bryan Samuels at the Administration on Children, Youth and Families (ACYF) DHHS in collaboration with NIDA, NICHD, and the Robert Wood Johnson Foundation.
  – NIDA representatives: Cheryl Anne Boyce, Ph.D. and Denise Pintello, Ph.D.
  – Goals
    • Build collaborations between neuroscientists and child maltreatment researchers/interventionists
    • Identify critical issues in translating research from basic neuroscience to the design of neuroscience-informed child maltreatment interventions.
In Preparation for 2014

The Biological Embedding of Child Abuse and Neglect: Implications for Policy and Practice  Sara R. Jaffee and Cindy W. Christian

Neuroscience and Child Maltreatment: The Role of Epigenetics in Risk and Resilience in Maltreated Children Catherine Anne Orr and Joan Kaufman

Neuroscience Enhanced Child Maltreatment Interventions to Improve Outcomes Mary Dozier and Phillip A. Fisher

Aspirations for Neuroscience and Child Maltreatment Integration” Cheryl Boyce, Valerie Maholmes and Cathy Spatz Widom

Prenatal and Postnatal Exposure
Prenatal Cocaine Exposure Associated with Multiple Outcomes

Lester, 2011

![Bar Chart]

- Behav Prob
- IQ
- Exec Func
- Language
- School
- Motor
- Psychopathology
- Physiology
- Substance Use
- Relationship

Legend:
- No Coc Effect
- Coc Effect

Number of Studies

Lester, 2011
FRONTIERS IN CHILD AND NEURODEVELOPMENTAL PSYCHIATRY

Translational research models and methods for mother-infant interactions and developmental studies (Johns, 2012)

Lead Editor: Josephine Johns, UNC Chapel Hill

- **Cocaine Exposure and Children's Self-Regulation: Indirect Association via Maternal Harshness**
  - Rina D. Eiden, Pamela Schuetze, Yvette Veira, Elizabeth Cox, Thomas M. Jarrett and Josephine M. Johns

- **Maternal Neural Responses to Infant Cries and Faces: Relationships with Substance Use**
  - Nicole Landi, Jessica Montoya, Hedy Kober, Helena J. V. Rutherford, W. Einar Mencl, Patrick D. Worhunsky, Marc N. Potenza and Linda C. Mays

- **When Mothers Go Wrong: Likely Neural Undercurrents Related to Poor Parenting**
  - Craig Howard Kinsley, Haddis Tujuba and Elizabeth E. A. Meyer
Executive Functioning
ADHD

Substance Use and Abuse

• developmentally sensitive measurement
• age-specificity of effects
• multiple mechanisms (drug-specific and common) underlying association beyond simple connection to antisociality

MTA Study (Multimodal Treatment of ADHD)

Treatment + or –?

drugs
alcohol

tobacco

ADHD

KEY ISSUES:

U Pittsburgh   UC Berkeley
Duke U         Montreal/NYU
UC Irvine      Columbia U
Integrating Translational Neuroscience to Improve Drug Abuse Treatment for Adolescents (Boyce & Lynne-Landsman, 2013)

- Commentary in special issue of *Psychology of Addictive Behaviors*.
  - The articles were organized and co-edited by NIDA and NIAAA grantees: Sarah Feldstein Ewing (University of New Mexico) and Tammy Chung (University of Pittsburgh)
  - NIH-funded research aimed at integrating brain science and addiction treatment research.
  - Range of addictive behaviors, such as alcohol, cigarettes, marijuana, cocaine, and pathological gaming across life span included.

Integrating Neuroscience into Adolescent Treatment
Pediatric Imaging, Neurocognition, and Genetics (PING)

- NIDA Signature Project funded by ARRA (co-funding by NICHD) to understand the developmental and genetic basis of individual differences in brain structure, connectivity, and cognition which may impact risk for addiction.
- 1400 participants, Ages 3 to 20 years

Innovations:
- Optimization and Dissemination of Core MRI Protocols
- Standardization of brain imaging metrics across sites
- Demonstration of proof-of-feasibility for multi-site imaging studies of rarer disorders in childhood

- UCSD: Terry Jernigan & Anders Dale
- University of Hawaii: Linda Chang and Thomas Ernst
- Scripps Research Institute: Sarah Murray
- 10 participating sites
  - UCLA
  - UC Davis
  - Kennedy Krieger Institute/Johns Hopkins
  - Sacker Institute
  - Cornell University
  - University of Massachusetts
  - Massachusetts General Hospital
  - Harvard
  - Yale

http://www.chd.ucsd.edu/research/profiles.shtml
www.facebook.com/group.php?gid=106897172678861
Comorbidity/Collaboration
Building the Next Generation of Integrative Approaches for Understanding Comorbid Alcohol, Drug Abuse, and Attention Disorders

• Workshop held on May 13-14, 2013, Rockville, MD
• Workgroup members
  – Mariela Shirley, Ph.D., ORWH (formerly of NIAAA)
  – Karen Sirocco, Ph.D. and Cheryl Anne Boyce, Ph.D., NIDA
  – Invited guests from NIDA CAWG Agency Partners, OBSSR, NIMH, CSR, NICHD, CDC, IES, DOJ, ACF
• Functional partnership between NIDA and NIAAA facilitated by part-time detail assignment
• Expert panel included geographically and racially/ethnic diverse early, mid and senior researchers from both NIAAA, NIDA and NIMH portfolios
National Consortium on Alcohol and Neurodevelopment in Adolescence: NCANDA

Sites: OHSU Portland, SRI Stanford, UC San Diego, *Duke

Advisors: Ken Sher, Andrea Hussong, Raquel Gur, Mike DeBellis, Duncan Clark

Collaborations: NIDA Co-fund, $300,000

SRI Stanford

OHSU Portland

UC San Diego

*Duke

*NIDA Co-fund, $300,000

Sites

Advisors

Collaborations
NCANDA Primary Objectives

- Cohort of 800+ 12-21 yr olds across 5 sites, baseline and 3 annual assessments (to age 24)
- Effects of alcohol exposure on trajectory of adolescent brain development and in the broader context of development
- Dose, duration, and timing effects of alcohol exposure
- Persistence/Resolution of effects with abstinence
- Developmental factors (puberty, sleep) & covariates (sex, psychopathology, FH of alcoholism) modulate alcohol's effects on brain
- Brain markers (structural, functional, cognitive, and affective) predict onset of AUDs and other psychopathology
Marijuana and Harm among Youth
Marijuana Use: State-of-the-Science

- Lack of consensus regarding the effects of prenatal exposure to cannabis for fetal development, physical health and functioning

- Brain abnormalities have been reported in brain regions including the hippocampus, prefrontal cortex and cerebellum

- May result in an increase in comorbid depressive symptoms and regulation systems (e.g., sleep disturbance)

- During adolescence/young adulthood – neurocognitive deficits: learning and memory, executive functioning skills including processing speed, complex attention, decision-making, risk-taking and cognitive inhibition
Marijuana Grants

Prenatal Exposure

- DAY, Nancy - Prenatal Marijuana Exposure: Long-Term Outcomes
- LESTER, Barry – Prenatal Exposure to Drugs of Abuse (Maternal Lifestyle Study Phase 5)

Adolescence and Neurobiology/Neurodevelopment

- CLOAK, Christine - Impact of Marijuana Exposure on Brain Maturation
- DE BELLIS, Michael - Prefrontal Function in Adolescent Limited vs. Life Course Persistent SUD
- FISHBEIN, Diana - Longitudinal Study of Adolescent Marijuana Use and Neurodevelopment
- GRUBER, Staci - Marijuana: Neurobiologic Correlates of Age
- MEDINA, Krista Lisdahl - Effects of Physical Activity & Marijuana Use on Frontolimbic Functioning
- MASON, Barbara - Translational Center on the Clinical Neurobiology of Addiction
- TAPERT, Susan - fMRI and Cognition in Adolescent Cannabis Users
- YURGELUN-TODD, Deborah - MRS/fMRI Investigations of Adolescent Cannabis Use
Thanks for your attention!