

National Institute on Alcohol Abuse and Alcoholism - HN5

Conducts and supports biomedical and behavioral research, health services research, research training, and health information dissemination with respect to the prevention of alcohol abuse and alcoholism and the treatment of alcoholism. Provides a national focus for the Federal effort to increase knowledge and promote effective strategies to deal with health problems and issues associated with alcohol abuse and alcoholism. In carrying out these responsibilities the Institute: (1) conducts and supports research on alcohol-related disorders in its own laboratories and through extramural projects; (2) supports epidemiological studies and national and community surveys to assess the risks for alcohol abuse among various population groups; (3) plans, directs, supports, and evaluates research to identify new and improved alcoholism prevention, intervention, and treatment methods and techniques for application in the Nation's health care system; (4) supports training and development of scientists for participation in alcohol research programs and activities; (5) collaborates with other research institutes and Federal programs relevant to alcohol abuse and alcoholism, and provides coordination of Federal alcohol abuse and alcoholism research activities; (6) serves as a national resource for the collection, analysis, and dissemination of scientific findings and improved methods of alcoholism prevention and treatment services; (7) maintains continuing relationships with institutions and professional associations and with international, national, State, and local officials, and voluntary agencies and organizations engaged in alcohol-related work; (8) conducts policy studies and activities which have broad implications for alcoholism treatment, prevention, and rehabilitation activities; (9) supports public education activities to inform the public of the risks and consequences associated with alcohol abuse and alcoholism; and (10) collaborates with SAMHSA on services research issues.

Office of the Director - HN51

(1) Provides leadership, coordination, and direction in the development and implementation of Institute policies, goals and priorities; (2) plans, directs, and provides overall administration of the program and management activities of the Institute; (3) serves as the focal point for the Department's efforts on alcohol abuse and alcoholism; (4) conducts and coordinates interagency, intergovernmental, international, and public affairs activities of the Institute; and (5) monitors the conduct of the equal employment opportunity activities of the Institute.

Office of Resource Management - HN513

(1) Provides administrative management support to the Institute in the areas of financial management, grants and contracts management, administrative services, and personnel operations; (2) develops administrative management policies, procedures, guidelines, and operations; (3) maintains liaison with the management staff of the Office of the Director and implements within the Institute general management policies prescribed by NIH and higher authorities; and (4) provides correspondence control services for the Institute.

Administrative Services Branch - HN5133

(1) Plans, directs, coordinates, and provides comprehensive administrative and management support for the Divisions and Offices of NIAAA; (2) manages the budget, personnel, procurement, space, travel, and other administrative functions as necessary to ensure the efficient and effective implementation and operation of the programs within NIAAA; (3) develops policies, guidelines, and procedures on matters relating to administrative management and disseminates to relevant staff; and (4) advises the staff of NIAAA of administrative policies and practices.

Financial Management Branch - HN5136

Coordinates (1) the formulation, presentation and execution of the NIAAA budget and (2) the preparation of the current year operational plans, and manages the funding of programs in accordance with the operational plans; (3) maintains a fiscal management capability consisting of internal control systems, policies, and procedures to advise NIAAA program staffs of the implications of policy determinations, program plans and management decisions; (4) provides analysis of special issues and resource allocations impacting on the NIAAA appropriations and programs; (5) serves as the principal advisory body within the Institute for financial matters and the primary point of contact for the NIH Central budget office, the Institutes operating program activities and the NIAAA senior staff; (6) maintains a system for and reports position and average grade control, reporting position status; (7) evaluates internal fiscal controls to assure compliance with laws, regulations, policies and sound business practices.

Ethics and Management Analysis Branch - HN5137

(a) In consultation with NIAAA Deputy Ethics Counselor (DEC): (1) implements and administers the Institute's Ethics Program, including serving as primary liaison and point of contact between the Institute and the NIH Ethics Office; (2) administers the annual public and confidential financial disclosure process; (3) manages the outside and official duty activity review and approval process in accordance with NIH, HHS and government regulations; (4) reviews and makes recommendations on requests for activities with outside organizations for conformance with regulations and policies; (5) reviews, analyzes, and makes recommendations on other ethics clearance matters such as waivers, Widely Attended Gatherings, awards, and recusals; (6) provides ethics advice and analysis to managers, supervisors, and individual employees; and (7) organizes and arranges for employee awareness, training, compliance relative to ethics matters and manages and maintains all records and databases associated with NIAAA's Ethics Program. (b) Under the Executive Officer: (1) advises OD and Division staff of management policies, procedures, the implementation of regulations and conducts ongoing analyses; (2) develops and works with the Administrative Services Branch in implementing policies on administrative management; and prepares and issues procedures and guidelines for the implementation of administrative policies and requirements for the Institute, including A-76/FAIR Act Inventory and Data Calls; Performance Contracts; awards, teleworking policies and procedures, EEO Training; and (3) develops and maintains standard operating procedures for Administrative functions for the Institute.

Information Technology Branch - HN5138

In consultation with the NIAAA Executive Officer, the Information Technology Branch works directly with clinical, research and administrative staff to help fulfill the NIAAA mission. (1) Designs, develops, implements and supports custom, clinical, scientific and administrative utilities, applications, and server components using a variety of applications; (2) provides software application and database management support; (3) assists in all phases of research (experimental design, data collection, data management, data analysis and presentations and dissemination of research results); (4) provides a full range of business and technical support for the entire NIAAA community including support for data networks, teleconferencing, and various operating systems (Windows, Macintosh, UNIX, Linux); (5) consults on technology issues involving data communications, interoperability, and compatibility with other systems and networks at NIH; (6) develops, implements, and maintains security and disaster recovery plans based on NIH and government-wide mandates; and (7) selects, purchases, configures, and maintains computer systems used for research, clinical care, and administration.

Office of Science Policy and Communications - HN514

(1) Provides leadership and direction in analyzing and evaluating the Institute's scientific research and research training programs; (2) monitors national developments and analyzes and develops policy options for the Institute's scientific research and research training activities; (3) prepares the scientific narrative for the Institute's annual budget request, responses to Congressional Significant Items and Congressional Appropriations Reports to Congress, associated briefing materials, and testimony for congressional hearings; (4) coordinates and prepares, as appropriate, NIAAA's input to plans and reports required by the Government Performance and Results Act and the OMB Program Assessment Rating Tool; (5) prepares reports and develops responses to a variety of requests for information about NIAAA programs; (6) develops and manages the Institute's extramural databases and coordinates the systematic coding of research projects for these systems and agency-wide knowledge management data system; (7) coordinates Institute activities under the Privacy Act, including issuance of Confidentiality Certificates; (8) provides leadership and coordination for the Small Business Innovation and Technology Transfer Research Programs and the Advanced Research Program in Alcohol; (9) provides extramural policy information to the extramural research community and Institute staff; (10) conducts relevant public affairs activities, research dissemination, science education, and outreach activities, deals with the press, media, and other communications organizations, and collaborates with a variety of public and private entities to enhance knowledge and awareness of NIAAA's programs and findings; (11) prepares and disseminates the Alcohol Research and Health Report, NIAAA Newsletter, and other publications in response to congressional, departmental, and programmatic needs for information; and (12) serves as liaison with scientific and professional groups and private organizations.

Communications and Public Liaison Branch - HN5143

(1) Plans, develops, implements, and evaluates the Institute's research dissemination programs for a variety of audiences; (2) prepares, publishes, and disseminates special reports in response to congressional, departmental, and programmatic needs for information; (3) provides support for conferences and workshops for the purpose of conveying up-to-date research knowledge to State and local agencies, voluntary, professional, and other organizations engaged in alcohol-related work; (4) prepares, publishes, and disseminates materials which communicate new knowledge and innovative approaches to the alcoholism field, the health community, and other key audiences; (5) serves as central liaison and coordinating point for the Institute's printing and publications process; (6) performs outreach and public liaison activities, provides science education materials to providers, educators, and researchers who will have access to up-to-date research findings to further understanding about alcohol abuse and alcoholism; and (7) arranges Institute's press and media-related activities.

Science Policy Branch - HN5144

(1) Directs, coordinates, and conducts NIAAA evaluation activities; (2) monitors national developments and analyzes and develops policy options for the Institute's scientific research and research training activities; (3) prepares the scientific narrative for the Institute's annual budget request, responses to Congressional Significant Items and Congressional Appropriations Reports to Congress, associated briefing materials, and testimony for congressional hearings; (4) coordinates NIAAA's input to plans and reports required by the Government Performance and Results Act and the OMB Program Assessment Rating Tool; (5) prepares reports and develops responses to a variety of requests for information about NIAAA programs; (6) develops and manages the Institute's extramural databases and coordinates the systematic coding of research projects for these systems and agency-wide knowledge management data system; (7) coordinates Institute activities under the Privacy Act, including issuance of Confidentiality Certificates; (8) provides leadership and coordination for the Small Business Innovation and Technology Transfer Research Programs and the Advanced Research Program in Alcohol; and (9) provides extramural policy information to the extramural research community and Institute staff.

Office of Extramural Activities - HN516

(1) Provides advice and guidance to the Director regarding the administration of NIAAA's extramural programs; (2) administers the peer and objective review of grant applications and contract proposals; (3) coordinates and assures the development of, and adherence to, NIH policies and rules relating to Institute extramural activities including those related to scientific conduct and human subjects and animal use; (4) provides administrative management and support to the Institute for grants programs; (5) coordinates advisory functions related to the review and assessment of NIAAA's research programs and scientific areas of inquiry; (6) manages the Institute's Advisory Council and related committee management functions; (7) serves as the Institute's Appeals Officer and the Institute's Scientific Integrity Officer; and (8) represents the Institute on NIH committees addressing extramural policies and operations.

Extramural Project Review Branch - HN5162

(1) Directs and carries out the scientific and technical merit review of a broad array of grant applications and contract proposals for the spectrum of science supported by NIAAA (including comprehensive research centers, cooperative agreements, core centers, research training, career development, and special initiatives); (2) assists in developing Institute review policies and procedures; provides orientation and guidance on such policies and procedures and monitors the review process to ensure quality of review and conformance to policy; (3) recommends nominees for review groups; (4) collects and analyzes data relating to the review of grant applications and contract proposals, and makes recommendations, as necessary, for changes in Institute committee structure and/or referral guidelines; (5) collaborates with other Institutes and the Office of the Director to ensure adequate exchange of information and optimum effectiveness of the review process; and (6) participates in the review of proposed HHS, PHS, and NIH policies and documents affecting peer and objective review and extramural programs.

Grants Management Branch - HN5163

(1) Develops, implements, and coordinates Institute policies and procedures for the business management aspects of grants awards, fellowships and cooperative agreements; (2) interprets management policies for Institute personnel and develops guidelines, procedures, and internal controls to ensure proper and continuing implementation of NIAAA, NIH, and DHHS policies; (3) provides guidance to Institute staff, applicants, and grantees on the business management and administrative aspects of grant programs and awards; (4) prepares, processes, and disseminates award documents; (5) reviews and prepares audit, special, and recurring reports relating to applications and awards; (6) implements and executes the PHS National Research Service Award requirements, including payback, to ensure compliance by all trainees and fellows who have received NRSA support from the Institute; (7) reviews applications, reports, and active projects to ensure compliance with management policies and procedures; and (8) maintains official grant files and performs data input activities for NIH management information systems.

Division of Metabolism and Health Effects - HN52

(1) Plans, stimulates, develops, and directs programs of basic research on the metabolic processing of alcohol and its health consequences, biochemistry, physiology and pathology of alcohol actions, and the etiology and treatment of alcohol-induced health effects; (2) provides leadership to the NIAAA, the NIH, and the scientific community in the areas of metabolism, biochemistry, physiology, pathology, genetics, proteomics, metabolomics, and cellular and developmental biology as they relate to alcohol research; (3) collaborates with other Divisions and Offices within the NIAAA to accomplish the Institute's mission and with other Institutes within the NIH to promote interdisciplinary research; (4) stimulates, supports, and manages training programs to assure adequate numbers of highly competent scientists engaged in current and future alcohol research; (5) arranges workshops, conferences, seminars, and meetings, where appropriate, to stimulate or facilitate research in specific areas; (6) prepares scientific materials about Division's portfolio NIH and NIAAA; and (7) supports a full range of grants and contracts, including individual research projects, center grants, cooperative agreements, career development awards, institutional training grants, and individual fellowships.

Division of Epidemiology and Prevention Research - HN53

(1) Plans, conducts and supports epidemiological studies on the occurrence, etiology, natural history, and consequence of alcohol abuse and alcoholism; (2) plans, stimulates, develops, and supports clinical programs on alcohol abuse and alcoholism which design and test the effectiveness of various prevention and early intervention services; (3) analyzes ecological and situational factors related to the use and abuse of alcohol, alcohol dependence and alcoholism, and alcohol-related consequences; (4) collaborates with outside organizations in the conduct of studies related to prevention of alcohol abuse and alcoholism; (5) collaborates with universities, other government agencies, research centers, and other scientific organizations undertaking studies related to the epidemiology of alcohol abuse and alcoholism; (6) sponsors, develops, and participates in scientific conferences, meetings, and symposia to exchange information and to disseminate new knowledge; and (7) supports a full range of grants and contracts, including services research and research training.

Epidemiology and Biometry Branch-HN534

(1) Plans, directs and implements large complex national epidemiologic, including genetic epidemiologic surveys on alcohol and drug use disorders and their associated physical and psychiatric disabilities; (2) develops, plans, monitors and provides management and statistical support to numerous international epidemiologic and surveillance surveys; (3) collects, processes, complies and analyzes national and international epidemiologic survey data, including genetic data; (4) conducts an independent research program in statistical, survey and epidemiologic arenas; (5) analyzes phenotypic and genetic epidemiologic data on alcohol use, abuse, and dependence and their associated disabilities and prepares scientific reports and manuscripts for publication in peer-reviewed journals, books, monographs and extensive compendia; (6) adapts state-of-the-art statistical and survey methodology to the alcohol field; (7) collaborates with other agencies and organizations to promote the application of epidemiologic research nationally and internationally; (8) maintains national statistics on alcohol use disorders and their related conditions and disabilities, and consequences; (9) sponsors, develops, and participates in scientific conferences, meetings, workshops and symposia to exchange information and disseminate new knowledge; (10) collaborates with other National Institutes of Health and other government and outside agencies to foster shared interests and goals in epidemiology and survey research; (11) collaborates with national and international agencies and organizations on complex issues associated with the global burden of disease as it relates to alcohol use disorders and alcohol as a risk factor of numerous physical and mental conditions; (12) supports a full range of interagency agreements, contracts, and grants; (13) provides expert consultation to NIAAA Extramural Divisions related to statistics, epidemiology, and survey research; (14) serves as principal advisor and consultant to Director, NIAAA, on all areas of statistics, epidemiology, and survey methodology necessary to achieve the mission and goals of NIAAA and NIH; and (15) reviews, develops and assesses need for additional support and funds for areas of program responsibilities.

Division of Intramural Clinical and Biological Research - HN55

(1) Plans, develops, and conducts a program of basic and applied alcohol research, including metabolic, preclinical, and clinical investigations, on the multiple determinants and processes of alcoholism and other alcohol-related problems, and in the areas of prevention, diagnosis, treatment, and rehabilitation; (2) provides in-house research scientist training in a variety of disciplines for work in alcohol-related research; (3) collaborates with other agencies, universities, and scientific organizations in the conduct of basic and applied research on alcohol and its effects; and (4) operates a clinical research facility for the purpose of conducting research on alcohol-related illnesses and diseases, and developing improved methods of clinical care.

Office of the Scientific Director - HN552

(1) Provides scientific, program, and administrative leadership for the Division of Intramural Clinical and Biological Research; (2) promotes an environment conducive to productive research; and (3) coordinates activities, establishes priorities, and analyzes and evaluates progress.

Office of Laboratory Animal Science - HN5523

Manages the animal care and use program of the Institute. (1) Supervises the overall program of laboratory animal housing, care, and management to ensure compliance with the NIH Guide; (2) manages a preventive medicine program for disease control; (3) advises the research staff on all aspects of the use of animals in experiments, including experiment design, surgical and pre- and post-operative care, and experimental techniques; (4) supports the IACUC by reviewing protocols, conducting semi-annual inspections of facilities, compiling required reports, and maintaining files of animal usage; (5) orders animals for approved protocols; (6) participates on NIH animal care and use committees; and (7) manages the Institute animal exposure surveillance program.

Office of the Clinical Director - HN5524

(1) Provides oversight of patient care and patient-related activities within the Division of Clinical and Biological Research (DICBR) including quality assurance, quality improvement, and human subject protections ensuring safety and confidentiality; (2) guarantees that physicians and other staff not limited to Nurse Practitioners, Physician Assistants, Clinical Social Workers, Nurses and Clinical Psychologists have required licensing, certification, and credentialing through NIH CRC and are otherwise appropriately qualified for their clinical contacts with patients; (3) assists the Scientific Director in allocating NIAAA and NIH CRC resources including Clinical Center Unit space, Clinical Center Office space, and Clinical Center Clinic space assigned to NIAAA and other CRC-administered resources including neuroimaging, clinical pathology, and pharmacy; (4) supports Fellowship programs and training and career development of OCD staff; (5) conducts clinical research including development and implementation of clinical research protocols and research initiatives, monitors NIAAA protocol review through NIH Institutional Review Boards (IRB's), delivers clinical and administrative infrastructure for NIAAA clinical research protocols as well as basic science studies involving clinical specimens; and (6) assists the Scientific Director in strategic planning that focuses on new clinical research opportunities including studies informed by neurobiology, novel approaches to treatments, comorbidity with other diseases, and design of clinical trials.

Section of Comparative Behavioral Genomics - HN5525

(1) Exploits conservation of structure/function relationships across species to make inferences about the etiology of diseases and other behaviors; (2) investigates the origins of behaviors relevant to vulnerability to alcoholism, addictions, and related problems and with the ultimate goal of identifying pathways and points of intervention; (3) investigates the role of genetic variation both within species and across species; (4) uses capabilities to manipulate the environment of animals to better explore genes by environment interaction, and for hypothesis testing; (5) conducts epigenetic studies enabling the integrated actions of gene variants and the environment to be detected as molecular signals, including alterations of DNA methylation, histone structure, and transcription factor binding, and gene expression; (6) explores the role of individual functional loci, gene networks, neurocircuits and endocrine pathways that have been specifically implicated, and also studies these phenomena using high throughput genomics technologies that can capture genetic, epigenetic and gene expression variation genome-wide, and without reference to previous hypotheses.

Section on Neural Circuits (SNC) – HN552B

The creation of the Section on Neural Circuits (SNC) is to understand how genetic and environmental insults alter the input to, computation in, and output of biological circuits to modify behavior. Such a fundamental understanding of circuits may help identify vulnerable nodes within neural networks that promote abnormal brain function and guide the development of novel approaches to repair or optimize network output.

Section of Sensory Science and Metabolism – HN552C

1) Plans and conducts translation and clinical inpatient and outpatient studies on chemosensory alterations; (2) investigates the complexity of the interplay among various biological and behavioral components that influence chemosensory symptoms (taste, smell & chemesthesis) in the context of diseases, with a special emphasis on metabolic disorders like obesity, and diabetes(including those undergoing bariatric surgery); (3) focuses on the interplay between metabolic disorders, sensory-related pathways and brain diseases, particularly alcohol and substance use disorders, (4) develops and analyzes human and nonhuman models for neurobehavioral variation in chemosensory perception; (5) interacts collaboratively with other research groups within and outside the Institute to investigate individual variation in chemosensory perception; and (6) trains trainees and investigators in technical and conceptual approaches in chemosensation.

Section on Fibrotic Disorders – HN552D

The mission of the section is to understand the cellular and molecular mechanisms involved in the development and progression of fibrosis, to explore novel therapeutic targets and to develop effective pharmacotherapies for fibrotic disorders of different etiologies, including alcohol use disorders. We are particularly interested in pursuing a multi-target therapeutic approach to improve treatment efficacy by simultaneously engaging multiple pathogenic pathways in fibrotic disorders.

Section on Medicinal Chemistry – HN552E

The principal mission of the program is to develop selective probes and drug-like molecules to enable the study of molecular mechanisms in alcohol associated diseases. The lab aims to use medicinal chemistry and chemical biology approaches to design, synthesize and biologically characterize novel druggable tools for select GPCRs and enzymatic drug targets implicated in pain, inflammatory and fibrotic disorders. Our overarching goal is to facilitate the development of effective, polypharmacological agents with translatable potential for complex chronic conditions.

Laboratory of Neurogenetics - HN554

(1) Plans and conducts investigations to identify determinants of alcoholism risk and related pathological and nonpathological neurogenetic variation; (2) develops and analyzes human and nonhuman genetic models for neurobehavioral variation; (3) studies the relationship between structure and function of candidate genes for alcoholism risk; (4) interacts collaboratively with other research groups within and outside the Institute to investigate the genetic determinants of alcoholism risk; and (5) trains investigators in technical and conceptual approaches in neurogenetics.

Section of Comparative Behavioral Genomics - HN5542

Comparative behavioral genomics exploits conservation of structure/function relationships across species to make inferences about the etiology of diseases and other behaviors. The Section of Comparative Behavioral Genomics, located within the Laboratory of Neurogenetics, uses this scientific paradigm to investigate the origins of behaviors relevant to vulnerability to alcoholism, addictions, and related problems and with the ultimate goal of identifying pathways and points of intervention. The Section investigates the role of genetic variation both within species and across species. Gene action is dependent on environmental and developmental contexts, including stress exposures, maternal behavior and rearing patterns, and including trans-generational transmission of behavior through non-genetic and epigenetic mechanisms. The Section uses capabilities to manipulate the environment of animals to better explore gene by environment interaction, and for hypothesis testing. Epigenetic studies enable the integrated actions of gene variants and the environment to be detected as molecular signals, including alteration so f DNA methylation, histone structure, and transcription factor binding, and gene expression. At the molecular level, the Section explores the role of individual functional loci, gene networks, neurocircuits and endocrine pathways that have been specifically implicated, and also studies these phenomena using high throughput genomics technologies that can capture genetic, epigenetic and gene expression variation genome-side, and without reference to previous hypotheses.

Section of Human Neurogenetics - HN5543

(1) Plans and conducts investigations identifying distinct human neurogenetic differences, especially ones relevant for understanding alcoholism risk; (2) conducts medically-oriented neurogenetic studies, including the creation and maintenance of repositories for DNA and data; and (3) develops methods for and performs polymorphism typing and direct gene analyses for neurogenetic studies.

Laboratory of Membrane Biochemistry and Biophysics - HN556

(1) Plans and conducts research investigations concerning the alterations in cell membrane structure and function caused by alcohol abuse; (2) investigates the biological functions of polyunsaturated lipids with particular emphasis on docosahexaenoic acid; (3) performs dietary studies in order to determine the normal route of essential fatty acid metabolism and the mechanisms by which alcohol modifies these pathways; (4) trains investigators in the conceptual underpinnings and physical, analytical, and biochemical techniques involved in membrane and lipid alcohol research; and (5) interacts with the Laboratory of Clinical Studies in the planning and execution of clinical protocols concerning studies of alcoholics.

Section of Nuclear Magnetic Resonance - HN5564

(1) Applies the techniques of low energy spectroscopy to the study of biomembrane architecture with respect to polyunsaturated phospholipids; (2) defines microdomains with respect to phospholipid localization and molecular associations in the plasma membrane and their modification by ethanol; (3) evaluates the feasibility and develop, as appropriate, NMR as an in vivo tool for the study of brain and liver denaturation and elongation of essential fatty acids; (4) supports structure elucidation studies performed in other units of the lab; (5) collaborates closely on problems of mutual interest and using other biophysical techniques with others in the lab so that an interdisciplinary approach may be taken.

Section of Nutritional Neuroscience - HN5565

(1) Plans and conducts studies aimed at elucidating the biological functions of highly unsaturated fatty acids such as docosahexaenoate in the nervous system; (2) conducts studies to evaluate the role that alcohol-induced changes in cell lipid composition and metabolism have in mediating organ damage in alcoholism; (3) performs basic studies of essential fatty acid metabolism including the development of new methodologies; (4) evaluates the losses in neural functions associated with the loss of nervous system docosahexaenoic acid; and (5) serves an integrating function in the planning of research investigations between investigators in the Section with those in other sections and units, as well as others laboratories and institutions.

Section of Molecular Pharmacology and Toxicology – HN5566

1.) Investigates molecular regulatory mechanisms of the enzymes involved in the metabolism of alcohol, acetaldehyde, and other potentially toxic compounds. These enzymes include the ethanol-induced cytochrome P450 2E1 (CYP2E1) and the mitochondrial aldehyde dehydrogenase; and 2) investigates molecular mechanisms of cell (or tissue) damage caused by reactive oxygen species, free radical metabolites and lipid peroxides caused by alcohol, acetaldehyde, and other potentially toxic compounds.

Laboratory of Clinical and Translational Studies - HN557

(1) Uses translational strategies, integrating rodent, primate and human studies, to investigate genetic susceptibility and neuroadaptive processes underlying the development of alcohol dependence and related phenotypes; (2) conducts studies aimed at identifying potential molecular and behavioral targets for novel treatments; (3) develops and applies, using behavioral, neuroendocrine, molecular and functional imaging methodology, short term models predictive of clinical efficacy in treating various aspects of alcoholism and affective dysregulation; (3) carries out small scale proof-of-concept clinical treatment trials to evaluate the clinical efficacy of candidate targets identified by the described approaches; (4) trains investigators in research techniques carried out by the Laboratory; and (5) collaborates with organizations outside of the Institute in investigations related to mechanisms of alcohol dependence and treatment development.

Section on Clinical Genomics and Experimental Therapeutics - HN5572

(1) Conducts pre-clinical studies with focus on molecular biology, genomics and epigenetics related to the pathophysiology and treatment of alcohol use disorders and addictions; (2) conducts human clinical studies using biomarker, pharmacogenetic, epigenetic and functional imaging genetic approaches to better understand the pathophysiology of addictive behaviors; and (3) investigates experimental and novel therapeutics guided by personalized medicine approaches to discover new treatments for alcohol use disorders and addictions.

Section on Neurochemistry and Neuroendocrinology - HN5573

(1) Conducts investigations on the basic processes involved in the central nervous system effects of alcohol, and in conditions conducive of excess consumption of alcohol and impulsive, violent behavior; (2) develops and uses animal models, primarily rodents and nonhuman primates of biological and behavioral clinical phenomena; (3) employs state-of-the-art instrumentation and techniques to investigate effects of alcohol intoxication, withdrawal, and dependence on CNS biochemistry, pharmacology, and gene expression; and (4) investigates developmental antecedents, biochemical concomitants, and genetics of impulsive, violent behavior.

Section of Brain Electrophysiology and Imaging - HN5574

(1) Conducts investigations on the effects of acute and chronic alcohol consumption and withdrawal on the brain's electrical activity; (2) conducts investigations of in vivo brain structure and function such that cerebral physiology is referenced to brain morphology and then supplemented with other measures of brain electrical activity and behavior; and (3) studies the brain's physiological responses to drugs and cognitive challenges that are associated with behavioral control/dyscontrol mechanisms.

Section on Human Psychopharmacology - HN5578

The overall goals of the research conducted by the Section on Human Psychopharmacology are: (1) to evaluate the genetic and environmental determinants of variability in the metabolism and pharmacokinetics (PK) of alcohol in humans, using the IV alcohol clamp and advanced pharmacokinetic modeling methods, (2) to utilize behavioral, neuroendocrine, electrophysiological, and functional imaging measures of the CNS pharmacodynamics (PD) of alcohol in humans, to examine genetic and environmental risk factors and neuroadaptive processes related to the development of alcohol use disorders, and (3) to develop human laboratory paradigms, using alcohol challenge and alcohol self-administration methods, to screen novel potential pharmacotherapeutic agents for the treatment of alcohol use disorders.

Section of Molecular Pathophysiology - HN5579

(1) Applies behavioral, neurochemical and molecular methods to rodent models of alcoholism and related phenotypes, in order to identify genetic susceptibility factors and neuroadaptive processes related to the development of alcoholism; and (2) uses rodent models with demonstrated predictive validity in order to validate potential molecular treatment targets, generated through candidate approaches, or through functional genomics, primarily profiling studies of differential gene expression in relevant brain areas, and confirmed through quantitative expression and anatomical mapping.

Section on Clinical Psychoneuroendocrinology and Neuropsychopharmacology - HN557A

1) Contributes to a deeper understanding of possible pharmacological treatments for alcohol and drug use disorders; 2) conducts clinical studies using a combination of state-of-the-art biobehavioral and pharmacological procedures performed under well-controlled human conditions in order to identify possible medications for addiction; 3) investigates feeding-related pathways (e.g. ghrelin, leptin, GLP-1, insulin, oxytocin, hypothalamus-pituitary-thyroid axis) as novel neuropharmacological targets for alcoholism; 4) identifies biobehavioral mechanisms and markers that predict treatment outcomes of promising medications (e.g. GABAB agonists) for treatment of alcoholism; and 5) investigates novel neuropharmacological targets for alcoholism and smoking comorbidity.

Laboratory for Integrative Neuroscience - HN558

(1) Assesses the role of particular molecules in acute alcohol intoxication, alcohol seeking behavior, addiction and habitual behavior. This will involve a multidisciplinary effort combining the use of mice carrying transgenes or targeted gene insertions with the examination of alcohol effects at the level of individual neurons, synapses and neuronal systems, and animal behavior; (2) analyzes the structural basis of the pharmacology of membrane proteins that are targets for alcohol actions through use of molecular biological, biochemical, electrophysiological and, ultimately, biophysical approaches; and (3) serves as a resource for the creation and provision of transgenic and mutant mice and electrophysiological and behavioral analysis techniques for researchers with an interest in alcohol effects on neural proteins, neurons, neural systems and behavior.

Section on Synaptic Pharmacology - HN5582

(1) Conducts studies aimed at determining the cellular and molecular mechanisms involved in synaptic transmission; and (2) examines effect of alcohol and other drugs of abuse on synaptic transmission, and determines the molecular mechanisms underlying these effects

Section on In Vivo Neural Function - HN5583

Studies the neurobiology of action in health and disease. In particular; we combine molecular tools with methodology to monitor neural activity in behaving mice to investigate the molecular and circuit mechanisms underlying the learning and flexible use of actions. Specifically: (1) investigates the molecular, cellular, and circuit mechanisms mediating the different phases of action and skill learning; (2) studies the corticostriatal mechanisms underlying dopamine control of voluntary movement, and of goal-directed navigation; (3) investigates the relationship between actions and rewards, in particular the differences between goal-directed actions and habits, as well as the mechanisms of addiction (e.g. alcoholism); and (4) studies the alterations in corticostriatal function in different neurodegenerative and psychiatric disorders in-vivo. To accomplish these goals we are developing genetically modified mice to manipulate and visualize plasticity in corticostriatal circuits, and new tools for in-vivo multi-site recordings of corticostriatal neuronal ensembles in behaving mice.

Section on Neuronal Structure-HN5585

1) Conducts studies aimed at understanding the dynamic regulation of synaptic structure and function using electrophysiology, cellular imaging, and molecular biology techniques; 2) investigates the processes of synapse formation, elimination and regulation that are targets for alcohol and other abused drugs during brain development and in adult animals; 3) investigates the role of neurotransmitters, intracellular signaling structure molecules, and the actin cytoskeleton in the regulation of spine structure; 4) investigates changes in synaptic structure and function that occur when animals are exposed and become addicted to alcohol and other drugs of abuse; 5) investigates diseases and pathological states of the brain where synaptic morphology and function are affected; 6) develops and uses novel experimental approaches in these investigations, including techniques that allow for localized regulation of actin dynamics in dendritic spines.

Laboratory of Physiologic Studies - HN559

(1) Plans and conducts research in two fields relevant to the biology of alcoholism and alcohol abuse, but previously not represented in the Intramural Program of NIAAA--neuroendocrinology and liver biology; and (2) trains investigators in the conceptual underpinnings and physical, analytical, and biochemical techniques involved in neuroendocrinology and liver biology research.

Section on Neuroendocrinology - HN5592

(1) Focuses on the neural circuitry involved in the control of appetite and appetitive behavior, including ethanol-drinking behavior, with an emphasis on endogenous cannabinoids and their receptors; and (2) research in vascular biology, including the role of the vascular endothelium as a site of action for the cardiovascular effects of ethanol.

Section on Oxidative Stress and Tissue Injury – HN5594

To identify new therapeutic targets against various forms of tissue injury associated with increased oxidative/nitrosative stress and inflammation, using clinically relevant animal models of disease (e.g. ischemia reperfusion injury, cardiomyopathies, heart failure, diabetic complications, cardiovascular aging and alcohol induced liver injury.)

Laboratory of Molecular Physiology - HN55B

Plans and conducts research on the cellular, subcellular, and molecular mechanisms underlying synaptic transmission in the nervous system through the use of model systems.

Section on Transmitter Signaling - HN55B2

Focuses on understanding molecular mechanisms underlying the modulation and function of voltage-gated ion channels in the peripheral and central nervous system with an emphasis on G- protein coupled receptor signaling to calcium channel

Section on Model Synaptic Systems - HN55B3

Focuses on understanding the development of cellular excitability and synaptic function, especially in relation to human disease, using forward- and reverse-genetic techniques in the model vertebrate *Danio rerio* (zebrafish).

Section on Cellular Biophotonics - HN55B4

Focuses on determining how membrane protein complexes are formed and maintained in living cells with an emphasis on employing advanced imaging techniques for the determination of protein-protein interaction and stoichiometry in living cells.

Laboratory for Neuroimaging - HN55C

(1) Conducts research to investigate physiological and neurochemical mechanisms underlying addiction and to investigate the mechanisms of action of drugs of abuse; (2) uses imaging technologies to integrate preclinical and clinical research in the investigation of addiction; and (3) specific aims for this laboratory are: (a) to characterize the molecular changes underlying drug addiction and their relationship to brain function, treatment and vulnerability; (b) to understand the relationship of drug pharmacokinetics and pharmacodynamics to the reinforcing effects of drug of abuse; and (c) to investigate the role of genes, considered to be relevant in addiction, in brain function and neurochemistry.

Laboratory of Epidemiology and Biometry - HN55D

(1) Develops, designs, implements, and directs a large multidisciplinary epidemiological research program of national scope and complexity; (2) conducts national surveillance activities to collect and analyze alcohol-related program data through various information systems, including the Alcohol Epidemiologic Data System (AEDS); (3) analyzes epidemiological data on alcohol use, abuse, and dependence and their associated disabilities and prepares scientific reports and manuscripts for publication in peer-review journals; (4) adapts state-of-the-art statistical methodology to the alcohol field; (5) collaborates with other agencies and organizations to promote the application of epidemiological research nationally and internationally; (6) maintains national statistics on alcohol use disorders and their related conditions and consequences; (7) sponsors, develops, and participates in scientific conferences, meetings, workshops, and symposia to exchange information and disseminate new knowledge; (8) collaborates with other National Institutes of Health and other government agencies to foster shared interests and goals; and (9) supports a full range of interagency agreements and contracts.

Laboratory of Metabolic Control - HN55E

(1) Defines the phenotype of disease by determining the kinetic and thermodynamic factors involved in the alterations of metabolic pathways and reactions causing simple genetic and multifactorial complex disease states; and (2) from this, defines therapeutic measures which can return the diseased to the normal phenotype.

Section on Metabolic Control Analysis - HN55E2

(1) Develops new rapid throughput methods for the analysis of intermediary metabolites in animal and human tissues; (2) defines the kinetic and thermodynamic constants responsible, and the mathematical approaches required to define the changes in flux control resulting in the alteration of fluxes in metabolic pathways involved in disease states and develops new therapeutic approaches based on these analyses; and (3) tests the efficacy of these new therapies in animal models and in specific human disease states including neurodegenerative diseases, movement disorders, insulin resistant states and refractory epileptic states.

Laboratory of Molecular Signaling - HN55G

Investigates the mechanistic roles of polyunsaturated lipids in neuronal development and function, specifically: (1) to understand biochemical mechanisms by which polyunsaturated lipids and ethanol modify cell membrane structure and function; (2) to examine the impact of biomembrane modification on neuronal development and function; (3) to characterize molecular and cellular signaling mechanisms involved; and (4) to develop modern mass spectrometric techniques for application to biomediator metabolism and molecular interactions of lipids and proteins.

Laboratory of Liver Diseases - HN55H

Understanding the cellular, molecular, and genetic basis of alcohol-induced liver disease, including the role of alcohol in hepatic carcinogenesis, with an emphasis on hepatic inflammation and immunity; and (2) research on cytokines and their signaling pathways as targets for the actions of ethanol in the liver.

Laboratory of Behavioral and Genomic Neuroscience – HN55J

(1) Studies how the brain mediates cognition and emotion and seeks to identify sources of genomic variation that drive individual differences in these processes; (2) capitalizes on the power of *in vivo* animal models and incorporates behavioral, pharmacological, molecular, genetic, and *in vivo* electrophysiological techniques; (3) collaborates with the intramural and extramural communities, drawing convergent lines of evidence across preclinical and human research; (4) translates basic research findings into better understanding of the neural and genetic basis of neuropsychiatric disorders such as alcoholism and help develop improved therapeutic treatments for these disorders.

Section on Behavioral Science and Genetics - HN55J2

(1) Utilizes animal models to study how exposure to stress and alcohol alters neural regulation of cognition and emotion, and how genetic factors can buffer or exacerbate these effects; (2) employs behavioral measures of cognitive and executive functions to assay reward-related learning, cognitive flexibility, extinction, and working memory; (3) uses a combination of *in vivo* electrophysiological, pharmacological, gene-mutant and viral-mediated tools to investigate how these complex behaviors are mediated by neural circuits (e.g., prefrontal cortex, amygdale, striatum) and which neurotransmitter (e.g., glutamate, serotonin) and molecular (e.g., NMDAR) systems underpin activity and plasticity within these circuits.

Laboratory of Cardiovascular Physiology and Tissue Injury - HN55K

(1) Identifies new therapeutic targets against various forms of tissue injury, associated with increased oxidative/nitrosative stress and inflammation, using clinically relevant animal models of disease (e.g., ischemia reperfusion injury, cardiomyopathies, nephropathies, heart failure, diabetic complications, cardiovascular aging, and alcohol induced cardiovascular and liver injury and neuroinflammation).

Laboratory on the Neurobiology of Compulsive Behaviors – HN55L

(1) Conducts research aimed at uncovering the neuronal circuits and synaptic mechanisms that mediate reward motivated behaviors and compulsive behaviors. (2) Utilizes an integrative approach that includes electrophysiology, 2-photon laser scanning microscopy and fast-scanning cyclic voltammetry for dopamine detection together with behavioral testing and *in vivo* manipulation of circuit activity using optogenetic and chemogenetic tools. (3) Dissects the neuronal circuits involved in mediating and regulating motivated compulsive behaviors and reward. (4) Studies motivated behaviors toward substance of abuse, such as cocaine and ethanol, but also behaviors towards natural rewards, such as food and water that drive consummatory behaviors.

Laboratory of Biophotonics and Quantum Biology (LBQB) – HN55M

Focuses on (1) Developing new forms of microscopy and spectroscopy to study protein interactions under physiological conditions with an emphasis on the structure and function of the calcium-dependent protein kinase-II (CaMKII) and its interaction partners, which are thought to regulate synaptic efficacy. (2) Understanding how biological systems can exploit quantum mechanical behaviors under physiological conditions with an emphasis on investigating the physical basis of room-temperature excitonic coupling between fluorescent proteins.

Division of Neuroscience and Behavior - HN56

(1) Plans, stimulates, develops, supports, and manages basic research programs on neuronal, genetic and behavioral determinants of the etiology and consequences of alcohol consumption, alcohol abuse and alcoholism. The program areas covered include most areas of neuroscience, neural and behavioral genetics, and basic behavioral research studies including research on cognitive function; (2) provides leadership in the areas of neuroscience, behavior, and genetics as they relate to alcohol research; (3) collaborates with other Divisions and Offices within the NIAAA and outside organizations in the support of basic research studies related to alcohol use, abuse and alcoholism; (4) stimulates, supports and manages training programs to assure adequate numbers of highly competent scientists engaged in current and future alcohol research; (5) sponsors, develops, and supports scientific conferences, meetings, and symposia; (6) prepares reports, summaries, and other materials concerned with various scientific aspects of alcohol use, abuse and alcoholism; and (7) supports a wide range of grants and contracts, including individual research projects, co-operative agreements, center grants, and institutional and individual training grants.

Division of Treatment and Recovery – HN58

The Division of Treatment and Recovery (DTR): (1) Plans, stimulates, develops, supports, and manages multidisciplinary research programs on medications development, behavioral treatment, health services, and recovery for alcohol use disorder (AUD); (2) provides leadership in the areas of medications development, behavioral treatment, health services, and recovery as they relate to alcohol research; (3) promotes alcohol research through grants for the development of medications and behavioral treatments to treat AUD and co-occurring psychiatric and medical comorbidities; (4) collaborates with other Divisions and Offices within NIAAA and outside organizations in support of treatment services, recovery, and medications development research studies related to alcohol misuse and AUD; (5) sponsors, develops, and supports scientific conferences, meetings, and symposia; (6) prepares reports, summaries, and other materials concerned with various scientific aspects of alcohol misuse and AUD; and (7) supports a wide range of grants and contracts, including individual research projects, co-operative agreements, center grants, and institutional and individual training grants.

Treatment, Health Services, and Recovery Branch – HN581

The Treatment, Health Services, and Recovery Branch (THSRB): (1) Plans, stimulates, develops, supports, and manages multidisciplinary research programs on treatments for AUD, determinants of post-treatment recovery, and factors that affect the delivery of alcohol services in real-world settings. The program areas covered include: a) behavioral treatment including mechanisms underlying behavioral change, b) personalized medicine, c) health services, d) development of novel methods and technologies to enhance treatment outcome, e) treatment of special populations including psychiatric comorbidity, women, and adolescents, and f) biological, psychological, social, and predictors of post treatment relapse and recovery; (2) collaborates with other Divisions and Offices within NIAAA and outside organizations in the support of treatment services research studies related to alcohol misuse and AUD; (3) stimulates, supports and manages training programs to assure adequate numbers of highly competent scientists are engaged in current and future alcohol treatment and services research; (4) sponsors, develops, and supports scientific conferences, meetings, and symposia; (5) prepares reports, summaries, and other materials concerned with various scientific aspects of alcohol misuse and AUD; (6) stimulating, supporting, and managing training programs to assure that adequate numbers of highly competent scientists are engaged in current and future research on behavioral therapies, health services, and recovery and (7) supports a wide range of grants and contracts, including individual research projects, co-operative agreements, center grants, and institutional and individual training grants.

Medications Development Branch – HN582

The Medications Development Branch (MDB): (1) Plans, stimulates, develops, supports and manages medications development programs to treat AUD. This includes advancing promising medications through the drug development pipeline by identifying lead compounds and optimizing their structure for potency, stability, selectivity/specificity, bioavailability, testing for preclinical efficacy (e.g., AUD animal models); completing IND requirements (pharmacokinetic evaluations, toxicology, and formulation/manufacturing); conducting phase 1 studies (pharmacokinetic evaluations, pharmacodynamics/target engagement, safety, alcohol interactions and abuse liability); conducting human laboratory studies and alcohol clinical trials; and conducting secondary analyses to improve methodology of clinical trials. Program area also includes developing, standardizing, and validating human laboratory paradigms as screening models to test promising medications. Also, program will advance precision medicine to predict who will respond favorably (both efficacy and safety) to a specific medication. In addition, program area includes: developing medications to treat patients with AUD and psychiatric comorbidity, especially post-traumatic stress disorder; (2) collaborating with other Divisions and Offices within NIAAA as well as other NIH Institutes, other government agencies (e.g., FDA), and private industry to advance medications development programs; (3) stimulating, supporting, and managing training programs to assure that adequate numbers of highly competent scientists are engaged in current and future research on medications development; (4) sponsoring, developing, and supporting scientific conferences, meetings, and symposia; (5) preparing reports, summaries, and other materials concerned with medications development programs; (6) supporting a wide range of grants and contracts, including contracts to conduct standardized human laboratory paradigms as screening models and alcohol multisite clinical trials, individual research projects, co-operative agreements, center grants, and institutional and individual training grants.