
**NATIONAL INSTITUTES OF HEALTH
DEPARTMENT OF HEALTH AND HUMAN SERVICES
NATIONAL PRIMATE RESEARCH CENTERS (NPRC) PROGRAM
DIVISION OF COMPARATIVE MEDICINE
NATIONAL CENTER FOR RESEARCH RESOURCES**

**5P51RR000165-46
YERKES NATIONAL PRIMATE RESEARCH CENTER**

Final

**EMORY UNIVERSITY
EMORY UNIVERSITY WOODRUFF HEALTH SCIENCES CENTER**

ANNUAL PROGRESS REPORT

Reporting From: 04/30/2006

Reporting To: 04/30/2007

40.000% AIDS Related

withheld



TABLE OF CONTENTS

PERSONNEL ROSTER	2
SUBPROJECT DESCRIPTIONS	10
NPRC MANAGEMENT SUBPROJECTS	
ADMINISTRATIVE	
withheld	
- SPF COLONY (0309)	11
withheld	
- OPERATION OF THE YERKES PRIMATE RESEARCH CENTER (0191)	12
ANIMAL RESOURCES	
withheld	
- MAINTENANCE OF YPC ANIMAL COLONY (0292)	13
CNTR BEHAV NEUROSCIENCE	
withheld	
- CENTER FOR BEHAVIORAL NEUROSCIENCE (0359)	14
NEUROSCIENCE	
withheld	
- THE DEVELOPMENT OF A CENTER FOR THE SCIENTIFIC STUDY OF CHIMPANZEES (0253)	15
PSYCHOBIOLOGY	
withheld	
- LIVING LINKS CENTER FOR STUDY OF APE & HUMAN EVOLUTION (0062)	16
RESEARCH RESOURCES	
withheld	
- SPECIMEN COLLECTION AND DISTRIBUTION PROGRAM (0291)	17
withheld	
- IMMUNO-VIROLOGICAL AND SAMPLE REPOSITORY SIV-INFECTED AND UNINFECTED MANGABEYS (0499)	18
withheld	
- CHIMPANZEE MANAGEMENT RESEARCH PROGRAM (0037)	19
VACCINE RESEARCH CENTER	
withheld	
- VACCINE RESEARCH CENTER (0177)	20
withheld	
- CENTER FOR AIDS RESEARCH (0181)	21
RESEARCH SUBPROJECTS	
ANIMAL RESOURCES	
withheld	
- TAILORING ENRICHMENT TO REARING AND RESEARCH (0206)	23
withheld	
- PRIMATE GENETIC ANALYSIS AND PEDIGREE MANAGEMENT (0390)	24
CNTR BEHAV NEUROSCIENCE	
withheld	
- ANATOMY AND PHARMACOLOGY OF FEAR-POTENTIATED STARTLE (0381)	25
withheld	
- EARLY LIFE STRESS IN NON HUMAN PRIMATES AND HUMANS (0376)	26
withheld	

RESEARCH SUBPROJECTS

CNTR BEHAV NEUROSCIENCE

- DOPAMINERGIC MODULATION OF NETWORK ACTIVITY IN BASOLATERAL AMYGDALA (0314) 27
- SNAPTIC ORGANIZATION OF THE BASOLATERAL AMYGDALA (0315) 28
- STRESS ALLOSTASIS: CRF, SEROTONIN AND THE BNST (0373) 29
- FUNCTIONAL NEUROANATOMY OF THE BASOLATERAL AMYGDALA (0473) 30
- PROMOTER-BASED FUNCTIONAL MAPPING OF AMYGDALA MICROCIRCUITS (0474) 31
- FUNCTIONAL NEUROANATOMY OF THE BASOLATERAL AMYGDALA (0497) 32

withheld

- AMYGDALA VS. HIPPOCAMPAL BDNF FUNCTION WITH MOLECULAR GENETIC TECHNIQUES (0440) 33
- EXAMINATION OF ALLOSTERIC SITE OF SEROTONIN TRANSPORTER USING TRANSGENIC MICE (0475) 34
- FEAR LEARNING IN MICE AND DISORDERS OF FEAR IN HUMANS (0476) 35
- GENETIC AND TRAUMA-RELATED RISK FACTORS FOR PTSD (0477) 36
- MOLECULAR REGULATION OF GABAA RECEPTORS IN THE AMYGDALA (0478) 37
- SYNAPTIC PLASTICITY AND EXTINCTION OF FEAR (0498) 38

withheld

- CENTRAL VASOPRESSIN RECEPTORS AND AFFILIATION (0118) 39
- OXYTOCIN AND SOCIAL ATTACHMENT (0175) 40

MICROBIOLOGY & IMMUNOLOGY

withheld

- POXVIRUS IMMUNITY AND DNA/MVA HIV VACCINES (0332) 41
- NOVEL THERAPEUTIC VACCINE FOR HIV/AIDS (0508) 42

withheld

- ROLE OF VIRUS SPECIFIC IMMUNITY IN PRIMATE MODELS (0324) 43
- CD4 T CELL ACTIVATION IN SIV INFECTED DISEASE RESISTANT SOOTY MANGABEYS (0454) 44
- DELIPIDATED LENTIVIRUSES AS THERAPEUTIC IMMUNIZATION POST SIV INFECTION (0455) 45

withheld

- MECHANISMS OF HEPATITIS C VIRUS PERSISTENCE (0510) 46

withheld

- TRANSPLANT TOLERANCE IN NON-HUMAN PRIMATES (0259) 47
- STRATEGIES FOR LARGE SCALE ISLET REPLACEMENT (0503) 48

withheld

- GENETICS OF NEUROPATHOGENIC SIV INFECTION (0327) 49

withheld

- STRATEGIES FOR LARGE SCALE ISLET REPLACEMENT (0507) 50

withheld

- DNA/MVA IMMUNOGENS, CROSS-CLADE RESPONSES (0222) 51

withheld

- SYNTHESIS AND BIOTRANSFORMATION OF ANTI-VIRAL PRODRUGS (0032) 52

withheld

- THE ROLE OF MAST CELLS IN PERSISTENT HIV-1 INFECTION (0506) 53

withheld

- RESOURCE FOR NONHUMAN PRIMATE IMMUNE REAGENTS (0140) 54
- CD4 MEDIATED IMMUNE RECONSTITUTION IN SIV INFECTION (0505) 55

NEUROSCIENCE

RESEARCH SUBPROJECTS

NEUROSCIENCE

withheld

- D1 AND D5 RECEPTOR SIGNALING IN MONKEY PFC (0438)

56

withheld

- A TRANSGENIC MONKEY: INHERITED NEURODEGENERATIVE DISEASES (0392)
- DEVELOPING A NON-HUMAN PRIMATE MODEL OF ALZHEIMER DISEASE (0493)

57

58

withheld

- STROKE IMAGING OF CONSCIOUS RATS (0417)
- PERFUSION, DIFFUSION AND FUNCTIONAL IMAGING OF STROKE (0418)
- LAYER-SPECIFIC FUNCTIONAL AND PERFUSION IMAGING OF THE CAT RETINA (0443)
- OXYGENATION AND PERFUSION IMAGING OF THE CAT RETINA (0464)
- IMAGING CENTER (0519)

59

60

61

62

63

withheld

- BEHAVIORAL EVALUATION OF STIMULANT / HALLUCINOGEN DRUGS IN MICE (0435)
- EFFECTS OF SELF-ADMINISTERED MDMA ON BRAIN AND BEHAVIOR IN RHESUS MONKEYS (0483)

64

65

withheld

- STUDIES OF AGING AND COGNITION IN NONHUMAN PRIMATES (0047)
- SELECTIVE ESTROGEN RECEPTOR MODULATORS AND COGNITION (0404)

66

67

withheld

- COCAINE USE & MONOAMINE FUNCTION IN NON HUMAN PRIMATES (0049)
- PET IMAGING & COCAINE NEUROPHARMACOLOGY IN MONKEYS (0050)
- TRANSITIONAL STATES IN DRUG ADDICTION (0334)

68

69

70

withheld

- ANATOMY AND ACTIVATION OF NUCLEUS ACCUMBENS CART NEURONS (0487)

71

withheld

- REGULATION OF CART EXPRESSION IN RAT NUCLEUS ACCUMBENS (0482)

72

withheld

- MONOAMINE TRANSPORTERS & NONHUMAN PRIMATE COCAINE (0335)

73

withheld

- CART: A NOVEL COCAINE REGULATED NEUROCHEMICAL (0054)
- MEDICATION DEVELOPMENT FOR COCAINE ABUSERS (0056)
- PROMOTER CHARACTERIZATION OF THE CART GENE (0283)
- TRAINING PROGRAM IN THE NEUROBIOLOGY OF DRUG ABUSE (0336)
- REGULATION OF THE CART GENE BY PROMOTER CIS-ELEMENTS (0480)
- MATERNAL SEPARATION AND VULNERABILITY TO DRUGS (0488)

74

75

76

77

78

79

withheld

- CALCIUM SIGNALING AND PREFRONTAL DEFICITS IN SCHIZOPHRENIA (0511)

80

withheld

- CORTICAL CIRCUITRY RELATED TO NEUROTRANSMISSION PROTEINS (0122)
- REGIONAL VARIATION IN D1 SIGNALING PROTEIN LOCALIZATION (0504)

81

82

withheld

- INTERROGATING THE GENOME TO UNCOVER HUMAN SPECIALIZATIONS OF BRAIN & COGNITION (0305)

83

withheld

- THE ROLE OF NEUREGULIN AND ITS RECEPTOR, ERBB4, IN CONDITIONED FEAR LEARNING (0439)

84

withheld

RESEARCH SUBPROJECTS

NEUROSCIENCE

- GABA-B RECEPTORS AND PARKINSON'S DISEASE (0136)	85
- METABOTROPIC GLUTAMATE RECEPTORS IN BASAL GANGLIA (0337)	86
- LOCALIZATION METABOTROPIC GLUTAMATE RECEPTORS IN NORMAL/COCAINE-TREATED ANIMALS (0481)	87
- THALAMOSTRIATAL SYSTEMS AND PARKINSON'S DISEASE (0489)	88
- THE THALAMOSTRIATAL SYSTEM: A TARGET FOR TOURETTE SYNDROME SURGERY? (0512)	89
- TRAINING IN SYSTEMS AND INTEGRATIVE BIOLOGY NEUROSCIENCE (0513)	90
- THE THALAMOSTRIATAL SYSTEM IN PRIMATES (0514)	91
- GLUTAMATE RECEPTORS: TARGETS FOR PARKINSON'S DISEASE PHARMACOTHERAPY (0515)	92
withheld	
- LENTIVIRAL-MEDIATED EXPRESSION OF TRANSGENIC BETA-APP AND PRESENILIN IN MONKEYS (0397)	93
- TRANSGENIC EXPRESSION OF TAU AND APP IN MODELS OF ALZHEIMER'S DISEASE (0484)	94
- BIOMARKERS BRAIN PATHOLOGY: RISKS FOR ALZHEIMER'S DISEASE AND DRUG ADDICTION (0485)	95
- ALZHEIMER'S IMMUNOTHERAPY IN A PRIMATE MODEL OF CEREBRAL AMYLOID ANGIOPATHY (0486)	96
withheld	
- FUNCTION OF DOPAMINE IN THE PRIMATE SUBSTANTIA NIGRA (0490)	97
- LOCAL FIELD POTENTIALS IN THE BASAL GANGLIA (0491)	98
withheld	
- VASOPRESSIN RECEPTORS AND SOCIAL ATTACHMENT (0290)	99
withheld	
- CONTE CENTER (0446)	100
- VA IPA CRUTCHER (0447)	101
- SENSITIVE MEMORY TESTS FOR DIFFERENTIATING MCI SUBGROUPS (0459)	102
PSYCHOBIOLOGY	
withheld	
- DEVELOPMENT OF REVERSIBLE INACTIVATION TECHNIQUE STUDY HIGHER COGNITIVE FUNCTION (0388)	103
- DEVELOPMENT OF MEDIAL TEMPORAL LOBE FUNCTIONS (0391)	104
- ORBITOFRONTAL-LIMBIC CIRCUIT: ONTOGENY AND EARLY DYSFUNCTION (0419)	105
- DEVELOPMENT BEHAVIORAL & NEUROPHYSIOLOGICAL MEASURES FOR EARLY AUTISM DIAGNOSIS (0426)	106
withheld	
- REACTIONS TO (IN) EQUALITY IN CAPUCHIN MONKEYS (0061)	107
- EVOLUTIONARY PERSPECTIVE ON EMPATHY (0063)	108
- SOCIAL LEARNING AND CULTURE IN CHIMPANZEES (0064)	109
withheld	
- CONTROLLED & AUTOMATIC COGNITION IN MONKEYS: DEVELOPMENT OF A NEW MODEL SYSTEM (0421)	110
withheld	
- NEUROBIOLOGY OF HEMISPHERIC SPECIALIZATION IN PRIMATES (0068)	111
- HEMISPHERIC SPECIALIZATION AND COMMUNICATION (0263)	112
withheld	
- DEVELOPMENT CONSEQUENCES OF INFANT ABUSE IN PRIMATES (0101)	113

RESEARCH SUBPROJECTS

PSYCHOBIOLOGY

withheld	
- BEHAVIORAL, PHYSIOLOGICAL & NEUROANATOMICAL CONSEQUENCES OF REPETITIVE (0395)	114
- BEHAVIORAL, PHYSIOLOGICAL & NEUROANATOMICAL CONSEQUENCES OF MATERNAL SEPARATION (0412)	115
- AN EXAMINATION OF THE EVOLUTIONARY SPECIALIZATIONS FOR AUDITORY MEMORY (0472)	116
withheld	
- COMPARING WHITE MATTER FIBER TRACTS IN HUMANS, APES & MONKEYS (0430)	117
- COMPARING RESTING BRAIN GLUCOSE METABOLISM IN MONKEYS, APES AND HUMANS (0431)	118
- COMPARATIVE STUDIES OF PRIMATE BRAIN ORGANIZATION USING MRI (0437)	119
withheld	
- EMORY CONTE CENTER FOR THE NEUROSCIENCE OF MENTAL DISORDERS: PRIMATE CORE (0077)	120
- EARLY EXPERIENCE, STRESS NEUROBIOLOGY AND PREVENTION SCI (0311)	121
withheld	
- BEHAVIORAL DEVELOPMENT PRENATAL HORMONAL INFLUENCES (0071)	122
- FEMALE SEXUALITY: MODULATION BY ESTROGEN AND ANDROGEN (0310)	123
withheld	
- BIOMARKERS CORE LAB (0360)	124
- ANTI CANCER MEDICATION AND EMOTIONAL WELL-BEING (0389)	127
- NEUROENDOCRINE MEDIATION OF SOCIALLY INDUCED ANOVULATION (0427)	128

RESEARCH RESOURCES

withheld	
- BEHAVIORAL MANAGEMENT OF NONHUMAN PRIMATES (0501)	129
withheld	
- ENHANCEMENT OF LUMBAR FUSION W/ RHBMP 2/ COLLAGEN OR LMP (0034)	130
withheld	
- SUGARS AS NOVEL CRYOPROTECTANTS FOR PRIMATE OOCYTES (0500)	131
withheld	
- MOLECULAR EVOLUTION OF MULTIPLY DELETED SIV IN VIVO (0297)	132

SENSORY MOTOR SYSTEMS

withheld	
- THE RELATIONSHIP BETWEEN NEARWORK AND MYOPIA (0479)	133
withheld	
- BINOCULAR COORDINATION OF EYE MOVEMENTS (0244)	134
withheld	
- STUDIES OF VISUAL PROCESSING & SMOOTH EYE MOVEMENTS (0093)	135
- NEURAL CONTROL OF VISUAL VESTIBULAR BEHAVIOR (0246)	136
withheld	
- REGULATION OF MOTOR FUNCTION IN PARKINSON'S DISEASE (0369)	137
- EFFECTS OF CE IN THE MPTP PRIMATE MODEL OF PARKINSON'S DISEASE (0370)	138
withheld	
- BASAL GANGLIA DISCHARGE PATTERNS IN PARKINSON'S DISEASE (0366)	139
- INFLUENCE OF SUBTHALAMIC NUCLEUS ON STRIATAL DOPAMINE (0368)	140
- FUNCTION OF DOPAMINE IN THE PRIMATE SUBSTANTIA NIGRA (0460)	141

RESEARCH SUBPROJECTS

SENSORY MOTOR SYSTEMS

- THERAPEUTIC BENEFIT STIMULATION OF SUBTHALAMIC NUCLEUS FOR PARKINSONS (0492) 142

VACCINE RESEARCH CENTER

withheld

- VACCINE INDUCED IMMUNITY IN THE YOUNG AND AGED (0349) 143
- SE REGIONAL CENTER FOR EXCELLENCE FOR EMERGING INFECTIONS & BIODEFENSE (0351) 144

withheld

- T CELL REPERTOIRES SPECIFIC FOR DEFINED VIRAL EPTOPES (0187) 145
- EVALUATION OF CELLULAR IMMUNITY INDUCED BY HIV VACCINES (0218) 146
- NIAID TETRAMER FACILITY (0243) 147

withheld

- IN SITU GENE-MODIFIED DCS FOR AN HIV-1 T CELL VACCINE (0409) 148

withheld

- ROLE OF VIV2 IN HIV TENASMISSION AND PATHOGENESIS (0405) 149

withheld

- CELLULAR IMMUNE RESPONSES IN AIDS PATHOGENESIS (0217) 150
- OPTIMIZE THE IMMUNOGENICITY OF MVA-BASED AIDS VACCINES (0410) 151

withheld

- MOLECULAR BASIS OF ANTIGENIC VARIATION ON MALARIA (0236) 152
- MOLECULAR ANALYSIS OF PLASMODIUM VIVAX SURFACE ANTIGENS (0270) 153
- PLASMODIUM VIVAX MSP-3 AND MSP-9 AS VACCINE IMMUNOGENS (0403) 154

withheld

- VIROLOGIC CORRELATES OF HETEROSEXUAL TRANSMISSION (0406) 155
- GENETICS OF PRIMATE 'D' TYPE RETROVIRUSES (0407) 156
- STRUCTURE/FUNCTION ANALYSIS OF THE HIV ENV GENE PRODUCT (0408) 157
- CTL AND HIV POLYMORPHISMS IN HETEROSEXUAL TRANSMISSION (0516) 158
- MOLECULAR ANALYSIS & MODELING OF HIV-1 TRANSMISSION, CONTAINMENT AND ESCAPE (0517) 159

withheld

- T CELL MEMORY (0448) 160
- NOVEL VLP VACCINES FOR PANDEMIC INFLUENZA VIRUS (0518) 161

withheld

- MICROSIMULATION OF ANTHRACIS-IMMUNE SYSTEM INTERACTION (0520) 162

withheld

- T LYMPHOCYTE, T CELL RECEPTOR, CELLULAR IMMUNITY, IMMUNOTHERAPY (0449) 163

withheld

- ANTHRAX VACCINE RESEARCH PROGRAM (0180) 164
- CD137 SIGNALS IN DC DURING AG-PRIMING INDUCES TOLERANCE (0451) 165

withheld

- NOVEL LINEAR PEPTIDE UNIVERSAL MALARIA VACCINES (0308) 166

withheld

- MODULATING IMMUNITY IN AGED MICE WITH DENDRITIC CELLS (0272) 167
- MICROBES, DENDRITIC CELL SUBSETS AND T-CELL IMMUNITY (0273) 168
- POLARIZING T CELL RESPONSES IN VIVO WITH DENDRITIC CELLS (0274) 169
- ANTHRAX TOXIN, DENDRITIC CELLS AND ADAPTIVE IMMUNITY (0411) 170

withheld

RESEARCH SUBPROJECTS

VACCINE RESEARCH CENTER

- STUDIES OF THE HIV ASSOCIATED CELL CYCLE DISEASE (0348) 171
- HOMEOSTASIS OF T CELLS IN PRIMATES (0350) 172
- withheld
- HOST SPECIFIC RESPONSES IN SIV-INDUCED HEMATOSUPPRESSION (0352) 173
- DEVELOPMENT OF A LOW INOCULUM SHIV CHALLENGE MODEL (0353) 174
- withheld
- EXPLORATORY CENTER FOR VACCINOLOGY RESEARCH (RMI) (0450) 175

PILOT SUBPROJECTS

CNTR BEHAV NEUROSCIENCE

- withheld
- TRANSLATIONAL RESEARCH ON EXTINCTION AND PTSD (0379) 177

MICROBIOLOGY & IMMUNOLOGY

- withheld
- CD40 LIGAND AS ADJUVANT FOR RAISING PROTECTIVE ANTI-HIV AB BY DNA/MVA VACCINES (0509) 178

NEUROSCIENCE

- withheld
- NEURONAL MECHANISMS OF MEMORY IN THE MEDIAL TEMPORAL LOBE (0433) 179

PSYCHOBIOLOGY

- withheld
- IMAGING MEDIAL TEMPORAL LOBE ACTIVITY - MEMORY & EMOTION IN AWAKE MONKEYS (0423) 180
- withheld
- MONKEY BEHAVIORAL EFFECTS IN A SEMI-NATURALISTIC ENVIRONMENT (0424) 181
- withheld
- EPISODIC MEMORY IN RHESUS MONKEYS SPATIAL & TEMPORAL CONTEXTS (0420) 182
- ETHOLOGICAL APPROACH TO COGNITION IN MONKEYS: INFERENCE OF SOCIAL RANK (0422) 183
- A NEUROETHOLOGICAL APPROACH TO MEMORY AND COGNITION IN MONKEYS (0471) 184
- withheld
- EFFECTS OF CRH OVER EXPRESSION ON REPRODUCTION (0465) 185
- withheld
- ESTROGEN DEPENDENT GENE REGULATION IN THE FEMALE (0466) 186
- BIOMARKERS OF BRAIN PATHOLOGY (0467) 187
- OXYTOCIN AND SOCIAL BEHAVIOR (0468) 188
- DEVELOPING A MODEL OF STRESS-INDUCED OBESITY (0469) 189

- withheld
- AMYGDALA-ORBITAL FRONTAL INTERACTION AND REWARD EXPECTANCY (0425) 190

SENSORY MOTOR SYSTEMS

- withheld
- EFFECTS OF VIEWING DISTANCE ON EYE GROWTH & REFRACTIVE DEVELOPMENT (0322) 191
- withheld
- LAMINAR-SPECIFIC NEURAL MECHANISMS FOR MEMORY IN THE ENTORHINAL CORTEX (0432) 192

COLLABORATIVE SUBPROJECTS

ANIMAL RESOURCES

withheld

COLLABORATIVE SUBPROJECTS

ANIMAL RESOURCES

- GENETIC AND VIRAL STATUS OF THE SOOTY MANGABEY IN THE IVORY COAST TAI FOREST (0401) 194

withheld

- CONSTRUCTION OF A CHIMPANZEE GENETIC MAP FOR CHROMOSOME 20 (0387) 195

CNTR BEHAV NEUROSCIENCE

withheld

- COLLABORATIVE MOOD DISORDERS INITIATIVE (0378) 196

PSYCHOBIOLOGY

withheld

- RESTING STATE FUNCTIONAL CONNECTIVITY IN CHIMPANZEES (0470) 197

RESEARCH RESOURCES

withheld

- INDUCTION OF PLASMODIUM INFECTIONS TO SUPPORT MALARIA VACCINE STUDIES (0078) 198

withheld

- EXPERIMENTAL INOCULATION OF MACAQUES WITH ROTAVIRUS (0383) 199

withheld

- CELLULAR IMMUNE RESPONSES IN SIV INFECTED SOOTY MANGABEYS (0209) 200

withheld

- INFANT IMMUNOPROPHYLAXIS AGAINST A PRIMATE LENTIVIRUS (0296) 201
- VACCINATION AGAINST INTRAPARTUM HIV-1 CLADE C TRANSMISSION (0298) 202
- MECHANISMS OF ORAL SIV TRANSMISSION (0299) 203
- ATTENUATED RECOMBINANT LISTERIA AS ORAL AIDS VACCINE (0344) 204
- SHIV TRANSMISSION THROUGH ORAL VS. OTHER MUCOSAE (0386) 205

withheld

- SENSITIVITY TO LISTERIOSIS IN ELDERLY RHESUS MONKEYS (0457) 206

withheld

- IMMUNE RECONSTITUTION IN SIV INFECTED MACAQUES (0494) 207
- VIRAL CYTOPATHICITY IN CD4-LOW SIV PASSAGED MANGABEYS (0502) 208

SENSORY MOTOR SYSTEMS

withheld

- EARLY FUNCTIONAL & STRUCTURAL REPAIR IN MACAQUE STRABISMUS (0089) 209

VACCINE RESEARCH CENTER

withheld

- MECHANISMS OF ERYTHROCYTIC INFECTIONS AND ANEMIA: NHP MODEL MALARIAL ANEMIA (0444) 210

RESEARCH SERVICES 211

PUBLISHED: ABSTRACTS, BOOKS & JOURNALS 212

IN PRESS: ABSTRACTS, BOOKS & JOURNALS 232

SOURCE OF INVESTIGATORS' SUPPORT 235

RESOURCE SUMMARY: SUBPROJECTS 243

RESOURCE SUMMARY: ADMINISTRATIVE 244

RESOURCE SUMMARY: PUBLICATION/SUPPORT 245

COLONY STATISTICS 247

RESEARCH HIGHLIGHTS

249

ADMINISTRATIVE INFORMATION

257

PERSONNEL ROSTER

Core Doctoral Scientists

Name, Degree	Department	Non-Host Institution: State, Country
withheld		

Affiliated

Name, Degree	Department	Non-Host Institution: State, Country
withheld		

GA STATE UNIVERSITY: GA, USA

Proprietary Info

TULANE PRIMATE CENTER: LA, USA

Affiliated

Name, Degree

Department

Non-Host Institution: State, Country

withheld

Proprietary Info

CDC: GA, USA

GA STATE UNIVERSITY: GA, USA

Proprietary Info

GA STATE UNIVERSITY: GA, USA
VA MEDICAL CENTER / COLLEGE OF
PHARMACY: GA, USA

Proprietary Info

CENTERS FOR DISEASE CONTROL:
GA, USA

Proprietary Info

WASHINGTON NPRC: WA, USA

Affiliated

Name, Degree

Department

Non-Host Institution: State, Country

withheld

UNIVERSITY OF MA: MA, USA

Proprietary Info

MEDICAL COLLEGE OF GA: GA, USA

Proprietary Info

VA HOSPITAL: GA, USA

UNIVERSITY OF TEXAS AT AUSTIN:
TX, USA

UNIVERSITY OF ATHENS: GA, USA

Proprietary Info

OHIO STATE UNIVERSITY: OH, USA

UNIVERSITY OF TEXAS: TX, USA

UNIVERSITY OF MA MEDICAL
SCHOOL: MA, USA

WASHINGTON UNIVERSITY: WA,
USA

CENTERS FOR DISEASE CONTROL:
GA, USA

Proprietary Info

Affiliated

Name, Degree	Department	Non-Host Institution: State, Country
withheld		UCLA SCHOOL OF MEDICINE: CA, USA
		NCID / CDC: GA, USA
		Proprietary Info
		UNIVERSITY OF ALABAMA: AL, USA
		Proprietary Info
		MEDICAL COLLEGE OF GA: GA, USA UNIVERSITY OF UTAH: UT, USA
		Proprietary Info
		GA STATE UNIVERSITY: GA, USA
		Proprietary Info

Affiliated

Name, Degree	Department	Non-Host Institution: State, Country
withheld		CENTERS FOR DISEASE CONTROL: GA, USA
		Proprietary Info
		UNIVERSITY OF TEXAS: TX, USA
		Proprietary Info
		NE REGIONAL PRIMATE RESEARCH CENTER: MA, USA
		Proprietary Info
		WEBER STATE UNIVERSITY: UT, USA
		Proprietary Info
		GA INSTITUTE OF TECHNOLOGY: GA, USA FLORIDA INTERNATIONAL UNIVERSITY: FL, USA

Affiliated

Name, Degree	Department	Non-Host Institution: State, Country
withheld		GA INSTITUTE OF TECHNOLOGY: GA, USA
		NATIONAL JEWISH CENTER: CO, USA
		TULANE PRIMATE CENTER: LA, USA
		Proprietary Info
		OHIO STATE UNIVERSITY: OH, USA CENTERS FOR DISEASE CONTROL: GA, USA UNIVERSITY OF TEXAS AT AUSTIN: TX, USA
		Proprietary Info
		NIAID/NIH: WA, USA UAB: AL, USA
		Proprietary Info

Affiliated

Name, Degree	Department	Non-Host Institution: State, Country
withheld		Proprietary Info
		U LOUISIANA LAFAYETTE: LA, USA
		Proprietary Info
		SOUTHWEST NPRC: TX, USA UNIVERSITY OF MI: MI, USA
		UNIVERSITY OF CALIFORNIA: CA, USA
		Proprietary Info
	VA MEDICAL CENTER: GA, USA	
	Proprietary Info	
	UNIVERSITY OF ALABAMA: AL, USA	
	Proprietary Info	
	UNIVERSITY OF TEXAS AT AUSTIN: TX, USA UNIVERSITY OF GEORGIA: GA, USA	

Affiliated

Name, Degree	Department	Non-Host Institution: State, Country
withheld		UNIVERSITY OF TEXAS: TX, USA
		UNIVERSITY OF CA, SAN DIEGO: CA, USA
		Proprietary Info
		NIA: WA, USA
		UNIVERSITY OF MARYLAND: DC, USA
		Proprietary Info
		UAB: AL, USA
		NIH: WA, USA
		NIH, NIMH: WA, USA
		Proprietary Info
CENTERS FOR DISEASE CONTROL: GA, USA		
Proprietary Info		
UNIVERSITY OF SC: SC, USA		
Proprietary Info		
UNIVERSITY OF TX: TX, USA		

SUBPROJECT DESCRIPTIONS

NPRC MANAGEMENT SUBPROJECTS

SPF COLONY (0309)

NPRC UNIT: ADMINISTRATIVE

%NPRC \$: 2.000% AIDS RELATED RESEARCH

withheld

NON-HOST INSTITUTION: STATE,
COUNTRY**SUBPROJECT DESCRIPTION**

The central objective of this project is to breed SPF macaque monkeys (chiefly rhesus monkeys of Indian ancestry) that are specific pathogen free (SPF) and genetically characterized - as defined by the National Center for Research Resources in RFA RR-02-005; specifically to provide subjects to NIH supported investigators for AIDS related research and thus to contribute to national health priorities. This objective is achieved at the YNPRC by utilizing an existing colony of SPF macaque monkeys. Specifically, a colony of SPF rhesus of Indian ancestry is grown via breeding, recruitment of young animals from YNPRC non-SPF breeding colonies and via appropriate testing and separation. The overall aim of the project is to provide all the trained personnel and resources that are necessary to maintain and enlarge SPF breeding groups and to manage them in order to optimize health and reproductive performance in support of national health related priorities established by NIH and NCRR. The YNPRC will work closely with NCRR and the Coordinating Committee they have established in implementing recommendations regarding uniform husbandry procedures, standardization of screening tests and such other matters as the committee may decide. The YNPRC works in coordination with other facilities maintaining NCRR supported SPF colonies and with any investigators identified by NCRR to maximize the potential that national priorities for SPF production will be attained.

OPERATION OF THE YERKES PRIMATE RESEARCH CENTER (0191)

NPRC UNIT: ADMINISTRATIVE

%NPRC \$: 3.400% AIDS RELATED RESEARCH

withheld

**NON-HOST INSTITUTION: STATE,
COUNTRY**

SUBPROJECT DESCRIPTION

This goal of this administrative project is the operation of the Yerkes National Primate Research Center of Emory University. This core provides overall direction of the following components to support the Center's scientific mission: administration, scientific leadership, management, comprehensive business services, information technology, human resources, and a public information office. In addition, the administrative core oversees facilities management; animal resources (veterinary medicine, animal care, animal records, and environmental enrichment); research resources (service pathology, environmental health and safety and comprehensive support to outside investigators); and four Service Cores: Endocrinology, DNA Microchip Array and Virology. General direction also is provided for four scientific divisions: Microbiology and Immunology, Neuroscience, Psychobiology and Sensory Motor Systems. The Center's goals are to conduct a research program focused on scientific problems relevant to human health and the NIH mission, to provide the resource infrastructure and expertise in appropriate scientific and veterinary specialties to support such a program and to enhance the Center's ability to serve as a resource to core investigators as well as to scientists regionally, nationally and internationally.

MAINTENANCE OF YPC ANIMAL COLONY (0292)

NPRC UNIT: ANIMAL RESOURCES

%NPRC S: 3.000% AIDS RELATED RESEARCH

withheld

NON-HOST INSTITUTION: STATE,
COUNTRY**SUBPROJECT DESCRIPTION**

The Yerkes animal colony is maintained by the Division of Animal Resources, which is responsible for veterinary and animal care, environmental enrichment, and animal records. Maintenance of such a resource requires certain animal care and use procedures that are an integral part of the support of such a colony. These include: holding the animals in captivity; maintaining breeding colonies (including SPF macaque and mangabey colonies); movement and handling of the animals as required for management purposes; periodic health surveillance, which may include physical examination, tuberculin testing, radiographs, blood collections; treatment of intercurrent diseases and injuries; and occasional euthanasia of animals unresponsive to treatment or animals with untreatable clinical problems or injuries.

CENTER FOR BEHAVIORAL NEUROSCIENCE (0359)

NPRC UNIT: CNTR BEHAV NEUROSCIENCE

%NPRC \$: 0.500%

Withheld

NON-HOST INSTITUTION: STATE,
COUNTRY

GA STATE UNIVERSITY , GA USA

SUBPROJECT DESCRIPTION

This project is an interdisciplinary, inter-institutional research and education program in behavioral neuroscience. The project includes over 80 faculty from 8 Atlanta colleges and universities including 5 schools that primarily serve African-American students. The scientific program focuses on the neural basis of social behaviors using molecular, cellular, and systematic approaches. The administrative home and several research labs for the Center are based at Yerkes. The Center is currently in its sixth year of funding from the NSF and the State of Georgia.

THE DEVELOPMENT OF A CENTER FOR THE SCIENTIFIC STUDY OF CHIMPANZEES (0253)

NPRC UNIT: NEUROSCIENCE

%NPRC S: 0.600% AIDS RELATED RESEARCH

withheld

NON-HOST INSTITUTION: STATE,
COUNTRY

SUBPROJECT DESCRIPTION

Two key aspects of the Yerkes National Primate Research Center, i.e. the diversity of research activities and the availability of a large number of chimpanzees, positioned us to become world leaders in chimpanzee-related research. This proposal funded the development of a new testing facility for assessing cognitive function in chimpanzees. The testing facility has been completed and chimpanzees are currently being routinely tested in the facility. This proposal is also funding an international conference at the Yerkes Research Center. Approximately 60 world-renowned experts in nonhuman primate research from across the U.S., Europe and Japan will attend, together with about 25 researchers from institutions throughout Georgia. The conference will include platform presentations focused on chimpanzee research as well as advisory discussions with respect to future ideas and proposals for chimpanzee research.

LIVING LINKS CENTER FOR STUDY OF APE & HUMAN EVOLUTION (0062)

NPRC UNIT: PSYCHOBIOLOGY

%NPRC \$: 0.600%

withheld

**NON-HOST INSTITUTION: STATE,
COUNTRY**

Proprietary Info

SUBPROJECT DESCRIPTION

The Living Links Center is a research and educational center for the study of ape and human evolution, using behavioral, cognitive, anatomic, and molecular approaches. The LLC was formed in 1997 in response to three developments. The first was the intellectual convergence of the fields of evolutionary psychology, comparative cognition, and field primatology around the importance of using extant species to understand extinct hominid ancestors. Second, technical developments in brain imaging and genomic sequencing provided new non-invasive approaches to study similarities and differences between great apes and humans. The LLC was formed to utilize this colony in non-invasive comparative research and to provide a base for philanthropic fund raising for both scientific and colony support. The LLC was launched in September, 1997 with joint support from the Office of the Provost and the Executive Vice President for Health Affairs. Major activities over the past years have been 1) organization of a hugely successful symposium on human origins that drew nearly 2,000 people from Emory and beyond, and 2) an international conference with the Chicago Academy of Sciences, in Chicago that has just been turned into a published volume. Currently, we are exploring a joint operation with

withheld

Proprietary

Proprietary Info

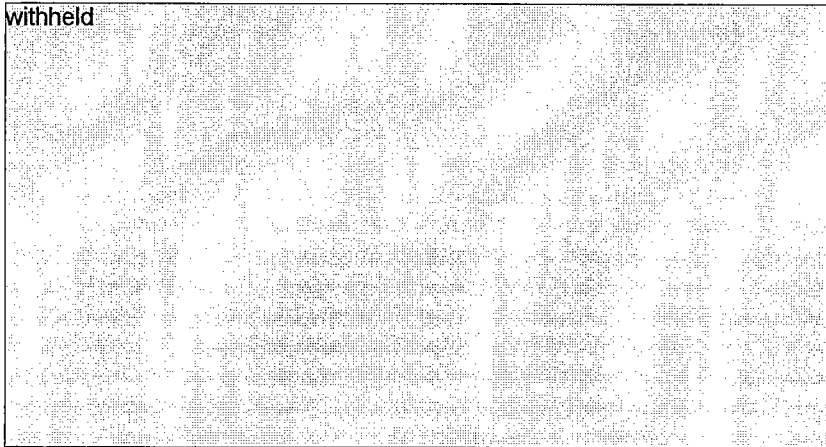
where a center with the same name is being opened at the

Proprietary Info

SPECIMEN COLLECTION AND DISTRIBUTION PROGRAM (0291)

NPRC UNIT: RESEARCH RESOURCES

%NPRC S: 1.000% AIDS RELATED RESEARCH



**NON-HOST INSTITUTION: STATE,
COUNTRY**

SUBPROJECT DESCRIPTION

During the past year, 20,373 specimens were collected and provided to 80 investigators. Tissues provided to these investigators included blood, serum, eyes, brain, bone marrow, BAL, rectal biopsies and a variety of other tissue specimens from seven nonhuman primate species. Specimens provided included 100,823 ml of whole blood, 2,092 ml of plasma and 3712 ml of serum. These specimens were provided to 24 investigators in 9 different departments at the host institution, 55 investigators at U.S. institutions other than Emory and one international institution.

The provision of various biological specimens to non-Yerkes investigators is an important contribution to biomedical research at the host institution as well as other regional, national, and international institutions. Specimens provided to outside investigators result in a number of publications each year. These specimens have proven to be extremely valuable for educational purposes when used in undergraduate or graduate courses in anatomy, anthropology, etc.

IMMUNO-VIROLOGICAL AND SAMPLE REPOSITORY SIV-INFECTED AND UNINFECTED MANGABEYS (0499)

NPRC UNIT: RESEARCH RESOURCES

%NPRC \$: 0.400% AIDS RELATED RESEARCH

withheld

NON-HOST INSTITUTION: STATE,
COUNTRY

Proprietary Info

SUBPROJECT DESCRIPTION

This management study treats Yerkes' colonies of SIV-infected and uninfected sooty mangabeys as cohorts for which a periodic immuno-virological evaluation is conducted and a repository of frozen samples of plasma and PBMCs are stored and made available for selected research projects to both Yerkes and non-Yerkes investigators. An extensive survey of the Yerkes SMs was first completed in 2004 and is now being repeated. To date, we have collected and processed 100 samples during 2006 and will complete the balance of the colony shortly.

The samples utilized from this project have been instrumental to several important publications in the field, as listed below. This general approach should also enable us to generate a set of immunological and virological data to conduct a systematic longitudinal assessment of the animals' health status, with specific focus on the course of SIV infection. This set of data will also allow the rapid and effective identification of SM with specific immunological and/or virological features.

CHIMPANZEE MANAGEMENT RESEARCH PROGRAM (0037)

NPRC UNIT: RESEARCH RESOURCES

%NPRC S: 1.000% AIDS RELATED RESEARCH

withheld

NON-HOST INSTITUTION: STATE,
COUNTRY**SUBPROJECT DESCRIPTION**

With the characterization of the chimpanzee genome, there has been an increased interest in this species as a research model. This, along with continued Yerkes support of research for which the species is uniquely suitable, has led to the need for careful monitoring and management of animal assignments, a process that is now underway. Given that most of our animals are housed socially, considerable effort continues to be invested in contraception to prevent pregnancies. IUDs are the primary method of choice, with females unsuitable for IUD insertion receiving hormonal interventions for contraception. Continued improvements to chimpanzee living arrangements have included resurfacing living environs and providing additional interconnecting doors to facilitate not only social housing but husbandry and management. Positive reinforcement training continues to be a high priority, including providing support to and working with Yerkes Neuroscience personnel.

The Center also has established a dedicated cognitive testing facility. The overall project goal is to maintain and study a population of chimpanzees and to ensure availability of this species to appropriate NIH funded investigators.

VACCINE RESEARCH CENTER (0177)

NPRC UNIT: VACCINE RESEARCH CENTER

%NPRC \$: 1.000% AIDS RELATED RESEARCH

withheld

**NON-HOST INSTITUTION: STATE,
COUNTRY**

SUBPROJECT DESCRIPTION

The mission of the Emory Vaccine Center is to improve human health by conducting ter, oufundamental and clinical research that leads to the development of effective vaccines against infectious diseases of global importance.

The Emory Vaccine Center represents one of the largest academic vaccine centers in the world, and is renowned for its expertise in cellular immunity and immune memory.

This expertise leads to the creation of new technologies for the prevention of emerging infectious diseases.

Established in 1996 with support from the Yerkes National Primate Research Center, Private and the Private Source the Emory Vaccine Center has 23 faculty who study AIDS, malaria, and other global infectious disease threats.

CENTER FOR AIDS RESEARCH (0181)

NPRC UNIT: VACCINE RESEARCH CENTER

%NPRC \$: 1.000% AIDS RELATED RESEARCH



**NON-HOST INSTITUTION: STATE,
COUNTRY**

Proprietary Info

Proprietary Info

UAB, AL USA

VA MEDICAL CENTER, GA USA

SUBPROJECT DESCRIPTION

The Emory Center for AIDS Research (CFAR) provides administrative and shared facilities support for HIV/AIDS research at Emory. There are 16 other NIH-funded CFARs around the country. Components of the Emory CFAR include the Rollins School of Public Health, **Proprietary Info** the Yerkes National Primate Research Center, the Emory Emory Vaccine Center, and **Proprietary Info**. The Emory CFAR currently provides services for over 120 faculty who engage in more than \$44 million dollars of funded HIV/AIDS research annually in the areas of prevention science, vaccine development, AIDS pathogenesis, and clinical science. CFAR services are provided through six CFAR Cores: Administrative, Developmental, Behavioral & Social Sciences, Clinical Research, Immunology, and Virology/Pharmacology.

Proprietary
Info

RESEARCH SUBPROJECTS

TAILORING ENRICHMENT TO REARING AND RESEARCH (0206)

NPRC UNIT: ANIMAL RESOURCES

%NPRC S: 0.600% AIDS RELATED RESEARCH

withheld

NON-HOST INSTITUTION: STATE,
COUNTRY

Proprietary Info

SUBPROJECT DESCRIPTION

This project includes several studies relevant to the management of nonhuman primate colonies in relation to development of a comprehensive environmental enrichment program. To continue progress in refining the care of primates in research facilities, it is necessary to better determine how enrichment techniques should be tailored to the management of primates used in biomedical research. Biomedical studies may require restrictions on the type of enrichment techniques that can be implemented for study animals, and may at the same time alter the psychological needs of the animals. This project provides direct benefit to the well-being and management of rhesus macaques (*Macaca mulatta*). Focus has been placed on three aspects of management that may vary considerably with rearing and research use: (1) social grouping including a comparison of monkeys housed together with those housed such that they interact through a permeated barrier, (2) human interaction as a form of enrichment for singly housed monkeys, and (3) the treatment of individuals in persistent psychological distress, including socialization and human interaction as interventions. Behavioral and physiological dependent measures are employed as indicators of well-being, including normal and abnormal behavior, health assessments, clinical treatment records, and cortisol concentrations. Results indicate that positive reinforcement training is not an effective intervention for various types of abnormal behaviors sometimes expressed in rhesus monkeys. The study takes advantage of a unique opportunity to document the effects of altering environmental enhancement in keeping with improved behavioral management, and measuring a variety of outcomes.

PRIMATE GENETIC ANALYSIS AND PEDIGREE MANAGEMENT (0390)

NPRC UNIT: ANIMAL RESOURCES

%NPRC \$: 1.000% AIDS RELATED RESEARCH

withheld

NON-HOST INSTITUTION: STATE,
COUNTRY

SOUTHWEST NPRC, TX USA

SUBPROJECT DESCRIPTION

We have collected and processed 986 samples out of a total population of 1,638 from our Indian rhesus breeding colonies for DNA extraction to ascertain the parentage of animals living at the Yerkes Field Station. This includes our entire SPF colonies (n=585) and two NSPF research breeding colonies (n=401). We are in the process of collecting the remaining 637 samples necessary to complete the entire Yerkes rhesus population. We have collected 185 samples from our three mangabey colonies, 68 from our SPF colony, and the remaining 117 from our NSPF colonies. These last remaining samples are currently being analyzed.

Our ultimate goal is to ascertain the parentage, pedigree, and selected genetic markers for all of our macaques and mangabeys maintained at the Field Station. The ability to characterize specific genetic components will enable us to better meet specific investigator needs, and genetic profiling will open the door for more diverse research endeavors, to selectively breed for specific genetic traits, and to undertake specific phenotypic comparisons.

To manage this data set, we are establishing a full-scale database system that will be able to assimilate genetic, parentage, pedigree, and demographic variables on all the animals. This database system will be incorporated into our current animal records system, which will enable Yerkes investigators and veterinarians to track, manage, and view an animal's record with a single query.

ANATOMY AND PHARMACOLOGY OF FEAR-POTENTIATED STARTLE (0381)

NPRC UNIT: CNTR BEHAV NEUROSCIENCE

%NPRC \$: 0.300%

withheld

NON-HOST INSTITUTION: STATE,
COUNTRY**SUBPROJECT DESCRIPTION**

Individual differences in resiliency to particular stressors may be mediated by specific neuropeptide receptor patterns in the brain. Here, we explored this issue by using a multivariate approach to identify brain sites in which oxytocin (OTR), vasopressin (V1aR), and corticotropin-releasing factor type 1 (CRF1) or type 2 receptor binding covaried with a measure of isolation-induced anxiety: isolation potentiated startle (IPS). Using the same multiple regression model, the linear combination of the same three binding sites/peptide receptors measured in a new group of animals successfully predicted their IPS values. There were no differences in binding between grouped and isolated animals, suggesting that the patterns are trait effects rather than a consequence of isolation. These results suggest that the integrated activity of neuropeptide systems mediating both social behavior and anxiety underlie IPS.

The gene for the Light Chain fragment of Tetanus Toxin (LC) induces synaptic inhibition by preventing the release of synaptic vesicles. A second experiment applied this approach within the rat midbrain in order to demonstrate that LC gene expression can achieve functionally and anatomically discrete effects within a sensitive brain structure. Although LC gene expression reduced the absolute amount of cue-specific fear potentiated startle, it did not decrease percent potentiated startle to a cue, nor did it reduce fear-induced contextual freezing, nonspecific locomotor activity, or general health, indicating that its effects were functionally and anatomically specific.

