



Southwest National Primate Research Center

Instructions for Preparation of Applications for **STUDENT INTERNSHIP PROGRAM**

The Southwest National Primate Research Center (SNPRC) provides educational and training opportunities for a limited number of students during an 8-week summer session. Both undergraduate and graduate (Ph.D. and veterinary) students at accredited academic institutions are welcome to apply.

Application Process

Complete the application form as follows:

1. Personal information - Fill in your name, mailing address, a phone number where you can be reached during the day, your e-mail address, and the institution where you are currently a student.
2. References - Enter the names of two people who are familiar with your academic performance who will send a letter of reference to the address given below. The letters should address both your potential to benefit from this program and your ability to function in a research environment.
3. Mentors - Interns must have a mentor on the SNPRC staff that will be responsible for designing and overseeing that intern's training program. Select one or more names of the SNPRC staff members who have agreed to serve as mentors (see Page 3 below). Contact Ms. Theresa Knox (tknox@sfbgenetics.org) for more information on the program and to discuss choices of mentors.
4. Attachments - Include with your application form a transcript of your grades, and a one-page description of your interests and what you hope to gain from this internship.
5. Submission - (a) Mail, fax, or e-mail the form and attachments, and (b) ask your references to mail or fax their letters of reference to the Southwest National Primate Research Center. The address is

Ms. Theresa Knox
Southwest National Primate Research Center
P.O. Box 760549
San Antonio, TX 78245-0549
210-258-9626 (voice)
210-258-9883 (fax)
e-mail: tknox@sfbgenetics.org

We must receive all application materials no later than March 15, 2010.

Review and Acceptance

Applications will be reviewed by an acceptance committee. Decisions regarding acceptance will be made by April 19, 2010.

Selection criteria include

- GPA, course background
- The written letter of intent
- Two letters of reference
- Availability of a willing mentor

The number of interns accepted will be set by the availability of mentors and funds, but will not exceed 6 per summer.

Procedures Following Acceptance

Upon acceptance, each applicant will be provided with another packet containing information about the primate center, San Antonio, and housing opportunities. While we can provide some logistical assistance, interns will be responsible for arranging their own transportation and housing.

Interns will be hired as temporary full time employees during their participation in the program. The hourly wage will vary for an undergraduate and a graduate student. Up to \$1,000 per student will be supplied for supplies or other research-related expenses incurred at SNPRC.

Training program

Interns are expected to commit to the eight-week training program, complete a research project conducted entirely at the SNPRC, and to make an oral presentation of their research results at the end of their internship.

Mentors for 2010 SNPRC Summer Intern Program

Kathy Brasky, VMD

Dr. Brasky is a clinical and research veterinarian. She will be available to mentor a veterinary student, who will get hands-on experience in research veterinary procedures with a variety of nonhuman primate species.

Anthony Comuzzie, Ph.D.

A summer intern working with Dr. Comuzzie may assist in genetics analysis, laboratory assays, or experimental procedures (e.g., insulin clamp studies). The work in Dr. Comuzzie's laboratory focuses on the genetics of obesity and diabetes, with an increasingly large experimental component focused on physiology and metabolism.

Laura Cox, Ph.D.

The focus of my research is the identification and characterization of genes involved with development of cardiovascular disease. The goal of these studies is to identify genetic variation and determine how this variation influences the atherosclerotic process. These studies include identification of genes influencing LDL cholesterol, HDL cholesterol and blood pressure. After identifying genes that influence these disease traits, we identify variation in these genes that contribute to cardiovascular disease.

The goal of the summer student projects in my lab is to characterize genetic variation in a candidate gene influencing one of these disease traits. These projects include the use of current molecular genetic methods including cloning, PCR, sequencing, and genotyping.

Edward J. Dick, Jr., DVM

Dr. Dick is a board certified veterinary pathologist. Interns working with Dr. Dick would be able to take advantage of a complete clinical and anatomic pathology laboratory, conducting hands on gross and histological pathology for both clinical and experimental purposes. They will be expected to prepare a manuscript for publication.

Patrice A. Frost DVM

Dr. Frost is one of five veterinarians participating in clinical and research support at the Foundation. She believes that education is the gate to one's future. As a team of veterinarians, we are committed to provide candidates with an opportunity to get first-hand knowledge in the field of primate medicine.

Melissa de la Garza, DVM

Dr. de la Garza is a veterinarian involved with both clinical and research aspects of laboratory animal medicine. Students with interest in animal work will be exposed to the basic problem-solving approach to clinical evaluation and subsequent diagnosis and treatment of nonhuman primates. Students may also have opportunity to observe various clinical and experimental procedures as they arise.

Marie-Claire Gauduin, Ph.D.

Our laboratory has been focusing on Pediatric AIDS Research using the simian immunodeficiency virus (SIV) /macaque model for AIDS. SIV infection of infant macaques is a highly relevant animal model of pediatric AIDS with which to rapidly evaluate the efficacy of pediatric HIV vaccine and drug interventions. We are currently investigating the early virus-specific T cell responses in newborns infected with pathogenic or less-pathogenic/attenuated SIV strains. In our system, SIV serves as a tool to determine which differences between immature and mature immune system are responsible for the increase susceptibility of neonates HIV/AIDS. We have recently shown that newborn monkeys infected with a less pathogenic SIV can control infection even in the absence of antiviral treatment, which suggest that treatment may be quite successful in "rescuing" or preserving the infant's immune response. The main goals are to: 1) carefully define developmental changes in T cells composition and function compared to uninfected aged-matched neonates; 2) characterize their early virus-specific immune responses; and, 3) investigate any functional impairments of their response against SIV. Summer students will have the opportunity to learn and perform several virologic and immunologic techniques and to participate to our Pediatric AIDS research.

Luis Giavedoni, Ph.D.

A summer student working with Dr. Giavedoni will participate in the molecular characterization of novel vaccines against Simian Immunodeficiency Virus (SIV) and in the characterization of in vitro SIV infection of nonhuman primate (NHP) lymphocytes. SIVs are found in a large number of African NHP species, where infection does not have apparent detrimental effects for the host; on the contrary, infection of Asian macaques, which do not have natural SIV infection, results in an AIDS-like disease. The student will perform several virological and immunological techniques.

Anthony Griffiths, Ph.D.

We are interested in the pathogenesis and molecular biology of neurotropic herpesviruses. Summer projects will focus on herpes B virus (BV). Although BV naturally infects macaque monkeys, it can zoonotically infect humans and typically results in encephalitis. If untreated, approximately 80% of infected individuals die. Even with timely antiviral intervention, the fatality rate is 20%. Thus, BV-infection is a serious concern to those working around macaque monkeys. Because of its extreme pathogenicity, BV is classified as a Risk Group 4 agent and may only be propagated in a BSL-4 laboratory – such as we have at SFBR

We are interested in the regulation of BV-gene expression and how this relates to pathogenesis. MicroRNAs are key regulators of gene expression, and recent evidence suggests that they have important roles in the pathogenesis of herpesviruses. We have discovered several BV-encoded microRNAs and are currently investigating how they regulate the expression of virus and cellular genes. We anticipate that by comparing the interactions of the virus with human cells versus macaque cells, we will gain valuable insight into why the virus is so pathogenic to humans.

Lorena Havill, Ph.D.

A summer student working with Dr. Havill would participate in research related to the study of bone traits related to risk of osteoporosis ("fragile bone disease"). Studies have identified environment (e.g. age, sex, activity level, diet, reproductive history) and genetics as significant osteoporosis risk factors. Potential research topics include sex- and age-specific aspects of bone strength, bone mineral density and bone turnover. Dr. Havill is particularly interested in students who would like to pursue studies of the effects of reproductive history on bone health.

Michael C. Mahaney, Ph.D.

Dr. Mahaney is using statistical and bioinformatics analyses of phenotypic, genetic and genomic data to detect, characterize, localize, and identify genes in baboons that influence variation in susceptibility to and severity of common, complex diseases in humans. Phenotypes/organ systems/metabolic pathways for which data are available for independent study projects include (but are not limited to) those related to risk of cardiovascular disease (e.g., lipoprotein cholesterol measures, inflammatory cytokines, oxidative stress measures, etc.), hemostasis and clinical chemistry measures, and dental metrics and morphological variation.

Available genetic and genomic data include microsatellite genotypes at more than 300 loci, SNP genotypes at hundreds of loci, and gene expression levels for more than 15,000 genes.

A summer student working with Dr. Mahaney will most likely be introduced to basic statistical genetics and/or bioinformatics analysis techniques and be guided through an independent study using these sorts of data to discover genotype-by-environment interaction effects on a specific phenotype or disease risk factor.