Derrick L. Sauls

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To secure employment in the field of research that offers new and challenging opportunities that will allow for continued growth, development, and advancement of scientific knowledge.

SUMMARY OF QUALIFICATIONS

- Exceptional interpersonal skills
- Strong computer skills and high-quality oral and written communication skills
- Proficient in Microsoft office suite including A Excel, Word and Publisher
- Professionalism and strong initiative
- Extensive scientific background: cancer, coagulation, HIV, animal surgeries (rabbit-mice) injection ports, and blood drawing, drug treatments, tissue culture, antibody production, screening, and isolation, facscan, analysis (monocytes, platelets, factor lX binding), protein analysis (western blot and gel analysis), Elisa assays coagulation proteins, vWF, prothrombin, FVlll, ATlll, Fibrinogen, tissue factor, and Protein A agarose purification of protein and antibody, Pharmacological assays to determine effect of recombinant factor FVll on platelets thrombin generation using Calibrated Automated Thrombogram (CAT). HPLC analysis of reduced protein prepped for Mass Spec analysis.
- Written IRB (Human Diabetes Study) and IACUC (Rabbit Study) protocols
- Ability to explore scientific methods and adapt for usage in Laboratory.
- Taught Medical Science courses
- Advised students in preparation for graduate studies
- Designed Curriculum and Plan of Study
- Benchmarked College/University programs

EDUCATION

Ph.D. in Nutrition — **North Carolina State University – Raleigh, NC**
May 2003

M.S. in Health Science — **Northeastern University – Boston, Massachusetts**
May 1990

B.S in Zoology — **North Carolina State University – Raleigh, NC**
May 1981

RELATED WORK EXPERIENCE

Saint Augustine's University, Dept. Chair, Assistant Professor-Department of Physical Education, Exercise Science, and Athletic Training (PEESAT) Fall 2012-Present

PEESAT

Implemented teach out plan for departmental program transitioning from Human Performance and Wellness program to Physical Education, Exercise Science, and Athletic Training programs. Benchmarked new programs and designed plan of study and course sequence in alignment with Transitioning Education Program (TEP), national, and state licensure/certifications. Coordinated faculty updates for faculty training and involvement in TEP and advisement of students. Initiated search for faculty to teach new programs. Reviewed and scheduled courses for students and faculty course loads. Reviewed students and signed off on candidacy forms for graduation. Submitted the annual academic program review and faculty/student accomplishments for departmental board report.

Pre-Physician Assistant Program

Advised students interested in healthcare professions. Taught prerequisite medical sciences classes to students interested in graduate schools and professional schools (Physician Assistant, Medical, and Dental Schools). Implemented classes for summer prerequisite program, Healthcare Professionals Preparatory Program (HP3). I assisted in the study to establish a Physician Assistant program in the School of Applied Health and Medical Sciences.

Collaborations:
Dr. Nigel Keys, UNC Chapel Hill-Medical School, Hematology Department on study of African-American male athletes with Sickle Cell Trait.
Continued research project with Durham VA Medical Center," the study of the effect of diabetes on coagulation".

Duke University Medical Center, Research Associate/ Lab Research Analyst I, Department of Pathology: 12/1998-10/2012. Initiated a diabetes study using excess blood samples in the clinical lab to determine the effect of diabetes on coagulation proteins in humans. Developed a community collaboration to screen subjects for diabetes, which was coordinated with Project Direct (UNC affiliated community group for prevention of diabetes) and several community Churches.

Determined the effects of recombinant FVll on platelet thrombin generation in human and mouse plasma, using a Calibrated Automated Thrombogram (CAT).

Developed a rabbit model of Hyperhomocysteinemia to study the metabolic effects of homocysteine on coagulation proteins. Examined the metabolic effects of homocysteine on cellular functions in-vitro and in-vivo, and its possible role in oxidation of proteins and thrombosis. Used an animal model of Hyperhomocysteinemia, in which there were two ways to produce elevated plasma levels of homocysteine 1) daily bolus injections of homocysteine, 2) a modified diet (rabbit chow) that was deficient in folate. Analysis was done to explore the modification of coagualtion proteins generating blood clots that were resistant to fibrinolysis and purifying fibrinogen from plasma to identify sites of modification. Plasma and Liver samples were used for fatty acid and phospholipid analysis; these samples were prepared using a Lipid extraction method and final analysis using either a HPLC technique or injection on a Gas chromatograph. I correlated biweekly blood values and did statistical analysis to check for toxic effects of homocysteine and basic metabolic functions.

Collateral Duties and Collaborations: My position involved exploring new techniques that could be adapted to the lab to further our research goals. Trained high school students, college students, and research fellows. Usually, they were on one year rotations or summer undergraduate projects.

Maintained several research collaborations with Virginia Commonwealth University Medical Center (VCUMC), University of North Carolina Medical Center (UNCMC), and North Carolina State University.
VCUMC had a Hemodyne machine which was undergoing testing for FDA approval; however the instrument could be used for research purposes. Therefore, I was responsible for doing the follow-up on clinical trials evaluating the machine's performance using blood samples from human subjects with chronic diseases and controls, generating data and follow-up for quality control. This instrument was also used in the lab to investigate coagulation studies with our rabbit model of hyperhomocysteinemia and the effect of homocysteine. At North Carolina State University, I was able to adapt animal model for the purpose of studying whether elevated plasma levels of homocysteine could cause diabetes. This research project was important for two reasons 1) we were able to successfully adapt the rabbits to a modified diet deficient in folate and 2) not only were the homocysteine levels elevated but the rabbits showed an increase in insulin resistance that correlated with homoycsteine levels, and yielded some insight into possible implications of homocysteine causing diabetes.

In looking at the whole biology of the rabbit, I was able to modify the diet and calculate how much of several antioxidants to add to the diet to have a protective effect against elevated levels of homocysteine. My collaboration with UNC involved the purification of prothrombin and antithrombin proteins from human plasma, plus the generation of monoclonal antibodies to Factor IX for analysis of binding to platelet receptors. The Calibrated Automated Thrombogram System (CAT) was located at UNC and was used to determine coagulation parameters, i.e. Thrombin generation (Peak) and endogeneous thrombin potential (ETP)

Duke University Medical Center, Lab Research Analyst I, Department of Medicine: 6/1992-12/1998
Examined the inhibition of HIV-1 infection in monocytropic and lymphocytotropic cell lines using cobalamins. Examined the chemical synthesis of Cobalamins and its derivatives, the effect of nitric oxide donors on leukemia cells in nude mice, the expression of CD44 receptors antibodies and inhibition of HIV.

Studies in lab evolved around several ongoing research projects. Coordinated studies with HIV, which entailed cell culture, pharmacological agents, and analysis of progression or inhibition of HIV. Grew stock viruses and titered them for research use, inoculated cells with HIV virus, and added pharmacological agents. Analysis was done on samples to determine whether the pharmacological agents inhibited virus. Monitored the effect of CD44 receptors and their ability to inhibit the integration of HIV into monocytes and lymphocytes. Monitored several genetic variant strains of HIV for infection of monocytes and macrophages.

Nude mice were used to determine the therapeutic effect of nitric oxide donors on destroying cancer cells. The mice were inoculated with the tumor cells, once tumor growth was established; the nitric oxide donors were injected intraperoneally once a day. The mice were followed and checked daily for rate of survival.

TEACHING EXPERIENCE

Consultant, 2003 – 2009
North Carolina State University-Department of Food Science: Nutrition
Helped design research protocols and methods for nutritional projects which involved humans, mice and rabbit. Provided clinical and nutritional assessment of human subjects during metabolic study to determine the effect of Muscadine wine on glycemic indexes in diabetics.

Instructor, 1996 – 1998
Shaw University- EPA Research Apprenticeship Program
Courses: Laboratory Methods and Biology

Adjunct Professor, 1992 -1994, 1997
Saint Augustine College- Science Department
Courses: Physical Science, Biology, Ecology, and Scientific Methods

AWARDS AND HONORS

U.S. Patent: METHODS OF PREVENTING AND TREATING HIV INFECTION
Serial No.: 08/339,215 (Notice of Allowance August 27, 2003)
INSTITUTE OF NUTRITION (North Carolina) Grant 2001
Institute for Medical Research-Durham VAMC: Modulation of Prothrombin levels in Type II Diabetics (Grant 2007)
Ph.D. Thesis and Dissertation work on Hyperhomocysteinemia resulted in 1.6 million dollars in grant funding (2 American Heart Association grants: $400,000 and 2 VA MERIT REVIEW grants: $1,200,000) Time Period: July 1999 – August 2011

PAPERS

1. Daniel PF**, Sauls DL**, Boustany RM: Evidence for processing of dolichol-linked oligosaccharides in patients with neuronal ceroid-lipofuscinosis.[Journal Article] American Journal of Medical Genetics. 42(4):586-92, 1992 Feb 15.
2. Rivadeneira ED, **Sauls DL**, Yu Y, Haynes BF, Weinberg JB: Inhibition of HIV type 1 infection of mononuclear phagocytes by anti-CD44 antibodies. AIDS Research & Human Retroviruses. 11(5):541-6, 1995 May.

3. Dukes CS, Yu Y, Rivadeneira ED, **Sauls DL**, Liao HX, Haynes BF, Weinberg JB: Cellular CD44S as a determinant of human immunodeficiency virus type 1 infection and cellular tropism. Journal of Virology. 69(7):4000-5, 1995 Jul.
4. Weinberg JB, Misukonis MA, Shami PJ, Mason SN, **Sauls DL**, Ditman WA, Wood ER, Smith GK, Mcdonald B, Bachus KE, et. al.: Human mononuclear phagocyte inducible nitric oxide synthase(iNOS): analysis of iNos mRNA, iNOS protein, biopterin, and nitric oxide production by blood monocytes and peritoneal macrophages. Blood. 86(3);1184-95, 1995 Aug.1.
5. Weinberg JB, **Sauls DL**, Misukonis MA, Shugars DC: Inhibition of productive human immunodeficiency virus-1 infection by cobalamins. Blood 86(4):1281-7, 1995 Aug 15.
6. Brower M, Chamulitrat W, Ferruzzi G, **Sauls DL**, Weinberg JB: Nitric Oxide interactions with cobalamins: biochemical and functional consequences. Blood 88(5):1857-64, 1996 Sept. 1.
7. Shugars DC, **Sauls DL**, Weinberg JB: Secretory leukocyte protease inhibitors blocks infectivity of primary monocytes and mononuclear cells with both monocytotropic and lymphocytotropic strains of human immunodeficiency virus type 1. [Journal Article] Oral Diseases. 3 Suppl 1:S70-2, 1997 May.
8. Weinberg JB, Shugars DC, Sherman PA, **Sauls DL**, Fyfe JA: Cobalamin inhibition of HIV-1 integrase and integration of HIV-1 DNA into cellular DNA. Biochemical and Biophysical Research Communications. 246(2):393-7, 1998 May 19.
9. Shami PJ, **Sauls DL**, Weinberg JB: Schedule and concentration-dependent induction of apoptosis in leukemia cells by nitric oxide. Leukemia. 12(9):1461-6, 1998 Sep.
10. **Sauls DL**, Wolberg, Hoffman M: Hyperhomocysteinemia induces alterations in fibrinogen function and fibrin clot structure in a rabbit model, J Thromb Haemostas, 1(2):300-306, 2003
11. **Sauls DL**, Boyd LC, Allen JC, Hoffman M: Differences in the Metabolic Response to Exogeneous Homocysteine in Juvenile and Adult Rabbits, J Nutr Biochem 15:96-102, 2004
12. **Sauls DL**,Lockhart, E, Warren, ME, Lenkowski, A, Wilhelm, SE, Hoffman, M. Modification of fibrinogen by homocysteine thiolactone increases resistance to fibrinolysis: a potential mechanism of the thrombotic tendency in hyperhomocysteinemia. Biochemistry. 45(8):2480-7, 2006
13. Baninini, AE, Boyd, LC, Allen, JC, Allen, HG, **Sauls, DL**. Muscadine grape products intake, diet and blood constituents of non-diabetic and type 2 diabetic subjects. Nutrition 22 (11-12):1137-45 2006
14. **Sauls DL**, Arnold, E, Bell, C, Allen, J, Hoffman, M. Pro-Thrombotic and Pro-Oxidant Effects of Diet-Induced Hyperhomocysteinemia. Thrombosis Research 120(1):117-26 2006
15. **Sauls, DL**, Warren, M, and Hoffman, M. Homocysteinylated fibrinogen forms disulfide-linked complexes with albumin. Thrombosis Research 127(6):576-81 2011

Military:
United States Navy, Hospital Corpsman (E-5) 1985 -1992 Honorable Discharge

Community Service:
Garner Road YMCA – Board of Trustees (2009- present)
Wake County Department of Health - Community Volunteer (2007 –present)
Lincoln Park Holiness Church –Minister (1995 – present)
Passage Home (Mustard Seed Thrift Store) – Volunteer (2005 – present)
Strengthening the Black Family 1981 – Now
Project Direct (Diabetes Initiative) 2007- Now
Health Fairs: Watts Chapel Missionary Baptist Church/Lincoln Park Holiness Church 2010/2011
Project Alpha-Male Alliance for Life Extension 1992 – 1998 (Director)
Alpha Phi Alpha – Member
Prince Hall F&AM - Member