Curriculum Vitae

Personal Information

Name:	Shodimu-Emmanuel Olufemi
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Education

1997	Doctor of Philosophy in Genetics and Human Genetics Howard University, Washington, DC
1991	Master of Science in Biology. Texas Southern University Houston, Texas
1988	Bachelor of Science in Biology / Minor in Chemistry Texas Southern University, Houston, Texas

Professional Experience

2011-Present	Assistant Professor Department of Biology Texas Southern University Houston, Texas
2007-2011	Adjunct/Visiting Assistant Professor Department of Biology Texas Southern University Houston, Texas
2005-2009	Research Scientist Department of Genetics UT-MD Anderson Cancer Center Houston, Texas
2002-2005	Post-Doctoral Fellow Department of Molecular Genetics Section of Cancer Genetics UT-MD Anderson Cancer Center Houston, Texas
1997-2000	Post-Doctoral Fellow and New Investigator in the Program of Excellence in Molecular Biology of Heart and Lung Department of Molecular Genetics College of Medicine University of Cincinnati Cincinnati, Ohio

1994-1997	Intramural Research Training Award (IRTA) Fellow Laboratory of Gene Transfer / Gene Identification National Human Genome Research Institute (NHGRI) National Institutes of Health (NIH) Bethesda, Maryland
1992-1994	Graduate Teaching Assistant Department of Genetics and Human Genetics College of Medicine Howard University Washington, District of Colombia
1991-1992	Research Assistant / Teaching Assistant Laboratory of Molecular Biology Department of Biology Texas Southern University Houston, Texas
1989-1991	MBRS Fellow / Graduate Teaching Assistant Laboratory of Molecular Biology Department of Biology Texas Southern University Houston, Texas

Teaching Experience

2011-Present: Assistant Professor, Texas Southern University, Houston, Texas.
In the past taught general biology courses, for biology major and non-major, to undergraduate students and I also taught diagnostic bacteriology to graduate students. Presently I teach genetics and molecular genetics to undergraduate seniors and graduate students; and I also teach advanced human genetic, microbial genetics, endocrinology and topic in biology to graduate students. Also, I supervise M.Sc. graduate students in my research lab (Biol.861), including a PhD graduate student in the Environmental Interdisciplinary Science Program. I use several sources of information, including textbooks, journals and internet websites in my teaching. Because it enable me to gather and compile information from different sources, including my own research works, and to transform these information into simplified lecture topics that students are able to absorb, comprehend and appreciate very well. I set and proctor (occasionally graduate students may proctor exams if request is made to the Department for large class) own examination questions and grade exam papers and return them to students on time. I make sure that the exam grades are turned in on time. In addition, I have office hours for tutorial section to help students that may need additional tutoring to understand some lecture topics or may have questions about some biological topics.

2007-2011: Adjunct Assistant Professor and Visiting Assistant Professor, Texas Southern University, Houston, Texas.
I taught general biology courses, for biology major and non-major, to undergraduate students and I also taught diagnostic bacteriology to graduate students. Also, I taught advanced human genetic, microbial

genetics to graduate students. I used several sources of information, including textbooks, journals and internet websites in my teaching. Because it enable me to gather and compile information from different sources, including my own research works, and to transform these information into simplified lecture topics that students are able to absorb, comprehend and appreciate very well. I set and proctored (occasionally graduate students may proctor exams if request is made to the Department for large class) own examination questions and grade exam papers and return them to students on time. I make sure that the exam grades are turned in on time. In addition, I have office hours for tutorial section to help students that may need additional tutoring to understand some lecture topics or may have questions about some biological topics.

1994-1997: IRTA Fellow, NHGRI, NIH, Bethesda, Maryland; and a PhD Candidate, Howard University, Washington, District of Colombia.
I was awarded the IRTA fellowship to conduct my PhD dissertation research studies at NHGRI at NIH. At the Department of Genetics and Human Genetics, I was selected by the Department of Genetics to give a lecture in the College of Dentistry at Howard University on topic that deals with human genome "gene mapping". Also I was responsible for organizing student's seminars and journal's club and student meetings, and I also encouraging the students to invite guest speakers.

1992-1994: Graduate Teaching Assistant, Howard University, Washington, District of Colombia.
I was responsible for organizing student's seminars and journal's club and student meetings, and I also encouraging the students to invite guest speakers.

1991-1992: Research Assistant, Texas Southern University, Houston, Texas.
I organized and setup all experimental materials and instruments that are needed to teach the laboratory sections. In addition, I also tutored to help students who may need additional help with their biology course work. Also, I helped both undergraduate and graduate students in Dr. Kiah Edwards' lab to organize and setup their research experiments; and also, I advised them on experimental designs, procedures and data interpretation of their results when necessary. I taught the molecular biology laboratory section of Dr. Kiah Edwards' lab; and I organized the lab seminars and the journal club meetings and I participated in journal club and gave presentations.

1989-1991: MBRS Fellow, Texas Southern University, Houston, Texas.
I conducted thesis research work for my M.Sc. degree in Biology. I organized and setup all experimental materials and instruments that are used in the lab. Also, I design experiments, procedures, and interpret experimental results.

Research Experience and Mentoring

I have listed and briefly described below in chronological order my research and mentorship experiences during the course of my training and career development. I worked and trained at several institutions, such as UT-MDACC, UC, NIH, HU and TSU where I have first hand experiences and trainings in different molecular biology techniques and tools that are used to study and analyze biological problems. In addition, I

attained versatile knowledge in different areas of biological sciences through, interdepartmental trainings, seminars, meetings, workshops and collaborations. My training at these institutions has built my confidence and prepared me to be a teacher, a scientist and a leader and a manager, monitoring independent research projects. I have participated in research projects that dealt with both aspects of human and non-human studies, such as cancer, cardiovascular disease, neuromuscular disease, ischemic reperfusion injury in animal model and avian genome studies.

2011-Present: Assistant Professor, Texas Southern University, Houston, Texas. In an effort to continue my endeavor and quest for research at TSU, my research is focused on genetic diseases and genomic studies. Currently, ongoing research project in my lab entails "Deciphering the functions of aberrant spliced pre-mRNA and protein misfolding in human diseases." l am a member of the graduate faculty and I supervise graduate students' research projects and sever on graduate students' thesis and dissertation committees. I also supervise undergraduate students' research projects as well.

2009-2010: Adjunct/Visiting Assistant Professor, Texas Southern University, Houston, Texas. At TSU, I volunteered to participate in NASA/CBER research projects in which we study the effects of microgravity and radiation on microorganisms. With NASA/CBER research project, I helped and supervised graduate students to design the molecular biology experimental approaches on how to study the effects of simulated microgravity and radiation on several microorganism models, employing studies that will allow us to study several biological pathways, such as the cell cycle pathway, the DNA damage and repair pathway, the stress and survival pathway, the apoptosis pathway, including the role of DNA hypermethylation and hypomethylation, non-coding RNA and alternative spliced RNA. The molecular biology experimental designed approaches were included in the poster presentation of the C-BER student fellows during 2010 NASA site visit to TSU-NASA/CBER program. I also helped and supervised the students in the lab with molecular biology experimental technical problems and designs.

2005-2009: Research Scientist, the UT-MD Anderson Cancer Center, Houston, Texas. At MDACC, I worked on two different projects. My first research project involves positional cloning of the non-*p53* Li-Fraumeni Syndrome (LFS) gene. I used several different molecular genetic techniques, such as (1) genotyping of non-*p53* LFS families DNA samples with microsatellite markers and SNPs array technology to generate genotyping data for linkage analysis and run linkage analysis software program, (2) searching the UCSC Genome Browser and other database for di, tri and tetra nucleotide repeats to design additional microsatellite primer sets, (3) using multiple available information that are published in journals to identify potential candidate genes in non-*p53* LFS locus minimal interval on chromosome 1q23.3, (4) performing direct sequencing of non-*p53* LFS families DNA samples to detect mutations in candidate genes, and (5) performing RT-PCR to detect aberrant/alternative spliced cDNA in non-*p53* LFS families RNA samples.

My second research project involves myotonic dystrophy (DM) disease. My part in the DM project are (1) to decipher the mechanism(s) by which the mutant (CCUG)DM2 RNA transcripts cause DM2 disease, and (2) to

decipher the role and function(s) of aberrant spliced *ZNF9* mRNA transcripts in myotonic dystrophy type 2 (DM2) pathogenesis. For the DM2 project I also used several molecular biology and genetic techniques, such as (1) seeding in tissue culture both human and mouse myoblast cell lines, (2) isolating of DNA, RNA, and Protein from cell lines (i.e. for PCR / Q-RT-PCR and Western blotting), (3) making cDNA from total RNA (6) performing drug treatment on cell lines and (7) using total cDNA made from the drug treatment experiment to perform gene expression profiling and (8) performing data analysis, (9) performing cloning of DNA / cDNA into fluorescence or non-fluorescence tagged expression vectors, (10) performing transfection tagged DNA constructs into mammalian cells and (11) performing transformation in E. coli cells, (12) performing in situ fluorescence (IF) hybridization, and (13) using fluorescence microscopes (i.e. epifluorescence and deconvolution and others) to determine co-localization or interaction of proteins in both cultured human and mouse cell lines and mouse tissues.

In 2006, I mentored and supervised DM2 research project of a high school summer student, Nicholas Russell. He was admitted to Carnegie Mellon University in September 2006. In 2007, he did his summer program Carnegie Mellon University and in 2008, he was accepted to the SMAT summer program at Baylor College of Medicine. I served as his reference. In May 2010, Nicholas Russell graduated with a combined degree in bioengineering and mechanical engineering from Carnegie Mellon University. He graduate and went to pursue higher degree.

2002-2005: Post-Doctoral Fellow, the UT-MD Anderson Cancer Center, Houston, Texas. I worked on the physical mapping and the positional cloning of the non-*p53* Li-Fraumeni Syndrome (LFS) gene. We mapped the 3rd LFS locus to Human chromosome 1q23.3 by using several molecular genetic techniques, such as (1) genotyping non-*p53* LFS families DNA samples with microsatellite markers and SNPs array technology to generate genotyping data for linkage analysis and run linkage analysis software program, (2) searching the UCSC Genome Browser and other database for di, tri and tetra nucleotide repeats to design additional microsatellite primer sets, and (3) using multiple available information that are published in journals to identify potential candidate genes in non-*p53* LFS locus minimal interval on chromosome 1q23.3., (4) performing direct sequencing of non-*p53* LFS families DNA samples to detect mutations in candidate genes, and (5) using RT-PCR to detect aberrant/alternative spliced cDNA in non-*p53* LFS families RNA samples.

1997-2000: Post-Doctoral Fellow and New Investigator, College of Medicine, University of Cincinnati, Cincinnati, Ohio. My work involves identification of gene(s) involved in or associated with essential hypertension. I was part of the group that worked on essential hypertension research, and we showed that functional single nucleotide polymorphisms (SNPs) in the alpha human epithelia sodium Channel (α-*hENaC*) isoform contribute to essential hypertension in the African American population by using several molecular genetic techniques, such as (1) direct sequencing of DNA samples of essential hypertensive African Americans to detect mutations (variants: SNPs) in candidate genes, (2) performing association studies of functional SNPs, and (3) performing electrophysiological studies of functional α-*hENaC* SNPs in Xenopus

oocytes to infer the role of α-*hENaC* variants on sodium (Na^+) ion conduction in the distal tubule of the kidney.

In summer 1999, I mentored and supervised the hypertension research project of a college student and a high school student in Dr. Anil Menon's lab.

1994-1997: Intramural Research Training Award (IRTA) Fellow, National Human Genome Research Institute (NHGRI), National Institutes of Health (NIH), Bethesda, Maryland. I am a recipient of IRTA fellowship award at the NHGRI. I worked on the positional cloning of the *MEN1* gene and I was part of the group that identified and cloned the Multiple Endocrine Neoplasia Type 1 (*MEN1*) gene, and also, I showed that mutation in the *MEN1* gene causes $MEN1_{Burin}$ cancer. Several different molecular genetic techniques were used to identify and clone the *MEN1* gene. The different molecular genetic techniques that were used to clone the *MEN1* gene are as follows, (1) screening high density human chromosome cosmids and BAC libraries by both hybridization and PCR to identify clones, (2) constructing a physical map (contig) of the *MEN1* locus, (3) identifying di, tri and tetra nucleotides repeats present in the clones to develop microsatellite markers (primers) used for linkage analysis and LOH analysis, (4) identifying recombination in affected families to reduce the genetic interval that harbors the putative gene, (5) using both cosmids and BAC clones DNA for exon trapping and screening high density human cDNA library to identify transcripts that were used to construct a transcript map of the *MEN1* locus, (6) performing 5' -3' rapid amplification of cDNA end (5' -3' RACE), and (7) identifying candidate genes that were directly sequenced for mutations in *MEN1* families.

1991-1992: Research Assistant, Texas Southern University, Houston, Texas.
I supervised both undergraduate and graduate student experiments in Dr. Edwards' lab. Also, I organized the lab journal clubs, and I was responsible for maintaining and supervising the daily operation of the lab, as well as maintaining equipments and ordering supplies. I also worked on the characterization of satellite repetitive DNA elements in the avian genome.

1989-1991: MBRS Fellow, Texas Southern University, Houston Texas.
I also attended scientific conferences, including MBRS conferences and other conferences, where I gave oral presentations. I worked on research project that study the effect of heavy metal on in vitro protein synthesis to infer that heavy metals which are environmental toxicants can cause several disease that are detrimental to human health.

Additional Experience and Training: Through in-house departmental and interdepartmental trainings, workshop trainings and collaborations, I acquired additional experiences and learned how to use several modern bio-techniques and biotechnological equipments, and biological software tools to mention a few, such as micro-array, exon/gene array and SNPs array technology, Pyrosequencing technology, genotyping, sequencing, in silico data mining, gene targeting DNA construct design, DNA Promoter methylation assays, NMD assays, histology and microbiology techniques, and scanning electron and fluorescence microscopes. Also, I attended grant writing classes to keep up with the requirements, changes and guild lines implemented by different funding agencies.

Publications

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S. J. Marx, S. K. Agarwal, M. B. Kester, C. Heppner, Y. S. Kim, MR. Emmert-Buck, L. V. Debrlenko, I. A. Lubensky, Z. A. Huang, S. C. Guru, P. Manickam, **S-E. Olufemi,** M. C. Skarulis, J. L. Doppman, R. H. Alexander, L. A. Liotta, F. S. Collins, S. C. Chandrasekharappa, A. M. Spiegel, and A. L. Burns. Germline and Somatic Mutation of

the Gene for Multiple Endocrine Neoplasia Type 1 (*MEN1*). *Journal of Internal Medicine, 243: 447-453, 1998.*

S. C. Guru, P. Manickam, J. S. Crabtree, **S-E. Olufemi,** S. K. Agarwal, L. V. Debrlenko, Z. A. Huang, I. A. Lubensky, M. B. Kester, Y. S. Kim, C. Heppner, J. M. Weismann, M. S. Boguski, Y. Wang, B. A. Roe, A. L. Burns, L. A. Liotta, A. M. Spiegel, M. MR. Emmert-Buck, S. J. Marx, F. S. Collins and S. C. Chandrasekharappa. Identification and Characterization of the Multiple Endocrine Neoplasia Type I (*MEN1*) Gene. *Journal of Internal Medicine, 243: 433-439, 1998.*

Shodimu-Emmanuel Olufemi, Jane S. Green, Pachiappan Manickam, Siradanahalli C. Guru, Sunita K. Agarwal, Mary Beth Kester, Qihan Dong, A. Lee Burns, Allen M. Spiegel, Stephen J. Marx and Francis S. Collins and Settara C. Chandrasekharappa. A Common Ancestral Mutation in the MEN1 Gene Is Likely Responsible for the Prolactinoma Variant of *MEN1* (*$MEN1_{Burin}$*) in Four Kindred from Newfoundland. *Human Mutation, 11: 264-269. 1998.*

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Michael R. Emmert-Buck, Larisa V. Debelenko, Sunita K. Agarwal, Mary Beth Kester, Pachiappan Manickam, Zhengping Zhuang, Siradanahalli C. Guru, **Shodimu-Emmanuel Olufemi**, A. Lee Burns, Settara C. Chandrasekharappa, Irina A. Lubensky, Lance A. Liotta, Monica C. Skarulis, Allen M. Spiegel, Stephen J. Marx and Francis S. Collins. 11q13 Allelotype Analysis of Chromosome in 27 Northern American *MEN1* Kindreds Identifies Two Distinct Founder Chromosomes. *Mol Genet Metab, 63: 151-155, 1998.*

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Larisa V. Debelenko, Elisabeth Brambilla, Sunita K. Agarwal, Jennifer I. Swalwell, Mary Beth Kester, Irina A. Lubensky, Zhengping Zhuang, Siradanahalli C. Guru, Pachiappan Manickam, **Shodimu-Emmanuel Olufemi,** Settara C. Chandrasekharappa, Judy S. Crabtree, Christina Heppner, A. Lee Burns, Allen M. Spiegel, Stephen J. Marx, Lance A. Liotta, Francis S. Collins, William D. Travis and Michael R. Emmert-Buck. Identification of *MEN1* Gene Mutations in Sporadic Carcinoid Tumors of the Lung. *Human Molecular Genetics, 6: 2285-2290, 1997.*

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Abstracts

Olayinka Raheem, **Shodimu-Emmanuel Olufemi**, Anna Naukkarinen, Mario Sirito, Linda L Bachinski, Jeanette Holmlund-Hampf, Tiina Suominen, Hannu Haapasalo, Ralf Krahe, and Bjarne Udd. Abnormal Expression of *Zinc Finger 9* (*ZNF9*) *mRNA* and *Protein* in Myotonic Dystrophy Type 2 (DM2). *7th International Myotonic Dystrophy Consortium Meeting, Wurzburg, Germany, September 9-12, 2009.*

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E.W. Daw, C.C. Wu, **S-E. Olufemi**, J. Ma, L.L. Bachinski, C.I.Amos, R. Krahe, and L.C. Strong. Oligogenic Segregation and Linkage Analysis of Non-p53 Li-Fraumeni Syndrome Families. *The American Society of Human Genetics, 55H Annual Meeting, Salt Lake City, Utah, October 26-29, 2005.*

Linda L. Bachinski, **Shodimu-Emmanuel Olufemi**, Xiaojun Zhou, ChihiChieh Wu, Sanjay Shete, Guillermina Lozano, Christopher I. Amos, Louse C. Strong and Ralf Krahe. Genetic Mapping of a Third Li-Fraumeni Syndrome (LFS) Predisposition Locus to Human Chromosome 1q23. *The American Society of Human Genetics, 54TH Annual Meeting, Toronto, Canada, October 26-30, 2004.*

S.C. Guru, P. Manickam, Q. Dong, **S-E**. **Olufemi,** M. Skarulis, A.M. Spiegel, S.J. Marx, F.S. Collins and C.S. Chandrasekharappa. The MLK-3 Gene Maps to the *MEN1* Interval at 11q13 and Is a Candidate for *MEN1*. *HUGO'S Human Genome Meeting, Heidelberg, Germany. March 22-24, 1996. Abstract #180.*

S.C. Guru, P. Manickam, Q. Dong, **S-E**. **Olufemi,** C. Cummings, P. Dejong, A. C. Chinault, F.S. Collins, and S.C. Chandrasekharappa. YAC/PAC/P1 Contig and Transcription Map of the *MEN1* Region at 11q13. *NCGHR Scientific Retreat, Airlie Center, VA. December 12, 1995. Abstract #A37.*

Teaching Responsibility

A. Undergraduate Level:

Non-majors:
Survey of Life Science (Lecture)

Biology Majors:
Biological Sciences I
Biological Sciences II
Principle of Biology

B. Graduate Level:

Advance Human Genetics
Microbial Genetics
Topic in Biology
Endocrinology

Graduate:

Mentees:

Olusegun Ogunniyi, M.S. Biology (May 2014)

Fatimah Alhassan, M.S. Biology (May 2014)

Imani Bethel, M.S. Biology (May 2014)

Angel Ryals, M.S. Biology (May 2014))

Hoda Eltayeb, M.S. Biology (May 2015)

Jennifer Mosley, M.S. Biology (May 2015)

Graduate Students:

Mentees:

Tommie Johnson, (MS candidate student)

Arete John Egibe, (MS candidate student)

Graduate Student Committees:

Samrawit Yeshitla, M.S. (May 2012)

Sedigheh Heydari, M.S. (May 2012)

Melvedina Mansoor, M.S. (December 2012)

Dominique Sapp, M.S. (December 2012)

Kursten M. Berry, M.S. (December 2013)

Evil Okoro, M.S. (May 2015)

Ivory Ellis, M.S. (May 2015)

Taofeek Olonode, PhD (August 2015)

Hadijatt Audu, M.S. (August 2015)

College Committees:

- COSET Research Committee 2011-Present
- COSET Assessment Committee 2011-2014
- COSET Suspension and Re-Admission 2015-2017

University Community Interaction:

- TSU COSET Faculty Panel Discussion: COST Research Week 2013

Departmental Committees:

- Graduate Committee 2011-Present

- Assessment Committee 2011-Present

Honors and Awards:

- Intramural Research Training Award (IRTA), NHGRI, NIH 1994-1997
- Minority Biomedical Research Support (MBRS) 1989-1991

Grantmanship:

- Texas Southern University Research Center Seed Grant Award 2012-2013