

Howard K. Holness, Ph.D., MBA, BSc.
Florida International University
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EDUCATION:

2013	FLORIDA INTERNATIONAL UNIVERSITY <i>Doctorate in Chemistry</i>	Miami, Florida
2005	UNIVERSITY OF NEW ORLEANS <i>Master of Business Administration</i>	Kingston, Jamaica
2002	UNIVERSITY OF THE WEST INDIES <i>Bachelor of Science, Applied and Food Chemistry</i>	Kingston, Jamaica

CERTIFICATIONS/PROFESSIONAL DEVELOPMENT:

2015	LEADERSHIP EDUCATION ADVANCEMENT PROGRAM <i>Florida International University, Miami, FL</i>
2005	HPLC CERTIFICATION <i>Chromatography Institute of America, Boston MA</i>
2004	STATISTICAL QUALITY MANAGEMENT CERTIFICATE <i>University of South Carolina, Kingston, Jamaica</i>

EMPLOYMENT:

	Florida International University	Miami, FL
June 2023 – Present	<i>Interim. Assoc. Dean of Administration, Nicole Wertheim College of Nursing and Health Sciences</i> <ul style="list-style-type: none">• Manages the non-academic functions of the Nicole Wertheim College of Nursing and Health Sciences.• Serves on the senior leadership team of the college Nicole Wertheim College of Nursing and Health Sciences.	
May 2022 – June 2023	<i>Director of Research and Development, Global Forensic and Research Center</i> <ul style="list-style-type: none">• Assists the Executive Director of the GFJC to coordinate and execute all areas of forensic science and law enforcement training across the University. This includes both academic research projects as well as service based federal contract work that are a combined \$23M of effort annually.• Develop research collaborations across colleges within the university to enhance the forensic offerings through joint grant proposals, enhanced service work agreements and invited speaker engagements to students and faculty.	
June 2014 – May 2022	<i>Chief of Academic Administration, Office of the Provost</i> <ul style="list-style-type: none">• Assists the Provost, Executive Vice President and Chief Operating Officer with the daily operations of administering the office of the Provost. This includes the management and	

interaction of 12 degree granting Colleges and their deans responsible for a student body of 58,000 graduate and undergraduates.

- Plan and maintain monthly, quarterly and annual meetings between the Provost and his direct reports that includes 13 academic deans and 4 non-academic vice presidents.
- Manage the research lab and externally funded projects of the Provost that is comprised of doctoral level graduate students with various projects in analytical and forensic chemistry.
- Represent the Provost in various meetings that range from space utilization, to new partnerships and collaborations, academic compliance and grievance issues.

January 2011 – June 2014

Assistant Director of the International Forensic Research Institute (IFRI)

- Assist in providing the management, administrative direction, coordination and control of activities of the research programs and service areas within IFRI.
- Advise and assist in planning, directing, and reporting the activities of IFRI, and assists in developing and implementing procedures for IFRI and its accredited degree programs.
- Work with the IFRI Director to determine annual and long-term funding objectives. Identifies, communicates and solicits funding from public, private, state and national organizations.
- Assist director and principal investigators with writing and coordinating grant proposal applications in compliance with FIU policies, procedures and mission. Assist principal investigators to facilitate grant re-funding activities, timely submission of progress reports, and final close-out reports to appropriate funding agencies.
- Assist in overseeing the implementation of externally funded projects awarded to IFRI or brought under the supervision of the IFRI program.
- Ensure all externally funded projects comply with FIU/IFRI funding agency policies and procedures.
- Monitor programs and grant budgets, requisitions, travel and other purchasing expenditures
- Serve as liaison between the Office and outside agencies by establishing and maintaining working relationships with federal, state and local funding agency representatives and various offices within FIU, as well as with the Evaluator of the programs to further the IFRI program goals, objectives and activities.

January 2006 – December 2010 *Laboratory Manager*

- Ensure efficient operation of a Graduate Research Group by offering mentoring and guidance to graduate students.
- Provide preventative maintenance of laboratory equipment, Agilent 6890/5973 GCMS, Varian 3800/Saturn 2000 GCMS.
- Oversee numerous research projects involving both field and laboratory-based analysis.
- Responsible for the dissemination of financial and verbal reports to funding agencies on a monthly and quarterly basis.
- Assist in writing of grants to solicit federal and private funding
- Ensure general keeping of good laboratory practices within a research environment and adherence to university policies.

October 2002 - December 2005 **SUGAR INDUSTRY RESEARCH INSTITUTE**

Kingston, Jamaica

Process Technologist

- Designed and Implemented new analytical methods to improve efficiency of Central Lab operations required for improved efficiency within the sugar industry.
- Designed experiments and conducted training utilizing High Performance Anion Exchange Chromatography to analyze oligosaccharides in cane juice products.
- Integral in implementing ISO 17025 certification for Central Laboratory on all raw cane product analysis.
- Designed and Conducted annual on-site training courses for sugar factory laboratory employees.
- Provided consulting services to clients within the sugar industry.
- Conducted special experiments on waste water, soil, plant matter and cane juices for raw sugar factories.
- Conducted off-site inspections at various client factories.
- Analyzed results of inspections and present conclusions to clients for improved operations.
- Evaluated the efficiency of sugar factory operations by analyzing and troubleshooting internal processes.

May 2002 - September 2002

NATIONAL PROCESSORS

Kingston, Jamaica

Laboratory Technician

- Responsible for quality control in a dry food packaging plant
- Monitored packaging equipment and conducted HACCP training procedures
- Conducted Quality Control tests on food ingredients prior to blending and processing.

SERVICE TO UNIVERSITY

Facilitator for *BeyondPossible2020* Strategic Plan

Assisted in organizing the university wide initiative to develop the 5-year strategic plan, *BeyondPossible2020*. This involved assembling over 100 key individuals from across the university, disseminating data points and progress reports to strategic plan committee and sub-committee members on a regular basis. The conclusion of the plan lead to the crucial implementation phase to ensure timely and efficient execution of the developed strategies, which again required further facilitation and organization. This resulted in the University achieving and surpassing all the student success and research goals set out from the *BeyondPossible2020* strategic plan.

Member of High-Level Search and Screen Committees for:

- Pioneering faculty cohort of the newly acquired Center for Translational Sciences – Xugang Xia (2019) and Stephen Black (2020)
- Asst. Vice President of FIU Biscayne Bay Campus 2019 – Finalist Michael Hearon
- University Registrar 2018 – Finalist Dulce Beltran
- Dean of the Herbert Wertheim College of Medicine 2017 – Finalist Robert Sackstein
- Director of Compensation 2017 – Finalist Pat Hartwell
- Dean of the College of Engineering and Computing 2016 – Finalist John Volakis
- Dean of the College of Arts and Science 2014 – Finalist Michael Heithaus

AWARDS

- Graduate Student Association Scholarly Forum – 1st Place Physics and Chemistry in 2010

- FIU Leadership Education Advancement Program (LEAP) in 2015
- FIU Star Communicator Award in 2017
- Listed as a top Black Educator by Legacy Miami Magazine in 2017
- FIU Presidential Excellence Award – Active Shooter Training in 2019
- FIU Safety and Loss Prevention Award – Active Shooter Training in 2019

ANALYTICAL TECHNIQUES:

High Performance Liquid Chromatography-Electrochemical Detection

- Developed method to detect sugars and polysaccharides utilizing electrical conductivity detection. Analysis was done using Empower software, method was done in joint collaboration with Waters group based in Puerto Rico.

Gas Chromatography-Mass Spectrometry

- Worked on various projects which utilized GC-MS interfaced with both solid phase micro extraction and liquid extraction techniques, to separate and identify compounds of interest. Work was done utilizing both a liner quadrupole and an ion trap mass spectrometer. Proficient in data analysis using both MSD Chemstation version D.03 and Saturn MS Workstation version 6.9

Liquid Chromatography-Mass Spectrometry

- Proficient in utilizing and developing methods for separation and detection of analytes by Liquid Chromatography and detection by ion trap and triple quadrupole mass spectrometry. Methods developed include those for drugs of abuse such as cocaine, heroin and methamphetamines.

Ion Mobility Spectrometry- Mass Spectrometry

- Proficient in utilizing ion mobility spectrometry for the analysis of drugs and explosive substances. Utilizing both electrospray and radio-active Nickel 63 ionization sources and detection using quadrupole mass spectrometry.

PUBLICATIONS:

1. Dr. Kenneth Furton, Jessie Greb, Howard Holness, The Scientific Working Group on Dog and Orthogonal Detector Guidelines (SWGDOG), September 2010, document no. 231952
2. Holness, H.; Jamal, A.; Mebel, A.; Almirall, J. Separation mechanism of chiral impurities, ephedrine and pseudoephedrine, found in amphetamine-type substances using achiral modifiers in the gas phase. *Analytical and Bioanalytical Chemistry* 2012, 404 (8), 2407-2416.
3. Kabir, A.; Holness, H.; Furton, K. G.; Almirall, J. R. 1.23 - Legal and Forensic Sampling. In *Comprehensive Sampling and Sample Preparation*, Editor-in-Chief: Janusz Pawliszyn, Ed.; Academic Press: Oxford, 2012; pp 441-465.
4. Kabir, A.; Holness, H.; Furton, K. G.; Almirall, J. R. Recent advances in micro-sample preparation with forensic applications. *TrAC Trends in Analytical Chemistry* 2013, 45 (0), 264-279.
5. Holness, H.; Almirall, J. Speciation effects of solvent chemistry on the analysis of drugs and explosives by electrospray ion mobility mass spectrometry. *Int. J. Ion Mobil. Spec.* 2013, 16 (3), 237-246.

6. K.G. Furton, N.I. Caraballo, M.M. Cerreta and H. Holness, Advances in the use of Odour as Forensic Evidence through Optimizing and Standardizing Instruments and Canines, *Philosophical Transactions B*, 370: 20140262, 2015 <http://dx.doi.org/10.1098/rstb.2014.0262>
7. Norma Iris Caraballo, Julian Mendel, Howard Holness, Joel La Salvia, Tina Moroose, Brian Eckenrode, Rex Stockham, Kenneth Furton and DeEtta Mills, An Investigation into the Concurrent Collection of Human Scent and Epithelial Skin Cells using a Non-Contact Sampling Device, *Forensic Science International* (2016), Vol 266, 148-159
8. Lauren J. Colón-Crespo, Danay Herrera-Hernández, Howard Holness, Kenneth G. Furton, Determination of VOC marker combinations for the classification of individuals by gender and race/ethnicity, *Forensic Science International*, 2016 <http://dx.doi.org/10.1016/j.forsciint.2016.09.011>)
9. Nadja Schreiber-Compo, Roland Carol, Jacqueline Evans, Pamela Pimentel, Kristin Nicholas-Lopez, Howard K Holness, Stefan Rose, Kenneth G. Furton, Witness memory and alcohol: The effects of state-dependent recall, *Law and Human Behavior* (2016, October 27) <http://dx.doi.org/10.1037/lhb0000224>
10. Danni Cuia, Alexander M. Mebel, Luis E. Arroyo-Mora, Howard Holness, G.Furton Kenneth, Kevin O'Shea, Kinetic, product, and computational studies of the ultrasonic induced degradation of 4-methylcyclohexanemethanol (MCHM), *Water Research*, <https://doi.org/10.1016/j.watres.2017.09.005>
11. Evans, J.R., Schreiber Compo, N., Carol, R.N., Nichols-Lopez, K., Holness, H., & Furton, K.G. The impact of alcohol intoxication on witness suggestibility immediately and after a delay. *Applied Cognitive Psychology* 2018;1-12
12. Alison G Simon, Lauryn E DeGreeff, Kelvin Frank, Kimberly Peranich, Howard Holness, Kenneth G Furton, A Method for Controlled Odor Delivery in Olfactory Field-Testing, *Chemical Senses*, bjj031, <https://doi.org/10.1093/chemse/bjj031> (May 21, 2019)
13. Vanquilla Shellman Francis, Howard K. Holness, Kenneth G. Furton, The Ability of Narcotic Detection Canines to detect Synthetic Cathinones (Bath Salts), *Front. Vet. Sci.*, 09 April 2019, <https://doi.org/10.3389/fvets.2019.00098>
14. Evans, J. R.; Compo, N. S.; Carol, R. N.; Nichols-Lopez, K.; Holness, H.; Furton, K. G. The Impact of Alcohol Intoxication on Witness Suggestibility Immediately and after a Delay. *Appl. Cogn. Psychol.* 2019, 33 (3, SI), 358-369. <https://doi.org/10.1002/acp.3502>
15. DeGreeff, L. E., Simon, A. G., Macias, M. S., Holness, H. K., Furton, K. G. Controlled Odor Mimic Permeation Systems for Olfactory Training and Field Testing., *J. Vis. Exp* (167), e60846, doi:10.3791/60846 (January 28, 2021). <https://www.jove.com/t/60846/controlled-odor-mimic-permeation-systems-for-olfactory-training-field>
16. Stephanie R. Vaughan, Lauryn E. DeGreeff, Leann Forte, Howard K. Holness, Kenneth G. Furton, Identification of Volatile Components in the Headspace of Pharmaceutical-Grade Fentanyl, *Forensic Chemistry*, 2021, <https://doi.org/10.1016/j.forc.2021.100331>
17. J. Mendel, K. Frank, L. Edlin, K. Hall, D. Webb, J. Mills, H.K. Holness, K.G. Furton, D. Mills, Preliminary accuracy of COVID-19 odor detection by canines and HS-SPMEGC-MS using exhaled

- breath samples, *Forensic Science International: Synergy* (2021), <https://doi.org/10.1016/j.fsisyn.2021.100155>
18. Kelvin J. Frank, Howard K. Holness, Kenneth G. Furton, and Lauryn E. DeGreeff, Explosives detection by dogs Book Chapter in *Counterterrorist Detection Techniques of Explosives 2nd Edition*, Edited by Avi Kagan and Jimmie C. Oxley, Elsevier Publishing 2022, ISBN 978-0-444-64104-5
 19. Vidia A. Gokool, Howard K. Holness, Kenneth G. Furton, The Influence of Intra-Personal Variations in Human Hand Odor on The Determination of Sample Donor, *Forensic Science International*, 2022, 111235, ISSN 0379-0738, <https://doi.org/10.1016/j.forsciint.2022.111235>
 20. Toriki Zughaibi, Kenneth G. Furton, Howard Holness, Michelle R. Peace, Measuring Odor Transport of Narcotic Substances using DART-AccuTOF, *Forensic Sciences*, 14 February 2022
 21. A.C. Fulton, L. Forte, S.R. Vaughan, H.K. Holness, K.G. Furton and L.E. DeGreeff, Investigation of the volatile organic compounds from trace fentanyl powder via passive degradation, *Forensic Chemistry*, October 10, 2022
 22. Gokool, V.A.; Crespo-Cajigas, J.; Mallikarjun, A.; Collins, A.; Kane, S.A.; Plymouth, V.; Nguyen, E.; Abella, B.S.; Holness, H.K.; Furton, K.G.; Johnson, A.T.C.; Otto, C.M. The Use of Biological Sensors and Instrumental Analysis to Discriminate COVID-19 Odor Signatures. *Biosensors* 2022, 12, 1003. <https://doi.org/10.3390/bios12111003>
 23. Janet Crespo-Cajigas, Vidia A. Gokool, Andrea Ramírez Torres, Liam Forsythe, Benjamin S. Abella, Howard K. Holness, Alan T. Charlie Johnson, Kenneth G. Furton, Investigating the Use of SARS-CoV-2 (COVID-19) Odor Expression as a Non-Invasive Diagnostic Tool – Pilot Study, *Diagnostic Microbiology and Infectious Disease, Diagnostics (Basel)*. 2023 Feb 13;13(4):707. doi: 10.3390/diagnostics13040707. PMID: 36832195
 24. Chantrell J.G. Frazier, Vidia A. Gokool, Howard K. Holness, DeEtta K. Mills, Kenneth G. Furton, Multivariate Regression Modelling for Gender Prediction Using Volatile Organic Compounds from Hand Odor Profiles via HS-SPME-GCMS, *PLOS ONE*, in press.

PRESENTATIONS:

1. Kenneth G. Furton, Jessie Greb and Howard Holness, **Optimized Location of Forensic Evidence by Canines and Instruments through Implementation of Best Practice Guidelines and SPME/GC-MS Methods**, Presented at the 60th American Academy of Forensic Sciences, Washington DC, 2008
2. Jessica V. Gonzalez, Howard K Holness and Kevin O'Shea, **Endosulfan Analysis with Analysis with Gas Chromatography on Bufferstrip Soil Leachates**, Presented at the 84th American Chemical Society Florida Section, Orlando Florida, 2008.
3. Kenneth G. Furton, Jessie Greb and Howard Holness, **The Scientific Working Group on Dog and Orthogonal Detector Guidelines**, Presented at 61st American Academy of Forensic Sciences, Denver, Colorado, 2009
4. Mendez, E., Rose, S., Holness, H., and Furton, K. **"The Response of the Intoxilyzer 8000 to Volatile Organic Compounds Found in the Human Breath at Physiologic Concentrations"**. Presented at: FAME, Orlando, Florida, May 2009
5. Mendez, E., Rose, S., Holness, H., and Furton, K. **"The Response of the Intoxilyzer 8000 to Volatile Organic Compounds Found in the Human Breath at Physiologic Concentrations"**. Presented at: *Second Annual Life Sciences Research Symposium*, Miami, FL. March 28, 2009. Award: Best Poster Presentation.

6. Howard K. Holness and Jose R. Almirall, **Fast Forensic Analysis of Methamphetamine and its Enantiomers Using Ion Mobility Spectrometry**, Presented at the 62nd American Academy of Forensic Sciences, Seattle, Washington, 2010
7. Kenneth G. Furton, Jessie Greb and Howard Holness, **Improved Location of Forensic Evidence Through Implementation of the Scientific Working Group on Dog and Orthogonal Detector Guidelines (SWGDOG)**, Presented at the 62nd American Academy of Forensic Sciences, Seattle, Washington, 2010
8. Howard K. Holness and Jose R. Almirall, **SEPARATION OF ENANTIOMERS BY CHIRAL ION MOBILITY SPECTROMETRY**, Presented at the Florida Annual Meeting and Exposition (FAME), Tampa, Florida, 2010
9. Howard K. Holness and Jose R. Almirall, **Enantiomeric Separation of Amphetamine Type Substances by ESI-Chiral Ion Mobility Spectrometry**, Presented at the 19th International Conference on Ion Mobility Spectrometry, Albuquerque, New Mexico, 2010
10. Norma Caraballo, Howard K. Holness, DeEtta Mills and Kenneth G. Furton, **Evaluation of the scent transfer unit (STU-100) for the collection of human odor from porous objects**, Presented at the 63rd American Academy of Forensic Sciences, Chicago, Illinois, 2011
11. Claudia L. Sanchez, Howard K Holness, Paola A Prada and Kenneth G. Furton, **Analysis of Volatile Organic Compounds of Heroin for the Canine Detection by using Solid Phase Microextraction/Gas Chromatography-Mass Spectrometry**, Young Forensic Scientists Forum, Presented at the 63rd American Academy of Forensic Sciences, Chicago, Illinois, 2011
12. Mimy Young, Wen Fan, Howard Holness and Jose Almirall, **Development of Stimulants of Hydrogen Peroxide Based Explosives for use by Canine and IMS Detectors**, Presented at the Awareness and Localization of Explosives-Related Threats (ALERT) Site Visit, Boston, Massachusetts, 2011
13. Howard Holness and Jose Almirall, **Chiral Separation of Amphetamine Type Substances Using Ion Mobility Spectroscopy - Mass Spectrometry**, Presented at the 64th American Academy of Forensic Sciences, Atlanta Georgia, 2012
14. Howard Holness, Seongshin Gwak and Jose Almirall, **Chiral Separation of Amphetamine Type Substances Using Ion Mobility - Mass Spectrometry**, Presented at 1st IFRI Forensic Science Symposium, Miami, Florida 2012
15. A. Kabir, H. Holness, K.G. Furton and J.R. Almirall, **Sampling and Sample Preparation for Forensic Chemical Analysis**, Invited book chapter to be published in Comprehensive Sampling and Sample Preparation (Editor: Janusz Pawliszyn), submitted 8 18 2011.
16. Nicholas Weis, Howard Holness and José Almirall, **METHOD OPTIMIZATION FOR THE ANALYSIS OF SMOKELESS POWDERS BY ELECTROSPRAY IONIZATION-ION MOBILITY-MASS SPECTROMETRY**, Presented at the Florida Annual Meeting and Exposition (FAME), Tampa Florida 2012.
17. Lauren J. Colon-Crespo, Danay Herrera-Hernández; Howard Holness, Abuzar Kabir, Kenneth G. Furton, Aixing Fan, Laurence Du-Thumm, **Evaluation of Human Scent As Possible Classification Evidence**, Presented at the 66th American Academy of Forensic Sciences, Seattle Washington, 2014.
18. Evans, J.R., Schreiber Compo, N., Carol, R., Pimentel, P., Pena, M., Hoogesteyn, K., Powell, M., Holness, H., Furton, K., & Rose, S. **The effects of alcohol intoxication on metamemory**. Paper to be presented to the biannual meeting of the Society for Applied Research in Memory and Cognition, Victoria, BC, in June 2015.
19. H. K. Holness, L. J. Colon-Crespo, A. Huertas, V. Shellman, R. Mesa, A. Kabir and K. G. Furton, **Pioneering uses of headspace analysis for the rapid identification of objects of forensic interest in**

the field, Federation of Analytical Chemistry and Spectroscopy Societies (FACSS) - SciX
Minneapolis, September 21, 2016

20. Kenneth G. Furton, Howard K. Holness, Alison Simon, Adhly Huertas, Vanquilla Shellman, Rodolfo Mesa, Abuzar Kabir, **Discriminating Power of Volatiles from Forensic Specimens in the Field Using Innovative Sampling and Analysis**, Pittcon 2017, Chicago, IL.
21. Alice B. Boone, Vanquilla Shellman, Alison G. Simon, Lauryn Degreeff, Kimberly Peranich, Howard K. Holness and Kenneth G. Furton, **Utilization of Controlled Odor Mimic Devices to Improve law Enforcement Canine Training**, International Working Dog Conference, April 2017, Banff Alberta Canada (Poster Presentation)
22. Lorenzo Ramirez, Alyssa Worrell, Collen Nelson¹, Spiro Kokolis, Tessa Seales, Bridget Stewart, Vanquilla Sherman, Philip Davis, Howard Holness, Kenneth Furton, Cynthia M. Otto, **The Use of the Universal Detection Calibrant as a Scent Detection Training Tool**, International Working Dog Conference, April 2017, Banff Alberta Canada (Poster Presentation)
23. Alice B. Boone, Howard Holness, Kenneth G. Furton, **The Enhancement of Human Scent Profiles as Forensic Evidence**, Presented at the American Academy of Forensic Sciences, Seattle Washington, February 2018
24. Alice Boone, Howard Holness and Kenneth G Furton, **The Enhancement of Human Scent Profiles as Forensic Evidence**, presented at the Pittcon 2019 conference, March 19, 2019 in Philadelphia, Pennsylvania
25. Kelvin Frank, Alison G Simon, Kimberly Peranich, Howard Holness, Kenneth Furton, Lauryn DeGreeff, **A method for controlled odor delivery in canine olfactory testing**, presented at the 11th International Working Dog Conference, September 3, 2019 in Stockholm, Sweden
26. Alice B. Boone, Kenneth G. Furton, Howard K. Holness, **The Enhancement of Human Scent Profiles as Forensic Evidence**, presented at the 72nd American Academy of Forensic Sciences (AAFS) 2020 conference, February 19, 2020, Anaheim California
27. Vidia A. Gokool, Howard K. Holness, Kenneth G. Furton, **Human Scent Biometrics: Paving a Path Toward Improved Data Analysis**, presented at the 72nd American Academy of Forensic Sciences (AAFS) 2020 conference, February 21, 2020, Anaheim California
28. Kenneth G. Furton, Kelvin Frank, Julian Mendel, Howard K. Holness, and DeEtta K. Mills, **Preliminary Accuracy of COVID-19 odor detection by canines**, presented at the 12th International Working Dog Conference (IWDC) October 12 to 14, 2021, Virtual Conference
29. Leann Forte, BS; Stephanie Vaughan, PhD; Ashley Fulton, PhD; Lauryn DeGreeff, PhD; Howard K. Holness, PhD; Kenneth G. Furton, PhD, **The Effects of Degradative Stress on the Headspace Profile of Fentanyl**, presented at the 74th American Academy of Forensic Sciences (AAFS) 2022 conference, February 21, 2022, Seattle Washington
30. Vidia A. Gokool, MS; Howard K. Holness, PhD; Kenneth G. Furton, PhD, **Human Scent Biometrics: A Pilot Study in Source-Origin Determination**, presented at the 74th American Academy of Forensic Sciences (AAFS) 2022 conference, February 21, 2022, Seattle Washington
31. Leann Forte, MS*; Howard Holness, PhD; Kenneth Furton, PhD; Lauryn DeGreeff, PhD, **The Development of a Safe Canine Training Aid Mimic for Fentanyl**, presented at the 75th American Academy of Forensic Sciences (AAFS) 2023 conference, February 16, 2023, Orlando, Florida
32. Vidia Gokool, MS*; Chantrell Frazier, DPhil; Howard Holness, PhD; Kenneth Furton, PhD, **An Instrument-Based Approach to the Use of Human Scent as a Biometric**, presented at the 75th American Academy of Forensic Sciences (AAFS) 2023 conference, February 16, 2023, Orlando, Florida

33. Kelvin Frank, Howard Holness, Suzanne Perry, Paola Prada-Tiedemann, Kenneth G. Furton, **Standardization of Dogs and Sensors: Update on Current and Planned Standard of the Dogs and Sensors ASB Consensus Body**, presented at the 75th American Academy of Forensic Sciences (AAFS) 2023 conference, February 16, 2023, Orlando, Florida

EXTERNALLY FUNDED GRANTS MANAGED:

- Ginkgo Bioworks Inc, Microbiome-based vector control (subcontract), **\$79,076**, 9/16/2020 – 3/16/2022: A cross disciplinary study to investigate the volatile organic compounds released from individuals and their resulting behavior on different species of mosquitos. Assisted in grant writing, experimental design and lab execution as well as grant administration and report creation.
- NIH, Analysis of T-Shirts - "Effective, Reagent-free Detection of the Odor Signature of Covid-19 Infection Using a Nano-Enabled Sensor Array" (subcontract), National Institute of Health, **\$239,937.75**, 12/20/2020 – 11/31/2022: A study to develop a detection mechanism for COVID-19 utilizing the volatile organic compounds from patients. Assisted in grant writing, experimental design and lab execution as well as grant administration and report creation.
- NIJ, Non-Contact Detection of Fentanyl and Other Synthetic Opioids, (subcontract) National Institute of Justice, **\$107,368**, 09/01/2019 – 08/30/2021: A study to investigate the volatile organic compounds released from synthetic opioids to develop non-contact detection mechanisms. Assisted in grant writing, experimental design and lab execution as well as grant administration and report creation.
- NSF, Industry-University Cooperative Research Centers, Center for Advanced Research in Forensic Science, "Continued Advanced Human Scent Identification: A cross-disciplinary study using SPME-GC/MS VOC analyses and Next Generation DNA sequencing techniques for increasing the probative value of human scent evidences" **\$24,960**, 10/29/2019 – 12/20/2022
- NSF, Industry-University Cooperative Research Centers, Center for Advanced Research in Forensic Science, "Human Scent Forensics: A cross-disciplinary study using SPME-GC/MS VOC analyses and Next Generation DNA sequencing techniques for increasing the probative value of human scent forensics" **\$25,000**, 10/17/2017 – 12/31/2018
- Office of Naval Research, "Exploring the Effects of the Generalization-Discrimination Balance and Odor Availability in Odor Detection Canines". Assisted in grant writing and reviewing technical soundness prior to submission to funding agency **\$210,419.26**. 2016 to 2018
- Colgate Palmolive, "Phase 2 Hispanic Study" **\$56,800**, wrote funding proposal and guided technical execution and reporting of special project to develop methods used to analyze samples for Colgate Palmolive Company. 2016 to 2017
- Managed grant titled "ANALYSIS OF SAMPLES FOR COLGATE" wrote funding proposal and guided technical execution and reporting of special project to develop methods used to analyze samples for Colgate Palmolive Company. **\$11,000** from Colgate Palmolive October 2015 to December 2015.
- Managed grant titled, "Determining the Human Scent Profile from Axillary and Hand Odor from Different Target Populations", **\$222,000**, from Colgate Palmolive April 2012 to April 2015
- Managed grant titled "EVALUTION OF THE FIOD X2" wrote funding proposal and guided technical execution and reporting of special project to develop methods used to analyze samples for FLIR detection. **\$22,000**, FLIR detection September 2014 to April 2015.

- Managed grant titled “VALIDATION AND IMPLIMENTATION OF CANINE TRAINING AIDS USING CONTROLLED ODOR MIMIC PERMEATION SYSTEMS (COMPS)”. Assisted in grant writing and reviewing technical soundness prior to submission to funding agency. **\$64,786** from the National Forensic Science Technology Center. 2011 to 2012.
- Managed grant titled “DESIGN AND DEVELOPMENT OF SCIENTIFICALLY VALIDATED NON-HAZARDOUS CANINE TRAINING MATERIALS”. Assisted in grant writing and reviewing technical soundness prior to submission to funding agency. **\$121,499** from the National Institute of Standards and Testing. 2010 to 2011
- Managed grant titled “EPITHELIAL CELL PRESENCE DETERMINATION IN HUMAN SCENT EVIDENCE COLLECTION PROJECT” Co-PI. Assisted in grant writing and reviewing technical soundness prior to submission to funding agency. **\$229,000** from the Federal Bureau of Investigation. 2009 to 2011.
- Co-Managed grant titled “SCIENTIFIC WORKING GROUP ON DOG AND ORTHOGONAL DETECTOR GUIDELINES” contract award 2005-IJ-CX-K031. Responsible for technical reports, financial management and project execution during semiannual membership meetings. **\$370,822** from the National Institute of Justice 2007 to 2010.
- Managed grant titled “OPTIMIZATION OF SORBENT HUMAN SCENT IDENTIFICATION” contract award W91CRB-06-C-5002. Was responsible for financial and technical reports. **\$454,405** from the Technical Support Working Group 2006 to 2008.
- Managed grant titled “EVALUATION OF ODOR COLLECTION/TRANSFER, PRESERVATION, PERSISTENCE/DISSIPATION and TESTING/DEPLOYMENT for HUMAN SCENT. Handled management of finances and compiling quarterly reports to private funding agency. **\$168,933** from the Netherlands National Police Force 2006 to 2008.

SPECIAL PROJECTS:

- Experienced in giving Legal Depositions for court room proceedings as an expert witness. State of Florida v. Medina case no. 07028236MM10A.
- Developed GC-MS method for the analysis of cocaine samples used in State v Contreras. This entailed all aspects of receiving samples for analysis, maintaining chain of custody and performing analysis and data processing which would be noteworthy for presentation in a court of law. Analysis involved determining the trace impurities in cocaine samples and then comparing impurities across different samples to determine the similarities of each of the ten exhibits.
- Joint collaboration with Florida Highway Patrol Canine division and the Drug Enforcement Administration, to prepare and package narcotics used as canine training aids for Florida State Troopers. This entailed utilizing calibrated gravimetric scales and securing and supervising dispersion of 168g (6 oz) of bulk narcotic, Cocaine-HCL, Cocaine Base, Marijuana, Heroin, Methamphetamine and Methylenedioxyamphetamine into smaller 25g and 3g parcels to be used as training aids in accordance with developing FIU/IFRI training guidelines for all Florida Highway Patrol Canine handlers.
- Facilitated FBI, DHS and NIJ sponsored SWG group entitled Scientific Working Group for Dog and Orthogonal detector Guidelines, SWGDOG. One of only four facilitators that ran meetings and

discussion groups at semi-annual SWGDOG meetings to develop best practice guidelines for detector dogs in the United States. Was also integrally involved in managing the funds for the project obtained from the NIJ.