

Curriculum Vitae
David Lee Black, Ph.D

CURRICULUM VITAE
David Lee Black, Ph.D., D-ABFT, FAIC

PERSONAL DATA

Birth: January 28, 1948
Ypsilanti, Michigan

Address: 1254 Wavecrest Circle
Gallatin, Tennessee 37066
(615) 230-8586

MILITARY SERVICE

1966-1970 United States Marine Corps

1970-1976 United States Marine Corps Reserve
Disabled American Veteran

EMPLOYMENT

2014 – Present Ebon Papyrus Press, LLC
515 Great Circle Road
Nashville, Tennessee 37228
Position: Chairman, CEO and President

2013 – Present Ebon Passeri Music, LLC
515 Great Circle Road
Nashville, Tennessee 37228
Position: Chairman, CEO and President

2012 – Present 2nd Vote Patriot, LLC
501 Great Circle Road
Nashville, TN 37228
Position: Founder and President

1996 – Present Ebon Falcon, LLC
515 Great Circle Road
Nashville, Tennessee 37228
Position: Chairman, CEO and President

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EMPLOYMENT

- 2012 – 2016 Aegis Sciences Corporation
Aegis Analytical Laboratories
515 Great Circle Road
Nashville, Tennessee 37228
Position: Chairman, President, CEO and Founder
- 1990- 2012 Aegis Sciences Corporation
Aegis Analytical Laboratories
515 Great Circle Road
Nashville, Tennessee 37228
Position: Chairman, CEO, President and Director
- 1986-1990 Vanderbilt University Medical Center
Department of Pathology
Nashville, Tennessee 37232
Position: Director of Forensic/Clinical Toxicology Laboratory
Director of Athletic Drug Testing Lab
- 1986 Maryland Medical Laboratory, Inc.
1901 Sulphur Spring Road
Baltimore, Maryland 21227
Position: Director Toxicology Division
- 1982-1986 Maryland Medical Laboratory, Inc.
1901 Sulphur Spring Road
Baltimore, Maryland 21227
Position: Head, Toxicology Department
- 1977-1982 Maryland Medical Laboratory, Inc.
1901 Sulphur Spring Road
Baltimore, Maryland 21227
Position: Administrative Technologist of Division of Toxicology
- 1975-1977 Central Laboratories of Associated Maryland Pathologists, Timonium, MD
Position: Evening Supervisor, Toxicology Technologist
- 1974-1977 Fellow, Department of Health, Education and Welfare, Public
Health Service, Maryland Medical-Legal Foundation,
111 Penn St, Baltimore, MD 21201
Field: Toxicology

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EMPLOYMENT

1973-1974 Koppers, Baltimore, Maryland
Position: Chief Chemical Technician

ACADEMIC POSITIONS

2012 – Present Adjunct Associate Professor
Vanderbilt University
Department of Pharmacology

2011 – Present Clinical Associate Professor
Vanderbilt University
Department of Pathology, Microbiology and Immunology

2009-2011 Clinical Associate Professor Vanderbilt University Department of Pathology
Nashville, Tennessee

1992-2001 Clinical Associate Professor
Meharry Medical College, Department of Pharmacology
Nashville, Tennessee

1991-1994 National Faculty United States Sports Academy
Daphne, Alabama

1990-1991 Clinical Assistant Professor
Vanderbilt University School of Medicine
Department of Pathology
Nashville, Tennessee

1987-1990 Instructor, Department of Pharmacology Vanderbilt University School of Medicine
Nashville, Tennessee

1986-1990 Assistant Professor of Pathology
Vanderbilt University School of Medicine
Department of Pathology
Nashville, Tennessee

1984-1986 Clinical Assistant Professor
Department of Pathology Division of Forensic Pathology School of Medicine
University of Maryland
Baltimore, Maryland

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LICENSURE AND CERTIFICATION

Tennessee State License-#013146

Medical Director-Chemistry

American Board of Bioanalysts-Certificate #5760

Clinical Laboratory Director

Fellow, American Board of Forensic Toxicology-#187

Diplomat, American Board of Clinical Chemistry-#77 (inactive)

American Institute of Chemists, December 1985 - Present

EDUCATION

1974-1982

University of Maryland School of Medicine

Pathology Department

Baltimore, Maryland

Degree: Ph.D., July 1982

Major: Forensic Toxicology Legal Medicine

Minor: Medicinal Chemistry, Pharmacology

1971-1974

Loyola College, Baltimore, Maryland

Degree: Bachelor of Science, 1974

Major: Biology

Minor: Chemistry

1970-1971

Eastern Michigan University

Ypsilanti, Michigan

Degree: N/A Major: Chemistry

1966

Wayne Memorial High School

Wayne, Michigan

DOCTORAL THESIS

A Sensitive Gas Chromatographic Method for Determination of Delta-9- tetrahydrocannabinol in Serum Using Derivatization for Selective Nitrogen Detection

RESEARCH/ACADEMIC INTERESTS

Molecular Pharmacology, Membrane Physiology, Cannabinoid Analysis, In Vitro

Drug Metabolism, Anabolic Steroid Analysis, Toluenediamines

Androgenic Anabolic Steroids/Metabolism, Pharmacokinetics and Detection

Polyesterurethane Foam Biodegradation

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SPECIAL ACADEMIC STUDIES

Synthesis of Azo Derivatives of Cannabinoids

Benzodiazepines: A study of several sedative/hypnotic compounds.

Characterization of the enzyme *tyrosine hydroxylase*.

Cardiac Dysfunction Due to Ion Imbalance in *Rana sp.* Artificial

Liver Androgenic Anabolic Steroid Metabolism

Polyurethane Foam Biodegradation

PATENTS

Apparatus for Continuously Sampling Plasma (Patent # 4,976,270)

CONTINUING EDUCATION

IOC Doping Control Workshop, Cologne, Germany 1986

IOC Doping Control Workshop, Cologne, Germany 1987

IOC Doping Control Workshop, Cologne, Germany 1988

National Institutes on Drug Abuse, Federal Inspectors Training and Workshop, San Diego 1988

Amateur Athletics Foundation Doping in Elite Sport Conference, Los Angeles, 1998

Duke University Conference on Doping in Sports, 1999

Six Sigma in Health Care Symposium, Nashville 2001

National Institutes of Health Conference on the Science and Policy of
Performance-Enhancing Products, Bethesda (Maryland) 2002

AAFS Scientific Meeting 2011

Big East Sports Conference 2012

AAFS Scientific Meeting 2013

AAFS Scientific Meeting 2014

Board Memberships

2016 – Present Scientific Advisory Board
Vanderbilt University

2014 – Present Board Member
Beacon Advisory Board

2013 – Present Board Member
Nashville Healthcare Council

2012 – Present Member Board of Governors
International Conservation Caucus Foundation

2012 - Present Board Member
Co-Chair Workforce Development Committee
Lifesciences Tennessee

2011 – Present Board Member
Nashville Symphony

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PERSONAL INTERESTS

1994-Present	Member, Leadership Sumner Alumni, Sumner County, TN
1988-present	Member, Rotary International, Hendersonville TN, District 6760
2002-2003	President, Hendersonville Rotary Club Hendersonville, TN, District 6760
2001-2006	Board of Directors, Directors, Samaritan Association Hendersonville, TN
2001-2004	Chairman, Sumner County Republican Party Tennessee
2000-2002	Board of Directors, Aladdin Credit Union Nashville, TN
1994 – 2011	Mission Leader, Rotary Guatemala Medical Mission
1993-1994	Leadership Sumner, Sumner County, TN
1993-1994	President, Church Council, St. Timothy Lutheran Church, Hendersonville, TN
1993-1994	Chairman, Vision 2000 Public Health Committee Mayor's Task Force Hendersonville, TN
1990-1993	Vice-President, Church Council St. Timothy Lutheran Church, Hendersonville, TN
1986-1988	Nashville Amateur Athletic Committee-Special Mayors Committee to promote and encourage amateur athletes.
1986-1987	Printing Chairman, Annapolis Wildfowl Carving and Art Exhibition, Annapolis, Maryland
1985-1986	President College Manor Community Association, Inc. Arnold, Maryland.

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ACHIEVEMENTS AND HONORS

Rotary International Lifetime Distinguished Service Award 2004
Hendersonville Citizens Police Academy Graduate, 2001
Citizens FBI Academy Graduate, 2000
Paul Harris Fellow, Rotary International
AACC Outstanding Speakers Award 1993
Meritorious Promotion to Lance Corporal, USMC Meritorious Promotion to Corporal, USMC
Meritorious Promotion to Sergeant, USMC Vietnam Service Ribbon
Vietnam Campaign Ribbon
Vietnam Combat Action Ribbon
Qualified Expert and Sharpshooter Rifleman
Graduate of Military Aviation Electronic/Computer Schooling
Honorable Service Discharge
Member of Beta Beta Beta Biology Honor Society
Deans List- Loyola College 1972
Vice President, Loyola Yacht Club

PROFESSIONAL ASSOCIATIONS

Fellow, American Institute of Chemists
Member, American Chemical Society
Member, American Association for Clinical Chemistry
Member, The American Academy of Forensic Sciences
Member, The International Association of Forensic Toxicologists

CONSULTANT

Program Administrator, World Wrestling Entertainment Wellness Program
Program Administrator, INDYCAR
Major League Baseball Players Association
National Hockey League Players Association
National Football League Players Association
Tennessee Center for Performance Excellence
Breast Implant Litigation Group, Dallas, Texas
Abbott Laboratories, Chicago, Illinois
Washington College of Law, The American University, Washington, D.C. Prisoners
Legal Aid Bureau, Baltimore, Maryland
Help-Net, Salisbury, Maryland
Consortium for the Space Life Sciences, Huntsville, Alabama
National Football League, New York, New York
Department of Alcoholism and Substance Abuse
National Institute on Drug Abuse, Laboratory Inspector (1988-2001)

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REVIEWER

Journal of the American Medical Association

Journal of Analytical Toxicology

Journal of Clinical Chemistry

MANAGEMENT BACKGROUND

TRAINING:

Dunn and Bradstreet Seminars 1981-1983

Stress Management 1984

General Management Training 1984-1985

EXPERIENCE:

Management Positions: 1977-Present

Manage Professional Staff Members at Ph.D./B.S./M.S. Level

Direct Research of new Analytical Methods

Direct Development of new Test Methods

Establish and Direct Analytical areas of:

Athletic Drug Testing (Doping Control)

Emergency Toxicology Therapeutic Drug Monitoring Forensic Toxicology

Special Toxicology

Environmental Toxicology

Water Analysis

Metal Analysis

Research and Development

Direct Purchase of New Analytical Systems

Direct Analytical Quality Control (Quality Assurance)

Direct Instrument Quality Control

Develop and Instruct Employee Training

Develop and Instruct Client Training

Establish and Direct Analytical Methods of:

Chromatography:

Thin Layer Chromatography

Gas- Liquid Chromatography Packed-Glass Columns Micro-bore Capillary

Wide-bore Capillary

Flame Ionization Detection

Nitrogen-Phosphorous Detection

Electron-Capture Detection Mass-Selective Detection Mass Spectrometry

Infra-red Detection

High - Performance Liquid Chromatography

UV Detection

Electrochemical Detection

Mass Spectrometry

Tandem Mass Spectrometry

Time of Flight Mass Spectrometry

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MANAGEMENT BACKGROUND

EXPERIENCE (Cont.):

Spectrophotometry:

Ultraviolet
Visible
Fluorescence

Immunoassay:

Neuroleptic Radioreceptor Assay
Radioimmunoassay
Fluorescence Polarization
Enzyme Multiplied Immunoassay Technique (EMIT)
Enzyme-Linked Immunoassay (ELISA)

Spectroscopy:

Atomic Absorption (AA)- Flameless
DC Emission

Electrochemistry:

Ion Selective Electrodes (ISE) Anodic Stripping Voltametry (ASV)

PUBLICATIONS

Black, D.L. "A Sensitive Gas Chromatographic Method for The Determination of Delta-9 tetrahydrocannabinol (THC) in Serum Using Derivatization for Selective Nitrogen Detection", University Microfilms International, Ann Arbor, Michigan, 1982.

Black, D.L. "Factors Affecting Blood Drug Levels", Clin. Chem. News. 9:21-23, April (1983).

Black, D.L., Goldberger, B.A., Isenschmid, D.S., White, S.M., and Caplan, Y.H., "Urine Cannabinoid Analysis: An Integrated Multi-Method Approach", J. Anal. Toxicol., 8:224-227, (1984)

Black, D.L., Goldberger, B.A., Caplan, Y.H., "Enzyme Immunoassay Method for Comprehensive Drug Screening in Micro-Samples of Urine", Clin. Chem., 33:3, 367-371 (1987).

Backfish, G.E., Ulinski, D.E., Parl, F.F., Black, D.L., "Computer-Assisted Graphic Display of Serial Cyclosporine Determinations in Blood with Parallel Creatinine Concentrations", Transplantation Proceedings, Vol. XX, No. 2, Suppl. 2 (April 1988).

Black, D.L., "Drug Testing", Postgrad. Med., 85:6, 47(1989).

Finkle, S., Black, D.L., Blanke, R.V., Jones, G.R., and Sample, R.H., "Analysis for Commonly Abused Drugs at Selected Threshold ("cut off") Concentrations", Clin. Chem., 37:4, 586-587, (1991).

Clin. Chem., 37:4, 586-587, (1991). Tennant, F., Black, D.L., and Voy, R.O., "Anabolic Steroid Dependence with Opioid Type Features", N. Engl.J. Med., 319:9, 578, (1988).

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PUBLICATIONS

Lacy, P., Ruzumna, P., Williams, P., Bracy, D., Boothe, H., Black, D.L., Abumrad, N. and Nasseran, D., "Effect of Suprapharmacological Androgenic Steroid Treatment on Basal and Insulin- Stimulated Glucose Metabolism", FASEB, (1991)

Bluhm, R.E., Rodgers, W.H., Black, D.L., Wilkinson, G.R., and Branch, R., "Cholestasis in transplant patients- what is the role of Cyclosporine?" *Aliment. Pharmacol. Ther.* 6, 207-219 (1992)

Black, D.L., *Drug Testing in Sports: Reprints of Selected Articles from Journal of Analytical Toxicology*, Preston Publications (1995)

Black, D.L., "Doping Control Testing Policies and Procedures: A Critique" in *Doping in Elite Sport, The Politics of Drugs in the Olympic Movement*, Eds. Wayne Wilson and Edward Derse, Human Kinetics Publishers (2001)

Black, D.L., Ritchie, L., and Caplan, Y.H. "A Gas Chromatographic Method for Cannabinoid Determinations in Biological Specimens." 35th Annual Meeting of the American Academy of Forensic Sciences, Cincinnati, 1983.

Kinkennon AE, Black DL, Robert TA and Stout PR, "Analysis of Nitrite in Adulterated Urine Samples by Capillary Electrophoresis" *J. Forensic Sci.* Sept. 2004, Vol. 49, No. 5, pp 1094-1100

Cone, E.J., Caplan, Y.H., Moser, F., Robert, T., and Black, D., "Evidence that Morphine is Metabolized to Hydromorphone but not to Oxymorphone", *J. Anal. Tox.*, Vol. 32 (4) May 2008

Cone, E.J., Caplan, Y.H., Black, D.L., Robert, T., and Moser F., "Urine Drug Testing of Chronic Pain Patients: Licit and Illicit Drug Patterns", *J. Anal. Tox.*, Vol.32 (6) October 2008

Caplan, Y.H., Cone, E.J., Moser, F., Robert, T., Cawthon, B. and Black D.L., "Multiple Drug Use by Ecstasy Abusers in the United States", *SOFT*, October 2008, Phoenix, AZ

Cone, E.J., Caplan, Y.H., Moser, F., Robert, T., Shelby, M. and Black, D.L., "Normalization of Urinary Drug Concentrations with Specific Gravity and Creatinine", *J. Anal. Tox.*, Vol. 33 January 2009

Black, D.L., Cawthon, B., Robert, T., Moser, F., Caplan, Y.H., and Cone, E.J., "Multiple Drug Ingestion by Ecstasy Abusers in the United States", *J. Anal. Tox.*, Vol. 33 April 2009

Cone, E.J., Zicherman, A., Heltsley, R., Black, D.L., Cawthon, B., Robert, T., Moser, F. and Caplan, Y.H. "Urine testing for norcodeine, norhydrocodone, and noroxycodone facilitates interpretation and reduces false negatives", *Forensic Sci. Int.* (2009), doi: 10.1016/j.forsciint.2009.12.005

Heltsley, R., Zicherman, A., Black, D.L., Cawthon, B., Robert, T., Moser, F., Caplan, Y.H. and Cone, E.J., "Urine Drug Testing of Chronic Pain Patients II. Prevalence Patterns of Prescription Opiates and Metabolites", *J. Anal. Tox.*, Vol. 34 Jan 2010

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PUBLICATIONS

Cone EJ, Zichterman A, Heltsley R, Black DL, Cawthon B, Robert T, Moser F, Caplan YH. Urine testing for norcodeine, norhydrocodone, and noroxycodone facilitates interpretation and reduces false negatives. *Forensic Sci Int* 2010;198(1-3):58-61.

Heltsley R, Zichterman A, Black DL, Cawthon B, Robert T, Moser F, Caplan YH, Cone EJ. Urine drug testing of chronic pain patients. II. Prevalence patterns of prescription opiates and metabolites. *J Anal Toxicol* 2010;34(1):32-38.

DePriest A, Heltsley R, Black DL, Cawthon B, Robert T, Moser F, Caplan YH, Cone EJ. Urine drug testing of chronic pain patients. III. Normetabolites as biomarkers of synthetic opioid use. *J Anal Toxicol* 2010;34(8):444-449.

Heltsley R, Shelby MK, Crouch DJ, Black DL, Robert TA, Marshall L, Bender C, DePriest A. Detection of synthetic cannabinoids in US athletes suspected of spice use. *Society of Forensic Toxicologists ToxTalk*. 2011;35(1):13-5.

Shelby MK, Crouch DJ, Black DL, Robert TA, Heltsley R. Screening indicators of dehydroepiandrosterone, androstenedione, and dihydrotestosterone use: a literature review. *J Anal Toxicol* 2011;35(9):638-655.

Heltsley R, DePriest A, Black DL, Robert T, Marshall L, Meadors VM, Caplan YH, Cone EJ. Oral fluid drug testing of chronic pain patients. I. Positive prevalence rates of licit and illicit drugs. *J Anal Toxicol* 2011; 35(8):529-540.

Heltsley R, DePriest A, Black DL, Robert T, Caplan YH, Cone EJ. Urine drug testing of chronic pain patients. IV. prevalence of gabapentin and pregabalin. *J Anal Toxicol* 2011;35(6):357-9.

DePriest AZ, Knight JL, Puet BL, Black DL, Cone EJ. Oral Fluid Testing An Alternative Approach to Monitoring Pain Management. *Clinical & Forensic Toxicology News*; Dec 2012: p 1-4.

DePriest AZ, Knight JL, Puet BL, Black DL, Cone EJ. Oral Fluid Testing as an Alternative Method to Monitoring Pain Management. *MRO Alert* 2012; 23(10): 1-5.

DePriest AZ, Knight JL, Doering P, Black DL. Pseudoephedrine and False-Positive Immunoassay Urine Drug Tests for Amphetamine. *Pharmacotherapy* 2012 (early view, published online 12 Oct 2012).

Heltsley R, Shelby MK, Crouch DJ, Black DL, Robert TA, Marshall L, Bender CL, DePriest AZ, Colello MA. Prevalence of Synthetic Cannabinoids in U.S. Athletes: Initial Findings. *J Anal Toxicol* 2012; 36: 588-93.

Heltsley R, DePriest A, Black DL, Crouch DJ, Robert T, Marshall L, Meadors VM, Caplan YH, Cone EJ. Oral Fluid Drug Testing of Chronic Pain Patients. II. Comparison of Paired Oral Fluid and Urine Specimens. *J Anal Toxicol* 2012; 36: 75-80.

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PUBLICATIONS

Puet B, DePriest A, Knight J, Heltsley R, Black DL, Caplan YH, Cone EJ. Urine Drug Testing of Chronic Pain Patients. V. Prevalence of Propoxyphene Following its Withdrawal from the United States Market. J Anal Toxicol 2013; 37: 1-4.

Prescription Opioids. I. Metabolism and Excretion Patterns of Oxycodone in Urine following Controlled Single Dose Administration. Edward J. Cone, Ph.D.^{1*}, Rebecca Heltsley¹, David L. Black^{2,3}, John M. Mitchell⁴, Charles LoDico⁵ and Ronald Flegel⁵ Journal of Analytical Toxicology Ver: March 2, 2013

Cone EJ, Heltsley R, Black DL, Mitchell JM, Lodico CP, Flegel RR. Prescription Opioids. II. Metabolism and Excretion Patterns of Hydrocodone in Urine Following Controlled Single-Dose Administration. J Anal Toxicol. 2013;37:486-94.

DePriest AZ, Black DL, Robert T, Caplan YH, Cone EJ. Qualitative or Quantitative Testing? Relative Value in Pain Management Testing. Technical Note. Society of Forensic Toxicologists ToxTalk, June 2013; 37(2): 16-17.

Prevalence of Heroin Markers in Pain Management Patients. Brandi L. Puet^{*1}, Julie Knight^{*1}, Anne DePriest¹, Rebecca Heltsley¹, David L. Black^{1,2}, Timothy Robert¹, Yale H. Caplan³, Edward J. Cone⁴ SOFT 2013 Abstract

Miller KL, DePriest AZ, Black DL, Caplan YH. Pharmacogenetic testing: impact in pain management. Society of Forensic Toxicologists ToxTalk. 2013;37(3):23-6.

Cone E, Knight J, Heltsley R, DePriest A, Black D, Caplan Y. Heroin markers in urine: detecting heroin use by pain patients. International Association of Forensic Toxicologists 51st Annual Meeting. Funchal-Madeira, Portugal, September 2013.

Knight J, Puet BL, DePriest AZ, Heltsley R, Black DL, Robert T, Caplan YH, Cone EJ. Prevalence of heroin markers in urine for pain management patients. Submission to Forensic Sci Int. 2013.

Roberts A, Abebe D, DePriest AZ, Black DL, Caplan YH. Examining Reasons for Normetabolite Validity in Pain Management Drug Testing. Society of Forensic Toxicologists ToxTalk. December 2013;37(4):11-4.

Cadwallader AB, Shelby MK, Stapleton EM, McCord L, Black DL. Dietary Supplement Tests Positive for Prescription Diuretic. Society of Forensic Toxicologists ToxTalk. December 2013;37(4):8-3.

DePriest AZ, Puet B, Heltsley R, Robert T, Black DL. Uncertainty in Assessing Impact of Drug-Drug Interactions on Oxycodone Metabolite Patterns. Journal of Analytical Toxicology Advance Access. July 1st

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PUBLICATIONS

Roberts A, Puet B, DePriest A, Robert T, Black DL. Prevalence of clinically aberrant urine drug test results in an obstetric and gynecologic patient population. Abstract. Society of Forensic Toxicologists 2014 Annual Meeting. Grand Rapids, MI, October 2014.

DePriest AZ, Puet B, Heltsley R, Robert T, Black DL, Caplan YH. Oral fluid testing of pain patients: illicit prevalence and regional patterns. Abstract. Society of Forensic Toxicologists 2014 Annual Meeting. Grand Rapids, MI, October 2014.

DePriest AZ, Miller K, Puet B, Knight J, Roberts A, Black DL, Caplan YH. Interpreting test results for pain management practitioners utilizing clinical pharmacy services. Abstract. Society of Forensic Toxicologists 2014 Annual Meeting. Grand Rapids, MI, October 2014.

Cone EJ, DePriest AZ, Heltsley R, Black DL, Mitchell JM, LoDico C, Flegel R. Prescription opioids. III. Disposition of oxycodone in oral fluid and blood following controlled single dose administration. *J Anal Toxicol.* 2014. Submitted.

DePriest AZ, Black DL, Robert TA. Immunoassay in healthcare testing applications. *J Opioid Manage.* 2015;11(1):13-25

Cone EJ, DePriest AZ, Heltsley R, Black DL, Mitchell JM, LoDico C, Flegel R. Prescription opioids. III. Disposition of hydrocodone in oral fluid and blood following controlled single dose administration. *J Anal Toxicol.* 2015; 39:192-202

Cone EJ, DePriest AZ, Heltsley R, Black DL, Mitchell JM, LoDico C, Flegel R. Prescription opioids. IV. Disposition of hydrocodone in oral fluid and blood following controlled single dose administration. *J Anal Toxicol.* 2015; 39:510-8

Cadwallader AB, Williamson M, Gant-Branum R, Heltsley R, Robert TA, Black DL. Development of a synthetic cannabinoid receptor BioAssay as a urine screening method. Abstract. Society of Forensic Toxicologists Annual Meeting. Atlanta, GA, October 2015.

Schwope DM, Campbell G, DePriest A, Black DL, Caplan YH, Heltsley R. Z-drug compliance: urinary sedative hypnotic metabolite detection and prevalence in chronic pain patients. Platform. Society of Forensic Toxicologists Annual Meeting. Atlanta, GA, October 2015.

DePriest AZ, Heltsley R, Black DL, Mitchell JM, LoDico C, Flegel R, Cone EJ. Prescription opioids. VI. Metabolism and excretion of hydromorphone in urine following controlled single dose administration. *Journal of Analytical Toxicology.* 2016.

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PUBLICATIONS

DePriest AZ, Heltsley R, Black DL, Mitchell JM, LoDico C, Flegel R, Cone EJ. Prescription opioids. V. Metabolism and excretion of oxymorphone in urine following controlled single dose administration. *Journal of Analytical Toxicology*. 2016.

Urine drug testing results and paired oral fluid comparison from patients enrolled in long-term medication-assisted treatment in Tennessee. *Journal of Substance Abuse Treatment*. 2016

PRESENTATIONS

Black, D.L., "Testing for Abused Drugs: A Primer for Executives" in *Drug Testing: Protection for Society or a Violation of Civil Rights?*, The Council of State Governments, Lexington, Kentucky, 1987.

Backfish, G.E., Moscioni, A.D., Barbour, R., Black, D.L., and Demetriou, A.A., "Cyclosporine-A Metabolism by Rat Hepatocytes in a Bioreactor System", International Association for the Study of the Liver.

Black, D.L., "Emergency Toxicology." Vanderbilt University Medical Center Symposia, *Advances in Laboratory Medicine*, Nashville, Tennessee, 1986.

Black, D.L., "Drugs in Sports." Kentucky State Society of Medical Technology, Frankfort, Kentucky, 1987.

Black, D.L., "Drug Testing in the Workplace." Floyd Medical Center Symposia, Rome, Georgia, 1987.

Black, D.L., "Drug Testing Technology." The Council of State Governments Symposia, *Drug Testing: Protection for Society or a Violation of Civil Rights?* Lexington, Kentucky, 1987.

Black, D.L., "Therapeutic Drug Monitoring in the Physician's Laboratory." Vanderbilt University Medical Symposia, *Testing in the Physician's Office Laboratory*, Nashville, Tennessee, 1987.

Black, D.L., "Testing for Abused Drugs." Abbott Laboratories, International Teleconference (nine presentations), September 1986 through May 1987.

Black, D.L., "Cyclosporine- Pharmacokinetics and Testing." Vanderbilt University Medical Center Symposia, *Advances in Laboratory Medicine*, Nashville, Tennessee, 1987.

Black, D.L., "Anabolic Steroids and Athletes," Vanderbilt University Medical Center Symposia, *Advances in Laboratory Medicine*, Nashville, Tennessee, 1987.

Backfish, G.E., Ulinski, D.E., Parl, F.F., and Black, D.L., "Computer-Assisted Graphic Display of Serial Cyclosporine Determinations in Blood with Parallel Creatinine Concentrations," the Second International Congress on Cyclosporine, Washington, D.C., 1987.

Black, D.L., "Anabolic Steroids: Pharmacology and Laboratory Measurements," Gateway Clinical Ligand Assay Society, St. Louis, 1987.

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PRESENTATIONS

Black, D.L., "Anabolic Steroids: Better Athletes through Chemistry?" 40th Annual Meeting of the American Academy of Forensic Sciences, Philadelphia, 1988.

Black, D.L., "Anabolic Steroid Analysis," Rochester Hospital Association for Clinical Chemistry, Rochester, New York, 1988.

Black, D.L., "Drugs of Abuse," Tennessee Society for Medical Technology, Nashville, 1988.

Black, D.L., Flatt, A.C., and Hayden, T.G., "19-Nortestosterone Metabolism and Analysis," 41st Annual Meeting of the American Society of Forensic Sciences, Las Vegas, 1989.

Black, D.L., "What is involved in testing- specifically steroids?" Steroid Seminar, National Federation of State High School Associations, Kansas City, MO, 1989.

Black, D.L., "Anabolic Steroids: Drugs of Champions," 40th Annual National Athletic Trainers Association, Inc., Dallas, 1989.

Black, D.L., "Anabolic Steroid as Abused Drugs," The Educational Community and Drug Abuse Seminar, University of Louisville, Louisville, 1989.

Black, D.L., "Physical and Psychological Problems Associated with Steroid Use," Southeastern Conference Seminar on Controlling Substance Abuse in College and High School Athletic Programs.

Black, D.L., "Anabolic Steroids: Better Athletes Through Chemistry?" Southeastern Conference Seminar on Controlling Substance Abuse in College and High School Athletic Programs, Atlanta, 1989.

Black, D.L., "Abused Drug Testing Issues," American Society for Medical Technology, Region VI Conference, Osage Beach, MO, 1989.

Black, D.L., "Forensic Urine Drug Testing," American Society for Medical Technology Region I Conference, Cromwell, CT, 1989.

Black, D.L., "Anabolic Androgenic Steroids," Western Kentucky University, Bowling Green, KY, 1989.

Black, D.L. and Cook, L., "Evaluation of the Abbott Laboratories MTDx Drug Analysis System", 41st National Meeting American Association for Clinical Chemistry, Atlanta, GA 1989.

Black, D.L., "Drugged Driving- A State of the Art Analysis," Illinois Department of Alcoholism and Substance Abuse, 7th Annual Convention, Chicago, IL 1990.

Black, D.L., "Drug Testing- Procedure, Pros and Cons," Delaware Secondary School Athletic Association, In-Service Day Chemical Abuse Program, Dover, DE, 1990.

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PRESENTATIONS

Black, D.L., "Drug Testing Toxicology, Methodology and Technology", Pennsylvania Commission on Crime and Delinquency, Drug Testing Seminar, Harrisburg, PA, 1990.

Black, D.L., "Urine Drug Analysis: Clinical or Forensic Testing?" Tennessee Society For Medical Technology, Annual Meeting and Seminar, Nashville, TN, 1991.

Black, D.L., "Principles and practice of immunoassay screening: interfering substances," Society of Armed Forces Medical Laboratory Scientists, Methods and Issues in Substance Abuse Testing Workshop, San Antonio, TX 1992.

Black, D.L., "Forensic Toxicology Regulations: A United States Experience", The International Congress on Forensic Toxicology TIAFT Tri-annual Meeting, Leipzig, Germany, 1993

Black, D.L., "Testing for Abused Drugs", Pharmacists Recovery Network, Atlanta, GA, 1992

Black, D.L., "Drug Screening", 2nd Annual Texas Health Professionals Peer Assistance Conference, Austin, TX, 1993

Black, D.L., "Drugs of Abuse and Employee Drug Testing", Security Committee of the American Hotel and Motel Association, Memphis, TN 1995

Black, D.L., "Steroids and Drug Testing", Baptist Hospital Sports Medicine, Nashville, TN 1995

Black, D.L., "Anabolic Steroids and Performance Enhancing Drugs", National Strength and Conditioning Association, Phoenix, AZ 1995

Black, D.L., "Physiological Effects of Anabolic Steroid Use", Southern Sports Medicine & Orthopaedic Center, Nashville, TN 1995

Black, D.L., "Sports and Drugs: Better Athletes Through Chemistry", Health Occupation Students of America, Louisville, KY 1995

Black, D.L., "Drugs of Abuse Testing in Today's Laboratory Environment", Abbott Symposium, Annapolis, MD 1995

Black, D.L., "The Unborn Baby and Drugs", Health Occupations Students of America, Pigeon Forge, TN 1995

Black, D.L., "Poly(ester)urethane Foam Implants", Middle Tennessee Mammography Society, Nashville, TN 1997

Black, D. L., "Performance Enhancing Drugs: Consideration in the Female Athlete", Baptist Sports Medicine, Nashville, TN 1997

Black, D.L., Klockenbrink, P.G. and Lonchar, M.C., "Considerations in Providing a Drug and Alcohol

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Free PRESENTATIONS

Workplace and the Potential Benefits to Employers”, Workers Compensation and Employment Law in Virginia, Roanoke, VA 1997

Black, D.L., “What is Doping and How is it Detected?”, Amateur Athletics Foundation Doping in Elite Sport Conference, Los Angeles, 1998

Black, D.L. and Johnson, D., “Forensic Drug Testing Technologies: Current Issues”, Minicourse at the National Athletic Trainers’ Association 49th Annual Meeting and Clinical Symposia, Baltimore, Maryland, 1998

Black, D.L., “Legalization of Marijuana for Medical Reasons”, YMCA Youth Legislature National Youth Meeting, Nashville, TN 1999

Black, D.L., “Accuracy in Athletic Drug Testing”, Southeast Conference Medical Directors Annual Meeting, Nashville, TN 2000

Black, D.L., “Zero-Tolerance Drug Testing”, Naval Medical Center, San Diego, CA, 2000

Black, D.L., “Medicine, Pharmacy and Unintended Consequences” The Sterling Drug Visiting Professor Program, The Fifteenth Ralph J. Cazort, M.D. Lecture, Meharry Medical College 2000

Black, D.L., “How Can I Create an Effective Drug-Free Sports Program?” Alabama Athletics Trainers Association, Gulf Shores, AL, 2001

Black, D.L., “Adulterants and Urine Drug Testing”, Middle Tennessee Human Resource Managers Annual Meeting, Smyrna, TN, 2001

Black, D.L., “Legalization of Marijuana”, YMCA Youth Legislature National Youth Meeting, Nashville, TN 2002

Black, D.L., “Drug Testing Accuracy: Factors and Annoying Facts” Abbott Laboratories National Webcast (two presentations), 2002

Black, D.L., “FPIA Drug Testing”, Abbott Laboratories, Malta, 2003

Black, D.L., “Drug Testing Accuracy and Confounding Factors”, Tennessee Council of Occupational and Emergency Medicine, Meharry Medical College, Nashville 2003

Black, D.L., “Drug Testing Accuracy: Supplement Contamination and Sample Manipulation”, 13th Annual SEC Sports Medicine Symposium, New Orleans, 2003

Black, D.L., “How to Beat a Drug Test”, The Sixth Annual Tennessee Workers’ Compensation Educational Conference, Nashville 2003

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PRESENTATIONS

Black, D.L., "Tetrahydrogestrinone (THG): A new steroid", Big Sky Sport Symposium, Big Sky, Montana, February 6, 2004

Black, D.L., "How Drug Using Athletes Try To 'Beat a Drug Test'", Big Sky Sport Symposium, Big Sky, Montana, February 6, 2004

Kinkennon AE, Black DL, Robert TA and Stout PR, "Analysis of Tetrahydrocannabinol (THC) and Carboxy-tetrahydrocannabinol (CTHC) in Whole Blood", Society of Forensic Toxicology, Washington D.C. October 2004

Black, D.L., "An Analysis of Positive Drug Test Results in College Athletics", Big Sky Sports Symposium, Big Sky, Montana, February 4, 2005

Black, D.L., "Current Drug Testing Applications", Texas A&M University Athletic Training and Sport Medicine 2005 Athletic Training Symposium: Current Topics, May 20, 2005

Black, D.L., "Current Issues and Concerns with Anabolic Steroids", Texas A&M University Athletic Training and Sport Medicine 2005 Athletic Training Symposium: Current Topics, May 20, 2005

Black, D.L., "Drug Free Workplace", American Association of Medical Review Officers, Las Vegas, Nevada, November 2006

Black, D.L., "Drug Free Sports", American Association of Medical Review Officers, Las Vegas, Nevada, November 2006

Black, D.L., "Pain Management Compliance", American Association of Medical Review Officers, Las Vegas, Nevada, November 2006

Black, D.L., "What is happening in sports/predictions Part I", University of South Florida Sports Medicine Conference, January 2007

Black, D.L., "What is happening in sports/predictions Part II", University of South Florida Sports Medicine Conference, January 2007

Black, D.L., "Drug Use in Spots, 2005-2006", Big Sky Sports Symposium, Big Sky, Montana, February 2007

Black, D.L., "Supplements and Sports", Texas A&M Sports Symposium, July 2007

Black, D.L., "Drug Testing: Results and Innovations", Texas A&M Sports Symposium, July 2007

Black, D.L., "Drugs in Sports", University at Albany in association with the National Forensic Science Technology Center, Webcast August 2007

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PRESENTATIONS

Caplan, Y.H., Cone, E.J., Moser F., and Black D.L., "Urine Drug Testing of Pain Patients: Licit and Illicit Drug Patterns", Society of Forensic Toxicologists" Annual Meeting, Durham, North Carolina, 10/19/07

Black, D.L., "Drug Use in Sports, 2006-2007", Big Sky Sports Symposium, Big Sky, Montana, February 2008

Cone, E.J., Caplan, Y.C., Moser, F., Robert, T., Shelby, M., and Black, D.L., "Correcting Urine Drug Concentrations by Normalization to Specific Gravity and Creatinine", SOFT, October 2008, Phoenix, AZ

Black, D.L., "Drug Testing in High Schools", University of South Florida Third Annual Sports Medicine Conference, January 2009

Black, D.L., "Masking Agents in Sports Drug Testing", University of South Florida Third Annual Sports Medicine Conference, January 2009

Cone, E.J., Caplan, Y.H., Zichterman, A.Z., Robert, T., Heltsley, R.M., Cawthon, B.S. and Black, D.L., "Normetabolites of Hydrocodone, Oxycodone and Codeine Are Useful Biological Markers for Interpretation of Drug Source in Pain Patients", TIAFT, 2009, Geneva, Switzerland

Heltsley, R., Zichterman, A., Black, D.L., Cawthon, B., Robert, T., Moser, F., Caplan, Y.H. and Cone, E. J., "Prevalence Patterns of Prescription Opiates and Metabolites in a Chronic Pain Population" SOFT, October 2009, Oklahoma City, OK

Zichterman, A., Black, D.L., Heltsley, R., Cawthon, B., Robert, T., Moser, F., Caplan, Y.H. and Cone, E.J., "Importance of Nor-Metabolites in Urine Testing for Synthetic Opioids", SOFT, October 2009, Oklahoma City, OK

Marshall L, Meadors VM, Heltsley R, DePriest A, Black DL, Crouch DJ, Cawthon B, Robert T, Moser F, Caplan YH, Cone EJ. The investigation of oral fluid testing for pain management compliance monitoring. Oral presentation at the 2011 Association for Mass Spectrometry Applications to the Clinical Lab Annual Meeting.

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Puet BL, Knight J, DePriest A, Heltsley R, Black DL, Robert T, Caplan YH, Cone EJ. Prevalence of heroin markers in pain management patients. Platform ; Society of Forensic Toxicologists 2013 Annual Meeting. Orlando, FL, October 2013.

Schwoppe DM, DePriest A, Black DL, Cone EJ, Caplan YH, Heltsley R. Determining zolpidem compliance: Urinary metabolite detection and prevalence in chronic pain patients. American Academy of Forensic Sciences 65th Annual Meeting. Washington, DC, February 2013.

Cone E, Knight J, Heltsley R, DePriest A, Black D, Caplan Y. Heroin markers in urine: detecting heroin use by pain patients. International Association of Forensic Toxicologists 51st Annual Meeting. Funchal-Madeira, Portugal. September 2013.

Karschner EL, Cadwallader AB, Heltsley R, Gant-Branum RL, Robert T, Black DL. Cannabinoid receptor potency of synthetic cannabinoids present in skyscraper: the next level. Platform; Society of Forensic Toxicologists Annual Meeting. Orlando, FL, October 2013.

Heltsley, R, Black DL, Mitchell JM, LoDico CP, Flegel RR, Cone E. Disposition of Oxycodone and Hydrocodone in Oral Fluid. Platform; Society of Forensic Toxicologists Annual Meeting. Orlando, FL, October 2013.

Cadwallader, AB, Williamson, M, Shelby, MK, Heltsley, R, Black, DL. Analysis of Dietary Supplements with a Mammalian Cell-Based Androgen Receptor BioAssay and GC/MS. Platform; Society of Forensic Toxicologists Annual Meeting. Orlando FL, October 2013.

Cadwallader, AB, Nielsen, TJ, Williamson, M, Heltsley, R, Black, DL. Use of a Cannabinoid Receptor BioAssay to Determine the Potency (EC50) of Synthetic Cannabinoids and Metabolites. Platform; Society of Forensic Toxicologists Annual Meeting. Orlando FL, October 2013.

DePriest AZ, Puet B, Heltsley R, Robert T, Black DL, Caplan YH. Oral fluid testing of pain patients: illicit prevalence and regional patterns. Society of Forensic Toxicologists 2014 Annual Meeting. Grand Rapids, MI, October 2014.

DePriest AZ, Miller K, Puet B, Knight J, Roberts A, Black DL, Caplan YH. Interpreting test results for pain management practitioners utilizing clinical pharmacy services. Society of Forensic Toxicologists 2014 Annual Meeting. Grand Rapids, MI, October 2014.

Cadwallader AB, Williamson M, Gant-Branum R, Heltsley R, Robert TA, Black DL. Development of a synthetic cannabinoid receptor BioAssay as a urine screening method. Abstract. Society of Forensic Toxicologists Annual Meeting. Atlanta, GA, October 2015.

Schwoppe DM, Campbell G, DePriest A, Black DL, Caplan YH, Heltsley R. Z-drug compliance: urinary sedative hypnotic metabolite detection and prevalence in chronic pain patients. Platform. Society of Forensic Toxicologists Annual Meeting. Atlanta, GA, October 2015.

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Watson AR, Roberts A, Heltsley R, Robert TA, Black DL. Identifying levorphanol ingestion using urine markers in chronic pain patients. Abstract. Tennessee Pharmacists Association Winter Meeting. Nashville, TN, February 2016.

Claussen K, Puet B, DePriest A, Heltsley R, Robert T, Black DL. Presence of cocaine in the absence of benzoylecgonine in urine specimens of healthcare patients. Abstract. Tennessee Pharmacists Association Winter Meeting. Nashville, TN, February 2016.

LoDico CP, Flegel RR, DePriest AZ, Heltsley R, Black DL, Mitchell JM, Cone EJ. Prescription opioids. V. Profiling oxymorphone in urine. Society of Forensic Toxicologists Annual Meeting. October 2016.

Flegel RR, LoDico CP, DePriest AZ, Heltsley R, Black DL, Mitchell JM, Cone EJ. Prescription opioids. VI. Profiling hydromorphone in urine. Society of Forensic Toxicologists Annual Meeting. October 2016.

POSTERS

Marshall L, Meadors VM, Bender C, Campbell G, Heltsley R, Crouch DJ, Robert T, Black DL. The effects of plate type on the prevalence of cross-well contamination while using automated solid phase extraction instruments. Poster presentation at the 2011 Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy.

DePriest A, Knight J, Puet B, Miller K, Black D. Clinical pharmacy services: interpreting toxicology laboratory results. Poster; American College of Clinical Pharmacy 2013 Annual Meeting. Albuquerque, NM, October 2013.

Miller K, DePriest AZ, Heltsley R, Hild C, Black DL, Robert T, Caplan YH, Cone EJ. Interpreting unexpected opiate results in oral fluid: possible minor metabolism or pharmaceutical impurity? Poster; Society of Forensic Toxicologists 2013 Annual Meeting. Orlando, FL, 2013.

Flegel RR, LoDico CP, Heltsley R, Black DL, Mitchell JM, Cone EJ. Prescription opioids. I. Profiling oxycodone and metabolites in urine. RTI International ; Department of Health and Human Services/Substance Abuse and Mental Health Services Administration (SAMHSA). Poster; Society of Forensic Toxicologists Annual Meeting. Orlando FL, October 2013.

LoDico CP, Flegel RR, Heltsley R, Black DL, Mitchell JM, Cone EJ. Prescription opioids. II. Profiling hydrocodone and metabolites in urine. RTI International ; Department of Health and Human Services/Substance Abuse and Mental Health Services Administration (SAMHSA). Poster; Society of Forensic Toxicologists Annual Meeting. Orlando FL, October 2013.

DePriest AZ, Black DL, Robert T, Caplan YH, Cone EJ. Interpretation of urine specimens containing prescription drugs without metabolites: adulteration, impaired metabolism or normal excretion? Poster; Society of Forensic Toxicologists 2013 Annual Meeting. Orlando, FL, October 2013.

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POSTERS

Cadwallader A , Williamson M, Gant-Branum R, Heltsley R, Robert TA, Black DL. Development of a Synthetic Cannabinoid Receptor Bioassay as a Urine Screening Method. Poster Society of Forensic Toxicologists 2015 Annual Meeting. Atlanta, GA, October 2015.

Flegal RR, LoDico CP, DePriest AZ, Heltsley R, Black DL, Mitchell JM, Cone EJ. Prescription Opioids. Profiling Hydromorphone in Urine. Poster Society of Forensic Toxicologists 2016 Annual Meeting