



## **MAJOR RESEARCH/PROFESSIONAL INTERESTS**

Forensic toxicology, pulmonary, cardiovascular, endocrine, gastrointestinal, and renal physiology & pathophysiology (e.g. diabetes mellitus, Parkinson's Disease, Bipolar Disorder, heart disease, obstructive and restrictive lung diseases, trauma, cirrhosis/portal hypertension, etc); pharmacology, Infrared Absorptiometry-Mediated Evidentiary Breath Alcohol Testing Instruments, blood and breath alcohol testing (immunoassays, headspace-gas chromatography), anesthesia, standardized field sobriety testing, post-mortem drug analyses.

## **SPECIALIZED ETHANOL-RELATED TRAINING AND EDUCATION**

### **1. Gastroesophageal Reflux Disease (GERD)**

- 20 years of professional nursing experience caring for hundreds of patients with GERD
- 11 years of clinical anesthesia delivery, customized for scores of patients with GERD and/or having surgical correction of pathologies contributing to GERD; prescriptive authority for GERD medications, narcotics, etc
- 7 years of doctoral studies, with 3 months focus on gastroenterology, enteric, myogenic, and ion-channel control of gastrointestinal tract, pharmacological management with prokinetics, H<sub>2</sub> receptor antagonists, proton pump inhibitors, antacids, and gastric-specific cytoprotective prostaglandins
- 7 years of teaching pharmacology & physiology (including GERD) to undergraduate/graduate CSU students

### **2. Evidentiary Breath Alcohol Testing (EBAT)**

- Certified Evidentiary Breath Alcohol Technician for Intoxilyzer models 5000EN, S-D2, S-D5, and 400
- Provided from Industrial Training and Design, Ltd, in accordance with U.S. DOT CFR 49, Part 40, 28.8 hour training course
- Hands-on experience administering intoxilyzer tests; BrAC studies performed on 5000EN & 8000
- Over 8 years of experience reviewing Evidentiary Results from Intoxilyzer 5000EN & 8000, Datamaster, EC/IR
- Over 8 years of experience writing scientific affidavits specific for clients with GI anomalies and other conditions that interfere with accuracy of BrAC analyses
- Taught many seminars on Infrared Absorptiometry & the anatomy/physiology of Intoxilyzers 5000EN and 8000; Boulder 2009, Denver 2009, Denver 2010, Nebraska 2010, Alabama 2010, Denver 2012

### **3. Absorption Spectrometry**

- 18+ years of operating infrared spectrophotometer instruments for toxicological analyses with spectral analysis, measuring biological samples and interpreting data for both ultraviolet (DNA, RNA) and infrared (plasma volumes, ethanol, other chemicals) wavelengths of absorption

### **4. Toxicology of Ethanol Instruction**

- Taught undergraduate, graduate, and veterinary students pharmacology & toxicology of ethanol for 7 years after completing PhD; included pharmacokinetics, pharmacodynamics, physiology, psychological and pathophysiological effects
- Presented seminars on measurement of ethanol in whole blood & serum samples via headspace Gas Chromatography; problems associated with forensic analyses; Dallas 2008, San Diego 2009, Denver 2010, Nebraska 2010, Mississippi 2010, Denver 2012

### **5. Certified Instructor for Standardized Field Sobriety Tests (SFSTs)**

- Took NHTSA SFST Instructor Development Training Program (40 hours)
- Taught by Lance Platt, PhD of Walden, Platt, & Associates, Denver Feb 2010

## PROFESSIONAL SOCIETIES

Colorado Board of Nursing, American Association of Nurse Anesthetists, American Physiological Society, Society of Forensic Toxicologists, Experimental Biology

## HONORS AND AWARDS

1974-1977 Alpha Lambda Delta Honor Society, Georgia Baptist Hospital School of Nursing.  
1974-1977 Honor Society, Georgia Baptist Hospital School of Nursing.  
1977 Outstanding Service Award, Georgia Baptist Hospital School of Nursing.  
1978-1980 Presidential Scholar, University of South Alabama; Magna Cum Laude  
1980 Honor Society of Nursing, University of South Alabama.  
1990 4.0 GPA in MS degree Anesthesia/Toxicology; Kansas University;  
1994 Passed Comprehensive Preliminary Examination for Ph.D. with Distinction. Colorado State Un.  
1997 Summa Cum Laude, Ph.D. in Physiology.  
2010 Outstanding Research Award from Mercer School of Pharmacy/ Georgia Baptist Hospital

## INVITED SEMINARS (presented)

<u>Date</u>	<u>Institution</u>	<u>Title</u>
1990	American Assoc. of Nurse Anesthetists	The Presence of Fentanyl in Colostrum after an Analgesic Dose
1991	Mosby Yearbook, Inc.	Pharmacology Update
1991	Centennial Area Health Education	Perioperative Pharmacology Update
2005	Lorman Education	Driving Under the Influence of Drugs; DREs
2006	CO Bar: CLE Seminar, Denver	Drug Metabolism: Psychoactive Drugs
2008	Texas Criminal Defense Lawyer's Association; "Mastering Scientific Evidence"	Drugs and Conditions that Influence Ethanol Metabolism; Top Ten Gems in Medical Records for Ethanol and Drug Issues
2009	CO Assoc. of DUI Defense Attorneys (Keystone, CO )	Effects of GERD and Other Medical Issues on Intoxilyzer 5000EN
2009	Forensic Blood and Urine Testing (San Diego, CA)	Medical Conditions and Drugs that Elevate Blood and Breath Ethanol Concentrations
2009	Industrial Training & Design, Ltd. (Denver, CO)	Intoxilyzer 5000EN
2010	DUI Update; CLE in CO, Inc. (Denver, CO)	Intoxilyzer 5000EN and 8000; Infrared Absorptiometry & Related Issues
2010	Nebraska Criminal Defense Legal Assoc.	Practical Forensic Points for Blood & Breath Alcohol Tests
2010	Alabama Criminal Defense Legal Assoc.	Pharmacokinetics of Ethanol for Blood and Breath Testing
2011	American Academy Forensic Sciences	GERD and Quantifying its Influence on Breath Alcohol Test Results
2012	DUI Think-Tank Criminal Defense	Limitations of the Intoxilyzer 5000EN and other machines using infrared absorptiometry
2013	Texas Criminal Defense Lawyer's Association, "Mastering Scientific Evidence" (New Orleans, LA)	Retrograde Extrapolation (March 21, 2013)
2013	Texas Criminal Defense Lawyer's Association; "Mastering Scientific Evidence" (New Orleans, LA)	Retrograde Extrapolation with Attorney Evan Levow

## **Court Testimony as Qualified Expert on Evidentiary Breath Alcohol Instruments (Intoxilyzer 5000EN, Datamasters cdm and BAC, EC/IR II)**

<u>Date</u>	<u>County</u>	<u>Defense Attorney</u>
6/15/07	Park	Roberts
7/24/07	Adams	Sarbaugh
8/28/07	Denver	Iantorno
4/08/08	Collin	Cook (Texas)
1/9/09	Boulder	Savela
1/14/09	Boulder	Savela
4/13/09	Scottsbluff	Island
1/5/10	Broomfield	Mulligan
3/09/10	Lincoln	Kosmicki (Nebraska)
9/08/10	Jefferson	Klingbeil
2/2/11	Scottsbluff	Island (Nebraska)
3/10/11	Aroostook	Bly (Maine)
4/5/11	Scottsbluff	Island (Nebraska)
7/7/11	Lancaster	Roth (Nebraska)
8/18-20/11	Arapahoe	Hutt
9/12/11	Dallas	Isenberg (Texas)
10/13/11	Larimer	Anderson
2/6/12	Phelps	Carper (NE)
2/16/12	Arapahoe	Hutt
3/13/12	Denver	Biondino
3/26/12	Loveland	Heymann
4/30/12	Denver	Cump
5/17/12	Gilpen	Anderson
7/21/12	Aroostook	Bly (Maine)
8/24/12	Scottsbluff	Island (Nebraska)
2/20/13	Scottsbluff	Island (Nebraska)
4/24/13	Milwaukee	Melowski (Wisconsin) EC/IR II

### **GRANTS RECEIVED/SUBMITTED**

Intrarenal expression of the M235T variant for angiotensinogen: A key link to essential hypertension?  
American Heart Association of Colorado. 1995.

Uteroplacental expression of the M235T variant for angiotensinogen: A key link to preeclamptic hypertension?  
American Heart Association of Colorado. 1996.

Contribution of Angiotensinogen to Abdominal-Fat Related Hypertension and Nephropathy. American Heart Association. Desert Mountain Affiliate. 2001-2003.

Intrarenal angiotensinogen and urinary sodium excretion. Colorado State University College Research Council. 1992-1996.

Modulation of the renin-angiotensin system and orthostatic tolerance. NASA. 1993-1995.

## **GRANTS (continued)**

Hypertension in rats with kidneys containing angiotensinogen transgenes. CO Amer. Heart Assoc., 1996-97.

## **PUBLICATIONS**

Marley, W. 1991. AANA Journal Course: New technologies in anesthesia: Clonidine: An established drug with futuristic implications. AANA Journal 59(2):161-170.

Steer P.L., Biddle C., Marley W.S., Lantz R.K., Sulik P.L. 1992. Concentration of fentanyl in colostrum after an analgesic dose. Can. J. Anaesth. 39(3):231-235.

Marley, W. 1993. AANA Journal Course: Update for nurse anesthetists-Essential hypertension, anesthesia, and the kidney. AANA Journal 61(6):597-604.

Wilke W.L., Marley W.S. 1994. Dietary sodium and urinary renin and angiotensinogen in rats. J. Am. Soc. Nephrol. 5:597 (Abstract).

Wilke W.L., Marley W.S., Gotshall R.W. 1994. Preconditioning with sodium deficits to improve orthostatic tolerance in rats. Aviat. Space Environ. Med. 66(8):757-762.

Marley W., Wilke L., Bowen R. 1995. Isolated unilateral renal transfection via direct renal artery injection. FASEB 9(3):597 (Abstract).

Marley W.S., Wilke W.L., Bowen R., Gotshall R. 1996. Hypertension in rats induced by single kidney transfection with angiotensinogen cDNA. J. Am. Soc. Nephrol. 7(9):1537 (Abstract).

Marley W.S., Wilke W.L., Bowen R.A. 1999. Selective gene transfer into cortical proximal tubules via direct renal artery injection. Res. Comm. Molec. Path. Pharm. 103:29-36.

Marley W.S., Wilke W.L., Bowen R.A. 2000. Hypertension in unilaterally nephrectomized rats induced by single kidney transfection with angiotensinogen cDNA. Kid. Blood Press. Res. 23:42-48.

Dewit M., Marley W.S., Graham J.K. 2000. Fertilizing potential of mouse spermatozoa cryopreserved in a medium containing whole eggs. Cryobiology 40:36-45.

Marley W.S., Dewit, M., Graham J.K. 2000. Comparison of sperm motility and fertilization capacity among six mouse strains before and after cryopreservation. J. Reprod. Fert. .

## **PUBLICATIONS** (continued)

Schoenfeld-Tacher, R.; Bright J.M., McConnell S.; Marley W.S., Kogan L.R.. 2005. The effect of web-based technology on small group “Problem-based learning” in a professional veterinary medical program-a case study. *J. Veterinary Med. Education.* 32(1):86-91.

Marley W.S., Fitzgerald EF. Post-Trauma Alcohol Test Reports: A hard look at traditional assumptions or regularity and reliability. IN: *Intoxication Test Evidence*, 2010. 2nd Ed. Thomson West Publishers, Chapter 70A; Volume 3, 1-64.

Marley, W.S., Fitzgerald EF. Postmortem alcohol testing. IN: *Intoxication Test Evidence*, 2010, 2nd Ed. Thomson West Publishers, Volume 3, Chapter 70B: 1-75.

McShane, Justin J., Marley Wanda, Gengo Francis, Citron Joseph. Developing a GERD Defense. In: *Inside the Minds: Understanding DUI Scientific Evidence*. 2011 Edition. Thomson Reuters/Aspatore Publishing. 135-157.

Marley, W.S., Fitzgerald E.F. Gastroesophageal Reflux: Pathophysiology and Effects on the Evidentiary Breath Alcohol Test Result. (E-Book) 2011. Thomson West Publishers. (In progress)

## **CONTINUING EDUCATION PROGRAMS**

Audio-Digest Anesthesiology: An Affiliate of the California Medical Association. Monthly issues of relevant topics relating to pharmacology, toxicology, physiology, anesthesiology, and medical issues. Tests for each issue faxed to Audio Digest Foundation monthly for continuing education units for CRNA re-licensure requirements.

Texas Criminal Defense Lawyers Association, March 26-28, 2008. Dallas, Texas. Mastering Scientific Evidence. Presented and attended seminar.

Wyoming Trial Lawyers Association, June 5-7, 2008. Laramie, Wyoming. Understanding the Intricacies of a DWUI Case. R. Michael Vang, Program Chair. National College for DUI Defense, Inc. Approved Seminar.

Colorado Association of DUI Defense Attorneys. 2009. Presented and attended.

National College of DUI Defense, Inc. Approved Seminar: Forensic Blood and Urine Testing Program, May 14-17, 2009. San Diego, California. Presented and attended seminar.

Frank Moya Continuing Educations Programs. Current Reviews for Nurse Anesthetists. 2009. Monthly issues and exams re: medical-legal, toxicological, neurological, cardiopulmonary, and anesthesia topics. Includes updates on GERD and pulmonary factors that would affect evidentiary breath alcohol tests.

DUI Update 2010. January 21, 2010. Denver, CO. Problem Spotting in Breath Test Cases. Presented and Attended

Understanding Forensic Evidence in DUI and Traffic Homicide Cases. October 8, 2010. Biloxi, MS. Presented and attended.

Texas Criminal Defense Lawyer’s Association. “Mastering Scientific Evidence”, March 20-23, 2013. Presented twice and attended.