## William R. Sawyer, Ph.D.

Forensic Toxicologist

Curriculum Vitae

## Introduction

Dr. William Sawyer is a professional toxicologist with a doctorate in toxicology from Indiana University School of Medicine. He has over 31 years of experience in public health and forensic toxicology including five years of governmental service. His specialized areas of expertise include causation analyses (defendant, plaintiff or criminal), dioxins, solvents, heavy metals, petroleum, crude oil, radionuclides/NORM, alcohol toxicology, drugs-of-abuse, pharmaceuticals, herbal products and other substances.

# **Contact Information**

Toxicology Consultants & Assessment Specialists, LLC (*TCAS, LLC*) 6450 Pine Avenue Sanibel, Florida 33957

Toxicology Consultants & Assessment Specialists, LLC (*TCAS, LLC*) 29 Fennell Street Skaneateles, New York 13152

Telephone: 800-308-0080 239-472-2436 (FL) 315-685-2345 (NY)

# Education

Indiana University School of Medicine Indiana University Graduate School Robert B. Forney, Ph.D., Committee Chairman Ph.D. in Toxicology, 1988	1983 - 1988
State University of New York at Geneseo Edward Ritter, Ph.D., Committee Chairman Master of Arts degree, Cellular & Molecular Biology, 1982	1979 -1982
State University of New York at Geneseo Bachelor of Science degree, Biology, 1978	1976 -1978

State University of New York Agricultural and Technical College at Morrisville Associate degree, 1976 1974 - 1976

## Experience

As a scientist and communicator in forensic toxicology, Dr. Sawyer provides services to governmental agencies, corporations, investigators and select defendants or plaintiffs. Dr. Sawyer currently serves as chief toxicologist for Toxicology Consulting and Assessment Specialists, LLC. He has served for 23 years as an assistant professor (adjunct) with the Department of Medicine, Upstate Medical University, Syracuse, New York. Dr. Sawyer also has approximately 14 years of experience as a licensed clinical and environmental laboratory director in several states.

Additionally, Dr. Sawyer has received extensive training in alcohol toxicology at Indiana University School of Medicine (IU) in the Department of Pharmacology and Toxicology. This department is known for its development of the "Drunkometer" which is now known as the breathalyzer. This device was first implemented by Rolla N. Harger, MD, at IU. Later, blood to breath ratios and other original alcohol work was published by the late Dr. Robert. B. Forney (an internationally-respected expert in alcohol toxicology) whom Dr. Sawyer trained under. As part of his training requirements, Dr. Sawyer assisted in training Indiana State Police members who elected to be certified in breathalyzer testing, alcohol toxicology and sobriety screening.

Dr. Sawyer routinely provides impartial toxicological evaluations involving chemical exposures, alcohol ingestion, intentional poisonings, carcinogens, pharmaceuticals, pyrolysis products, heavy metals, organic chemicals and drugs-of-abuse in civil and criminal litigation. Toxic exposure investigations include analytical protocol, referral of autopsy material for analyses, environmental and occupational health risk assessments, site assessment and causation determination. Final work products that include scientific methods and validation, forensic documentation and written reports used in both forensic and routine (non-judicial) assessments are provided to multiple, nationwide clients.

# Forensic Environmental and Laboratory Analyses

Through education, training and experience, Dr. Sawyer has gained extensive expertise in forensic petroleum analyses as well as environmental and clinical forensic analyses. With more than 23 years of laboratory experience, Dr. Sawyer has directed laboratory analyses, sampling protocol and chain-of-custody documentation in criminal and civil matters. He has also provided petroleum spill assessments to multiple clients including governmental environmental agencies (NYSDEC), various state attorney general offices (New York), defense and plaintiff law firms and industry. Petroleum spill and exposure assessment reports have provided objective evidence of characterization, age and source within reasonable scientific certainty.

## **Professional Experience**

#### Toxicologist

Onondaga County Department of Health Syracuse, New York

Responsible for municipal and civil risk assessment, evaluation of environmental exposures and design and execution of environmental monitoring studies. Advise and communicate with the Office of the Environment/County Executive and legislative subcommittees with respect to public health and environmental health issues. Established a clinical and environmental toxicology laboratory licensed under the NYS DOH and NYS ELAP agencies (NYSDOH #SAWYW1 and NY ELAP license #10183)

#### Assistant Professor (adjunct)

SUNY Upstate Medical University Department of Medicine Syracuse, New York

#### Chief Toxicologist

Toxicology Consultants & Assessment Specialists, LLC Sanibel, Florida Registered DBA, 1990 Incorporated, January 1994 (New York) Limited liability corporation, January 2009 (Florida) 1990-Present

1988-2012

1988-1993

#### Laboratory Director

1993-2002

EXPRESSLAB, Inc. (Lozier Laboratories) Middlesex, New York

- NYSDOH Clinical License #SAWYW1 (1988-2000)
- NYS Environmental License (ELAP) #11369
- National Environmental Laboratory Accreditation Program (NELAP) #11369
- New Jersey DEPE License #73744
- South Carolina License #9101100
- California Environmental License

### Associate Editor

1997-2000

Practical Reviews in Forensic Medicine & Sciences Published by Oakstone Medical Publishing, Inc. Jointly sponsored by Albert Einstein College of Medicine and Montefiore Medical Center; CME (continuing medical education) accredited

#### **Licensed Laboratory Director**

1988-1993

1983-1988

1979-1983

Onondaga County Department of Health Syracuse, New York Licensed clinical laboratory, chlorinated hydrocarbons (NYS CLEU) NYS License #SAWYW1 Forensic Toxicology & Drug Analysis /Qualitative (License expired 9-26-2000), NYS ELAP License #10183

# Analytical Toxicologist (part-time)

State Department of Toxicology Indianapolis, Indiana

## Laboratory Technician (part-time)

Clinical Research Center (National Institute of Health) Strong Memorial Hospital Rochester, New York

## Laboratory Technician (part-time)

1979-1983

Highland Hospital

Special Determinations Laboratory, Rochester, New York

# Certifications

<b>OSHA 29 CFR1910.120</b> Hazardous Waste Operations & Emergency Response 40 hour certified	Re-certified December 2004
Clinical Laboratory Director New York State Department of Health Certificate of Qualification License Code #SAWYW1	Inactive
Environmental Laboratory Director New York State Department of Health ELAP License #11369 ELAP License #10183	Inactive
South Carolina Department of Health Environmental Laboratory Director ELAP License #9101100	Inactive
New Jersey DEPE Laboratory Director License #73744	Inactive
Asbestos Inspector EPA Certificate #10-111-50-1303	Inactive
Societies and Honors	
American Academy of Forensic Sciences Member, promoted to member, 1990	1985-Present
Sigma Xi, The Scientific Research Society Associate Member	1986- Present
National Myositis Association Medical Advisory Board Member	1995-1997

Society of Automotive Engineering Member	1986-Present
International Association of Forensic Toxicologists Member	1985-Present
Sigma Xi Research Competition Fifth place	1987
Sigma Pi Alpha Scholastic Honor Society Academic Award	1984

## **Professional Presentations**

Sawyer, W.R. and Rigle, D.A., "Evaluating Toxic Exposures after Daubert," Featured presentation at the 4<sup>th</sup> Annual National Expert Witness & Litigation Seminar, Hyannis, Massachusetts, June 23, 1995.

## **Articles, Abstracts, Treatises and Editorial Publications**

Sawyer, W.R. "Alcohol Content of Beer and Malt Beverages: Forensic Considerations," (Special Article Review Presentation, Critical Assessment and Original Abstract), Practical Reviews in Forensic Medicine and Sciences, Vol. 2., No. 6, February 2000, Oakstone Medical Publishing, Inc. from Logan, B.K., et al., Journal of Forensic Sciences, November 1999, Vol. 44, No. 6, pg. 1292-1295.

Sawyer, W.R. *"Fulminant Liver Failure in a Young Child Following Repeated Acetaminophen Overdosing,"* (Special Article Review Presentation, Critical Assessment and Original Abstract), Practical Reviews in Forensic Medicine and Sciences, Vol. 2., No. 6, February 2000, Oakstone Medical Publishing, Inc. from Bauer, M, et al., Journal of Forensic Sciences, November 1999, Vol. 44, No. 6, pg. 1299-1303.

Sawyer, W.R. "Exposure to Contaminated Milk Presents 'Difficult Case' for Application of Daubert Reliability Standard," (Special Article Review Presentation, Critical Assessment and Original Abstract), Practical Reviews in Forensic Medicine and Sciences, Vol. 2., No. 4, December 1999, Oakstone Medical Publishing, Inc. published in Expert Testimony, Evidence, & Trial Consultants, October 1999, Vol. 7, Issue 10, pg. 3. Sawyer, W.R. *"The Extent of Postmortem Drug Redistribution in a Rat Model,"* (Special Article Review Presentation, Critical Assessment and Original Abstract), Practical Reviews in Forensic Medicine and Sciences, Vol. 2., No. 4, December 1999, Oakstone Medical Publishing, Inc. from Hilberg, M.D., et al., Journal of Forensic Sciences, September 1999, Vol. 44 No. 5, pg. 956-62.

Sawyer, W.R. "Potassium Nitrite Reaction with 11-Nor-Delta9-Tetrahydrocannabinol-9-Carboxylic Acid in Urine in Relation to the Drug Screening Analysis," (Special Article Review Presentation, Critical Assessment and Original Abstract), Practical Reviews in Forensic Medicine and Sciences, Vol. 2., No. 3, November 1999, Oakstone Medical Publishing, Inc. from Lewis, S.A., Journal of Forensic Sciences, September 1999, Vol. 44 No. 5, pg. 951-55.

Sawyer, W.R. "GC/Mass Spectrometry Data from Fire Debris Samples: Interpretation and Application," (Special Article Review Presentation, Critical Assessment and Original Abstract), Practical Reviews in Forensic Medicine and Sciences, Vol. 2., No. 3, November 1999, Oakstone Medical Publishing, Inc. from Wallace, J.R., Journal of Forensic Sciences, September 1999, Vol. 44, No. 5, pg. 996-1012. Sawyer, W.R. "Toluene Diisocyanate Colocalizes with Tubulin on Cilia of Differentiated Human Airway Epithelial Cells," (Special Article Review Presentation, Critical Assessment and Original Abstract), Practical Reviews in Forensic Medicine and Sciences, Vol. 1., No. 12, August 1999, Oakstone Medical Publishing, Inc. from Lange, R.W., et al., Toxicological Sciences, July 1999, Vol. 50, No. 1, pg. 64-71.

Sawyer, W.R. "*Differential Diagnosis Methodology Accepted by U.S. Circuit Court of Appeals,*" Practical Reviews in Forensic Medicine and Sciences, Vol. 1, No. 12, August 1999, Oakstone Medical Publishing, Inc. Referenced Literature: The Testifying Expert, July 1999, Vol. 7, Issue 7, pg. 9 and Vol. 7, Issue 6, pg. 2.

Sawyer, W.R. *"The Enigma of Arsenic Carcinogenesis: Role of Metabolism,"* (Special Article Review Presentation, Critical Assessment and Original Abstract), Practical Reviews in Forensic Medicine and Sciences, Vol. 1., No. 11, July 1999, Oakstone Medical Publishing, Inc. from Goering, P.L., et al., Toxicological Sciences, May 1999, Vol. 49, No. 1, pg. 5-14.

Sawyer, W.R. *"Blood Alcohol Content Testimony,"* Practical Reviews in Forensic Medicine and Sciences, Vol. 1., No. 11, July 1999, Oakstone Medical Publishing, Inc. Referenced Literature: The Testifying Expert, June 1999, Vol. 7, Issue 6, pg. 9 and Goldfrank's Toxicologic Emergencies.

Sawyer, W.R. *"Forensic Evaluation of Pulmonary Toxicity Attributed to Amiodarone,"* (Special Presentation), Practical Reviews in Forensic Medicine and Sciences, Vol. 1., No. 10, June 1999, Oakstone Medical Publishing, Inc. Literature Review Backer, et al., American Heart, Vol. 123 (6), June, 1992, PDR, 1999, et al.

Sawyer, W. R. *"Fatal Ingestion of Paroxetine (Deroxatt TM),"* (Special Article Review Presentation, Critical Assessment and Original Abstract), Practical Reviews in Forensic Medicine and Sciences, Vol. 1., No. 10, June 1999, Oakstone Medical Publishing, Inc. from Tracqui, P., et al., Bulletin of The International Association of Forensic Toxicologists, January 1999, Vol. 27, No. 1, pg. 9-10.

Sawyer, W.R. "A New Drug-of-Abuse 4-Methylthioamphetamine (Flatliners) & Toxic Related Fatality," (Special Article Review Presentation, Critical Assessment and Original Abstract), Practical Reviews in Forensic Medicine and Sciences, Vol. 1., No. 10, June 1999, Oakstone Medical Publishing, Inc. from Groombridge, C., et al., Bulletin of The International Association of Forensic Toxicologists, April 1999, Vol. 24, No. 2, pg. 5-9.

Sawyer, W.R. *"The Response of the Intoxilyzer 5000 to Five Potential Interfering Substances,"* Practical Reviews in Forensic Medicine and Sciences, Vol. 1., No. 9, May 1999, Oakstone Medical Publishing, Inc. from Caldwell, J.P. and Kim, N.D., Journal of Forensic Science, 1997, Vol. 42, No. 6, pg. 1080-87.

Sawyer, W.R. "*Nitrites Adulteration in Urine Drug Testing*," (Special Article Review Presentation, Critical Assessment and Original Abstract), Practical Reviews in Forensic Medicine and Sciences, Vol. 1., No. 8, April 1999, Oakstone Medical Publishing, Inc. from Spiehler, V., Bulletin of The International Association of Forensic Toxicologists, Spring 1999, Vol. 24, No. 1, pg. 17-18.

Sawyer, W.R. "A Case of Ballistic Toxicology," (Special Article Review Presentation, Critical Assessment and Original Abstract), Practical Reviews in Forensic Medicine and Sciences, Vol. 1., No. 8, April 1999, Oakstone Medical Publishing, Inc. from Kerkoff, W., Bulletin of The International Association of Forensic Toxicologists, Spring 1999, Vol. 24, No. 1, pg. 4-5.

Sawyer, W.R. "Postmortem Drug Redistribution - Human Cases Related to Results in Experimental Animals," (Special Article Review Presentation, Critical Assessment and Original Abstract), Practical Reviews in Forensic Medicine and Sciences, Vol. 1, No. 7, March 1999, Oakstone Medical Publishing, Inc. from Hilberg, T., et al., Journal of Forensic Sciences, January 1999, Vol. 44, No. 1, pg. 3-9.

Sawyer, W.R. "Special Publication – Forensic Source Identification of Lead," (Special Article Review Presentation, Critical Assessment and Original Abstract), Practical Reviews in Forensic Medicine and Sciences, Vol. 1, No. 6, February 1999, Oakstone Medical Publishing, Inc.

Sawyer, W.R. and Rigle D.A. Original Article/Special Presentation, *"Toxicology of Aromatic Hydrocarbons,"* Practical Reviews in Forensic Medicine and Sciences, Vol. 1, No. 5, January 1999, Oakstone Medical Publishing, Inc.

Sawyer, W.R. "Controlled Ethyl tert-Butyl Ether (ETBE) Exposure of Male Volunteers," (Special Article Review Presentation, Critical Assessment and Original Abstract), Practical Reviews in Forensic Medicine and Sciences, Vol. 1, No. 6, February 1999, Oakstone Medical Publishing, Inc. from Nihlen, A, et al,. Toxicological Sciences, Vol. 46, No. 1, pg. 143-150, November 1998.

Sawyer, W.R. "Vitamin B2 Interference with TDx Drugs-of-Abuse Assays," (Special Article Review Presentation, Critical Assessment and Original Abstract), Practical Reviews in Forensic Medicine and Sciences, Vol. 1, No. 5, January 1999, Oakstone Medical Publishing, Inc. from Kunsman, SW., et al., Journal of Forensic Sciences, November 1998, Vol. 43, No.6, pg. 1225-27.

Sawyer, W.R., "A Fatal Case of Benzene Poisoning & Special Discussion by Drs. Sawyer & Rigle," (Special Article Review Presentation, Critical Assessment and Original Abstract), Practical Reviews in Forensic Medicine and Sciences, Vol. 1, No. 5, January 1999, Oakstone Medical Publishing, Inc. from Barbera, N, Bulla, G. & Romano, G. Journal of Forensic Sciences, November 1998, Vol. 43, No. 6, pg. 1250-1.

Sawyer, W.R., "Biological and Chemical Hazards of Forensic Skeletal Analyses," (Special Article Review Presentation, Critical Assessment and Original Abstract), Practical Reviews in Forensic Medicine and Sciences, Vol. 1., No. 4, December 1998, Educational Reviews, LLC from Galloway, A. and Snodgrass, BA., Journal of Forensic Sciences, September 1998, Vol. 43, No. 5 pg. 940-48.

Rigle, D.A., Sawyer, W.R., Original Article/Special Presentation: "Carbon Monoxide Toxicity versus Carbon Dioxide Toxicity and their Relationship in Attempted Suicide," Practical Reviews in Forensic Medicine and Sciences, Vol. 1, No. 3, November 1998, Educational Reviews, LLC. Sawyer, W.R., "2,3,7,8-tetrachlorodibenzo-p-dioxin in Pregnant Long Evans Rats: Disposition to Maternal and Embryo/Fetal Tissues," (Special Article Review Presentation, Critical Assessment and Original Abstract), Practical Reviews in Forensic Medicine and Sciences, Vol. 1, No. 4, December 1998, Educational Reviews, LLC from Hurst, CH, et al., Toxicological Sciences, October 1998, Vol. 45, No. 2, pg. 129-36.

Sawyer, W.R., "Burns from undisclosed acids in a liquid used by temporary workers. A recent problem in occupational medicine caused by lack of information," (Special Article Review Presentation, Critical Assessment and Original Abstract), Practical Reviews in Forensic Medicine and Sciences, September 1998, Educational Reviews, LLC. Vol. 1, No. 3, November 1998, from Fischer, M., Hellmann, A., et al., Deutche Medizinische Wochenschrift, February 6, 1998, Vol. 123, No. 6, pg. 151-54.

Sawyer, W.R., "Automobile Exhaust as a means of Suicide: An Experimental Study with a Proposed Model," (Special Article Review Presentation, Critical Assessment and Original Abstract), Practical Reviews in Forensic Medicine and Sciences, Vol. 1, No. 3, November, 1998, Educational Reviews, LLC from Morgen, C., Schramm, J., et al., Journal of Forensic Sciences, Vol. 43, No. 4, July 1998, pg. 827-36.

Sawyer, W.R. "*Beyond Rohypnol: Use of Gamma-Hydroxybutyrate and Burundanga in Rape*," (Special Article Review Presentation, Critical Assessment and Original Abstract), Practical Reviews in Forensic Medicine and Sciences, Vol. 1, No. 3, November 1998, Education Reviews, LLC, from Hollinger, MA, The Forensic Examiner, Vol. 7, Nos. 3 & 4, March/April 1998, pg. 5-27.

Sawyer, W. R., *"The Absorption, Blood Levels, and Excretion of Mercury after a Single Dose of Mercury Vapor in Humans,"* (Special Article Review Presentation, Critical Assessment and Original Abstract) Practical Reviews in Forensic Medicine and Sciences, Vol. 1, No. 1, September 1998, Educational Reviews, LLC from Sandborgh, G, et al., Toxicology and Applied Pharmacology, May 1997, Vol. 150, pg. 146-153.

Sawyer, W.R., "The Effect of Glutaraldehyde Adulteration of Urine Specimens on Behring Syva Emit II Drugs of Abuse Assays," (Special Article Review Presentation, Critical Assessment and Original Abstract), Practical Reviews in Forensic Medicine and Sciences, Vol.1, No. 2 October 1998, Educational Reviews, LLC. from George, Bulletin of The International Association of Forensic Toxicologists, Vol. 27, No. 2, January 1997, pg. 10-11. Sawyer, W.R., "Identification of Unique Cocaine Metabolites and Smoking By-Products in Postmortem Blood and Urine Specimens," (Special Article Review Presentation, Critical Assessment an Original Abstract), Practical Reviews in Forensic Medicine and Sciences, Vol.1, No. 1, September 1998, Educational Reviews, LLC. from Jenkins, AJ and Goldberger, BA, Journal of Forensic Science, 1997, Vol. 42, No. 5, September, pg. 824-827.

Miller, F.W., Sawyer, W.R., *"What Causes Myositis,"* National Myositis Association Newsletter, No. 16, pg. 2, December 1995.

Rigle, D.A., Sawyer, W.R., *"Evaluation of Toxic Exposures After Daubert,"* S.E.A.K. Expert Witness Handbook, S.E.A.K., 1995 edition.

Sawyer, W.R. and Rigle, D.A., "Toxic Etiology of Multiple Chemical Sensitivities: Review of Case Histories with Documented Toxic Exposure," Published in the Society of Toxicology, The Toxicologist, Volume 15, No. 1, 1995, pg. 228 - 229.

Sawyer, W.R., "Analysis of Volatile Organic Contaminants from Biological Matrices by Purge and Trap Gas Chromatography and Mass Spectrometry," Presented at the 44th Annual American Academy of Forensic Sciences Meeting, February 20, 1992, Abstract No. K45, pg. 197.

Sawyer, W.R., Doedens, D.J., Authors Response to Discussion of "Heroin, Morphine and Hydromorphone Determination in Postmortem Material by High Performance Liquid Chromatography," Journal of Forensic Sciences, Vol. 35, No. 3, May 1990, pg. 522-523.

Sawyer, W.R., Steup, D.R., Martin, B.S. and Forney, R.B., *"Cardiac Blood pH as a Possible Indicator of Postmortem Interval,"* Presented at the 40th Annual American Academy of Forensic Sciences Meeting, February 19, 1988, Abstract No. K65, pg. 141.

Carfagna, M.A., Sawyer, W.R. and Forney, R.B., "*Postmortem Distribution of Ethanol in Rats,*" The International Association of Forensic Toxicologists, Abstracts, 1987, pg. 13.

Sawyer, W.R., Forney, R.B., "Postmortem Disposition of Morphine in the Rat," Presented at the 24th International Meeting, Banff, Canada, The International Association of Forensic Toxicologists, Abstracts, 1987, pg. 12.

Sawyer, W.R., Doedens, D.J. and Forney, R.B., "Heroin, Morphine, and Hydromorphone Determination in Postmortem Material by High Performance Liquid

*Chromatography,*" American Academy of Forensic Sciences 38th annual meeting, Abstract K13, 1986, pg. 114.

Sawyer, W.R., Steup, D.R., Martin, B.S. and Forney, R.B., *"Cardiac Blood pH as a Possible Indicator of Postmortem Interval,"* Journal of Forensic Sciences, Vol. 33, No. 6, Nov. 1988, pg. 1439-1444.

Sawyer, W.R., Forney, R.B., "Postmortem Disposition of Morphine in Rats," Forensic Science International, Vol. 38, Oct. 1988, pg. 259-273.

Sawyer, W.R., Waterhouse, G.A.W., Doedens, D.J. and Forney, R.B., "Heroin, Morphine and Hydromorphone Determination in Postmortem Material by High Performance Liquid Chromatography," Journal of Forensic Sciences, Vol. 33, No. 5, Sept. 1988, pg. 1146-1155.

Carfagna, M.A., Sawyer, W.R. and Forney, R.B., "*Postmortem Distribution of Ethanol in Rats,*" The International Association of Forensic Toxicologists, Proceedings of the 24th International Meeting, July 28-31, 1987, pg. 87-93.

Sawyer, W.R., Ritter, E. and Faloon, W.W., *"The Morphological Effects of Chenodeoxycholic Acid on Human Gastric Mucosa,"* The American Journal of Gastroenterology, Vol. 79, No. 5, 1984, pg. 348-353.

# **Personal Information**

Dr. Sawyer is a member of the Gulf Coast Swim Team as a distance swimmer and completed several "*Swim Around Key West*" 12.5 mile ocean swim races in under six hours. He is also a triathlete with the distinction of being a four-time Ironman. He loves to fish and SCUBA dive in northern New York State and the Gulf of Mexico.

Place of Birth:	Webster, New York
Citizenship:	United States
Marital Status:	Married, 1989