

Samuel Louis Kleinman, Ph.D. F-ABFT TC-NRCC
Cincinnati, OH • 505-596-0212

EDUCATION/CERTIFICATION

| | |
|--|--------------|
| Fellow – American Board of Forensic Toxicology Board certified in Forensic Toxicology Eligible by CLIA, CMS, & HHS to be a High Complexity Laboratory Director | 2023-present |
| Toxicological Chemist – National Registry of Certified Chemists Board certified in Toxicological Chemistry Eligible by CLIA, CMS, & HHS to be a High Complexity Laboratory Director | 2024-present |
| Northwestern University , Evanston, IL Ph.D. in Physical/Analytical Chemistry Thesis title: Surface-Enhanced Raman Spectroscopy of Single Molecules and Nanoaggregates Advisor: Professor Richard P. Van Duyne | 2007-2012 |
| Kellogg School of Management, Northwestern University , Evanston, IL Certificate: Management for Scientists and Engineers 8-week course on fundamentals of business and management | 2010 |
| University of California at Berkeley , Berkeley, CA B.S. in Chemistry | 2003-2007 |

CAREER EXPERIENCE

| | |
|---|-------------------------------------|
| Hamilton County Coroner’s Office and Crime Laboratory Cincinnati, OH <i>Chief of Toxicology</i> Manages forensic toxicology services for pathologists and law enforcement agencies Provides testimony and consultation on criminal and death investigations Assists in laboratory quality assurance program including proficiency testing and accreditation standards Drafts and submits reports on facts, opinions, and conclusions Assures proper handling of case materials and accurate documentation | 2026-current |
| SamHil Consulting Cincinnati, OH / Albuquerque, NM <i>Principal Consultant</i> Offers services as an expert in forensic toxicology and instrumental analysis Provides testimony and consultation on criminal and civil matters Drafts and submits reports on facts, opinions, and conclusions Reviewer for scholarly journals in the field Assists in explaining laboratory results and placing them in appropriate context CLIA High Complexity Laboratory Director candidate | 2022-current |
| New Mexico Department of Health, Scientific Laboratory Division, Toxicology Bureau Albuquerque, NM <i>Forensic Toxicology Bureau Chief</i> <i>Deputy Forensic Toxicology Bureau Chief</i> Managed breath alcohol, drug screening, and drug confirmation sections Qualified as an expert in Forensic Toxicology more than 40 times | 2017-2024 2019-2024 2017-2019 |

Testified in Federal, District, Magistrate, and Municipal courts of New Mexico
 Developed training materials and training plans for onboarding new analysts
 Participated in senior staff meetings, budget planning, and decision making
 Performed technical and administrative review on DUI casework
 Implemented ISO 17025 / AR 3125 guidelines and ensured laboratory conformance
 Oversaw external laboratory accreditation for blood alcohol analysis
 Oversaw laboratory accreditation with the American Board of Forensic Toxicologists
 Hired more than 40 chemist and supervisor personnel

OndaVia, Hayward, CA 2013-2017

Senior Scientist / Operations Director

Created new tests for rapid trace chemical analysis in industrial water samples
 Employed surface treatments to modify bulk properties of nanoparticle substrates
 Optimized surface-enhanced and normal Raman spectroscopy for sample quantification
 Trained and worked with industrial users to conduct novel SERS-based chemical assays
 Utilized Python and SQL to manage and analyze data as well as perform chemometrics
 Authored SOPs, safety manuals, SBIR grants, and customer reports

Northwestern University, Evanston, IL

Research Associate/Postdoctoral Fellow 2012-2013

Designed experiments for transcutaneous detection of peptides and small biomolecules
 Sourced and assembled confocal Raman microscope

Graduate Student

2007-2012

Mastered nanoparticle and single-molecule SERS, electrochemical SERS
 Utilized LabVIEW and MATLAB to conduct and analyze experiments

Analytical Services Laboratory Assistant

2007-2008

Maintained and trained new users of GC, GC-MS, HPLC-MS, LCQ, ICP, FTIR equipment

University of California, Berkeley, Berkeley, CA

2005-2007

Undergraduate Research Internship

Growth and analysis of CdSe semiconductor nanoparticles

PROFESSIONAL MEMBERSHIPS & COMMITTEES

Society of Forensic Toxicologists, Full Member 2019-current

Society of Forensic Toxicologists Publications Committee 2025-current

Southwestern Association of Toxicologists 2020-2024

PROFESSIONAL MEETINGS

Midwestern Association for Toxicology and Therapeutic Drug Monitoring 2026

American College of Medical Toxicologists, Forensic Toxicology Seminar 2019

Society of Forensic Toxicologists, Annual Meeting 2018, 2019, 2021, 2023, 2024, & 2025

American College of Medical Toxicologists, Annual Scientific Meeting 2018

California Association of Toxicologists Semi-Annual Meeting 2017

TRAINING MODULES & CLASSES

| | |
|--|-----------------|
| Intoxilyzer 9000 Breath Alcohol Analysis Instrument Operation, Maintenance, & Calibration Presented by CMI, Inc. and hosted at SLD | 2023 |
| Seminar in Forensic Toxicology: A Look Forward at NPS & a Look BAC at Ethanol 16-hour course presented by the American College of Medical Toxicologists | 2021 |
| Applied Pharmacokinetics, 15-hour online course Administered by Center for Forensic Science Research and Education | 2020 |
| The Robert F. Borckenstein Course on Alcohol and Highway Safety | 2018 |
| The Robert F. Borckenstein Course on The Effects of Drugs on Human Performance and Behavior | 2017 |
| Forensic Pharmacology, 3-day online course Administered by Center for Forensic Science Research and Education | 2017 |
| Intoxilyzer 8000 Breath Alcohol Analysis Instrument Operation, Maintenance, & Calibration Presented by CMI, Inc. and hosted at SLD | 2020 |
| Online Symposium: Current Trends in Forensic Toxicology, 15-hour online course Administered by Center for Forensic Science Research and Education | 2020, 2023-2025 |
| New Mexico Drug Recognition Expert Workshop and Demonstration Presented by NMDRE State coordinator and hosted by Samuel Kleinman | 2019 |
| Thermo Scientific Unity Orbitrap Training, 3-day intensive course On-site at New Mexico Scientific Laboratories | 2018 |

PUBLICATIONS/PATENTS

- Kleinman, S. L.; Peterman, M. C.; Benhabib, M.; Cheng, M. T.; Hudson, J. D.; Mohler, R. E. "Rapid Quantification of 4,4'-Methylenedianiline by Surface-Enhanced Raman Spectroscopy" *Anal. Chem.*, 2017, 89, 13190—13194
- Kleinman, S. L.; Frontiera, R. R.; Henry, A.-I.; Dieringer, J. A. and Van Duyne, R. P. "Creating, characterizing, and controlling chemistry with SERS hot spots" *Phys. Chem. Chem. Phys.*, 2013, 15, 21—36
- Kleinman, S. L.; Sharma, B.; Blaber, M.G.; Henry, A.-I.; Valley, N.; Freeman, R. G.; Natan, M. J.; Schatz, G. C. and Van Duyne, R. P. "Structure Enhancement Factor Relationships in Single Gold Nanoantennas by Surface-Enhanced Raman Spectroscopy" *J. Am. Chem. Soc.*, 2012, 135, 301—308
- Benhabib, M.; Kleinman, S. L.; Peterman, M.C. "Quantification of Amines in Refinery Process Waters via Surface-Enhanced Raman Spectroscopy" *Energy Fuels*, 2023, 1881-1886
- Benhabib, M.; Kleinman, S. L.; Peterman, M.C. "Quantitative Analysis of Triazine-Based H₂S Scavengers via Raman Spectroscopy" *Industrial & Engineering Chemistry Research*, 2021 60(44) 15936-15941
- Fahrenbach, A. C.; Sampath, S.; Late, D. J.; Barnes, J. C.; Kleinman, S. L.; Valley, N.; Hartlieb, K. J.; Liu, Z.; Dravid, V. P.; Schatz, G. C.; Van Duyne, R. P.; Stoddart, J. F. "A Semiconducting Organic Radical Cationic Host-Guest Complex" *ACS Nano*, 2012, 6, 9964—9971
- Kleinman, S. L.; Ringe, E.; Valley, N.; Wustholz, K. L.; Phillips, E.; Scheidt, K. A.; Schatz, G. C. and Van Duyne, R. P. "Single-Molecule Surface-Enhanced Raman Spectroscopy of Crystal Violet Isotopologues: Theory and Experiment" *J. Am. Chem. Soc.*, 2011, 133, 4115—4122

Paxton, W. F.; Kleinman, S. L.; Basuray, A. N.; Stoddart, J. F. and Van Duyne, R. P. “Surface-Enhanced Raman Spectroelectrochemistry of TTF-Modified Self-Assembled Monolayers” *J. Phys. Chem. Lett.* 2011, 2, 1145—1149

Kleinman, S. L.; Bingham, J. M.; Henry, A-I.; Wustholz, K. L. and Van Duyne, R. P. “Structural and Optical Characterization of Single Nanoparticles and Single Molecule SERS” *Proceedings of SPIE*, 2010, 7757, 77570J-1—77570J-10

Wustholz, K. L.; Henry, A-I.; Bingham, J. M.; Kleinman, S. L.; Natan, M. J.; Freeman, R. G.; Van Duyne R. P. “Exploring Single-Molecule SERS and Single-Nanoparticle Plasmon Microscopy,” In *Plasmonics: Metallic Nanostructures and Their Optical Properties VII*, *Proceedings of SPIE*, 2009, 7394, 739403-1–739403-10

Dieringer, J. A.; Wustholz, K. L.; Masiello, D. J.; Camden, J. P.; Kleinman, S. L.; Schatz G. C.; Van Duyne, R.P. “Surface-Enhanced Raman Excitation Spectroscopy of a Single Rhodamine 6G Molecule,” *J. Am. Chem. Soc.* 2008, 131, 849—854

Peterman, M.C.; Benhabib, M.; Kleinman, S. L. “Portable Water Quality Instrument” US Patent Grant # 10247673, 10254229

Peterman, M.C.; Benhabib, M.; Ariza, C. A.; Kleinman, S. L. “Measuring concentration of analytes in liquid samples using surface-enhanced Raman spectroscopy” US Patent Grant # 9863824, 10444216

SERVICE

| | |
|---|--------------|
| <i>Reviewer, Journal of Analytical Toxicology</i> | 2021-current |
| <i>Reviewer, Journal of the American Chemical Society</i> | 2024 |
| <i>Member, NU Chemistry Department Graduate Liaison Committee</i> | 2008-2012 |
| <i>Participant, ‘All Scout Nano-Day’</i> | 2008-2013 |
| <i>Organizer, ‘All Scout Nano-Day’</i> | 2009 |