

## CYNTHIA K. LARIVE

---

### CONTACT INFORMATION:

Chancellor's Office, Kerr Hall  
University of California – Santa Cruz  
Santa Cruz, CA 95064  
Phone: (831) 459-4291  
Email: clarive@ucsc.edu

### EDUCATION:

B.S. in Chemistry, South Dakota State University, 1980  
M.S. in Inorganic Chemistry, Purdue University, 1982  
Ph.D. in Analytical Chemistry, University of California, Riverside, NMR Studies of Neurohypophyseal Peptide Hormones, 1992

### PROFESSIONAL EXPERIENCE:

Chancellor, UC-Santa Cruz, 7/2019 - present  
Provost and Executive Vice Chancellor, UC-Riverside, 2017 - 2019  
Vice Provost for Undergraduate Education, UC-Riverside, 2016 - 2017  
Interim Dean, College of Natural and Agricultural Sciences (CNAS), UC-Riverside, 2015  
Divisional Dean for Physical Sciences and Mathematics, UC-Riverside, 2013 - 2015; 2016  
Chair, Department of Chemistry, UC-Riverside, 2012 - 2013  
Professor of Chemistry, UC-Riverside, 2005 - 2019  
Sabbatical Leave, Ronzoni Institute for Chemistry and Biochemistry Research, Milan, Italy, 2012  
Director Analytical Chemistry Instrumentation Facility, 2006 - 2010  
Director, UC-Riverside NSF REU Program in Bioanalytical Science, 2006 - 2008  
Professor of Chemistry and Courtesy Prof. Pharmaceutical Chemistry, University of Kansas, 2003 - 2004  
Director, University of Kansas NSF REU Program in Chemistry, 2003 - 2004  
Associate Professor of Chemistry, University of Kansas, 1998-2003  
Courtesy Associate Professor of Pharmaceutical Chemistry, University of Kansas, 2001 - 2003  
Sabbatical Leave with Professor Jonathan Sweedler, University of Illinois, 2001  
Assistant Professor of Chemistry, University of Kansas, 1992 - 1998  
Graduate Research and Teaching Assistant, UC-Riverside, 1988 -1992  
Manager, AA-ICP Lab, Engineering and Mining Experiment Station, South Dakota School of Mines and Technology, Rapid City, South Dakota 1984 - 1988

### HONORS AND AWARDS

Outstanding Senior Leader Award given by the Council of University of California Staff Assemblies (CUCSA) 2021-22  
Award for Distinguished Service to Analytical Chemistry, ACS Division of Analytical Chemistry, 2018  
National Award for Volunteer Service to the American Chemical Society, 2015  
Fellow, Academy for Innovative Higher Education Leadership, 2014 -2015  
ACS Fellow, 2011  
UC-Riverside Innovative Teaching Award, 2011  
AAAS Fellow, 2008  
J. Calvin Giddings Award for Excellence in Education, ACS Division of Analytical Chemistry, 2007  
Honorary Doctorate, College of Pharmacy, Semmelweis University, Budapest, Hungary, 2005  
IUPAC Fellow, 2004  
University of Kansas Award for Teaching Excellence, 2002  
IUPAC Young Observer, 2001  
Kaw Valley Girl Scout Woman of Distinction, 1997  
Eli Lilly New Faculty Award, 1996  
National Science Foundation CAREER Award, 1995

## EDITORIAL ACTIVITIES

**Associate Editor**, *Analytical Chemistry*, 6/2015 – 8/2019

**Associate Editor**, *Analytical and Bioanalytical Chemistry*, 1/2013 - 12/2014

**Editorial Advisory Board Member**, *Analytical Chemistry*, 2013 - 2015

**Editorial Advisory Board Member**, *Analytical and Bioanalytical Chemistry*, 2001 - 2012,

**Editor-in-chief**, Analytical Sciences Digital Library; [www.asdlib.org](http://www.asdlib.org), 2004-2019

**H-Index (google scholar)**: 53, <https://scholar.google.com/citations?user=RugPbDMAAAAJ&hl=en>

**PUBLICATIONS**: (underlining denotes coauthors: undergraduate, PUI faculty, or high school teacher)

1. D.L. Rabenstein, C.K. Larive, Rotating-Frame Nuclear Overhauser Enhancement Spectroscopy of Aqueous Solutions with Elimination of the Water Resonance by Transverse Relaxation, *J. Magn. Res.* **87**:352-356 (1990).
2. C.K. Larive, D.L. Rabenstein, Two-dimensional <sup>1</sup>H NMR Spectroscopy of Aqueous Solutions with Elimination of the Water Resonance by Transverse Relaxation: Application to the Assignment of the <sup>1</sup>H NMR Spectrum of Reduced Arginine Vasopressin, *Mag. Reson. Chem.* **29**:409-417 (1991).
3. C.K. Larive, L. Guerra, D.L. Rabenstein, Cis/Trans Conformational Equilibrium across the Cysteine<sup>6</sup>-Proline Peptide Bond of Oxytocin, Arginine Vasopressin and Lysine Vasopressin, *J. Am. Chem. Soc.* **114**:7331-7337 (1992).
4. C.K. Larive, D.L. Rabenstein, Characterization of the Dynamics of the Cis-Trans Isomerization about the Proline Amide Bond of Oxytocin and Arginine Vasopressin in Aqueous and Methanol Solutions, *J. Am. Chem. Soc.* **115**:2833-2836 (1993).
5. C. Schöneich, A. Hühmer, S.R. Rabel, J.F. Stobaugh, S.D.S. Jois, C.K. Larive, T.J. Siahann, T.C. Squier, D.J. Bigelow, T. Williams, Separation and Analysis of Peptides and Proteins, *Anal. Chem.* **67**:155R-181R (1995).
6. M. Lin, D.A. Jayawickrama, R.A. Rose, J.A. DeViscio, C.K. Larive, NMR Spectroscopic Analysis of the Selective Complexation of the Cis and Trans Isomers of Phenylalanyl-Proline by  $\beta$ -Cyclodextrin, *Anal. Chim. Acta* **307**:449-457 (1995).
7. M. Lin, C.K. Larive, Detection of Insulin Aggregates with Pulsed-field Gradient NMR Spectroscopy, *Anal. Biochem.* **229**:214-220 (1995).
8. C.K. Larive, M. Lin, B.J. Piersma, W.R. Carper, Diffusion Ordered Spectroscopy (DOSY) of Room Temperature Chloraluminat Melts, *J. Phys. Chem.* **99**:12409-12412 (1995).
9. D. Jayawickrama, S. Zink, D. Vander Velde, R.I. Effiong, C.K. Larive, Conformational Analysis of the  $\beta$ -amyloid Peptide Fragment,  $\beta$ (12-29), *J. Biomol. Struct. Dynam.* **13**:229-244 (1995).
10. W.R. Carper, G.J. Mains, B.J. Piersma, S.L. Mansfield, C.K. Larive, <sup>13</sup>C NMR Relaxation and <sup>1</sup>H Diffusion (DOSY) Studies of an Acidic Chloroaluminat Melt, *J. Phys. Chem.* **100**:4724-4728 (1996).
11. M. Lin, M.F. Chan, V.N. Balaji, R.S. Castillo, C.K. Larive, The Synthesis and Conformational Analysis of Cyclic Pentapeptide Endothelin Antagonists, *Int. J. Peptide Protein Res.* **48**:229-239 (1996).
12. C.K. Larive, A. Rogers, M. Morton, W.R. Carper, <sup>113</sup>Cd NMR Binding Studies of Cd-Fulvic Acid Complexes: Evidence of Fast Exchange, *Environ. Sci. Technol.* **30**:2828-2831 (1996).
13. A.F. Hühmer, G.I. Aced, M.D. Perkins, R.N. Gursay, D.S. Seetharama Jois, C.K. Larive, T.J. Siahann, C. Schöneich, Separation and Analysis of Peptides and Proteins, *Anal. Chem.* **69**:29R-57R (1997).
14. A. M. Dixon, C.K. Larive, Modified Pulsed-field Gradient NMR Experiments for Improved Selectivity in the Measurement of Diffusion Coefficients in Complex Mixtures: Application to the Analysis of the Suwannee River Fulvic Acid, *Anal. Chem.* **69**:2122-2128 (1997).
15. M.D. Morton, F.H. Walters, D.S. Aga, E.M. Thurman, C.K. Larive, NMR Identification of New Sulfonic Acid Metabolites of Chloroacetanilide Herbicides, *J. Agric. Food Chem.* **45**:1240-1243 (1997).
16. G.T. Timberlake, A.W. Gemperli, C.K. Larive, K.A. Warren, M.A. Mainster, Free-Radical Production by Neodymium:YAG Laser Photodisruption, *Ophthal. Surg. Lasers* **28**:582-589 (1997).
17. C. K. Larive, D. Jayawickrama, L. Orfi, Quantitative Analysis of Peptides with NMR Spectroscopy, *Appl. Spectrosc.* **51**:1531-1536 (1997).

18. C.K. Larive, S.M. Levine, The pH Dependence of Aggregate Formation by Galactosylsphingosine (Psychosine) with <sup>1</sup>H NMR and Electron Microscopy. Pathological Implications for Krabbe's Disease, *Lipids* **32**:1035-1040 (1997).
19. S.L. Mansfield, D.A. Jayawickrama, J.S. Timmons, C.K. Larive, Measurement of Peptide Aggregation with Pulsed-field Gradient Nuclear Magnetic Resonance Spectroscopy, *Biochim. Biophys. Acta* **1382**:257-265 (1998).
20. C.K. Larive, M. Lin, B.S. Kinnear, B.J. Piersma, C.E. Keller, W.R. Carper, <sup>13</sup>C and <sup>27</sup>Al NMR Relaxation, Viscosity and <sup>1</sup>H Diffusion (DOSY) Studies of an Ethylaluminum Dichloride Melt, *J. Phys. Chem.* **102**:1717-1723 (1998).
21. L. Orfi, M. Lin, C.K. Larive, Measurement of SDS Micelle-Peptide Association using <sup>1</sup>H NMR Chemical Shift Analysis and Pulsed-field Gradient NMR Spectroscopy, *Anal. Chem.* **70**:1339-1345 (1998).
22. A. A. DiSpirito, J.A. Zahn, D.W. Graham, H.J. Kim, C.K. Larive, C.D. Cox, A. Taylor, Copper-Binding Compounds from *Methylosinus trichosporium* OB3b, *J. Bacteriology* **180**:3606-3613 (1998).
23. J. Hong, S. Sun, T. Derrick, C.Larive, K.B. Schowen, R.L. Schowen, Transition-State Theoretical Interpretation of the Catalytic Power of Pyruvate Decarboxylases: The Roles of Static and Dynamical Considerations, *Biochim. Biophys. Acta* **1385**:87-200 (1998).
24. D.A. Jayawickrama, C.K. Larive, E.F. McCord, D.C. Roe, Polymer Additives Mixture Analysis using Pulsed-field Gradient NMR Spectroscopy, *Magn. Reson. Chem.* **36**:755-760 (1998).
25. V.M. Rao, M. Lin, C.K. Larive, M.Z. Southard, A Mechanistic Study of Griseofulvin Dissolution into Surfactant Solutions in Laminar Flow Conditions, *J. Pharm. Sci.* **87**:786-796 (1998).
26. A.M. Dixon, C.K. Larive, E.A. Nantis, W.R. Carper, Direct Determination of Correlation Times: Analysis of the Cd-CyDTA Complex by the Relaxation Rate Ratio Method, *J. Phys. Chem.* **102**:10573-10578 (1998).
27. C.K. Larive, Nuclear Magnetic Resonance Spectroscopy, *The McGraw-Hill Encyclopedia of Science and Technology* McGraw-Hill, Inc., New York, 8th ed., 1997, Vol. 12, pp. 168-174.
28. C.K. Larive, S. Lunte, M. Zhong, M. Perkins. G.S. Wilson, G. Gokulrangan, T. Williams. F. Afroz, C. Schöneich, T.S. Derrick, R. Middaugh, S. Bogdanowich-Knipp, Separation and Analysis of Peptides and Proteins, *Anal. Chem.* **71**:389R-423R (1999).
29. A.M. Dixon, M.A. Mai, C.K. Larive, Interaction Between 4'-Fluoro-1'-Acetonaphthone with Natural Aquatic Organic Material, *Environ. Sci. Technol.* **33**:958-964 (1999).
30. D.A. Jayawickrama, C.K. Larive, Analysis of the Trimethylsilylpropionic Acid -β (12-28) Peptide Binding Equilibrium with NMR Spectroscopy, *Anal. Chem.* **71**:2117-2112 (1999).
31. S.L. Mansfield, A.J. Gotch, G.S. Harms, C.K. Johnson, C.K. Larive, Complementary Analysis of Peptide Aggregation by NMR and Time-Resolved Laser Spectroscopy, *J. Phys. Chem.* **103**:2262-2269 (1999).
32. T. Derrick, C.K. Larive, The Use of PFG-NMR for the Measurement of Diffusion Coefficients of the Cis and Trans Isomers of Proline-Containing Peptides, *Appl. Spectrosc.* **53**:1595-1600 (1999).
33. A.M. Dixon, C.K. Larive, NMR Spectroscopy with Spectral Editing for the Analysis of Complex Mixtures, *Appl. Spectrosc.* **53**:426A-440A (1999).
34. K. F. Morris, B. J. Cutak, A. M. Dixon, C. K. Larive, Analysis of Diffusion Coefficient Distributions in Humic and Fulvic Acids by means of Diffusion Ordered NMR Spectroscopy, *Anal. Chem.* **71**:5315-5321 (1999).
35. W.H. Graham, D.W. Graham, F. deNoyelles, Jr., V.H. Smith, C.K. Larive, E.M. Thurman, Metolachlor and Alachlor Breakdown Product Formation Patterns in Aquatic Field Microcosms, *Environ. Sci. Technol.* **33**:4471-4476 (1999).
36. D. A. Jayawickrama, C. K. Larive, Investigation of Aggregation and Binding of β(12-28) using NMR Spectroscopy, in *Peptides, Frontiers of Peptide Science*, J. P. Tan and P. T. P. Kaumaya, Eds., Kluwer, Dordrecht, 1999, pp. 807-808.
37. J. R. Lead, K. J. Wilkinson, E. Balnois, B. J. Cutak, C. K. Larive, S. Assemi, R. Beckett, Diffusion Coefficients and Polydispersities of the Suwannee River Fulvic Acid: Comparison of Fluorescence Correlation Spectroscopy, Pulsed-Field Gradient Nuclear Magnetic Resonance, and Flow Field-Flow Fractionation, *Environ. Sci. Technol.* **34**:3508-3513 (2000).
38. M. L. Pomes, C. K. Larive, E. M. Thurman, W. Reed Green, W. H. Orem, C. E. Rostad, T. B. Coplen, B. J. Cutak, A. M. Dixon, Source and Haloacetic Acid/Trihalomethane Formation Potentials of

- Aquatic Humic Substances in the Wakarusa River and Clinton Lake near Lawrence, KS, *Environ. Sci. Technol.* **34**:4278-4286 (2000).
39. J. L. Razak, B. J. Cutak, C. K. Larive, C. E. Lunte, Correlation of the Capacity Factor in Vesicular Electrokinetic Chromatography, *Pharm. Res.* **18**:104-111 (2001).
  40. S. A. Rogers, D. Vander Velde, C. K. Larive, Evaluation of NMR Diffusion Measurements for the Conformational Analysis of Flexible Peptides, *Fresenius J. Anal. Chem.* **369**:308-312 (2001).
  41. W. H. Otto, W. R. Carper, C. K. Larive, Measurement of Cadmium(II) and Calcium(II) Complexation by Fulvic Acids Using  $^{113}\text{Cd}$  NMR, *Environ. Sci. Technol.* **35**:1463-1468 (2001).
  42. W. H. Otto, S. D. Burton, W. R. Carper, C. K. Larive, Examination of Cadmium(II)-Fulvic Acid Complexes using  $^{113}\text{Cd}$  NMR Relaxation Measurements, *Environ. Sci. Technol.* **35**:4900-4904 (2001).
  43. M. Lacey, J. V. Sweedler, C. K. Larive, D. Farrant, A. Pipe, Analysis of a Single Combichem Bead, *J. Magn. Reson.* **153**:215-222 (2001).
  44. W. H. Otto, C. K. Larive, Improved Spin-echo Edited NMR Diffusion Measurements, *J. Magn. Reson.* **153**:273-276 (2001).
  45. T. S. Derrick, E. F. McCord, C. K. Larive, Analysis of Protein/Ligand Interactions with NMR Diffusion Measurements: The Importance of Eliminating the Protein Background, *J. Magn. Reson.* **155**:217-225 (2002).
  46. W. H. Otto, M. H. Keefe, J. T. Hupp, C. K. Larive, Analysis of Molecular Square Size and Purity via Pulsed-Field Gradient NMR Spectroscopy *Inorg. Chem.* **41**:6172-6174 (2002).
  47. L. H. Lucas, W. H. Otto, C. K. Larive, The 2D-J- DOSY Experiment: Resolving Diffusion Coefficients in Mixtures, *J. Magn. Reson.* **156**:138-145 (2002).
  48. A. M. Wolters, D. A. Jayawickrama, C. K. Larive, J. V. Sweedler, Capillary Isotachopheresis/NMR: Extension to Trace Impurity Analysis and Improved Instrumental Coupling, *Anal. Chem.* **74**:2306-2313 (2002).
  49. T. S. Derrick, L. H. Lucas, J.-L. Dimicoli, C. K. Larive, The  $^{19}\text{F}$  Diffusion NMR Analysis of Enzyme-Inhibitor Binding, *Mag. Res. Chem.* **40**:S98-S105 (2002).
  50. A. M. Wolters, D. A. Jayawickrama, C. K. Larive, J. V. Sweedler, Insights into the cITP process using on-line NMR spectroscopy, *Anal. Chem.* **74**:4191-4197 (2002).
  51. W. Sun, C. K. Larive, M. Z. Southard, A Mechanistic Study of Danazol Distribution into Ionic Surfactant Solutions, *J. Pharm. Sci.* **92**:424-435 (2003).
  52. W. H. Otto, D. J. Britten, C. K. Larive, NMR Diffusion Analysis of Surfactant-Humic Substance Interactions, *J. Colloid Interface Sci.* **261**:508-513 (2003).
  53. B. A. Wilson, V. A. Smith, F. deNoyelles Jr., C. K. Larive Ecological Impact Assessment of Three Pharmaceutical and Personal Care Product Chemicals Using Freshwater Algal Assemblies, *Environ. Sci. Tech.* **37**:1713-1719 (2003).
  54. L. H. Lucas, J. Yan, C. K. Larive, E. R. Zartler, M. J. Shapiro Transferred Nuclear Overhauser Effect in Nuclear Magnetic Resonance Diffusion Measurements of Ligand-Protein Binding, *Anal. Chem.* **75**: 627-634 (2003).
  55. L. A. Cardoza, V. K. Almeida, A. Carr, D. W. Graham, C. K. Larive, Separations Coupled with NMR Detection: Emerging Techniques for the Study of Contamination Fate, *Trends in Analytical Chemistry* **22**:766-775 (2003).
  56. C. W. Knapp, D. W. Graham, G. Berardesco, F. deNoyelles Jr., B. J. Cutak, C. K. Larive, Nutrient Level, Microbial Activity, and Alachlor Transformation in Aerobic Aquatic Systems, *Water Res.* **37**:4761-4769 (2003).
  57. L. A. Cardoza, T. D. Williams, B. Drake, C. K. Larive, LC/MS/MS and LC/NMR for the Structure Elucidation of Ciprofloxacin Transformation Products in Pond Water Solution, in *Mass Spectrometry, LC/MS/MS and TOF/MS: Analysis of Emerging Contaminants*, ACS Symposium volume 850, I. Ferrer and E. M. Thurman Eds., (2003) Oxford University Press and The American Chemical Society, Washington, pp.146-160.
  58. L.A. Cardoza, B. J. Cutak, J. Ketter, C. K. Larive, HPLC-NMR Investigation of the Isomerization of Alachlor-Ethane Sulfonic Acid, *J. Chromatogr. A.* **1022**:131-137 (2004).
  59. L. H. Lucas, C. K. Larive, Measuring Ligand-Protein Binding Using NMR Diffusion Measurements, *Concepts in Magnetic Resonance* **20A**:24-41 (2004).

60. K. E. Price, L. H. Lucas, C. K. Larive, Analytical Applications of NMR Diffusion Measurements, *Anal. Bioanal. Chem.* **378**:1405-1407 (2004).
61. C. S. Uyguner, C. Hellriegel, W. H. Otto, C. K. Larive, Characterization of Structural Features of Humic Substances: Implications for Trihalomethane Formation, *Anal. Bioanal. Chem.* **378**:1579-1586 (2004).
62. H.J. Kim, D. W. Graham, A. A. DiSpirito, M. Alterman, N. Galeva, C. K. Larive, D. Asunskis, P. M. A. Sherwood, Methanobactin: A Copper-Acquisition Compound from Methane-Oxidizing Bacteria, *Science* **305**:612-1615 (2004).
63. L. A. Cardoza, A. K. Korir, W. H. Otto, C. J. Wurrey, C. K. Larive, Environmental Applications of NMR Spectroscopy, *Prog. NMR Spectrosc.* **45**:209-238 (2004).
64. L. H. Lucas, M. A. Cerny, Y. M. Koen, R. P. Hanzlik, C. K. Larive, <sup>1</sup>H High-Resolution Magic Angle Spinning (HR-MAS) Analysis of Ligand Density on Resins using a Resin Internal Standard, *Anal. Bioanal. Chem.* **380**:627-631(2004).
65. L. H. Lucas, K. E. Price, C. K. Larive, Ternary Complex Formation of Human Serum Albumin with Two Drug Site II Ligands Revealed by NMR Diffusion and NOE Spectroscopy, *J. Am. Chem. Soc.* **126**:14258-14266, (2004).
66. L. H. Lucas, C. K. Larive, Quantitative Analysis in Organic Synthesis with NMR, In *Analysis and Purification Methods in Combinatorial Chemistry*, B. Yang, Ed. Wiley Interscience, Hoboken, N. J., 2004 pp 3-36.
67. L. A. Cardoza, C.W. Knapp, C.K. Larive, J.B. Belden, M. Lydy, D.W. Graham, Factors Affecting the Fate of Ciprofloxacin in Aquatic Field Systems, *Water, Soil, and Air Pollution*, **161**:383-398 (2005).
68. K. F. Morris, B. A. Becker, J. Tarus, V. K. Almeida, A. L. Froberg, C. K. Larive, Using NMR Spectroscopy to Develop Insights into the Intermolecular Interactions Underlying Electrokinetic Chromatography, *Anal. Chem.* **77**:254 A–263 A (2005).
69. K. E. Price, S. S. Vandaveer, C. E. Lunte, C. K. Larive, Tissue Targeted Metabonomics: Metabolic Profiling by Microdialysis Sampling and Microcoil NMR, *J. Pharm. Biomed. Anal.* **38**:904-909 (2005).
70. L. H. Lucas, C. K. Larive, P. S. Wilkinson, S. Huhn, Progress Toward Automated Metabolic Profiling of Human Serum: Comparison of CPMG and Gradient-Filtered NMR Analytical Methods, *J. Pharm. Biomed. Anal.* **39**:156-163 (2005).
71. L. H. Lucas, S. F. Wilson, C. E. Lunte, C. K. Larive, Drug Profiling in Rat Tissue by High-Resolution Magic Angle Spinning (HR-MAS) NMR Spectroscopy, *Anal. Chem.* **77**:2978-2984 (2005).
72. H. J. Kim, N. Galeva, C. K. Larive, M. Alterman, D. W. Graham, Purification and Physical-Chemical Properties of Methanobactin: A Chalkophore from *Methylosinus trichosporium* OB3b, *Biochemistry* **44**:5140-5148 (2005).
73. V. K. Almeida, C. K. Larive, Insights into Cyclodextrin Interactions during Sample Stacking using Capillary Isotachopheresis with On-Line Microcoil NMR Detection, *Magn. Reson. Chem.* **43**:755-761 (2005).
74. A. K. Korir, V. K. Almeida, D. S. Malkin, C. K. Larive, Separation and Analysis of Nanomole Quantities of Oligosaccharides using On-line Capillary Isotachopheresis Coupled with NMR Detection, *Anal. Chem.* **77**:5998-6003 (2005).
75. W. Knapp, L.A. Cardoza, J.N. Hawes, E.M.H. Wellington, C.K. Larive, D.W. Graham, Fate and Effects of Enrofloxacin in Aquatic Systems under Different Light Conditions, *Environ. Sci. Technol.* **39**:9140-9146 (2005).
76. B. A. Becker, K. F. Morris, C. K. Larive, An Improved Method for Suppressing Protein Background in PFG NMR Experiments to Determine Ligand Diffusion Coefficients in the Presence of Receptor, *J. Magn. Reson.* **181**:327-330 (2006).
77. K. F. Morris, B. A. Becker, B. C. Valle, I. M. Warner, C. K. Larive, Use of NMR Binding Interaction Mapping Techniques to Examine Interactions of Chiral Analytes with Molecular Micelles, *J. Phys. Chem. B.* **110**:17359-17369 (2006).
78. A. Lebrón-Paler, J. E. Pemberton, B.A. Becker, W. H. Otto, C. K. Larive, R. M. Maier, Determination of the Acid Dissociation Constant of the Biosurfactant Monorhamnolipid in Aqueous Solution by Potentiometric and Spectroscopic Methods, *Anal. Chem.* **78**:7649-7658 (2006).
79. A. K. Korir, V. K. Almeida, C. K. Larive, Visualizing Ion Electromigration during Isotachopheretic Separation with cITP-NMR, *Anal. Chem.* **78**:7078-7087 (2006).
80. B. C. Valle, K. F. Morris, K. A. Fletcher, V. Fernand, D. M. Sword, S. Eldridge, C. K. Larive, I. M.

- Warner, Understanding Chiral Molecular Micellar Separations Using Steady-State Fluorescence Anisotropy, Capillary Electrophoresis, and NMR, *Langmuir* **23**:425-435 (2007).
81. A. K. Korir, C. K. Larive, On-line NMR Detection of Microgram Quantities of Heparin-Derived Oligosaccharides and their Structure Elucidation by Microcoil NMR, *Anal. Bioanal. Chem.* **388**:1707-1716 (2007).
  82. Y. Zhao, T. F. Chow, R. S. Puckrin, S. E. Alfred, A. K. Korir, C. K. Larive S. R. Cutler, Chemical Genetic Interrogation of Natural Variation Uncovers a Molecule that is Glyco-Activated, *Nature Chem. Biol.* **3**:716-721 (2007).
  83. S. L. Eldridge, V. K. Almeida, A. K. Korir, C. K. Larive, Separation and Analysis of Trace Degradants in a Pharmaceutical Formulation Using On-Line cITP-NMR, *Anal. Chem.* **79**:8446-8453 (2007).
  84. M. Rojas-Pierce, B. Titapiwatanakun, E. J. Sohn, F. Fang, C. K. Larive, J. Blakeslee, Y. Cheng, S. Cutler, W. A. Peer, A. S. Murphy, Natasha V. Raikhel, Arabidopsis P-Glycoprotein19 Participates in the Inhibition of Gravitropism by Gravacin, *Chem. Biol.* **14**:1366-1376 (2007).
  85. K. E. Price, C. E. Lunte, C. K. Larive, Development of Tissue-Targeted Metabonomics: Part 1. Analytical Considerations, *J. Pharm. Biomed. Anal.* **46**:737-747 (2008)
  86. A. K. Korir, J. F. K. Limtiaco, S. M. Gutierrez, C. K. Larive, Ultraperformance Ion-Pair Liquid Chromatography Coupled to Electrospray Time-of-Flight Mass Spectrometry for Compositional Profiling and Quantification of Heparin and Heparan Sulfate, *Anal. Chem.* **80**:1297-1306 (2008).
  87. J. Cruz, B. A. Becker, K. F. Morris, C. K. Larive, NMR Characterization of the Host-guest Inclusion Complex between  $\beta$ -cyclodextrin and Doxepin, *Magn. Res. Chem.* **46**:838-845 (2008).
  88. S. L. Eldridge, A. K. Korir, S. M. Gutierrez, F. Campos, J. F. Limtiaco, C. K. Larive, Heterogeneity of depolymerized heparin SEC fractions: To pool or not to pool? *Carbohydrate Res.* **343**:2963-2970 (2008).
  89. B.A. Becker, C. K. Larive, Probing the Binding of Propranolol Enantiomers to  $\alpha_1$ -Acid Glycoprotein with Ligand-detected NMR Experiments, *J. Phys. Chem. B.* **112**:13581-13587 (2008).
  90. C. Branco-Price, K. A. Kaiser, C. J. H. Jang, C. K. Larive, J. Bailey-Serres, Selective mRNA Translation Coordinates Energetic and Metabolic Adjustments to Hypoxia and Reoxygenation in *Arabidopsis thaliana*, *Plant J.* **56**:743-755 (2008).
  91. S. L. Eldridge, A. K. Korir, C. E. Merrywell, C. K. Larive, Hyphenated Chromatographic Techniques in Nuclear Magnetic Resonance Spectroscopy, in *Advances in Chromatography*, volume 46, E. Grushka and N. Grinberg, Eds., CRC Press, 2008, 351-390.
  92. K. A. Kaiser, C. E. Merrywell, F. Fang, C. K. Larive, Metabolic Profiling, in *NMR Spectroscopy in Pharmaceutical Analysis* U. Holzgrabe, I. Wawer, B. Diehl, Eds. Elsevier, 2008, 233-267.
  93. A. K. Korir, C. K. Larive, Online Capillary Isotachopheresis Coupled with NMR Detection for Characterization of Pharmaceutical Trace Impurities and Heparin-derived Oligosaccharides, *Lab Plus International* April/May 15-20 (2008).
  94. A. K. Korir, C. K. Larive, Advances in the Separation, Sensitive Detection and Characterization of Heparin and Heparan Sulfate, *Anal. Bioanal. Chem.* **393**:155-169 (2009).
  95. K. E. Price, C. K. Larive, C. E. Lunte, Tissue-Targeted Metabonomics: Biological Considerations and Application to Doxorubicin-Induced Hepatic Oxidative Stress, *Metabolomics*, **5**:219-228 (2009).
  96. K. A. Kaiser, G. Barding, C. K. Larive, A Comparison of Metabolite Extraction Strategies for  $^1\text{H}$ -NMR-based Metabolic Profiling using Mature Leaf Tissue from the Model Plant *Arabidopsis thaliana*, *Magn. Res. Chem.* **47**:S147-S156 (2009).
  97. M. Nillos, S. Qin, C. Larive, D. Schlenk, J. Gan, Epimerization of Cypermethrin Stereoisomers in Alcohols, *J. Ag. Food Chem.* **57**:6938-6943 (2009).
  98. S. L. Eldridge, L. A. Higgins, B. J. Dickey, C.K. Larive, Insights into the Capillary Electrophoresis Separation of Heparin Disaccharides from NMR  $\text{pK}_a$  and Electrophoretic Mobility Measurements, *Anal. Chem.* **81**:7406-7415 (2009).
  99. J. F. K. Limtiaco, C. J. Jones, C. K. Larive, Characterization of Heparin Impurities with HPLC-NMR using Weak Anion Exchange Chromatography, *Anal. Chem.* **81**:10116-10123 (2009).
  100. C. J. Jones, N. Membreno, C. K. Larive, Insights into the Mechanism of Separation of Heparin and Heparan Sulfate Disaccharides by Reverse-Phase Ion-Pairing Chromatography, *J. Chromatogr. A.* **1217**:479-488 (2010).

101. S. Beni, J.F. K. Limtiaco, C. K. Larive, Analysis and Characterization of Heparin Impurities, *Anal. Bioanal. Chem.* **399**:527-539 (2011).
102. J.F.K. Limtiaco, S. Beni, C.J. Jones, D. J. Langeslay, C. K. Larive, NMR Methods to Monitor the Enzymatic Depolymerization of Heparin, *Anal. Bioanal. Chem.* **399**:593-603 (2011).
103. J.F.K. Limtiaco, D. J. Langeslay, S. Beni, C.K. Larive, Getting to Know the Nitrogen Next Door: HNMBBC Measurements of Amino Sugars, *J. Magn. Reson.* **209**:323-331 (2011).
104. J. D. Kim, K. Kaiser, C. K. Larive, K.A. Borkovich, Use of <sup>1</sup>H NMR to Measure Intracellular Metabolite Levels During Growth and Asexual Sporulation in *Neurospora crassa*, *Eukaryotic Cell* **10**:820-831 (2011).
105. J.F.K. Limtiaco, S. Beni, C.J. Jones, D. J. Langeslay, C.K. Larive, The Efficient Structure Elucidation of Minor Components in Heparin Digests using Microcoil NMR, *Carbohydrate Res.* **346**: 2244-2254 (2011).
106. C.J. Jones, S. Beni, C. K. Larive, Understanding the Reverse-phase Ion-pair HPLC Resolution of Heparin-Related Saccharide Anomers, *Anal. Chem.* **83**:6762-6769 (2011).
107. A.M. Johnson, O. Moshe, A.S. Gamboa, B. W. Langloss, J.F. K. Limtiaco, C.K. Larive, R.J. Hooley, Synthesis and Properties of Metal-Ligand Complexes with Endohedral Amine Functionality, *Inorg. Chem.* **50**:9430-9442 (2011).
108. D. J. Langeslay, S. Beni, C. K. Larive, Detection of the <sup>1</sup>H and <sup>15</sup>N NMR Resonances of Sulfamate Groups in Aqueous Solution – a New Tool for Heparin and Heparan Sulfate Characterization, *Anal. Chem.* **83**:8006-8010 (2011).
109. C.J. Jones, S. Beni, J.F.K. Limtiaco, C.K. Larive, Heparin Characterization: Challenges and Solutions, *Annual Review of Analytical Chemistry*, **4**:439-465 (2011)
110. C.J. Jones, C. K. Larive, Cracking the Proteoglycan Code, *Nature Chemical Biology* **7**:758-759 (2011)
111. G. A. Barding, Jr., D. J. Orr, C.K. Larive, Plant Metabolomics, in *Encyclopedia of Magnetic Resonance*, Eds R. K. Harris and R. E. Wasylshen, John Wiley: Chichester. DOI: 10.1002/9780470034590.emrstm1267. Published 15<sup>th</sup> December 2011.
112. C.J. Jones, C. K. Larive, Could Smaller Really be Better? Current and Future Trends in Microcoil NMR, *Anal. Bioanal. Chem.* **402**:61-68 (2012).
113. J. R. Cruz, C. K. Larive, Determination of the Binding Epitope of Lidocaine with AGP: Minimizing the Effects of Nonspecific Binding in Saturation Transfer Difference Experiments, *Anal. Bioanal. Chem.* **402**:337-347 (2012).
114. G. A. Barding, Jr., T. Fukao, S. Beni, J. Bailey-Serres, C. K. Larive, Differential Metabolic Regulation Governed by the Rice *SUB1A* Gene during Submergence Stress and Identification of Alanine by <sup>1</sup>H NMR Spectroscopy, *J. Proteome Res.* **11**:320-330 (2012).
115. J.F.K. Limtiaco, C.J. Jones, C. K. Larive, Diffusion-edited NMR Spectra of Heparin Contaminants, *Anal. Methods*, **4**:1168-1172 (2012).
116. D. J. Langeslay, S. Beni, C.K. Larive, A Closer Look at the Nitrogen Next Door: <sup>1</sup>H-<sup>15</sup>N NMR Methods for Glycosaminoglycan Structural Characterization, *J. Magn. Reson.* **216**:169-174 (2012).
117. D.N. Bulloch, R. Lavado, K. L. Forsgren, S. Beni, D. Schlenk, C.K. Larive, Analytical and Biological Characterization of Halogenated Gemfibrozil Produced through Chlorination of Wastewater, *Environ. Sci. Tech.* **46**:5583-5589 (2012).
118. D. J. Langeslay, R. P. Young, S. Beni, C. N. Beecher, L. J. Mueller, C. K. Larive, Sulfamate Proton Solvent Exchange in Heparin Oligosaccharides – Evidence for a Persistent Hydrogen Bond in the Antithrombin-binding Pentasaccharide Arixtra, *Glycobiology* **9**:1173-1182 (2012).
119. G. A. Barding, Jr., R. Salditos, C. K. Larive, Quantitative NMR for Bioanalysis and Metabolomics, *Anal. Bioanal. Chem.* **404**:1165-1179 (2012).
120. C. J. Jones, C. K. Larive, Microcoil NMR Study of the Interactions between Doxepin,  $\beta$ -Cyclodextrin, and Acetate during Capillary Isotachopheresis, *Anal. Chem.* **84**:7099-7106 (2012).
121. D. Langeslay, C.J. Jones, S. Beni, C. K. Larive, Glycosaminoglycans: Oligosaccharide Analysis by Liquid Chromatography/Specific Labeling, in Proteoglycans – Methods and Protocols, *Methods Mol. Biol.*, **836**(2):131-144, 2012.

122. G. A. Barding, Jr., T. Fukao, S. Beni, J. Bailey-Serres, C. K. Larive, Comparison of GC-MS and NMR for Metabolite Profiling of Rice Subjected to Submergence Stress, *J. Proteome Res.* **12**:898-909 (2013).
123. D. J. Langeslay, C.N. Beecher, A. Naggi, M. Guerrini, G. Torri, C. K. Larive, Characterizing the Microstructure of Heparin and Heparan Sulfate using  $^1\text{H}$  and  $^{15}\text{N}$  NMR Chemical Shift Analysis, *Anal. Chem.* **85**:1247-1255 (2013).
124. D. J. Langeslay, E. Urso, C. Gardini, A. Naggi, G. Torri, C. K. Larive, Reverse-phase Ion-pair UPLC-MS for Fingerprinting Low-Molecular-Weight Heparins, *J. Chromatogr. A.* **1292**:201-210 (2013).
125. M. Kraszni, A. Marosi, C. K. Larive, NMR Resonance Assignments and the Acid-Base Characterization of the Pomegranate Ellagitannin Punicalagin, *Anal. Bioanal. Chem.* **405**:5807-5816 (2013).
126. G.A. Barding, D.J. Orr, S. Sathnur, C.K. Larive, VIZR – An Automated Chemometric Tool for Metabolic Profiling, *Anal. Bioanal. Chem.* **405**:8409-8417 (2013).
127. R.D. Gorham Jr., D.L. Forest, P. Tamamis, A. López de Victoria, M. Kraszni, C.A. Kieslich, C.D. Banna, M.L. Bellows-Peterson, C.K. Larive, C.A. Floudas, G. Archontis, L. V Johnson, D. Morikis, Novel Compstatin Family Peptides Inhibit Complement Activation by Drusen-Like Deposits in Human Retinal Pigmented Epithelial Cell Cultures, *Exp. Eye Res.* **116**:96-108 (2013).
128. H. van Veen, A. Mustroph, G. A. Barding, M. Vergeer-van Eijk, R. A. M. Welschen-Evertman, O. Pedersen, E. J. W. Visser, C. K. Larive, R. Pierik, J. Bailey-Serres, L. A.C.J. Voesenek, R. Sasidharan, Two Wild Plant Species Regulate Flooding Survival through Distinct Mechanisms, *Plant Cell* **25**:4691-4707 (2013).
129. J. V. Sweedler, C. K. Larive, Celebrating the 75<sup>th</sup> Anniversary of the ACS Division of Analytical Chemistry – A Special Collection of the Most Highly Cited Analytical Chemistry Papers Published Between 1938 and 2012, *Anal. Chem.* **85**:4201-4202 (2013).
130. D. J. Langeslay, C.N. Beecher, M. M. Dinges, C. K. Larive, Glycosaminoglycan Structural Characterization, in *Encyclopedia of Magnetic Resonance*, Eds R. K. Harris and R. E. Wasylshen, John Wiley: Chichester, DOI: 10.1002/9780470034590.emrstm1316. Published Online: 6/17/2013.
131. K. Mazák, C.N. Beecher, M. Kraszni, C. K. Larive, The Interaction of Enoxaparin and Arixtra with Calcium, *Carbohydr. Res.* **384**:13-19 (2014).
132. C. N. Beecher, R. P. Young, D. J. Langeslay, L. J. Mueller, C. K. Larive, Hydroxyl Proton Hydrogen Bonding in the Heparin Oligosaccharide Arixtra in Aqueous Solution, *J. Phys. Chem. B.* **118**:482-491 (2014).
133. A. Mustroph, G.A. Barding, Jr., K. Kaiser, C. K. Larive, J. Bailey-Serres, Characterization of Distinct Root and Shoot Responses to Low-oxygen Stress in Arabidopsis with a Focus on Primary C- and N-Metabolism, *Plant, Cell Environ.* **25**:4691-4707 (2014).
134. M.M. Dinges, K. Solakyildirim, C.K. Larive, Affinity Capillary Electrophoresis for the Determination of Binding Affinities for Low Molecular Weight Heparins and Antithrombin-III, *Electrophoresis* **36**:1469-1477 (2014).
135. K. Solakyildirim, D.N. Bulloch, C. K. Larive,  $^1\text{H}$  and  $^{13}\text{C}$  NMR Spectral Assignments of Halogenated Transformation Products of Pharmaceuticals and Related Environmental Contaminants, *Magn. Reson. Chem.* **52**:310-317 (2014).
136. Y.-J. Ghang, L. Perez, M.A. Morgan, F. Si, O.M. Hamdy, C.N. Beecher, C.K. Larive, R.R. Julian, W. Zhong, Q. Cheng, R. J. Hooley, Anionic Deep Cavitands Enable the Adhesion of Unmodified Functional Proteins at a Membrane Bilayer, *Soft Matter* **10**(48):9651-9656 (2014).
137. D. J. Orr, G. A. Barding, Jr. C. E. Merrywell, G. R. Hicks, N. V. Raikhel, C. K. Larive,  $^1\text{H}$  NMR Based Metabolomics Methods for Chemical Genomics Experiments, in Plant Chemical Genomics *Methods Mol. Biol.* **1056**:225-239 (2014).
138. R.D. Gorham, Jr., D.L. Forest, G.A. Khoury, J. Smadbeck, C.N. Beecher, E.D. Healy, P. Tamamis, G. Archontis, C.K. Larive, C. A. Floudas, M. J. Radeke, L.V. Johnson, D. Morikis, New Compstatin Peptides Containing N-terminal Extensions and Non-natural Amino Acids Exhibit Potent Complement Inhibition and Improved Solubility Characteristics, *J. Med. Chem.* **58**:814-826 (2015).
139. D.N. Bulloch, E.D. Nelson, S. A. Carr, C. R. Wissman, J. L. Armstrong, D. N. Schlenk, C. K. Larive, Occurrence of Halogenated Transformation Products of Selected Pharmaceuticals and Personal Care Products in Secondary and Tertiary Treated Wastewaters from Southern California, *Environ. Sci. Technol.* **49**:2044-2051 (2015).



140. C. K. Larive, G.A. Barding, Jr., M.M. Dinges, NMR Spectroscopy for Metabolomics and Metabolite Profiling, *Anal. Chem.* **87**:133-146 (2015).
141. C.N. Beecher, C.K. Larive, Methods for Measuring Exchangeable Protons in Glycosaminoglycans. *Methods in Molecular Biology*. Editors: Kuberan Balargurunathan, Hiroshi Nakato, Umesh Desai. Springer, N.Y. **1229**:173-187 (2015).
142. S. Ouyang, C. N. Beecher, K. Wang, C. K. Larive, K. Borkovich, Metabolic Impacts of using Nitrogen and Copper-regulated Promoters to Regulate Gene Expression in *Neurospora crassa*, *G3: Genes, Genomes, Genetics* **5(9)**:1899-1908 (2015).
143. C. N. Beecher, C. K. Larive, <sup>1</sup>H and <sup>15</sup>N NMR Characterization of the Amino Groups of Heparan Sulfate Related Glucosamine Monosaccharides in Aqueous Solution, *Anal. Chem.* **87**:6842-6848 (2015).
144. K. Wang, G.A. Barding, Jr., C.K. Larive, Peak Alignment of One-Dimensional NMR Spectra by Means of an Intensity Fluctuation Frequency Difference (IFFD) Segment-Wise Algorithm, *Anal. Methods* **7(22)**:9673-9682 (2015).
145. R. P. Young, B. G. Caulkins, D.N. Bulloch, C.K. Larive, M.F. Dunn, L. J. Mueller, Solution-State <sup>17</sup>O Quadrupole Central Transition NMR Spectroscopy in the Enzyme Active Site of Tryptophan Synthase, *Angew. Chemie* **55**:1350-1354 (2016).
146. C. N. Beecher, M. S. Manighalam, A. F. Nwachuku, C. K. Larive, Screening Enoxaparin Tetrasaccharides SEC Fractions for 3-O-Sulfo-N-Sulfoglucosamine Residues using [<sup>1</sup>H,<sup>15</sup>N] HSQC NMR, *Anal. Bioanal. Chem.* **408(6)**:1545-1555 (2016).
147. C. Mathon, G. A. Barding, Jr., Separation of Ten Phosphorylated Mono- and Disaccharides using HILIC and Ion-pairing Interactions, *Anal. Chim. Acta*, **972**:102-110 (2017).
148. C.M. Griffith, P. Williams, L. Tinoco, M.M. Dinges, Y. Wang, C. K. Larive, <sup>1</sup>H NMR Metabolic Profiling of Earthworm (*Eisenia fetida*) Coelomic Fluid, Coelomocytes, and Tissue: Identification of a New Metabolite – Malylgutamate, *J. Proteome Res.*, **16(9)**:3407-3418 (2017).
149. M.M. Dinges, C. Lytle, C. K. Larive, <sup>1</sup>H NMR-Based Identification of Intestinally Absorbed Metabolites by Ussing Chamber Analysis of Rat Cecum, *Anal. Chem.* **90(6)**:4196-4202 (2018).
150. A.M. Locke, G.A. Barding, Jr., S. Sathnur, C.K. Larive, J. Bailey-Serres, Rice *SUB1A* Constrains Remodelling of the Transcriptome and Metabolome during Submergence to Facilitate Post-Submergence Recovery, *Plant Cell Environ.* **41(4)**:721-736 (2018).
151. C.M. Griffith, M.A. Morgan, M.M. Dinges, C.M. Mathon, C.K. Larive, Metabolic Profiling of Chloroacetanilide Herbicides in Earthworm Coelomic Fluid using <sup>1</sup>H NMR and GC-MS. *J. Proteome Res.* **17(8)**:2611-2622 (2018).
152. J.M. Chater, C. Mathon, C.K. Larive, D.J. Merhaut, L.W. Tinoco, P.A. Mauk, Z. Jia, J.E. Preece, Juice Quality Traits, Potassium Content, and <sup>1</sup>H NMR Derived Metabolites of 14 Pomegranate Cultivars. *J. Berry Res.* **9**:209-225 (2019).
153. C.M. Griffith, A. Feceu, C.K. Larive, D.B.C. Martin, Synthesis and Structural Reassignment of Malylgutamate, a Recently Discovered Earthworm Metabolite. *J. Nat. Prod.* **82(2)**: 417-421 (2019).
154. C. Mathon, J.M.Chater, A. Green, D.J. Merhaut, P.A. Mauk, J.E.Preece. C.K. Larive, Quantification of Punicalagins in Commercial Preparations and Pomegranate Cultivars by Liquid Chromatography. *J. Sci. Food Agric.* **99(8)**:4036-4042 (2019).
155. K. Li, A.R. Green, M.M Dinges, C.K. Larive, <sup>1</sup>H NMR Characterization of Chitin Tetrasaccharide in Binary H<sub>2</sub>O:DMSO Solution. Evidence for Anomeric End-Effect Propagation. *Int. J. Bio. Macromol.* **129**:744-749 (2019).
156. C.M. Griffith, A. Thai, C.K. Larive, Metabolite Biomarkers of Chlorothalonil Exposure in Earthworms, Coelomic Fluid, and Coelomocytes. *Sci. Tot. Environ.* **681**:435-443 (2019).
157. M.A. Morgan, C.M. Griffith, M.M. Dinges, Y.A. Lyon, R.R. Julian, C.K. Larive, Evaluating Sub-Lethal Stress from Roundup® Exposure in *Artemia franciscana* using <sup>1</sup>H NMR and GC-MS. *Aquat. Toxicol.* **212**:77-87 (2019).
158. A.R. Green, K. Li, B. Lockard, R.P. Young, L.J. Mueller, C.K. Larive. Investigation of the Amide Proton Solvent Exchange Properties of Glycosaminoglycan Oligosaccharides. *J. Phys. Chem. B* **123**: 4653-4662 (2019).
159. M.A. Morgan, C.M. Griffith, D.C. Volz, C.K. Larive. TDCIPP Exposure Affects *Artemia franciscana* Growth and Osmoregulation. *Sci. Tot. Environ.* **694**:133486 (2019).

160. Y. Chen, M.M. Dinges, A. Green, S.E Cramer, C.K Larive, C. Lytle. Absorptive Transport of Amino Acids by the Rat Colon. *Am. J. Physiol. Gastrointest.* **318**:G189-G202 (2021).
161. C.N. Beecher, C.K. Larive. Methods for Measuring Exchangeable Protons in Glycosaminoglycans. *Methods in Molecular Biology*. Editors: Kuberan Balargurunathan, Hiroshi Nakato, Umesh Desai, Yukio Saijo, pp. 349-364, Humana, NY (2022).

### **Education Articles and Commentary**

1. C. K. Larive. Analytical Approaches for Teaching Analytical Science. *Anal. Bioanal. Chem.* **378**:1399-1400 (2004).
2. C. K. Larive. Digital Resources to Enhance Instruction. *Anal. Bioanal. Chem.* **379**:321-322 (2004).
3. C. K. Larive. Problem-Based Learning in the Analytical Chemistry Laboratory Course. *Anal. Bioanal. Chem.* **380**:357-359 (2004).
4. C. K. Larive. Graduate Student Internships: Developing Scientists with Real-world Experiences. *Anal. Bioanal. Chem.* **381**:993-995(2005).
5. C. K. Larive. Instruction in Bioanalytical Chemistry. *Anal. Bioanal. Chem.* **382**:855-856 (2005).
6. C. K. Larive, E. Bulska. Tips for Effective Poster Presentations. *Anal. Bioanal. Chem.* **385**:1347-1349 (2006).
7. C. K. Larive. Revising the Quantitative Analysis Laboratory – What to Keep? What to Change? *Anal. Bioanal. Chem.* **386**:1191-1194 (2006).
8. C. K. Larive. A Picture is Worth a Thousand Words: Animations and Simulations in the Teaching of Analytical Science. *Anal. Bioanal. Chem.* **390**: 71-75 (2008).
9. W.F. Polik, C.K. Larive. New ACS Guidelines Approved by CPT. *J. Chem. Ed.* **85**:484-487 (2008).
10. C.K. Larive. The Art of Mentoring Scientists. *ACS Graduate Education Newsletter*, **7(2)**:15-16 (2008).
11. C. K. Larive. Quantitative NMR: eLearning Module. *Journal of the Analytical Sciences Digital Library*, <http://www.asdlib.org/onlineArticles/ecourseware/Larive/qnmr1.htm> 9/1/2008.
12. W.F. Polik and C. K. Larive “New ACS Guidelines for Chemistry Programs” *Chemical and Engineering News* **86**:46 (2008).
13. C.K. Larive. The Analytical Sciences Digital Library. *Anal. Bioanal. Chem.* **395**:2425-2428 (2009).
14. C.K. Larive, L.Y. Park. Who is Training the Chemists of Tomorrow? *Chemical and Engineering News*, **88(42)**:35 (2010).
15. S. Harris, L. Y. Park, C. K. Larive. Committee Report: ACS CPT Fall 2009 Faculty Status Survey. *J. Chem. Ed.*, **88**:11-13 (2011).
16. R.S. Kelly, C.K. Larive. The Analytical Sciences Digital Library: Your Online Resource for Teaching Instrumentation. *J. Chem. Ed.* **88**:375-377 (2011).
17. C. Larive. Preparation for Graduate School Starts Now. *In Chemistry – The magazine for ACS student members*, Sept./Oct. 2011, pg 2.
18. M. K. Carroll, C. K. Larive. Chemistry and the Premedical Curriculum. *Chemical and Engineering News*, **89(42)**:65 (2011).
19. T. Wenzel, C. K. Larive, K. Frederick. Role of Undergraduate Research in an Excellent and Rigorous Undergraduate Chemistry Curriculum. *J. Chem. Ed.* **89**:7-9 (2012).
20. C.K. Larive, A.B. McCoy. Evolution of the ACS Guidelines for Bachelor’s Degree Programs. *Chemical and Engineering News*, **90(1)**:29 (2012).
21. C.K. Larive. Internet-based Analytical Chemistry Teaching Resources. *Brazilian Journal of Analytical Chemistry*, **1(7)**:XXIII (Jan/Feb/Mar 2012).
22. T. Kuwana, C. K. Larive. Active Learning with the Analytical Sciences Digital Library. *Bunseki Kagaku (Japan Analyst)* **8**:468 (2012).
23. H.A. Bullen, A. Fitch, R.S. Kelly, C.K. Larive. Environmental Analysis – Lake Nakuru Flamingos: Introduction. <http://community.asdlib.org/activelearningmaterials/environmental-analysis-lake-nakuru-flamingos-introduction/> (2013).
24. H.A. Bullen, A. Fitch, R.S. Kelly, C.K. Larive. Environmental Analysis – Lake Nakuru Flamingos: Pesticides. <http://community.asdlib.org/activelearningmaterials/environmental-analysis-lake-nakuru-flamingos/> (2013).

25. E. Gross, R.S. Kelly, C.K. Larive. Environmental Analysis – Lake Nakuru Flamingos: Heavy Metals. <http://community.asdlib.org/activelearningmaterials/nakuru-heavy-metals/> (2013).
26. C. K. Larive. Happy New Year – renewal, welcome and farewell. *Anal. Bioanal. Chem.* **405**:3-5 (2013).
27. T. J. Wenzel, C. K. Larive. The Analytical Sciences Digital Library: A Resource to Promote Active Learning. *Reviews in Analytical Chemistry*, **33(1)**:1-9 (2014).
28. C.K. Larive, S.C. Larsen. NMR Developments and Applications. *Anal. Chem.* **89(3)**:1391 (2017).
29. T.J. Wenzel, R.S. Kelly, C.K. Larive, E.M. Gross. Contributions of Ted Kuwana to Analytical Sciences Education. *Electroanalysis* **33**:1–4 (2021).
30. C.K.Larive, Leadership diversity: Living your values at the highest levels, Elsevier Connect - Not Alone column, June 14, 2023.

**UNDERGRADUATE RESEARCH STUDENTS MENTORED:** Mentored 51 undergraduate researchers, 25 were female, and 12 underrepresented. Names of undergraduate coauthors are underlined.

**GRADUATE STUDENTS MENTORED:**

**Graduates – University of California – Riverside** (A-African American, F-Female, H-Hispanic, P-Pacific Islander)

- Ph.D. 2019 Corey Griffith “Metabolite Assignment and Profiling of Environmental Stressors in Earthworms (*Eisenia fetida*), Coelomic Fluid, and Coelomocytes.”
- Ph.D. 2019 Andrew Green “Structural Characterization of Chemically Modified GAG Oligosaccharides through <sup>1</sup>H NMR Measurements of the Labile Nitrogen-bound Protons”
- Ph.D. 2018 Melissa Morgan<sup>F</sup> “*Artemia franciscana* as a Model for Stress in Saltwater Lakes: an Environmental Metabolomics Approach”
- Ph.D. 2017 Meredith Dinges<sup>F</sup> “Profiling Metabolic Transport Along the Segmentally Stratified Rat Colon”
- Ph.D. 2015 Consuelo Beecher<sup>F,H</sup> “Molecular Level Characterization of Heparin Structure”
- Ph.D. 2013 Daryl Bulloch “Analysis and Characterization of Halogenated Transformation Products of Pharmaceuticals and Personal Care Products in Wastewater Effluent”
- Ph.D. 2013 Gregory Barding “Metabolomics of Complex Biological Systems to Uncover Molecular Mechanisms in Rice and Other Organisms”
- Ph.D. 2013 Derek Langeslay “Advancing Analytical Methods for Characterization of Anionic Carbohydrate Biopolymers”
- Ph.D. 2012 Christopher Jones “Advancement of Separation and Characterization Techniques for Ionic Analytes”
- Ph.D. 2012 Kayla Kaiser<sup>F</sup> “Metabolic Profiling of Primary and Secondary Biosynthetic Pathways in Angiosperms: Comparative Metabolomics and Applications of Hyphenated LC-NMR and LC-MS”
- Ph.D. 2011 John Limtiaco<sup>P</sup> “Development of NMR Methods for the Characterization of Heparin and its Impurities”
- Ph.D. 2010 Jennifer Cruz<sup>F,H</sup> “Characterizing Ligand-Protein Interactions by Ligand-Detected Nuclear Magnetic Resonance (NMR) Methods”
- Ph.D. 2009 Stacie Eldridge<sup>F</sup> “Development of Analytical Methods for Trace Impurity Analysis and Structure Determination of Heparin/Heparan Sulfate-Derived Oligosaccharides”
- M.S. 2007, Fang (Kasie) Fang<sup>F</sup> “Application of <sup>1</sup>H NMR and LC-TOF/MS for Metabonomic Studies of Plasma and Tissue”

**Graduates - University of Kansas**

- Ph.D. 2008 (honors) Kristin Price<sup>F</sup> (joint with Craig Lunte) “Tissue-Targeted Metabolomics: Metabolic Profiling by Microdialysis and NMR Spectroscopy”
- Ph.D. 2007 (honors), Albert Korir “Development and Application of Microanalysis NMR Methods”
- Ph.D. 2006 (honors), Bridget Becker<sup>F</sup> “Development and Application of NMR Methods for Drug Discovery and Development”
- Ph.D. 2006, Valentino Almeida “Implementation and Development of Microcoil NMR Coupled With Microscale Separation Techniques for Trace Impurity Analysis”
- Ph.D. 2004, Laurie Cardoza Harned<sup>F</sup> “Application of HPLC-NMR, HPLC-MS and MS/MS for the Investigation of the Environmental Fate of the Fluoroquinolone Antibiotics”

Ph.D. 2004 (honors), Laura Lucas<sup>F</sup> "Development and Application of State-of-the-art Nuclear Magnetic Resonance (NMR) Spectroscopic Methodologies to Analytical Challenges Relevant to the Drug Development Process"

Ph.D. 2001, William Otto "Investigation of the Metal Complexation and Intermolecular Interactions of Humic Substances by NMR Spectroscopy"

Ph.D. 2001, Ben Cutak "Application and Improvement of Environmental Methods of Analysis"

Ph.D. 2000, Tiffany Derrick<sup>F,A</sup> "Critical Analysis of Affinity NMR for the Measurement of Protein/Ligand Binding"

M.S. 2000, Farhana Afroz<sup>F</sup> "A Study of the Aggregation Behavior of the  $\beta$ (12-28) Peptide with Pulsed-field Gradient (PFG)-NMR and Other Analytical Methods"

Ph.D. 1999, Ann Dixon<sup>F</sup> "The Investigation of Structure and Binding of Aquatic Humic Substances"

Ph.D. 1999, Sheila Rogers<sup>F,A</sup> "Development of NMR Methods for Peptide Analysis"

Ph.D. 1998, Dimuthu Jayawickrama "Examination of Molecular Association using NMR Spectroscopy"

Ph.D. 1998, Shawn Mansfield "Investigation of Peptide Aggregation using Several Analytical Methodologies"

M.S. 1998 Nalin Hathurusinghe "Analytical Methodologies for the Study of Peptide Aggregation"

M.S. 1994, Shauna Zink<sup>F</sup> "Spectroscopic Conformational Analysis of  $\beta$ (1-28) and  $\beta$ (12-28) Peptides"

### PROFESSIONAL ORGANIZATIONS AND ACTIVITIES

American Chemical Society  
 AAAS  
 SACNAS (lifetime member)

### PROFESSIONAL SERVICE

Internet 2 Board member, 2022 – present, vice-chair 2023 - present

AAU Board member, 2023 – present

Hispanic Association of Colleges and Universities Board member, 2023 - present

Alliance of Hispanic-Serving Research Universities, executive committee, 2022 – present

United Way of Santa Cruz County Board member, 2022 - present

Second Harvest Food Bank of Santa Cruz County Food and Fund Drive co-chair 2021 – 2023

Monterey Bay Economic Partnership Board, member 2019 – present, Board chair 2022 – present

Silicon Valley Leadership Group, member 2019 – present

AAAS Council Delegate for the Section on Chemistry, 2019 – 2022

Co-chair (with Rigoberto Hernandez) of the ACS National Awards Advisory Board, 2018 – 19

Riverside Chamber of Commerce Board of Directors, 2017 – present

ACS Division of Analytical Chemistry, past chair 2014, chair 2013, program chair 2012, chair-elect 2011

ACS Committee on Professional Training, 2005 – 2006, vice-chair 2007 – 2008, chair 2009 – 2012

Chair, ACS Task Force on International Chemistry Education, 2014 – 2015

Cal State LA MORE Board of External Advisors, 2011 – 2018

ACS Graduate Education Advisory Board, 2004 – 2011

External Review Committee Department of Chemistry and Biochemistry, CSU Fullerton, 2010

External Review Committee Department of Chemistry, Oklahoma State University, 2010

Chemistry REU Leadership Group, 2006 - 2010

ACS Division of Analytical Chemistry Web Committee, 2007 – 2010

Chair, ACS Division of Analytical Chemistry Education Committee, 2003 – 2007

Contributing Editor, McGraw-Hill Yearbook of Science and Technology, 2002 – 2006

Local Section ACS President, 2003

ACS Division of Analytical Chemistry Education Committee, 1997 – 2002

Co-Program Chair, Midwest Regional ACS meeting, Lawrence, KS Oct, 2002

IUPAC Young Observer, 2001

Society for Applied Spectroscopy Nominating Committee, 2000

ACS Local Section Carnival of Chemistry Volunteer, 1997 – 2000

President, Kansas City Section of the Society for Applied Spectroscopy, 1995 – 96, 1998 – 99

Secretary Lawrence Section of the American Chemical Society, 1998 – 99

FMC Lawrence Plant, Community Advisory Panel, 1996 – 98

Registration Chair, 1996 FACSS Meeting, Kansas City, MO  
Secretary, Kansas City Section of the Society for Applied Spectroscopy, 1994 – 95