

CYNTHIA K. LARIVE

CONTACT INFORMATION:

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PERSONAL: Married and mother of two daughters Dr. Erin Kaplan (34) and Ms. Megan Larive (32)

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, 1992

PROFESSIONAL EXPERIENCE:

Chancellor, UC-Santa Cruz, 7/2019 - present
Provost and Executive Vice Chancellor, UC-Riverside, 2/2017 - 6/2019
Vice Provost for Undergraduate Education, UC-Riverside, 7/2016 -2/2017
Interim Dean, College of Natural and Agricultural Sciences (CNAS), UC-Riverside, 7/2015 - 12/2015
Divisional Dean for Physical Sciences and Mathematics, UC-Riverside, 10/2013 - 6/2015; 1/2016-6/2016
Chair, Department of Chemistry, UC-Riverside, 7/2012 - 9/2013
Professor of Chemistry Step VIII, UC-Riverside cooperating faculty member in Bioengineering, and Biomedical Sciences, member of the Center for Plant Cell Biology (CEPCEB), the Institute for Integrative Genome Biology (IGGB), and the Environmental Toxicology interdisciplinary graduate program, 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

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
Orange County Graduate Women in Science Scholarship, 1991
U.C. Riverside Dissertation Fellowship, 1991
ACS Division of Analytical Chemistry Full-year Fellow, 1990
U.C. Riverside Chancellor's Distinguished Fellow 1988, 1989
S.D.S.U. Stephen Briggs Scholarship, 1976-1980
S.D.S.U. Outstanding Analytical Chemistry Student, 1979

EDITORIAL ACTIVITIES

Associate Editor, *Analytical Chemistry*, 6/2015 - present
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, 2004-2019
Reviewer for Analyst, Analytical and Bioanalytical Chemistry, Analytical Biochemistry, Analytical Chemistry, Analytical Methods, Applied Spectroscopy, Biochemistry, Biopolymers, Chirality, Environmental Science and Technology, Glycobiology, Journal of Agricultural and Food Chemistry, Journal of the American Chemical Society, Journal of the American Society for Mass Spectroscopy, Journal of Biomolecular NMR, Journal of Carbohydrate Research, Journal of Chemical Education, Journal of Colloid and Interface Science, Journal of Magnetic Resonance, Journal of Pharmaceutical and Biomedical Analysis, Journal of Physical Chemistry, Langmuir, Magnetic Resonance in Chemistry, Metabolomics, Nature Chemical Biology, Talanta, Tetrahedron Letters.

H-Index (google scholar): 46, https://scholar.google.com/citations?user=pX_OGWwAAAAJ&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 ¹H NMR Spectroscopy of Aqueous Solutions with Elimination of the Water Resonance by Transverse Relaxation: Application to the Assignment of the ¹H NMR Spectrum of Reduced Arginine Vasopressin, *Magn. Reson. Chem.* **29**:409-417 (1991).
3. C.K. Larive, L. Guerra, D.L. Rabenstein, Cis/Trans Conformational Equilibrium across the Cysteine⁶-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. Siahaan, 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 β -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 Chloroaluminate 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 β -amyloid Peptide Fragment, β (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, ¹³C NMR Relaxation and ¹H Diffusion (DOSY) Studies of an Acidic Chloroaluminate 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, ^{113}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. Gursoy, D.S. Seetharama Jois, C.K. Larive, T.J. Siahaan, 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, *Ophthalm. 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 ^1H 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, ^{13}C and ^{27}Al NMR Relaxation, Viscosity and ^1H 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 ^1H 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 $\beta(12-28)$ 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. Pommès, 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}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}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}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, ¹H 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 Isotachophoretic 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).
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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 α_1 -Acid Glycoprotein with Ligand-detected NMR Experiments, *J. Phys. Chem. B.* **112**:13581-13587 (2008).
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Education Articles and Commentary

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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).
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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).
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14. C.K. Larive, L.Y. Park "Who is Training the Chemists of Tomorrow?" *Chemical and Engineering News*, **88**(42):35 (2010).
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UNDERGRADUATE RESEARCH STUDENTS MENTORED: I have mentored 51 undergraduate researchers of whom 25 were female, and 12 were members of ethnic groups traditionally underrepresented in science. The names of my undergraduate coauthors are underlined in the list of publications.

GRADUATE STUDENTS MENTORED:

University of California – Riverside: Current graduate students: Corey Griffith

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 ¹H NMR Measurements of the Labile Nitrogen-bound Protons"
- Ph.D. 2018 Melissa Morgan^F "*Artemia franciscana* as a Model for Stress in Saltwater Lakes: an Environmental Metabolomics Approach"
- Ph.D. 2017 Meredith Dinges^F "Profiling Metabolic Transport Along the Segmentally Stratified Rat Colon"
- Ph.D. 2015 Consuelo Beecher^{F,H} "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^F "Metabolic Profiling of Primary and Secondary Biosynthetic Pathways in Angiosperms: Comparative Metabonomics and Applications of Hyphenated LC-NMR and LC-MS"
- Ph.D. 2011 John Limtiaco^P "Development of NMR Methods for the Characterization of Heparin and its Impurities"
- Ph.D. 2010 Jennifer Cruz^{F,H} "Characterizing Ligand-Protein Interactions by Ligand-Detected Nuclear Magnetic Resonance (NMR) Methods"
- Ph.D. 2009 Stacie Eldridge^F "Development of Analytical Methods for Trace Impurity Analysis and Structure Determination of Heparin/Heparan Sulfate-Derived Oligosaccharides"
- M.S. 2007, Fang (Kasie) Fang^F "Application of ¹H NMR and LC-TOF/MS for Metabonomic Studies of Plasma and Tissue"

Graduates - University of Kansas

- Ph.D. 2008 (honors) Kristin Price^F (joint with Craig Lunte) "Tissue-Targeted Metabonomics: 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^F "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^F "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^F "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^{F,A} "Critical Analysis of Affinity NMR for the Measurement of Protein/Ligand Binding"
 M.S. 2000, Farhana Afroz^F "A Study of the Aggregation Behavior of the β (12-28) Peptide with Pulsed-field Gradient (PFG)-NMR and Other Analytical Methods"
 Ph.D. 1999, Ann Dixon^F "The Investigation of Structure and Binding of Aquatic Humic Substances"
 Ph.D. 1999, Sheila Rogers^{F,A} "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^F "Spectroscopic Conformational Analysis of β (1-28) and β (12-28) Peptides"

PROFESSIONAL ORGANIZATIONS AND ACTIVITIES

American Chemical Society
 AAAS
 SACNAS (lifetime member)

SERVICE

Professional

AAAS Council Delegate for the Section on Chemistry, 2019 – present
 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, 2012 – 2015, 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 23-25, 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

University (UC-Riverside)

Member, UCOP Executive Budget Committee, 2018 – present
Chair, Search Committee for the Associate Vice-Chancellor for Diversity, Inclusion, and Equity, 2015 – 2016
Member, STEM High School Design Committee, 2016
UC - Riverside Representative to the UC System-wide Advisory Committee on the Status of Women, 2010 -2015
Chair Hellman Fellows Selection Committee, 2011, 2013, 2014
Search Committee for Vice-Chancellor for Business Administration, 2013 - 2014
Chair, Search Committee for the Associate Vice-Provost for Faculty Success, 2012 - 2013
CNAS Science Lecture Series Advisory Committee, 2011
Search Committee for Athletic Director, 2011
Strategic Plan Implementation Advisory Committee, 2011
Co-PI of NSF ADVANCE grant and leader of the Women Faculty Association, 2011-2015
Campus Strategic Planning, Academic Excellence Committee, 2009 - 2010
Genomics Building Policy Committee, 2009 - 2011
CNAS Executive Committee, 2009 - 2011
Graduate Council, 2009 - 2010
Chemistry Undergraduate Advisor, 2009-2011
CNAS Research Infrastructure Strategic Planning Committee, 2009
Chemistry Graduate Advisor, 2008-2009
Steering Committee for a Leadership Institute for Undergraduate Women in STEM, 2008 - 2010
AGEP Advisory Committee, 2008 - 2010
UC - Riverside Diversity Advisory Council, 2008 - 2010
Search Committee for the Dean of the Graduate Division, 2008
Campus Research Facilities and Instrumentation Advisory Board, 2007 - 2010
GradSIS Steering Committee, 2007 - 2010
Search Committee Biochemistry Structural Biology, 2007 - 2008

External Reviews, Study Panels and Workshops

NSF Panel 2018
External Review of the Department of Biochemistry, University of Miami, 2016
NSF Workshop on Mid-Scale Instrument Development, 11/7-8/2016
External Review of the Biochemistry Graduate Program, University of Miami, 2016
European Research Council Starter Grant Panel, Brussels, Belgium 2015
NIH P01 Panel, 2014
External Review of the Department of Chemistry and Biochemistry, CSU - Los Angeles, 2014
External Review of the Department of Chemistry, Oklahoma State University, 2011
Committee of Visitor Review NSF Chemistry, 2010
External Review of the Department of Chemistry and Biochemistry, CSU – Fullerton, 2009
NIH Natural Products Special Study Section, 2008
NSF Engineering Separations Panel, 2007
External Review of the SUNY Binghamton Chemistry Department, 2006
NSF MRI panel, 2006
NSF Workshop on Biomeasurements, April 21, 2006, Tucson, AZ
NIH EBT study section, Ad hoc reviewer, 2006
NIH Natural Products Special Study Section, 2005
Undergraduate Chemistry Curriculum Review Committee, University of California – Merced, 2005
Reviewer for Louisiana State Board of Reagents Research and Development Program, 2004

NSF EMSI site review, Ohio State, 2003
NIH Biochemistry study section, Ad hoc reviewer, 2002
EPSRC review panel: Chairs of Analytical Chemistry in Great Britain, 2001
NSF International Postdoctoral Research Fellowship program review panel, 2001
NSF POWRE panel, Washington, DC, 2000
NSF Workshop: Instrumentation for Environmental Science, 2000
NSF Analytical Chemistry CAREER Program Panel, 1995, 1999
NSF RSEC program review panel, Anaheim, CA, 1999
NSF Workshop: Analytical Instrumentation for the Next Millennium, Orlando, FL, 1999
NSF Environmental Geochemistry Biogeochemistry program review panel, 1998
NSF sponsored Curricular Development Workshops in Analytical Sciences, October 28-30, 1996, Leesburg, VA and March 13-15 1997, Atlanta, GA

Symposia and Meetings Organized

“Regional ASDL Workshop on Active Learning in Analytical Chemistry”, November 2018, Riverside, CA
“Promoting Engaged Student Learning through the ACS Guidelines”, 250th ACS National Meeting, Boston, August 2015, Organized jointly with Thomas Wenzel, Bates College
“Tips and Tools for Incorporating Active Learning into Analytical Chemistry Courses” Pittcon Networking Session, March 2015, New Orleans, Organized jointly with Anna Cavinato, Eastern Oregon University
“An International View on Chemistry Education” 248th ACS National Meeting in San Francisco, 9/10-14/2014. Organized jointly with Edgar Arriaga, University of Minnesota.
“Active-learning in Analytical Chemistry for Faculty at HBCU and Hispanic-serving Institutions”, Organized jointly with Tom Wenzel and other ASDL principals, June 2014, Spelman College, Atlanta, GA
“Heparin Synthesis, Analysis and Biological Functions” 245th ACS National Meeting in New Orleans, LA 4/8-9/2013. Organized jointly with Jian Liu, UNC – Chapel Hill and Robert Linhardt, RPI
ACS Division of Analytical Chemistry program chair for 2012. Responsible for programming at the Spring (San Diego) and Fall (Philadelphia) National ACS meetings and for the Division's programming at the Pittsburgh Conference on Analytical Chemistry (Orlando).
“Excellence in Undergraduate Chemistry Education: A Global Perspective” Presidential Event, 240th ACS meeting, Boston, MA 8/23/2010
“Celebration of the 50th anniversary of the UCR Chemistry Graduate Program” UC-Riverside, 6/18/2010
“Innovative Approaches to Analytical Science Education” co-organized with Carol Korzeniewski, Pittsburgh Conference on Analytical Chemistry, Feb 28 – Mar 5, 2010, Orlando, FL
“NSF Chemistry REU Pls’ Meeting” co-organized with Prof. Tim Hanks, San Antonio, TX July 8-10, 2009
“Increasing Participation of Hispanic Undergraduates in Chemistry” co-organized with Prof. Carlos Gutierrez, Washington, DC November 14-16, 2008
“Increasing Participation of Native American Undergraduates in Chemistry” co-organized with Prof. Ron Estler, Fort Lewis College, Omaha, NE, Sept. 12-14, 2008
“Southern California Undergraduate Research Conference in Chemistry and Biochemistry” UCR. Apr. 19, 2008.
“Reimagining Quant” Co-organized with Peter Griffiths, University of Idaho, The Pittsburgh Conference on Analytical Chemistry, New Orleans, LA 3/6/2008.
Southern California Users of Magnets (SCUM) meeting Co-organized with Len Mueller and Dan Borchardt, UC-Riverside, Dec. 9, 2006.
Southwest Analytical Professors (SWAP) meeting, UC-Riverside, Feb. 10-11, 2006
“Applications of Bioanalytical NMR” Western Regional ACS Meeting, Anaheim, CA, Jan 23, 2006
“Next Generation of Analytical Chemical Professionals” 229th ACS National Meeting, San Diego, CA March 14, 2005.
“Opportunities for Analytical Chemists in the Pharmaceutical Industry” 228th ACS National Meeting, Philadelphia, PA, August 22-26, 2004
“Graduate Student Session” SMASH NMR Conference, Verona, Italy, Sept. 17, 2003
“Midwest Magnetic Resonance Symposium” Midwest Regional ACS Meeting, Lawrence, KS Oct. 25, 2002
“Career Opportunities in Environmental Analytical Chemistry” ACS National Meeting, Orlando, FL, April 9, 2002
“Environmental Contaminants and Their Degradation Products” Pittsburgh Conference on Analytical

Chemistry, New Orleans, LA, March 21, 2002
"Advances in NMR Spectroscopy for Characterizing Pharmaceuticals" Pittsburgh Conference on Analytical Chemistry, New Orleans, LA, March 18, 2002
"Analytical Chemistry: A Broad Spectrum of Career Opportunities", ACS National Meeting in Washington D.C., August 20-24, 2000.
"Rediscovering Research - The Impact of Research on Undergraduate Education" with Kelsey Cook, University of Tennessee at the National ACS meeting in Boston, MA, Aug. 23-28, 1998.
Analytical Chemistry Sessions, 1997 Midwest Regional ACS meeting, Tan-Tar-A Resort, Osage Beach, MO, Oct. 29-Nov.1, 1997.
"Nuclear Magnetic Resonance Diffusion Measurements" 1996 FACSS, Kansas City, MO.
"Peptides/Proteins Characterization with NMR Spectroscopy", 1996 FACSS, Kansas City, MO.
"Non-invasive Bioanalysis with NMR Spectroscopy", 1994 FACSS Meeting, St. Louis, MO.