

LEIF ABRELL

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Research Interests

Organic microconstituents, environmental chemistry, mass spectrometry, sensory systems, prebiotic chemistry, global change science, resources conservation.

Education

1997	PhD	Organic chemistry, University of California Santa Cruz
1991	BS	Biochemistry & Molecular Biology, University of California Santa Cruz

Appointments

2012 – present	Courtesy Teaching Faculty Appointment, Soil, Water & Environ. Science (SWES)
2008 – present	Associate Research Scientist, Univ. Ariz. Chem. & Biochem. and SWES ALEC Manager of Organic Mass Spectrometry and Analyses
2003 – 2007	Lecturer & Visiting Research Scientist, University of Arizona, Chemistry
2002 – 2003	Associate Research Scientist, Columbia Chemistry & Biosphere 2
2000 – 2002	NIH NRSA Post Doctoral Research Fellow, Bioorganic Chemistry, Columbia Univ.
2000 – 2001	Lecturer, Columbia High School Science Honors Program, Organic Chem.
1999 – 2000	Post Doc., Bioorganic Chemistry, Department of Chemistry, Columbia University
1997 – 1999	Post Doc., Marine Biotechnology Institute, Shimizu, Japan

PUBLICATIONS (selected from more than 45)

- Biotransformation and Degradation of the Insensitive Munition Compound, 3-nitro-1,2,4-triazol-5-one (NTO), by Soil Bacterial Communities. Krzmarzick, M.J., Khatiwada, R., Olivares, C.I., Abrell, L., Sierra-Alvarez, S., Chorover, J., Field, J. *Environmental Science & Technology*, **accepted**.
- Dimethyl Sulfide in the Amazon Rain Forest. Jardine, K., Yañez-Serrano, A.M., Williams, J., Kunert, N., Jardine, A., Taylor, T., Abrell, L., Artaxo, P., Guenther, A., Hewitt, C.N., House, E., Florentino, A.P., Manzi, A., Higuchi, N., Kesselmeier, J., Behrendt, T., Veres, P.R., Derstroff, B., Fuentes, J., Chambers, J., Martin, S., Andreae, M.O. *Global Biogeochem. Cycles*, **2015**, 29, 19-32.
- Flower discrimination by pollinators in a dynamic chemical environment. Riffell, J.A., Shlizerman, E., Sanders, E., Abrell, L., Medina, B., Hinterwirth, A.J., Kutz, J.N. *Science*, **2014**, 344 (6191), 1515.
- Assessment of swimmer behaviors on pool water ingestion. Suppes, L.M., Abrell, L., Dufour, A.P., Reynolds, K.A. *Journal of Water and Health*, **2014**, 2, 269.
- Synthesis of ¹³C and ¹⁵N labeled 2,4-dinitroanisole. Bhumasamudram, J., Field, J., Chorover, J., Sierra-Alvarez, R., Abrell, L., Mash, E. *Journal of Labelled Compounds and Radiopharmaceuticals*, **2014**, 57 (6), 434.
- Neural basis of a pollinator's buffet: olfactory specialization and learning in the *Manduca sexta* moth. Riffell, J.A., Lei, H., Abrell, L., Hildebrand, J.G. *Science*, **2013**, 339, 200.
- Pathways of reductive 2,4-dinitroanisole (DNAN) biotransformation in sludge. Olivares, C., Liang, J., Abrell, L., Sierra-Alvarez, R., Field, J. *Biotechnology and Bioengineering*, **2013**, 110, 1595-1604.
- Complexation of trace organic contaminants with fractionated dissolved organic matter: Implications for mass spectrometric quantification. Hernandez-Ruiz, S., Wickramasekara, S., Abrell, L., Gao, X., Chefetz, B., Chorover, J. *Chemosphere*, **2013**, 91, 344.
- Concentration of trichloroethylene in breast milk and household water from Nogales, Arizona. Beamer, P.; Luik, C.E.; Abrell, L.; Campos, S.; Martínez, M.E.; Seáz, A.E. *Environmental Science & Technology*, **2012**, 46, 9055.
- Natural dissolved organic matter affects electrospray ionization during analysis of emerging contaminants by mass spectrometry. Wickramasekara, S., Hernández-Ruiz, S., Abrell, L., Arnold, R., Chorover, J. *Analytica Chimica Acta*, **2012**, 717, 77-84.

- Quantifying PPCP interaction with dissolved organic matter in aqueous solution: Combined use of fluorescence quenching and tandem mass spectrometry. Hernandez Ruiz, S., Abrell, L., Wickramasekara, S., Chefetz, B., Chorover, J. *Water Research*, **2012**, 46, 943-954.
- Volatile organic compound emissions from *Larrea tridentata* (creosotebush). Jardine, K., Abrell, L., Kurc, S.A., Huxman, T., Ortega, J., Guenther, A. *Atmos. Chem. Phys.* **2010**, 10, 12191-12206.
- Dynamic solution injection: A new method for preparing pptv-ppbv standard atmospheres of volatile organic compounds. Jardine, K.J., Henderson, W.M., Huxman, T.E., Abrell, L. *Atmos. Meas. Tech.*, **2010**, 3, 1569-1576.
- Physical processes and real-time chemical measurement of the insect olfactory environment., Riffell, J.A., Abrell, L., Hildebrand, J.G. *J. Chemical Ecology*, **2008**, 34, 837-853.
- Behavioral consequences of innate preferences and olfactory learning in hawkmoth-flower interactions., Riffell, J.A., Alarcón, R., Abrell, L., Davidowitz, G., Bronstein, J.L., Hildebrand, J.G. *Proc. Natl. Acad. Sci. USA* **2008** 105, 3404-3409.
- Sugar synthesis from a gas phase formose reaction., Jalbout, A.F., Abrell, L., Adamowicz, L., Polt, R., Apponni, A.J., Ziurys, L., *Astrobiology* **2007**, 7, 433-442.
- Structure and function of Dufour gland pheromones from the crazy ant *Paratrechina longicornis*. Witte, V., Abrell, L., Attygalle, A.B., Wu, X., Meinwald, J. *Chemoecology* **2007**, 17, 63-69.
- Individual variation in alkaloid content of poison frogs of Madagascar (*Mantella*; Mantellidae). Clark, V.C., Rakotomalala, V., Ramilijaona, O., Abrell, L., Fisher, B.L., *J. Chemical Ecology* **2006**, 32, 2219-2233.
- Effect of elevated atmospheric CO₂ on oviposition behavior in *Manduca sexta* moths, Abrell, L., Guerenstein, P. G., Mechaber, W. L., Stange, G., Christensen, T., Nakanishi, K., Hildebrand, J. G. *Global Change Biology*, **2005**, 11, 1272-1282.
- Microphysiometric Measurement of PAF Receptor Responses to Ginkgolides, Krane, S., Kim, S.R., Abrell, L.M., Nakanishi, K. *Helvetica Chimica Acta*, **2003**, 86 3776-3786.
- Conformational flexibility of ouabain and its biological implication: observations with ouabain 1,5,19- and 1,11,19-phosphates. Kawamura, A., Abrell, L. M., Maggiali, F., Berova, N., Nakanishi, K., Labutti, J., Magil, S., Hauptert, G. T. Jr., Hamlyn, J. M. *Biochemistry* **2001**, 40, 5835-5844.
- New nectriapyrones by salt water culture of a fungus separated from an indo-pacific sponge. Abrell, L., Cheng, X.-C., Crews, P. *Tetrahedron Lett.* **1994**, 35, 9159-9160.
- The structures and stereochemistry of cytotoxic sesquiterpene quinones from *Dactylosporgia elegans*. Rodríguez, J., Quiñoá, E., Riguera, R., Peters, B. M., Abrell, L. M., Crews, P. *Tetrahedron* **1992**, 48, 6667-6680.

Synergistic Activities

2012-2015	Member, Advisory Panel for Emerging Contaminants (Arizona Dept. Env. Quality)
2009-2015	Journal reviewer: <i>Environmental Science & Technology</i> , <i>Analytical Chemistry</i> , <i>Analytica Chimica Acta</i> , <i>Chemosphere</i> , <i>Rapid Communications in Mass Spectrometry</i> , <i>Geochimica et Cosmochimica Acta</i> , <i>Journal of Hydrology</i> , <i>Hydrology Research</i> , <i>Chirality</i> , <i>Water Research</i>
2006-2012	NSF-WAESO Faculty Research Mentor to undergraduates
2005	Wakonse Fellow, Arizona Teaching & Learning Professionals Organization
2001—present	Member, Society for Advancement of Chicanos & Native Amer. in Science
2000—present	Member, American Indian Society of Engineering and Science

Thesis Advisor: Phillip Crews, Chemistry, University of California at Santa Cruz

Postgraduate Advisors: Koji Nakanishi, Chemistry, Columbia University, NY
Yoshikazu Shizuri, Marine Biotechnology Institute, Japan

Graduate students (co-)advised: 9 Undergraduate students advised: 41