

Eric N. Villegas, Research Microbiologist, in EPA's National Exposure Research Laboratory

Exposure Methods and Measurements Division

[Mailing Address](#)

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Area of Expertise:

My primary research focus has been on the development and application of molecular methods for monitoring microbial contaminants in aquatic environments. Specific areas of interest includes developing *in vitro* and *in vivo* models of infection to establish dose response models for waterborne pathogens. Other research areas of interest include understanding treatment efficacies of various treatment processes used in drinking wastewater, and water reuse systems. More recent research areas utilizes next generation sequencing technology to understand microbial community dynamics (indicator and pathogenic organisms) associated with water treatment systems.

Select Publications:

(*corresponding author*; *senior author*, *#authors contributed equally to the work*)

Ma, J., Feng, Y.[‡], Yue, H., Villegas, E. N.[‡], Xiao, L.[‡] 2016. Human Infection Potential of *Cryptosporidium* spp. *Giardia duodenalis*, and *Enterocytozoon bieneusi* in Urban Wastewater Treatment Plant Effluent. *Appl. Environ. Microbiol. J. Water Health*. DOI:10.2166/wh.2016.192

Li, N., Neumann, N. F., Ruecker, N., Alderisio, K. A., Sturbaum, G. D., Villegas, E. N., Chalmers, R., Monis, P., Feng, Y., Xiao, L.[‡] 2015. Development and evaluation of three real-time PCR assays for genotyping and source tracking *Cryptosporidium* in Water. *Appl. Environ. Microbiol.* doi:10.1128/AEM.01699-15.

Rhodes, E. R., Boczek, L. A., Ware, M. W., McKay, M., Hoelle, J. M., Schoen, M., Villegas, E. N.[‡] 2015. Determining pathogen levels in Class B municipal organic residuals used for land application. *J. Environ. Qual.* 44:265-274.

Staggs, S. E., Beckman, E., Ware, M. W., Mackwan, R., Ferretti, J., Moyer, A. P., Xiao, L., Sayed, A., and Villegas, E. N.[‡] 2013. The Applicability of using TaqMan-based quantitative real-Time PCR for detecting *Cryptosporidium parvum* and *Cryptosporidium hominis* oocysts in drinking water. *PLOS ONE*. doi:10.1371/journal.pone.0066562.

Ware, M. W., and Villegas, E. N.[‡] 2013. Development and evaluation of an off-the-slide genotyping technique for identifying *Giardia* and *Cryptosporidium* oocysts directly from USEPA Method 1623 slides. *J. Appl. Microbiol.* 115:298-309.

Francy, D. S.^{*}, Stelzer, E. A., Brady, A. M. G., Huitger, C., Bushon, R. N., Ip. H. S., Ware, M. W., Villegas, E. N. Gallardo, V., H. D. A., Lindquist.[‡] 2013. Comparison of filters for

concentrating microbial indicators and pathogens in tap and lake-water samples. *Appl. Environ. Microbiol.*79:1342-1352.

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Education:

- Ph.D. Immunology/Parasitology, Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA, 2001
- B.A. Molecular and Cellular Biology, California State University, Northridge, CA 1994

Professional Experience:

- Interim Chief, Exposure Research Branch, National Exposure Research Laboratory, USEPA Cincinnati, OH, 2016–present
- Research Microbiologist, Microbial Exposure Research Branch, National Exposure Research Laboratory, USEPA Cincinnati, OH, 2005–present
- Adjunct Associate Professor, Dept. of Biological Sciences, University of Cincinnati, Cincinnati, OH, 2010–present
- Adjunct Assistant Professor, Dept. of Biological Sciences, University of Cincinnati, Cincinnati, OH, 2007–2010
- Instructor, Center for Biological Laboratory Studies, San Francisco State University, CA 2002 – 2004
- Post-doctoral Research Fellow, Cancer Research Laboratory, Division of Immunology and Pathogenesis, University of California, Berkeley, CA, 2001-2005

Honors and Awards:

- Board of Reviewers, Journal of Eukaryotic Microbiology, 2015-present
- Editorial Board, BioMed Research International, 2013-present
- Scientific and Technical Achievement Award-Honorable Mention. USEPA. Cincinnati, OH, 2013
- Outstanding ORD Technical Assistance to the Regions or Program Office Award, ORD Honor Awards. USEPA. Cincinnati, OH, 2012
- Bronze Medal, Forum on Environmental Measurements Monitoring Assessment Action Team. ORD Honor Award. USEPA. Cincinnati, OH, 2012
- Scientific and Technical Achievement Award-Honorable Mention. USEPA. Cincinnati, OH, 2011
- NERL Special Achievement Award, “Goal 1 Individual Award: Support the Agency’s Mission.” 2011 NERL Awards. USEPA. Research Triangle Park, NC, 2011
- Outstanding ORD Technical Assistance to the Regions and Program Office Award, ORD Honor Awards. USEPA. Cincinnati, OH, 2009
- Mayor’s Choice Award, Volunteers of America, Ohio River Valley Chapter. Cincinnati, OH. 2007

- Outstanding Government Services, Greater Cincinnati Earth Coalition. Cincinnati, OH, 2007