

Gerard N. Stelma Jr., Senior Science Advisor, in EPA's National Exposure Research Laboratory

Exposure Methods and Measurements Division

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Area of Expertise: Dr. Stelma's research has focused on identifying virulence factors in opportunistic bacterial pathogens found in water and foods, investigating their roles in pathogenesis and developing tests to distinguish virulent strains from avirulent strains. He has also worked on developing monitoring methods for waterborne bacterial pathogens and indicators of fecal contamination. In addition, he has participated in investigations of sources of environmental exposures to pathogenic mycobacteria. Currently, he is working on rapid cultural techniques for detecting somatic coliphage in water, stability of fecal indicators in lake water and a rapid DNA-based technique for monitoring recreational waters. One current study are being performed through a CRADA with a small company.

Select Publications:

Geh, E., Ghosh, D., McKell, M., de la Cruz, A. Stelma, G. and Bernstein, J. 2015 [Identification of *M. aeruginosa* peptides for allergic sensitization and characterization of functional interactions between cyanobacterial toxins and immunogenic peptides.](#)^[EXIT] *Environ. Health Persp.*

Stelma, G.N. Jr. and L. C. Wymer. 2012. Research considerations for more effective groundwater monitoring. *J. Water and Hlth.* 10: 551- 521

Moudgal, C. J., D.Young, T. Nichols, T. Martin, P. Harten, R. Venkatapathy, G. Stelma, S. Siddhanti and C. Baier-Anderson. 2008. Application of QSARs and VFARs to the Rapid Risk Assessment Process at USEPA. *SAR and QSAR in Environ. Res.* 19: 579-587.

de la Cruz, A. A., P. Rublee, J. M. Hungerford, P. V. Zimba, S. Wilhelm, J. A. O. Meriluoto, K. Echols, M. T. Meyer, G. Stelma, R. Mandeville, L. Lawton, K. Sivonen and A. Furey. 2008. Analytical methods workgroup report. *Cyanobacterial Harmful Algal Blooms: State of the Science and Research Needs*. Chapter 20 in *Advances in Experimental Medicine and Biology*. Vol. 619. Springer, New York, NY

Hilborn, E. D., M A.Yakrus, T. C. Covert, S I. Harris, S. F. Donnelly, M.T. Schmitt, S. Toney, S.A., S.A. Bailey and G N. Stelma Jr. 2008. Molecular comparison of *Mycobacterium avium* isolates from clinical and environmental sources. *Appl. Environ. Microbiol.* 74 4966-4968.

Hayes, S.L., M. R. Rodgers, D. J. Lye, G. N. Stelma, C. A. McKinstry, J.M. Malard and S. J. Vesper. 2007. Evaluating virulence of waterborne and clinical *Aeromonas* isolates using gene expression and mortality in neonatal mice followed by assessing cell culture's

ability to predict virulence based on transcriptional response. *J. Appl. Microbiol.*103:811-820

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Education:

- Ph.D. Microbiology, Michigan State University, East Lansing, MI, 1974
- B.S. Biology, University of Michigan, Ann Arbor, MI, 1965

Professional Experience:

- NIH Postdoctoral Fellow, Purdue University, West Lafayette, IN, 1976-1978
- NIH Postdoctoral Trainee, University of Wisconsin, Madison, WI, 1976-1978
- Research Microbiologist, US FDA, Cincinnati, OH, 1978-1987
- Research Microbiologist, USEPA, Cincinnati, OH, 1987-1988
- Branch Chief, USEPA, Cincinnati, OH, 1988-2004
- Senior Science Advisor, USEPA, Cincinnati, OH, 1988-2004