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HORTICULTURE & CROP SCIENCE IN VIRTUAL PERSPECTIVE - THE OHIO STATE UNIVERSITY

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## Dr. Eric Stockinger Promoted to Associate Professor



Wooster-based molecular geneticist and cold tolerance researcher Dr. Eric Stockinger has been promoted to Associate Professor.

[Eric Stockinger](#) works on the Wooster campus of The Ohio State University. His professional experience spans from the horticultural use of woody ornamental trees and shrubs for the landscape, to transcriptional regulation of environmental stress responsive genes in the model plant *Arabidopsis thaliana*. Stockinger's long-term research goal is to understand the molecular genetic basis of low temperature tolerance in plants.

"I am particularly interested in understanding how plant survival at low temperatures is effected by transcriptional regulators. Transcriptional activators are regulators that act as switches that turn on an entire battery of structural protein encoding genes," explains Stockinger. "They are crucial in ensuring that downstream structural protein encoding genes are correctly turned on; for example when the plant senses cold temperatures, or drought. Imagine that the plant's genome harbors the structural protein encoding genes, but they fail to become activated in response to cold or drought. This scenario is analogous to a room full of lights with a broken switch."

Stockinger's research program is focused on the CBFs, a group of regulatory proteins that play a key role in low temperature tolerance pathways. He studies aspects of the CBF regulatory system in crop plants that reveal genetic differences between individual genotypes in their low temperature tolerance, and uses the model plant *Arabidopsis* to understand structural and functional aspects of the CBF regulatory system common to all plants. This strategy facilitates a more rapid advance of knowledge and closes the gap between basic molecular genetics and crop improvement.



OARDC researcher Eric Stockinger tests for the cold-tolerance gene by extracting DNA and RNA from a tomato plant.

"Given the limitations on plant productivity by cold temperatures and drought in agricultural systems, and the central role CBF has in the response to abiotic stress in *Arabidopsis*, understanding how the CBF system rewires the plant's regulatory circuitry to effect freezing tolerance is exciting in itself but will also tremendously impact how we go about breeding for increased cold tolerance," notes Stockinger.

Dr. Stockinger joined the department as an assistant professor in 2000. In 2001 Stockinger received NSF funding to investigate the role the CBF genes play in effecting low temperature tolerance in crop plants. Research in Stockinger's lab at OSU has garnered international recognition, and has led to numerous collaborations with colleagues at institutions in North America and Europe. Stockinger is a much sought after seminar speaker for

national and international scientific meetings.

Stockinger has also made substantial contributions towards the graduate education programs at OSU. He has developed laboratory course curriculum that teaches students how to identify regulatory proteins, and assembles reading material for lecture courses that involve student participation that teaches students how transcriptional regulatory process operate. Stockinger serves on numerous Ph.D. committees and exams.

Dr. Stockinger obtained his B.S. in Plant Science, and Ph.D. in Botany (Plant Genetics); both at the University of California, Riverside. He then moved to Michigan State University in 1993, where he held two successive postdoctoral research positions; one in the Horticulture Department, and the second in the Crop and Soil Sciences Department. In 2000, he moved to the Wooster campus of OSU and started his own lab. He is a member of the American Society of Plant Physiologists and the American Society for Microbiology.

More information about Stockinger's research program can be found by visiting [Dr. Stockinger's Lab](#) webpage.

Photos by Ken Chamberlain. Story and web publishing by [Victor van Buchem](#).  
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