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Prof.Curt Lively
Microbial Ecology/Evolution Search
Department of Biology
Indiana University
1001 E. Third Street
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Dear Prof. Lively:

I am writing to lend my strongest possible support to the application of **Gregory Velicer** for a faculty position in your department. I know Greg well, having taught him in a graduate course, served as his dissertation supervisor, and co-sponsored his postdoctoral research. In all these capacities, I have had tremendous respect for Greg's research abilities, communication skills, and broad outlook on scientific problems.

Greg did his undergraduate studies at Cornell University, where he majored in biology and genetics. He began graduate studies in Philosophy at Michigan State University, where he intended to study the philosophy of science. However, he decided to curtail his program with a masters degree in order to pursue scientific research directly. To that end, he joined the Genetics Program and undertook research in my laboratory on the ecology, genetics, and evolution of bacterial populations. For his dissertation research, Greg examined the widely held hypothesis that there exists a fundamental tradeoff, such that genotypes that are well adapted to high nutrient conditions are competitively inferior under low nutrient conditions, and vice versa. In particular, he performed both comparative and experimental studies to test the generality of this tradeoff among bacteria that degrade the herbicide 2,4-D. In short, Greg's results – both comparative and experimental – showed convincingly that there is no necessary tradeoff between performance levels at high and low substrate concentrations. His dissertation research was published as three fine papers in *Ecology* (1999), *Microbial Ecology* (1999), and *Applied and Environmental Microbiology* (1999).

While a graduate student, and on his own initiative, Greg also began to investigate myxobacteria as a potential system for experimental studies of evolution, given their fascinating multi-cellular development and social behaviors. For his postdoctoral research, Greg decided to investigate the evolution of social behaviors using *Myxococcus xanthus*, the most well characterized species in this group. He performed his postdoctoral work jointly in my laboratory and that of Prof. Lee Kroos in Biochemistry, in order to combine ecological (dynamical) and molecular (genetic)

approaches. Greg continues this fascinating work in his current position as Junior Group Leader at the Max Planck Institute for Developmental Biology in Tübingen, Germany.

In his research statement, Greg will describe for you in some detail this system as well as his progress and plans. Let me simply state that Greg has truly impressive progress, and there is tremendous potential for him to make many additional important discoveries using this system. It is truly one of the most fascinating – and tractable – microbial systems for experimental evolutionary research. Already Greg has authored two major papers in *Nature* (2000, 2003) as well as important papers in *Proc. Royal Society* (2003), *PNAS* (1998), *Journal of Bacteriology* (2002) and other journals reporting his work on myxobacteria. These papers demonstrate an impressive command of a wide range of issues and approaches.

His publication record shows clearly that Greg has demonstrated his scientific productivity and, more importantly, the very high quality of his work. In addition to his skills in the laboratory and in writing, Greg is an excellent speaker, teacher, and mentor. Greg gave a couple of guest lectures in a graduate-level course in microbial ecology that I taught, and his lectures were clear and well received by the students. Greg also supervised three undergraduate student research projects in my lab, and he presently supervises four Ph.D. students, including three at the Max Planck Institute and a fourth here at MSU that he co-supervises with me. Although he has been in this advising role for only two or three years, already two of his graduate students have published papers on their research with him. As an example of an outstanding project that he has supervised, you should read the paper by Francesca Fiegna published in *Proc. Royal Society* (2003). It is clear that Greg is a terrific mentor.

Finally, I would note that Greg would be an excellent colleague in any biology department given his broad interests and enthusiasm for science. He has already served as a reviewer for numerous journals, and he organized a symposium on the "Behavioral Ecology and Evolution of Microorganisms" at the 2002 annual meeting of the American Society for Microbiology.

In summary, Greg Velicer is a very talented young scientist, one with a very broad outlook and integrative perspective. In fact, based on his progress in research and mentoring since moving to the Max Planck Institute in 2000, I think that Greg is as outstanding as any of the 20+ students and postdocs who I have supervised, including some other terrific ones who are presently on the faculty at Stanford, Yale, and Penn. I am confident that Greg will become a widely recognized scientist and scholar, and I urge you to invite him for an interview to hear first-hand about his exciting research.

Sincerely,

Richard E. Lenski
Hannah Professor