University of Connecticut
Department of Ecology and Evolutionary Biology

College of Liberal Arts
and Sciences

Yves Brun
Systems Biology/Microbiology Faculty Search
Department of Biology
Indiana University
Jordan Hall 142, 1001 E 3rd St
Bloomington IN 47405-7005

30 September 2005

Dear Dr. Brun:

This letter is in support of Gavin Conant's application for the Systems Biology position you are offering in the Department of Biology at Indiana University. Normally people ask me for letters of reference, but in Gavin's case I actually told him I would be delighted to write reference letters for him because I knew it would be very easy to find a lot of good things to say! I have been moved to do this for only a very few people, but Gavin is a truly outstanding individual.

Gavin was an undergraduate at the University of New Mexico, where I first met him and served as his undergraduate honors thesis advisor. He was actually my very first student, as I did not take on any graduate students until I moved to the University of Connecticut. I was instantly impressed with Gavin because he combines an impressive intelligence with great modesty and respect for others. Gavin is someone who does not procrastinate as far as I can tell (which sets him apart from me, at least!), and I remember him as one of the most punctual people I have ever met.

The project that Gavin chose to tackle for his undergraduate thesis turned into a paper that was published in one of the leading scientific journals in my field, *Molecular Biology and Evolution*. This paper (Conant, G. C., and Lewis, P. O. 2001. Effects of nucleotide composition bias on the success of the parsimony critierion in phylogenetic inference. *Molecular Biology and Evolution* **18**: 1024–1033) was of a quality that one might expect from a postdoctoral researcher but not an undergraduate with no previous formal training in the subject! Gavin learned about phylogenetic theory and maximum likelihood statistics on his own by reading the primary literature and discussing these

papers with me. He had no difficulty in understanding the scientific problem being addressed or in implementing the computational methods necessary to find answers to the questions asked.

When I left the University of New Mexico in January 1999, Gavin had become a graduate student of Andreas Wagner. Andreas and Gavin have since published several papers on the evolution of regulatory networks in high-profile journals (*Nature Genetics*, *Journal of Molecular Evolution*, *Proceedings of the Royal Society of London Series B*, and *Genome Research*), so Gavin fits easily into the Biomolecular networks category mentioned in your advertisement for this position. Gavin's research interests also fit in easily with the IU Biocomplexity Institute. In addition to his strengths and formal educational background in Biology, Gavin has considerable ability and experience in computational biology, and has several publications related to algorithms he has devised and software he has written.

Gavin Conant is a very motivated, original thinker who works well with others and communicates very effectively. It is no surprise to me that Gavin is first author on more than three quarters of his publications. It has been nearly seven years since I interacted directly with Gavin, during which time he attained his Ph.D. at UNM, garnered a prestigious Department of Energy Computational Science Graduate Fellowship, and became a postdoctoral researcher in Ken Wolfe's lab in Dublin. I trust, however, that his other letter writers will fill you in on Gavin's endeavors in these intervening years. If you have any further questions, please feel free to write (`paul.lewis@uconn.edu`) or call (860 486-2069).

Sincerely,

Paul O. Lewis, Ph.D.
Associate Professor

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2005-10-10

Letter of Recommendation for Dr. Gavin Conant

Dear Mr. Brun,

I am writing in strongest and enthusiastic support of Dr Gavin Conant's application for a faculty position in Systems Biology/Microbiology at the Biocomplexity Institute and Dept. of Biology.

I have known Gavin Conant through my contacts with Andreas Wagner's lab at Univ. New Mexico (where he completed his PhD in 2004) for several years. I was delighted when he expressed interest to join my group as a PostDoc last year, and I would have very much liked him to stay for more than the seven months that available funding allowed.

Gavin has published about ten papers in important Bioinformatics and Computational biology journals, including Mol.Biol.Evol, Genome Research, and Nature Genetics. The common theme of this work could be characterized as ``inference of evolutionary mechanisms from large-scale data". He explores different types of information, from sequence data to network architectures. During his time in Leipzig, for example, he investigated differences in the patterns of amino acid substitutions in orthologous and paralogous genes using a combination of Baysian inference and combinatorial optimization to determine classes of similarly-evolving amino acids. The results of this work clearly show that relative amino-acid substitution rates vary with both protein function and with the history of gene families.

Gavin Conant is an outstanding young scientist, who has very innovative ideas which he then carries out in a very professional way. He has already made very significant contributions to our understanding of genome evolution, in particular in his work on asymmetric sequence divergence of duplicate genes, and the description of convergent evolution of gene circuit

architectures. He has a broad and profound knowledge of (molecular) biology, mathematical and statistical methods in the life science, and in computer science. His skills and his experience in these areas make him an ideal candidate for a faculty position in the interdisciplinary areas between evolutionary biology, systems biology, bioinformatics/computational biology, and theoretical biology, in which substantial scientific progress is derived from the integration of techniques and ideas from a diverse array of scientific disciplines. Gavin Conant's own research demonstrates this point rather impressively.

In addition to his qualities as a researcher, he is an excellent programmer. Furthermore, he has experience with the system administration of UNIX networks.

Since his short-term appointment in Leipzig did not entail teaching duties, I cannot comment on this topic in detail. Judging from the presentations and his interactions with students in my group, however, I know that he is very good at explaining complicated subject matter and has a genuine interest in passing his knowledge to students. I am therefore fully confident that he will perform very well in his teaching.

Last but not least, it has been a real pleasure to collaborate with Gavin during his time in Leipzig, and also after he moved to Ireland.

In summary, I whole-heartedly recommend Dr. Gavin Conant for the advertised faculty position.

Sincerely yours,

Peter F. Stadler

PS: Please do not hesitate to contact me (preferably via email) if you have any further questions.