**Curriculum Vitae**

Personal Data:

Name: Günter Paul Wagner, PhD, MA h.c.

Office Address: Yale Systems Biology Institute and

Department of Ecology and Evolutionary Biology

P. O. Box 208106

Yale University

New Haven, CT 06520-8106

Tel: (203) 737-3091

gunter.wagner@yale.edu

Home address: 1121 Waterbury Road, 1E.

Cheshire, CT 06410

Tel: (203) 439-2258

Date of Birth: May 28-th 1954

Vienna

Marital Status: Married, July 19-th 1985

three children, Susanna, Veronika and Nikolas

Citizenships: USA and Austria

Graduations and Promotions:

1973 Graduation (Reifeprüfung) *cum laude*

Department of Biochemistry

College for Chemical Engineering.

Vienna.

1973-1979 Studies in Zoology and Mathematical Logics, University of Vienna, Ph.D.

Title of Thesis: "A theoretical characterization of selection for adaptation rate."

1990 Habilitation for the field of "Population Genetics and Evolutionary Theory" at the University of Vienna

Title: Universitäts-Dozent equiv. to Associate Professor

1990 Tenure at the Department of Zoology, University of Vienna

1991 Professor of Biology

Yale University

New Haven, CT

Positions held since PhD:

1979-1981 wissenschaftlicher Mitarbeiter (equiv. to Post Doc)

Max-Planck-Institute for biophysical Chemistry

Department of Neurobiology

Göttingen, FRG

1981-1982 wissenschaftlicher Mitarbeiter (equiv. to Post Doc)

Department of Developmental Neurobiology, Inst. of Anatomy

University of Göttingen

Göttingen, FRG

1982-1985 wissenschaftlicher Mitarbeiter (equiv to Post Doc)

Max-Planck-Institute for Developmental Biology

Department of Molecular Biology

Tübingen, FRG

1985-1989 Universitäts Assistent (Assistant Professor)

Department of Theoretical Biology

Institute of Zoology

University of Vienna

Vienna, Austria

1987-1988 Visiting Assistant Professor

Department of Ecology and Evolutionary Biology

Northwestern University

Evanston, IL, USA

1990 Universitäts-Dozent with tenure (equiv. Associate Professor)

Department of Zoology

University of Vienna

1991 Visiting Professor, University of Basel, Switzerland.

1991 Professor of Biology

Yale University

1995 Visiting Fellow, University of Leiden,

Leiden, Netherlands

1997-2001 and 2005-2008 Chair, Department of Ecology and Evolutionary Biology

2010- 2013 Chair, Yale Systems Biology Institute advisory committee

2012-present adjunct Professor of Obstetrics and Gynecology, Wayne State University, Detroit MI

2014-present adjunct Professor of Obstetrics, Gynecology and Reproductive Sciences, Yale Medical School.

Awards and Honors: MacArthur Fellow 1992

Gomperz Lecturer, University of California, Berkeley 1993

Koopmans Distinguished Lecturer,

IIASA Vienna 1995

Sewall Wright Speaker, University of

Chicago, IL, 1996

Corresponding Member, Austrian Academy of Sciences, 1997

Fellow of the American Association for the Advancement of Science, 1998

Chair Division of Division of Evol. Devl Biol, Soc. Int. Comp. Biol. 2002-2004

Alison Richard Professor of Ecology and Evolutionary Biology at Yale University 2003

Alexander von Humboldt Research Prize, 2005

Member, American Academy of Arts and Sciences, 2010

Marsilius Professor of 2013, University of Heidelberg, Germany.

Professional Activities (selected): Editorial Board, Journal of Evolutionary Biology, 1987-1992

Special Feature Editor for Mini-Reviews for JEB 1989-1992

Editorial Board, Evolution and Cognition, 1990 - present

Associate Editor for EVOLUTION, 1994-97

Fellow, Silliman College Yale University, 1992-present

Director, Center for Computational Ecology, 1993-97

Member: Publications Committee, Yale University Press, 1992-95

Board of Directors, Organization of Tropical Studies, 1995-1997

Editorial Board, Source Book for Complex Systems Theory, Oxford Universtiy Press. 1997

Editorial Board, Theory in Biosciences, 1998-

Associate Editor, Journal of Theoretical Biology, 1998-2001

Editorial Board, Evolution and Development, 1999-

Fellow of the Whiteny Humanities Center at Yale University, 1998-2001

Editor in Chief of Journal of Experimental Zoology Part B: Molecular and Developmental Evolution, , 1999-

Chair, Division of Evolutionary Developmental Biology, Society for Integrative and Comparative Biology, 2002-2004

Editorial Board, Biology and Philosophy 2001-

Editorial Board, American Naturalist, 2001-2003

Editor in Chief, Journal of Experimental Zoology. 2006-present

Co-Organizer: NSF workshop on Theoretical Biology, 2006

Member: National Research Council committee on the Conceptual Basis of Biology, 2006-07.

Editorial Board, Evolutionary Biology, 2008-

Editorial Board, Philosophy and Theory in Biology, 2009-present

Chair, Systems Biology Institute advisory committee 2010-2013.

Associate Editor, Genome Biology and Evolution, 2011-present

Member, Advisory Committee for the Yale Center for Genome Analysis, 2011-present

Reviewing Editor, Biology of Reproduction 2013 – present

Member, selection committee for the International Prize for Biology, Japan Society for the Promotion of Science, 2013.

Member, Scientific Advisory Board, Biodiversity Research Center, Taiwan, 2013 – present.

Senior Editor, Molecular Biology and Evolution, 2014-present

Member Editorial Board, Scientific Reports, 2015-present

Professional Societies:

American Association for the Advancement of Science

Society for the Study of Evolution

Society for Integrative and Comparative Biology

Society for Molecular Biology and Evolution

Fields of Research:

-Molecular Evolution of Developmental Genes

-Evolution of Development (limbs, mammalian gestation and parturition)

-Evolutionary Theory

-Population Genetics Theory

-Evolutionary Systems Biology

Wagner publications for 2015-2016:

1. Wagner, G. P. 2015. Two rules for the detection and quantification of epistasis. Pp 145-158 in J. H. Moore, and S. M. Williams (eds.) *Epistasis. Methods and Protocols*. Methods in Molecular Biology 1253; Springer Science and Business Media, New York.
2. Wagner, G. P. 2015. Reinventing the organism: evolvability and homology in post-Dahlem evolutionary biology. Pp 327-342 in A. C. Love (ed.) *Conceptual Change in Biology*. Boston Studies in the Philosophy of History of Science 307. Springer Science and Business Media, Dordrecht,
3. Lynch, V. J., M. Nnamani, K. J. Brayer, D. Emera, J. O. Werheim, S. L. K. Pond, F. Grützner, S. Bauersachs, A. Graf, A. Kapusta, C. Feschotte, G. P. Wanger 2015. Ancient transposable elements transformed the uterine regulatory landscape and transcriptome during the evolution of mammalian pregnancy. *Cell Reports*, **10**: 1-11.
4. Pavličev, M., Wagner, G. P. 2014. Evolutionary systems biology: shifting focus to the context-dependency of genetic effects. Pp 91-107 in L. B. Martin, C. K. Ghalambor and H. A. Woods (eds.) *Integrative Organismal Biology*, John Wiley & Sons, New Jersey.
5. Liang, C., FANTOM consortium, Forrest, A. R. R., and Wagner G. P. 2015. The statistical geometry of transcriptome divergence in cell-type evolution and cancer. *Nature Communications*,6:6066, doi: 10.1038/ncomm7066.
6. Wagner, G. P. 2015. Homology in the age of developmental genomics. pp 25-43 in Volume 1 of A. Wanninger (ed.) *Evolutionary Developmental Biology of Invertebrates*. Springer Publishers, Vienna, New York.
7. Kin, K., Nnamani, M. C., Lynch, V. J., Michaelides, E., Wagner, G. P. 2015. Cell-type phylogenetics and the origin of endometrial stromal cells. *Cell Reports*, **10**: 1398-1409.
8. Musser, J. M., Wagner, G. P., Prum, R. O. 2015. Nuclear b-catenin expression supports homology of feathers, avian scutate scales and alligator scales in early development. *Evolution & Development*, **17**:185-194.
9. Musser, J. M., Wagner G. P. 2015. Character trees from transcriptome data: origin and individuation of morphological characters and the so-called “species signal*”. J. exp. Zool. B (Mol. Dev. Evol.)* DOI: 10.1002/jez.b.22636.
10. Singarete, M. E., Grizante, M. B. Milograna, S. R., Nery, M. F. Kin, K., Wagner, G. P. and Kohlsdorf, T. 2015. Molecular evolution of HoxA13 and the multiple origins of limbless morphologies in amphibians and reptiles. *Genetics and Molecular Biology*, **38**: 255-262.
11. Wagner, G. P. 2015. Evolutionary innovations and novelties: let us get down to business! *Zoologischer Anzeiger*, **256**: 75-81.
12. Wagner, G. P. 2015. Homology and the evolutionary process: reply to Haig, Love and Brown on “Homology, Genes and Evolutionary Innovation.” *Biol. & Phil.* DOI: 10.1007/s10539-015-9492-0
13. Chavan, A. R., Bhullar, B.-A. S. and Wagner, G. P. 2016. What was the ancestral function of decidual stromal cells? A model for the evolution of eutherian pregnancy. *Placenta*, **40**:40-51.
14. Stopper, G. F., Richards-Hrdlicka, K. L., and Wagner, G. P. 2016. Hedgehog inhibition causes complete loss of limb outgrowth and transformation of digit identity in *Xenopus tropicalis*. *J. Exp. Zool. -B: Mol. & Dev. Evol.*, **326**:110-124.
15. Nnamani. M. C., Ganguy, S., Erkenbrack, E. M., Lynch, V., Minoue, L., Tong, Y., Darling, H. L., Fuxreiter, M., Meiler, J., Wagner, G. P. 2016. A derived allosteric switch underlies the evolution of conditional cooperativity between HOXA11 and FOXO1. *Cell Reports*, **15**:2097 - 2108.
16. Chavan, A. R., Wagner, G. P. 2016. The fetal-maternal interface of the nine-banded armadillo: endothelial cells of the maternal sinus are partially replaced by trophoblast. *Zoological Letters*, 2:11 DOI 10.1186/s40851-016-0048-1 (10 pages).
17. Kin, K., Maziarz, J., Chavan, A. R., Kamat, M., Vasudevan, S., Birt, A., Emera, D., Lynch, V. J., Ott, T. L., Pavlicev, M., and Wagner, G. P. 2016. The transcriptomic evolution of mammalian pregnancy: gene expression innovations in endometrial stromal fibroblasts. *Genome Biology and Evolution*, doi:10.1093/gbe/evw168.
18. Pavlicev, M., Wagner, G. P., Chavan, A. R., Owens, K., Maziarz, J., Dunn-Fletcher, C., Kallapur, S. G., Muglia, L., Jones, H. 2016. Single cell transcriptomics of the human placenta: reconstructing the cell-cell interaction network of the maternal-fetal interface. *Genomie Research*, in revision.
19. Armstrong, D. L., McGowen, M. R., Weckle, A., Caravas, J., Agnew, D., Benirschke, K., Savage-Rumbaugh, S., Nevo, E., Kim, C. J., Wagner, G. P., Romero, R., Wildman, D. E. 2016. The evolution of gene expression in the term placenta of viviparous mammals. *Genome Biology*, submitted.
20. Pavlicev, M., Wagner, G. P. 2016. The evolutionary origin of female orgasm. *J. Exp. Zool. -B: Mol. & Dev. Evol.*, DOI: 10.1002/jez.b.22690.
21. Arendet, D., Musser, J. M., […] Wagner, G. P. 2016. Evolution of sister cell types by individuation. *Nature Reviews Genetics*, in press.
22. Park, Y.-W., Nnamani, M. C., Maziarz, J., Wagner, G. P. 2016. Cis-regulatory evolution of forkhead box O1 (FOXO1) expression, a termina selector for deciual stromal cell type identity. *Molecular Biology and Evolution*, in press.