

Resume of

## Norman Warthmann

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### EDUCATION

Feb 2010 – present:

Research Fellow in Freshwater Science at the Leibniz-Institute for Freshwater Ecology and Inland Fisheries in Berlin (IGB)

Nov, 2002 – present:

Research Scientist at the Max Planck Institute (MPI) for Developmental Biology in Tuebingen, Germany. Currently finishing my PhD thesis.

Aug, 2002: Diploma of Science (Biology) in Plant Physiology, Genetics and Biochemistry at the University of Tuebingen, Germany.

Jun, 2002: Summer Institute in Statistical Genetics, North Carolina State University

2001-2002 student research fellow at the Salk Institute for Biological Studies, La Jolla, USA.

### SCIENTIFIC WORK EXPERIENCE

Since Nov, 2002 I have been a research scientist in the lab of Detlef Weigel, "Department of Molecular Biology", at the Max Planck Institute for Developmental Biology, Tuebingen, Germany. I am currently completing a PhD thesis, supervised by Prof. Detlef Weigel (MPI) and Prof. Vera Hemleben (University of Tuebingen).

I am working on several topics using methods of Molecular Biology and Bioinformatics:

#### Biodiversity

- Metagenomics and environmental sequencing study on fungi in freshwater (454)

#### Comparative Genomics

- "Explorative shotgun-sequencing" (Sanger) of *Arabis alpina*
- Creating comparative genetic and physical maps between *A. alpina* and *Capsella rubella* and *Arabidopsis thaliana* using 2<sup>nd</sup> generation sequencing
- Polymorphism detection (by Illumina/Solexa sequencing)

- Develop software for SNP-discovery and SNP-assay-development (MSQT)
- Creating universal SNP-sets for genotyping
- QTL-mapping
- Re-sequencing of *Arabidopsis thaliana* accessions by DNA hybridization on whole genome tiling-arrays
- BAC library screening and multi-species comparisons of large genomic regions

#### microRNA's

- Artificial microRNA's (amiRNAs) as a reverse genetics tool in *Arabidopsis thaliana* and rice (*Oryza sativa*)
- Regulation and evolution of an endogenous miRNA, miR319a

#### PATENTS

**The use of class IIB restriction endonucleases in 2nd generation sequencing applications** (European patent application number: 09006133.4 – 1222, pending).

#### SCIENTIFIC PUBLICATIONS

Kirsten Bomblies, Levi Yant, Roosa A. Laitinen, Sang-Tae Kim, Jesse D. Hollister, Norman Warthmann, Joffrey Fitz, Detlef Weigel

**Local-Scale Patterns of Genetic Variability, Outcrossing, and Spatial Structure in Natural Stands of *Arabidopsis thaliana***

PLoS Genet 6(3): e1000890.

Alexander Platt, Matthew Horton, Yu S. Huang, Yan Li, Alison E. Anastasio, Ni Wayan Mulyati, Jon Agren, Oliver Bossdorf, Diane Byers, Kathleen Donohue, Megan Dunning, Eric B. Holub, Andrew Hudson, Valérie Le Corre, Olivier Loudet, Fabrice Roux, Norman Warthmann, Detlef Weigel, Luz Rivero, Randy Scholl, Magnus Nordborg, Joy Bergelson, Justin O. Borevitz

**The Scale of Population Structure in *Arabidopsis thaliana***

PLoS Genet 6(2): e1000843.

Stephan Ossowski, Korbinian Schneeberger, José Ignacio Lucas-Lledó, Norman Warthmann, Richard M. Clark, Ruth G. Shaw, Detlef Weigel, Michael Lynch

**The rate and molecular spectrum of spontaneous mutations in *Arabidopsis thaliana***

Science, 1 Januar 2010: 88-92.

Schneeberger K, Hagmann J, Ossowski S, Warthmann N, Gesing S, Kohlbacher O, Weigel D.

**Simultaneous alignment of short reads against multiple genomes**

*Genome Biol.* 2009 Sep 17;10(9):R98.

Schwartz C, Balasubramanian S, Warthmann N, Michael TP, Lempe J, Sureshkumar S, Kobayashi Y, Maloof JN, Borevitz JO, Chory J, Weigel D.

**Cis-regulatory Changes at FLOWERING LOCUS T Mediate Natural Variation in Flowering Responses of *Arabidopsis thaliana***

*Genetics*. 2009 Aug 3.

Sureshkumar Balasubramanian, Christopher Schwartz, Anandita Singh, Norman Warthmann, Min Chul Kim, Julin N. Maloof, Olivier Loudet, Gabriel T. Trainer, Tsegaye Dabi, Justin O. Borevitz, Joanne Chory, Detlef Weigel

**QTL Mapping in New *Arabidopsis thaliana* Advanced Intercross-Recombinant Inbred Lines**

*PLoS ONE* 4(2): e4318 (2009)

Stephan Ossowski, Korbinian Schneeberger, Richard M. Clark, Christa Lanz, Norman Warthmann, and Detlef Weigel

**Sequencing of natural strains of *Arabidopsis thaliana* with short reads**

*Genome Res.* 2008 Dec;18(12):2024-33.

Norman Warthmann, Hao Chen, Stephan Ossowski, Detlef Weigel and Philippe Hervé

**Highly Specific Gene Silencing by Artificial miRNAs in Rice**

*PLoS ONE* 3(3): e1829

Norman Warthmann, Sandip Das, Christa Lanz, and Detlef Weigel

**Comparative Analysis of the MIR319a microRNA Locus in *Arabidopsis* and Related Brassicaceae**

*Mol Biol Evol.* 2008 May;25(5):892-902

Kirsten Bomblies, Janne Lempe, Petra Epple, Norman Warthmann, Christa Lanz, Jeffery L. Dangl, Detlef Weigel

**Autoimmune Response as a Mechanism for a Dobzhansky-Muller-Type Incompatibility Syndrome in Plants**

*PLoS Biol* 5(9): e236

Norman Warthmann, Joffrey Fitz, and Detlef Weigel

**MSQT for choosing SNP assays from multiple DNA alignments**

*Bioinformatics* 23(20):2784-2787

Christine Dreyer, Margarete Hoffmann, Christa Lanz, Eva-Maria Willing, Markus Riester, Norman Warthmann, Andrea Sprecher, Namita Tripathi, Stefan R Henz, Detlef Weigel

**ESTs and EST-linked polymorphisms for genetic mapping and phylogenetic reconstruction in the guppy, *Poecilia reticulata***

*BMC Genomics* 2007, 8:269

Richard M. Clark, Gabriele Schweikert, Christopher Toomajian, Stephan Ossowski, Georg Zeller, Paul Shinn, Norman Warthmann, Tina T. Hu, Glenn Fu, David A. Hinds, Huaming Chen, Kelly A. Frazer, Daniel H. Huson, Bernhard Schölkopf, Magnus Nordborg, Gunnar Rättsch, Joseph R. Ecker, and Detlef Weigel

**Common Sequence Polymorphisms Shaping Genetic Diversity in *Arabidopsis thaliana***

*Science* 20 July 2007: 338-342

Palatnik JF, Wollmann H, Schommer C, Schwab R, Boisbouvier J, Rodriguez R, Warthmann N, Allen E, Dezulian T, Huson D, Carrington JC, Weigel D.

**Sequence and Expression Differences Underlie Functional Specialization of *Arabidopsis* MicroRNAs miR159 and miR319**

*Dev Cell*, 2007 Jul;13(1):115-25

Johannes Mathieu, Norman Warthmann, Frank Küttner, and Markus Schmid

**Export of FT Protein from Phloem Companion Cells Is Sufficient for Floral Induction in *Arabidopsis***

*Current Biology*, Vol 17, 1055-1060 (2007)

Balasubramanian S, Sureshkumar S, Agrawal M, Michael TP, Wessinger C, Maloof JN, Clark R, Warthmann N, Chory J, Weigel D.

**The PHYTOCHROME C photoreceptor gene mediates natural variation in flowering and growth responses of *Arabidopsis thaliana***

*Nature Genetics*, 38, 711 - 715 (2006)

Schwab R, Ossowski S, Riester M, Warthmann N, Weigel D.

**Highly Specific Gene Silencing by Artificial MicroRNAs in *Arabidopsis***

*The Plant Cell* 18:1121-1133 (2006)

Jonathan D. Werner, Justin O. Borevitz, Norman Warthmann, Gabriel T. Trainer, Joseph R. Ecker, Joanne Chory, and Detlef Weigel

**Quantitative trait locus mapping and DNA array hybridization identify an FLM deletion as a cause for natural flowering-time variation**

*Proc Natl Acad Sci U S A*. 2005 Feb 15;102(7):2460-5.

BOOK CHAPTERS

Rebecca Schwab, Stephan Ossowski, Norman Warthmann, and Detlef Weigel

**Directed Gene Silencing with Artificial MicroRNAs**

in B.C. Meyers and P.J. Green (eds.), *Plant MicroRNAs, Methods in Molecular Biology*, 2010, vol. 592, pp. 71-88

Norman Warthmann, Stephan Ossowski, Rebecca Schwab and Detlef Weigel

**Specific gene silencing by artificial miRNAs in rice**

in Yinong Yang (ed.), "Methods in Molecular Biology: Rice Protocols" (HumanaPress, submitted)

PREVIOUS SCIENTIFIC WORK EXPERIENCE

May, 2001- Oct, 2002: Diploma thesis in the lab of Detlef Weigel, Salk Institute for Biological Studies, La Jolla, CA, USA. I conducted a phylogenetic footprinting approach to reveal the regulation of the "Flowering Locus T" gene in *Arabidopsis thaliana*, an important gene for flowering time control in response to photoperiod and temperature. This work was supervised by Detlef Weigel (Salk Institute and MPI) and Prof. Gerd Juergens (U Tuebingen) and it was funded by the German Student Exchange Council (DAAD), and the Salk Institute.

Oct, 1999 – May, 2001: tutor in botanical courses at the University of Tuebingen, Department for Ecological Physiology of Plants. Supervisor: Prof. Dr. R. Hampp.

June, 1999 – May, 2001: student research assistant at the Center of Molecular Biology of Plants, University of Tuebingen (ZMBP), in the Genetics department. With the help of transformed plants the role of the phytohormone Cytokinin was investigated. Supervisor: PD Dr. T. Schmuelling.

Jun, 1998 - October, 2000: student research assistant in the Department for Ecological Physiology of Plants. Supervisor: Prof. Dr. R. Hampp.  
For a reforestation program in Brazil the genetic distinction of different ecotypes of the Brazil pine was investigated. For this purpose, I spent several weeks in Brazil.

Dec 1997-May 1998: student research assistant for DNA-analysis of plant pathogen fungi in the Department of Botany, University of Tuebingen. Supervisor: Dr. D. Begerow.

August 1997: internship at the State Museum of Natural History in Stuttgart, Germany.

#### MILITARY CAREER

Since July, 1997 second lieutenant reserves (stand-by).

July 1994-June 1996 active service in the 2<sup>nd</sup>company/Mountain Ranger Battalion 233

April-July, 1996: assistant platoon leader in a mountain ranger company in the German Army. I was responsible for four corporals, about 50 privates and three armored personnel carriers.

July-December, 1995: squad leader of a sniper detail. I was responsible for about ten privates and one armored personnel carrier.

My commanding officer from 1994 to 1996 was Captain K. Lau.

#### ADDITIONAL SKILLS

##### Languages:

Native speaker of German; fluent in written and spoken English; qualifications in Latin and Classical Greek.

##### Pilot license:

I have the FAA pilot certificate "Private Pilot", # 2546772, "Airplane Single Engine Land Instrument Airplane" (PPL and IFR) including a tail-wheel rating, issued by the Federal Aviation Administration, USA.

##### Computer and programming skills:

Platforms: MAC OSX (and OS 9), Linux, Unix (Solaris) and Windows;  
Extensive use of all kinds of software on all platforms;

Programming skills in Perl, R and S-plus, PostgreSQL and MySQL.

Miscellaneous:

I have a German wildlife preservation and hunting license and I am holding a 2 star diving license, licenses for truck-driving and motorcycle driving.