

# Frank Wolfgang Albert

## Curriculum vitae

Department of Genetics, Cell Biology, & Development  
University of Minnesota  
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Minneapolis, MN 55455  
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### PROFESSIONAL APPOINTMENTS

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01 / 2016 – present    Assistant Professor  
Department of Genetics, Cell Biology, & Development  
University of Minnesota

### EDUCATION

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02 / 2010                Doctoral degree in Biology, University of Leipzig, Germany  
Graduate work at the Max Planck Institute for Evolutionary Anthropology in  
Leipzig with Dr. Svante Pääbo

03 / 2005                “Diplom” degree in Biology with Computer Science as additional subject,  
University of Würzburg, Germany  
Thesis work at the Max Planck Institute for Human Cognitive & Brain  
Sciences in Leipzig with Dr. Sonja Kotz

07 / 1997                “Abitur” degree at Hanns Seidel Gymnasium, Hösbach, Germany

### RESEARCH EXPERIENCE

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2011 – 2015            Post-doctoral research:  
“Genomic approaches to study protein expression variation in yeast”  
Princeton University & UCLA (Lab moved to UCLA in August 2013)  
Advisor: Dr. Leonid Kruglyak

2010                      Post-doctoral research: “A comparison of brain gene expression levels in  
domesticated and wild animals”  
Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany

- 2005 – 2009 Graduate research: “The genetic basis for tameness and aggression”  
Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany
- 2004 – 2005 Diplom research: “Cognitive profiling of a language and speech  
impediment”  
Max Planck Institute for Human Cognitive & Brain Sciences, Leipzig,  
Germany

#### SCHOLARSHIPS & HONORS

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- 2018 Sloan Research Fellow in Computational & Evolutionary Molecular Biology
- 2012 – 2014 Research Fellow of the German Science Foundation (DFG)
- 2006 – 2009 Max Planck Society Doctoral Fellowship
- 2002 – 2003 Fulbright Scholarship, University of Maryland, College Park

#### RESEARCH FUNDING (ACTIVE)

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- 08 / 2017 – 07 / 2022 NIH/NIGMS – 1R35GM124676-01  
“Genomic approaches for dissecting regulatory variation” (PI)
- 09 / 2017 – 08 / 2021 NIH/NIGMS – 1R01GM126002 (PIs: Xiaotong Shen & Wei Pan)  
“Estimation and Inference of Gene Regulatory Networks” (co-I)

#### PUBLICATIONS

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A self-updating list of publications and citations is available at Google Scholar:

<https://scholar.google.com/citations?hl=en&user=RvETgnYAAAAJ>

23. **Albert FW**<sup>†</sup>, Bloom JS<sup>†</sup>, Siegel J, Day L, and Kruglyak L  
Genetics of trans-regulatory variation in gene expression  
*eLife* (2018) 7:e35471. PMID:30014850  
<sup>†</sup> equal contribution

22. Singh N, **Albert FW**, Trut L, Pääbo S, and Harvati K  
Facial shape differences between rats selected for tame and aggressive behaviors  
*PLoS One* (2017) 12(4), e0175043. PMID:28369080

21. **Albert FW**

Brains, genes and power

*Nature Neuroscience* (2016) 19 (11), 1428-1430. PMID:27786186

(solicited News & Views article)

20. **Albert FW** and Kruglyak L

The role of regulatory variation in complex traits and disease

*Nature Reviews Genetics* (2015) 16: 197-212. PMID:25707927

(solicited review article)

19. Treusch S, **Albert FW**<sup>†</sup>, Bloom JS<sup>†</sup>, Kottenko IE, and Kruglyak L

Genetic mapping of MAPK-mediated complex traits across *S. cerevisiae*

*PLoS Genetics* (2015) 11 (1), e1004913. PMID:25569670

<sup>†</sup> equal contribution

18. Bloom JS, Kottenko I, Sadhu MJ, Treusch S, **Albert FW**, and Kruglyak L

Genetic interactions contribute less than additive effects to quantitative trait variation in yeast

*Nature Communications* (2015) 6:8712. PMID:26537231

17. **Albert FW**, Muzzey D, Weissman J, and Kruglyak L

Genetic influences on translation in yeast

*PLoS Genetics* (2014) 10 (10), e1004692. PMID:25340754

16. **Albert FW**, Treusch S, Shockley AH, Bloom JS, and Kruglyak L

Genetics of single-cell protein abundance variation in large yeast populations

*Nature* (2014) 506: 494-497. PMID:24402228

15. Heyne HO, Lautenschläger S, Nelson R, Besnier F, Rotival M, Cagan A, Kozhemyakina R,

Plyusnina IZ, Trut L, Carlborg Ö, Petretto E, Kruglyak L, Pääbo S, Schöneberg T, **Albert FW**

Genetic Influences on Brain Gene Expression in Rats Selected for Tameness and Aggression

*Genetics* (2014) 198 (3): 1277-1290. PMID:25189874

(Selected by the editors as an “Issue Highlight”)

14. Carneiro M<sup>†</sup>, Rubin CJ<sup>†</sup>, Di Palma<sup>†</sup>, **Albert FW**, ...[33 additional authors]..., Ferrand N,

Lindblad-Toh K, Anderson L

Rabbit genome analysis reveals a polygenic basis for phenotypic change during domestication

*Science* (2014) 345 (6200): 1074-1079. PMID:25170157

<sup>†</sup> equal contribution

13. Carneiro M, **Albert FW**, Afonso S, Pereira RJ, Burbano H, Campos R, Melo-Ferreira J, Blanco-

Aguiar JA, Villafuerte R, Nachman MW, Good JM, and Ferrand N

The Genomic Architecture of Speciation in the European Rabbit

*PLoS Genetics* (2014) 10 (8), e1003519. PMID:25166595

12. Good JM, Wiebe V, **Albert FW**, Burbano HA, Kircher M, Green RE, Halbwax M, André C, Atencia R, Fischer A, and Pääbo S  
Comparative population genomics of the ejaculate in humans and the great apes  
*Molecular Biology and Evolution* (2013) 30 (4): 964-976. PMID:23329688
11. Ka S, Markljung E, Ring H, **Albert FW**, Harun-Or-Rashid M, Wahlberg P, Garcia-Roves PM, Zierath JR, Denbow DM, Pääbo S, Siegel PB, Andersson L, and Hallböök F  
Expression of carnitine palmitoyl-CoA transferase-1B is influenced by a cis-acting eQTL in two chicken lines selected for high and low body weight  
*Physiological Genomics* (2013) 45 (9): 367-376. PMID:23512741
10. **Albert FW**, Somel M, Carneiro M, Aximu-Petri A, Halbwax M, Thalman O, Blanco-Aguilar JA, Plyusnina I, Trut L, Villafuerte R, Ferrand N, Kaiser S, Jensen P, and Pääbo S  
A comparison of brain gene expression levels in domesticated and wild animals  
*PLoS Genetics* (2012) 8 (9): e1002962. PMID:23028369
9. Carneiro M, **Albert FW**, Melo-Ferreira J, Galtier N, Gayral P, Blanco-Aguilar JA, Villafuerte R, Nachman MW, and Ferrand N  
Evidence for widespread positive and purifying selection across the European rabbit (*Oryctolagus cuniculus*) genome  
*Molecular Biology and Evolution* (2012) 29 (7): 1837-49. PMID:22319161
8. **Albert FW**, Hodges E, Jensen JD, Besnier F, Xuan Z, Rooks M, Bhattacharjee A, Brizuela L, Good JM, Green RE, Burbano HA, Plyusnina IZ, Trut L, Andersson L, Schöneberg T, Carlborg Ö, Hannon GJ, and Pääbo S  
Targeted resequencing of a genomic region influencing tameness and aggression reveals multiple signals of positive selection  
*Heredity* (2011) 107: 205-214. PMID:21304545
7. Brawand D, Soumillon M, Necsulea A, Julien P, Csardi G, Harrigan P, Weier M, Liechti A, Aximu-Petri A, Kircher M, **Albert FW**, Zeller U, Khaitovich P, Grützner F, Bergmann S, Nielsen R, Pääbo S, and Kaessmann H  
The evolution of gene expression levels in mammalian organs  
*Nature* (2011) 478 (7369): 343-8. PMID:22012392
6. Ka S, **Albert FW**, Denbow DM, Pääbo S, Siegel PB, Andersson L, and Hallböök F  
Differentially expressed genes in hypothalamus in relation to genomic regions under selection in two chicken lines resulting from divergent selection for high or low body weight  
*Neurogenetics* (2011) 12(3): 211-21. PMID:21748255
5. Liebscher I, Müller U, Teupser D, Engemaier E, Engel KMY, Ritscher L, Thor D, Sangkuhl K, Ricken A, Wurm A, Piehler D, Schmutzler S, Fuhrmann H, **Albert FW**, Reichenbach A, Thiery J, Schöneberg T, and Schulz A  
Altered immune response in mice deficient for the G-protein coupled receptor GPC34  
*Journal of Biological Chemistry* (2011) 286(3): 2101-10. PMID:21097509

4. Burbano HA, Hodges E, Green RE, Briggs AW, Krause J, Meyer M, Good JM, Maricic T, Johnson PLF, Xuan Z, Rooks M, Bhattacharjee A, Brizuela L, **Albert FW**, de la Rasilla M, Fortea J, Rosas A, Lachmann M, Hannon GJ, and Pääbo S

Targeted investigation of the Neandertal genome by array-based sequence capture  
*Science* (2010) 328(5979): 723-725. PMID:20448179

3. Addis L, Friederici AD, Kotz SA, Sabisch B, Barry J, Richter N, Ludwig AA, Rübsem R, **Albert FW**, Pääbo S, Newbury DF, and Monaco AP

A locus for an auditory processing deficit and language impairment in an extended pedigree maps to 12p13.31-q14.3

*Genes, Brain and Behavior* (2010) 9(6): 545-561. PMID:20345892

2. **Albert FW**, Carlborg Ö, Plyusnina I, Besnier F, Hedwig D, Lautenschläger S, Lorenz D, McIntosh J, Neumann C, Richter H, Zeising C, Kozhemyakina R, Shchepina O, Kratzsch J, Trut L, Teupser D, Thiery J, Schöneberg T, Andersson L, and Pääbo S

Genetic architecture of tameness in a rat model of animal domestication

*Genetics* (2009) 182(2): 541-554. PMID:19363126

(Selected by the editors as an “Issue Highlight”)

1. **Albert FW**, Shchepina O, Winter C, Römpler H, Teupser D, Palme R, Ceglarek U, Kratzsch J, Sohr R, Trut L, Thiery J, Morgenstern R, Plyusnina I, Schöneberg T, and Pääbo S

Phenotypic differences in behavior, physiology and neurochemistry between rats selected for tameness and for defensive aggression towards humans

*Hormones and Behavior* (2008) 53(3), 413-421. PMID:18177873

#### INVITED TALKS

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Mayo Clinic Genomics Interest Group, December 19, 2018

University of Minnesota IMA Data Science Lab Seminar, September 24, 2018

Friedrich Miescher Laboratory of the Max Planck Society, Tübingen, Germany, November 14, 2017

Northwestern University, Speaker at Andersen Lab retreat; November 10, 2017

Linköping University, PhD thesis defense “Opponent”, Department of Physics, Chemistry & Biology (IFM), Sweden, June 9, 2017

Linköping University, Department of Physics, Chemistry & Biology (IFM), Sweden, June 8, 2017

Uppsala University, Department of Medical Biochemistry and Microbiology, Sweden, June 7, 2017

University of Cambridge, Department of Genetics, Cambridge, UK, October 18, 2016

Sanger Research Institute, Cambridge, UK, October 17, 2016

University of Minnesota, Department of Ecology, Evolution & Behavior, May 4, 2016

Rat Genomics & Models, Cold Spring Harbor Laboratory, NY, December 9 – 12, 2015

National Human Genome Research Institute (NHGRI), Bethesda, MD, February 4, 2015  
University of Minnesota Department of Genetics, Cell Biology and Development, January 29, 2015  
Symposium “Selected Topics in Science and Technology”, Technische Universität München, Munich, Germany, November 5, 2014  
Symposium “Quantitative Cell Biology”, Friedrich Miescher Institute for Biomedical Research, Basel, Switzerland, June 30, 2014  
Bay Area Yeast Meeting, UC Berkeley, November 16, 2013  
New York University, Evening Evolution Group Seminar, December 4, 2012  
53. Symposium of the German Endocrinology Society, Leipzig, Germany, March 3 – 6, 2010  
International Conference Dedicated to the 90<sup>th</sup> Anniversary of Prof. Dmitry K. Belyaev, Novosibirsk, Russia, August 7 – 9, 2007

#### TALKS SELECTED FROM ABSTRACTS

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Yeast Genetics Meeting, Stanford, CA, August 22 – 26, 2018  
Population, Evolutionary, & Quantitative Genetics Meeting, Madison, WI, May 13 – 16, 2018 (short “lightning talk”)  
Systems Biology: Global Regulation of Gene Expression, Cold Spring Harbor Laboratory, NY, March 20 – 23, 2018  
The Allied Genetics Conference, Orlando, FL, July 13 – 17, 2016  
Biology of Genomes, Cold Spring Harbor Laboratory, NY, May 10 – 14, 2016  
Yeast Genetics Meeting, University of Washington, Seattle, WA, July 29 – August 3, 2014  
Southern California Evolutionary Genetics & Genomics Meeting, USC, CA, March 1, 2014  
Society for Molecular Biology and Evolution, Chicago, IL, July 7 – 11, 2013  
Gordon Research Seminar on Quantitative Genetics and Genomics, Galveston, TX, February 17 – 18, 2013  
Rat Genomics & Models, Cold Spring Harbor Laboratory, NY, December 2 – 5, 2009

#### POSTER PRESENTATIONS

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EMBO Conference “Experimental Approaches to Evolution and Ecology Using Yeast and Other Model Systems”, Heidelberg, Germany, October 17 – 20, 2018  
Population, Evolutionary, & Quantitative Genetics Meeting, Madison, WI, May 13 – 16, 2018  
EMBO Conference “Experimental Approaches to Evolution and Ecology Using Yeast and Other Model Systems”, Heidelberg, Germany, October 19 – 23, 2016  
International Congress of Quantitative Genetics V, Madison, WI, June 12 – 17, 2016

Gordon Research Conference on Quantitative Genetics & Genomics, Lucca, Italy, February 22-27, 2015

EMBL Conference “From Functional Genomics to Systems Biology”, Heidelberg, Germany, November 8 – 11, 2014

Biology of Genomes, Cold Spring Harbor Laboratory, NY, May 6 – 10, 2014

Systems Biology: Global Regulation of Gene Expression, Cold Spring Harbor Laboratory, NY, March 18 – 22, 2014

Biology of Genomes, Cold Spring Harbor Laboratory, NY, May 7 – 11, 2013

Gordon Research Conference on Quantitative Genetics and Genomics, February 18 – 22, 2013

Yeast Genetics and Molecular Biology Meeting, Princeton, NJ, July 31 – August 5, 2012

Society for Molecular Biology and Evolution, Dublin, Ireland, June 23 – 26, 2012

International Congress of Quantitative Genetics, Edinburgh, Scotland, June 17 – 22, 2012

Biology of Genomes, Cold Spring Harbor Laboratory, NY, May 10 – 14, 2011

Gordon Research Conference on Quantitative Genetics and Genomics, February 20 – 25, 2011

74<sup>th</sup> Symposium: Evolution, Cold Spring Harbor Laboratory, NY, May 27 – June 1, 2009

International Congress of Genetics, Berlin, Germany, July 12 – 17, 2008

3<sup>rd</sup> International Conference of Quantitative Genetics, Hangzhou, China, August 19 – 24, 2007

## TEACHING & MENTORING

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2016 – present	Mentor for two postdoctoral researchers, one graduate student, & three undergraduate volunteers
2017 – present	Instructor in GCD 8920 “Genome Analysis” (graduate)
2017 – present	Instructor in GCD 4143 “Human Genetics” (undergraduate) Course director starting 2019
2018 – present	Instructor in GCD 8131 “Advanced Molecular Genetics and Genomics” (graduate)
2017	Invited Senior Discussion Leader & Faculty Mentor, Gordon Research Seminar on Quantitative Genetics & Genomics, Galveston, TX, February 25 – 26, 2017
2010 – 2014	Advisor to a graduate student at the Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany
2014	Mentor to a rotation student in the UCLA Molecular Biology PhD program

- 2013 Teaching Assistant in “MOL205 – Genes, Health and Society” taught by Prof. Leon Rosenberg, Princeton University
- 2009 Organized and led three-week practical lab course and literature seminar for master students in Biology and Biochemistry, University of Leipzig

#### ACADEMIC SERVICE

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- Meeting organization Co-Chair for the Gordon Research Seminar in Quantitative Genetics & Genomics, Lucca, Italy, February 21-22, 2015  
Co-organizer of the Southern California Evolutionary Genetics & Genomics Meeting at UCLA, November 15, 2014
- Editorial Service 2016: PLoS Genetics Guest Editor
- Grant Reviewer 2017: National Science Foundation ad-hoc reviewer  
2015: Leaky Foundation Research Grant reviewer
- Journal Reviewer American Journal of Human Genetics; Behavioural Processes; Bioinformatics; Brain, Behavior and Immunity; BMC Evolutionary Biology; BMC Genomics; BMC Systems Biology; Cell Systems; eLife; Ethology; Disease Models & Mechanisms; Genetics; Genome Research; G3: Genes, Genomes, Genetics; Genome Biology and Evolution; Hormones and Behavior; Molecular Ecology; Molecular Genetics and Genomics; Nature Communications; Nature Neuroscience; PLoS Computational Biology; PLoS Genetics; PLoS One; PNAS; Scientific Reports; Yeast
- Abstract Reviewer Pacific Symposium on Biocomputing (PSB) 2015 session on Personalized Medicine  
Great Lakes Bioinformatics (GLBIO) conference 2018

#### COLLABORATIVE RESEARCH VISITS

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- 2010 Henrik Kaessmann Laboratory, University of Lausanne, Switzerland
- 2008 Gregory Hannon Laboratory, Cold Spring Harbor Laboratory, NY, USA
- 2007 – 2008 Örjan Carlborg Laboratory, Swedish Agricultural University, Uppsala, Sweden (several multi-week visits)
- 2007 Uppsala Genome Center, Uppsala, Sweden (several multi-week visits)



## EXTRA-ACADEMIC EXPERIENCE

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2006	Internship, The Boston Consulting Group, Frankfurt, Germany
2005	Internship at United Nations Headquarters, New York, NY, USA
2001	JAVA Developer at 'i-te Systems', Würzburg, Germany
1997 – 1998	German Civilian Service

## SELECTED MEDIA COVERAGE

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“How Man Tamed the Wild” National Geographic Magazine Vol. 219 (3), March 2011

“How Man Tamed the Wild” National Geographic Television Documentary, 2010

“My little zebra: The secrets of domestication”. New Scientist 2728, 05 October 5, 2009

“Nice Rats, Nasty Rats: Maybe It’s All in the Genes”. The New York Times, July 25, 2006  
[Title Story in the Science Section]