Dr. Frank Wolfgang Albert

Curriculum vitae

Department of Genetics, Cell Biology, & Development
University of Minnesota
6-160 Jackson Hall
321 Church St SE
Minneapolis, MN 55455
USA
falbert@umn.edu
albert-lab.org

PROFESSIONAL APPOINTMENTS

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

EDUCATION

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

2011 – 2015	Post-doctoral research: "Genomic approaches into protein expression variation in yeast" Princeton University & UCLA (Lab moved to UCLA in August 2013) Advisor: Dr. Leonid Kruglyak
2010	Post-doctoral research: "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

2019 – 2023	Pew Biomedical Scholar
2018 – 2020	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)

08 / 2017 – 07 / 2022 NIH/NIGMS – 5R35GM124676-03
"Genomic approaches for dissecting regulatory variation" (PI)

03 / 2020 – 02 / 2025 NIH/NIA – 1R01AG065636-01 (PI: Wei Pan)
"Discovering causal genes, brain regions and other risk factors for Alzheimer's disease" (co-I)

05 / 2019 – 02 / 2024 NIH/NIDA – 1R01DA044283-01 (PI: Scott Vrieze)
"Deep sequencing, phenotyping, and imputation in large-scale biobanks: A novel and cost-effective framework to identify rare mutations associated with addiction" (co-I)

09 / 2017 – 08 / 2021 NIH/NIGMS – 5R01GM126002-03 (PIs: Xiaotong Shen & Wei Pan)
"Estimation and Inference of Gene Regulatory Networks" (co-I)

RESEARCH FUNDING (COMPLETED)

09 / 2018 – 08 / 2020 NIH/NHGRI – 5R21HG010380-02
"Genetic mapping of cellular trait variation in human individuals" (MPI w/ Jakub Tolar) (currently in no-cost extension)

08 / 2018 – 07 / 2019 NIH/NIGMS – 3R35GM124676-02S1
"Genomic approaches for dissecting regulatory variation" (PI)
Equipment supplement to purchase an Illumina NextGen 550 sequencer

PUBLICATIONS

A self-updating list of publications and citations is available at Google Scholar:
https://scholar.google.com/citations?hl=en&user=RvETgnYAAAAJ

27. Van Dyke KJ, Lutz S, Mekonnen G, Myers CL, and **Albert FW**
Trans-acting genetic variation affects the expression of adjacent genes
bioRxiv (2020) doi: https://10.1101/2020.10.05.327130

26. Renganaath K†, Cheung R†, Day L, Kosuri S, Kruglyak L*, and **Albert FW***
Systematic identification of causal variants underlying gene expression differences in a yeast cross
eLife (2020) 9:62669. PMID: 33179598
† equal contribution, * co-corresponding

25. Brion C, Lutz S, and **Albert FW**
Simultaneous quantification of mRNA and protein in single cells reveals post-transcriptional effects of genetic variation
eLife (2020) 9:e60645. PMID: 33191917

24. Lutz S, Brion C, Kliebhan M, and **Albert FW**
DNA variants affecting the expression of numerous genes in *trans* have diverse mechanisms of action and evolutionary histories
PLoS Genetics (2019) 15(11): e1008375. PMID:31738765

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

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†**, Bloom JS†, Kotenko IE, and Kruglyak L
Genetic mapping of MAPK-mediated complex traits across S. cerevisiae
PLoS Genetics (2015) 11 (1), e1004913. PMID:25569670
† equal contribution

18. Bloom JS, Kotenko 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

14. Carneiro M†, Rubin CJ†, Di Palma†, **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
† 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-Aguiar 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-Aguiar 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, & 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, Rübsamen 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

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

University of Virginia, Genome Sciences Seminar Series, April 7, 2021. To be given remotely due to COVID-19.

University of Michigan, Department of Ecology and Evolutionary Biology, October 29, 2020. Given remotely due to COVID-19.

Northwestern University, Department of Molecular Biosciences, October 15, 2020. Given remotely due to COVID-19.

Cold Spring Harbor Yeast Genetics & Genomics Course, August, 2020. Cancelled due to COVID-19.

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 90th Anniversary of Prof. Dmitry K. Belyaev, Novosibirsk, Russia, August 7 – 9, 2007

TALKS SELECTED FROM ABSTRACTS

International Congress of Quantitative Genetics VI, Brisbane, Australia, November 2020. Given remotely due to COVID-19.

The Allied Genetics Conference, April 22 – 25, 2020. Given remotely due to COVID-19.

EMBO Symposium "Systems Genetics: From Genomes to Complex Traits", Heidelberg, Germany, September 29 – October 2, 2019

29th International Conference on Yeast Genetics and Molecular Biology, Gothenburg, Sweden, August 18 – 22, 2019

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

Biology of Genomes, Cold Spring Harbor Laboratory, NY, May 7 – 11, 2019

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

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

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

3rd International Conference of Quantitative Genetics, Hangzhou, China, August 19 – 24, 2007

TEACHING & MENTORING

2016 – present	Mentor to three postdoctoral researchers (Drs. Christian Brion, Mahlon Collins, Kelsey Johnson*), three graduate students (Kaushik Renganaath, Randi Avery, Krisna Van Dyke), & three undergraduate students (Margareth Kliebhan, Francesca Caracci, Sam Levin) *joint with Dr. Ran Blekhman

2017 – present	Instructor in GCD 4143 "Human Genetics" (undergraduate) Course director since 2019
2017 – present	Instructor in GCD 8920 "Genome Analysis" (graduate)
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	Remote advisor to a graduate student (Henrike Heyne) 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

NATIONAL & INTERNATIONAL SERVICE

Editorial Service	2016: PLoS Genetics Guest Editor
Grant Review	2020: NIMH R01 Special Emphasis Panel (ZMH1 ERB-C-08) 2019: NIGMS ESI MIRA Special Emphasis Panel (2019/05 ZGM1 TRN-7 (MR)) 2019: NIGMS K99/R00 Special Emphasis Panel (2019/10 ZGM1 TWD-7 (KR)) 2019: Swedish Wallenberg Foundation 2017: National Science Foundation *ad hoc* review 2015: Leaky Foundation Research Grant
Journal Review	American Journal of Human Genetics; Behavioural Processes; Bioinformatics; Brain, Behavior and Immunity; BMC Evolutionary Biology; BMC Genomics; BMC Systems Biology; Cell Systems; eLife; Ethology; Evolution Letters; Disease Models & Mechanisms; Genetics; Genome Research; Genome Biology and Evolution; G3: Genes, Genomes, Genetics; Hormones and Behavior; Molecular Ecology; Molecular Genetics and Genomics; Molecular Omics; Nature; Nature Communications; Nature Neuroscience; PLoS Computational Biology; PLoS Genetics; PLoS One; PNAS; Science; Scientific Reports; Yeast
Abstract Review	Great Lakes Bioinformatics (GLBIO) conference 2019 Pacific Symposium on Biocomputing (PSB) 2015 session on Personalized Medicine
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

UNIVERSITY SERVICE (Selected)

2019 – 2020	Faculty Search Committee, Department of Genetics, Cell Biology, & Development
2019 – 2020	Co-Organizer, UMycoNet interest group
2017 – 2018	Faculty Search Committee, Department of Microbiology and Immunology
2017 – present	Executive Committee, Department of Genetics, Cell Biology, & Development
2017 – present	Graduate Recruiting Committee (Co-Chair), MCDB&G program
2016 – present	Graduate student committees for 14 students in various programs (3 as chair, 11 as member)

OTHER EXPERIENCE

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