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Publication reference:

http://www.researchgate.net/profile/Barbara_Wallner



Research Interests:

As a veterinarian and animal breeder, I am interested in the genetics of the domestic horse (*E. caballus*). The history of modern horses during the past 300 years is marked by the recurrent adjustment to changing socioeconomic needs. This was achieved by the intense crossing of a limited number of stallions, mainly from the Middle East, to residential mares. Hence few strongly selected males contributed excessively to the present horse population. I developed a set of polymorphic markers on the male specific region of the Y Chromosome to genetically discriminate influential paternal horse lines. This markerset allows to monitor the breeding history, documented in stud books, to trace individual founder lineages and screen their geographical distribution. In addition, the genetic relationships of stallion lines can be investigated. Thus the genetic investigation of paternal lines further helps to unravel the origin of domestic horses. With high-throughput sequencing methods, I intend to increase the number of informative markers to refine the Y-chromosomal haplotype network of the domestic horse.

Personal Details

Date of birth: August 28th, 1973

Place of birth: Neunkirchen

Citizenship: Austria

Personal status: married, two children

Higher Education

1998 – 2001

Doctoral student of Prof. Dr. Gottfried Brem (Institut für Tierzucht und Genetik, Veterinärmedizinische Universität Wien).

Title: Selektive Klonierung von y-chromosomalen DNA-Sequenzen beim Pferd mittels „Representational Difference Analysis“

1994 – 1999

Study Oboe at the Konservatorium Wien University

1991 – 1998

Study of veterinary medicine (Veterinärmedizinische Universität Wien)

Positions

09/2005 - present

Vertragsassistentin at the Institute für Tierzucht und Genetik,
Veterinärmedizinische Universität Wien

- Populationgenetics / Animal Breeding (Prof. Dr. Gottfried Brem,
Dr. Claus Vogl)
- JAK/Stat Signalling (Prof. Dr. Mathias Müller, SFB-28)
- Head of the „*Genotyping facility for genetically modified mice*“
(Prof. Dr. Mathias Müller, Prof. Dr. Thomas Rüllicke (*BIAT*))
- Gene expression profiling
- Teaching

12/2003 – 10/2005

Parental leave

11/2002 – 11/2003

Vertragsassistentin at the Institute für Tierzucht und Genetik,
Veterinärmedizinische Universität Wien

- RNA profiling (Prof. Dr. Ralf Steinborn)

12/2001 – 10/2002

Parental leave

11/2000 – 12/2001

Vertragsassistentin at the Institute für Tierzucht und Genetik,
Veterinärmedizinische Universität Wien

- Population genetics (Prof. Dr. Gottfried Brem)
- Routine parental diagnostics
- Teaching
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Work experience abroad

Oktober 2000

Visiting fellow at the Institute for Conservation Genetics“, University Porto (Dr. Steven
Weiss)

Peer review activities

Animal genetics, Animal breeding and Genetics, Laboratory Animals, Gene, Genetics
Selection Evolution

Academic Prizes

2013 - Armin Tschermak von Seyseneggpreis der Gesellschaft der Freunde der
Veterinärmedizin

Scientific publications

Publications

Kreutzmann N, Brem G, **Wallner B**. The domestic horse harbours Y-chromosomal microsatellite polymorphism only on two widely distributed male lineages. *AnimGenet*. 2014 Jun;45(3):460. doi: 10.1111/age.12149. Epub 2014 Mar 29. PubMed PMID:24684376.

Putz, EM; Gotthardt, D; Hoermann, G; Csiszar, A; Wirth, S; Berger, A; Straka, E; Rigler, D; **Wallner, B**; Jamieson, AM; Pickl, WF; Zebedin-Brandl, EM; Müller, M; Decker, T; Sexl, V (2013) CDK8-Mediated STAT1-S727 Phosphorylation Restrains NK Cell Cytotoxicity and Tumor Surveillance. *Cell Rep*. 2013 Aug 15;4(3):437-44. doi:10.1016/j.celrep.2013.07.012.

Wallner, B; Vogl C; Shukla, P; Burgstaller, JP; Druml, T; Brem, G (2013) Identification of genetic variation on the horse Y chromosome and the tracing of male founder lineages in modern breeds. PLoS ONE 8(4): e60015. doi:10.1371/journal.pone.0060015

Prchal-Murphy, M; Semper, C, Lassnig, C; **Wallner, B;** Gausterer, C; Teppner-Klymiuk, I; Kobolak, J; Müller, S; Kolbe, T; Karaghiosoff, M; Dinnyés, A; Rüllicke, T; Leitner, NR; Strobl, B; Müller, M (2012): TYK2 Kinase Activity Is Required for Functional Type I Interferon Responses In Vivo. PLoS One. 2012; 7(6):e39141-e39141

Wallner, B; Leitner, NR; Vielnascher, RM; Kernbauer, E; Kolbe, T; Karaghiosoff, M; Rüllicke, T; Decker, T; Müller, M (2012): Generation of mice with a conditional Stat1 null allele. Transgenic Res (21), 1 217-224.

Grunert, T; Leitner, NR; Marchetti-Deschmann, M; Miller, I; **Wallner, B;** Radwan, M; Vogl, C; Kolbe, T; Kratky, D; Gemeiner, M; Allmaier, G; Müller, M; Strobl, B (2011): A comparative proteome analysis links tyrosine kinase 2 (Tyk2) to the regulation of cellular glucose and lipid metabolism in response to poly(I:C). J Proteomics. 2011; 74(12):2866-2880

Vogl, C; Flatt, T; Fuhrmann, B; Hofmann, E; **Wallner, B;** Stiefvater, R; Kovarik, P; Strobl, B; Müller, M (2010): Transcriptome analysis reveals a major impact of JAK protein tyrosine kinase 2 (Tyk2) on the expression of interferon-responsive and metabolic genes. BMC Genomics. 2010; 11:199-199

Revilla-Fernández, S; **Wallner, B;** Truschner, K; Benczak, A; Brem, G; Schmoll, F; Mueller, M; Steinborn, R (2005): The use of endogenous and exogenous reference RNAs for qualitative and quantitative detection of PRRSV in porcine semen. J Virol Methods. 2005; 126(1-2):21-30

Raudsepp, T; Santani, A; **Wallner, B;** Kata, SR; Ren, C; Zhang, HB; Womack, JE; Skow, LC; Chowdhary, BP (2004): A detailed physical map of the horse Y chromosome. Proc Natl Acad Sci U S A. 2004; 101(25):9321-9326

Wallner, B; Piumi, F; Brem, G; Müller, M; Achmann, R (2004): Isolation of Y chromosome-specific microsatellites in the horse and cross-species amplification in the genus Equus. J Hered. 2004; 95(2):158-164 [Open Access]

Wallner, B; Brem, G; Müller, M; Achmann, R (2003): Fixed nucleotide differences on the Y chromosome indicate clear divergence between Equus przewalskii and Equus caballus. Anim Genet. 2003; 34(6):453-456

Achmann, R; Huber, T; **Wallner, B;** Dovc, P; Müller, M; Brem, G (2001): Base substitutions in the sequences flanking microsatellite markers HMS3 and ASB2 interfere with parentage testing in the Lipizzan horse. Anim Genet. 2001; 32(1):52-52

Wallner, B; Huber, S; Achmann, R (2001): Non-invasive PCR sexing of rabbits (*Oryctolagus cuniculus*) and hares (*Lepus europaeus*) Mamm Biol (66), 3 190-192.

Manuscripts in preparation

Shukla, P; Vogl, C; **Wallner, B;** Rigler D; Müller, M; Macho-Maschler, S (2014) mRNA and miRNA Profiling of Epithelial-Mesenchymal Transition in MDCK cells.

Wallner, B; Nicola P; Leeb, T; Rieder, S; Neuditschko, M; Distl, O; Metzger, J; Fries, R; Andersson, L; Lindgren, G; Rubin, C; Mccue, M; Vogl, C; Schlötterer, C; Brem, G (2015): A refined horse Y-chromosomal haplotype network for modern horses.

Thesis

Wallner, B. (2001): Selektive Klonierung von Y-chromosomalen DNA-Sequenzen mittels „Representational Difference Analysis“. Dissertation, Institut für Tierzucht und Genetik der Veterinärmedizinischen Universität Wien, Wien.

Conference Proceedings

Prchal, M; Kobolak, J; Teppner, I; **Wallner, B**; Semper, C; Lassing, C; Putz, EM; Dinnyes, A; Kolbe, T; Rulicke, T; Karaghiosoff, M; Sexl, V; Strobl, B; Müller, M (2011): Dissection of kinase-dependent and -independent functions of Tyk2 in immunity to infection and tumor-surveillance. Cytokine (56), 1 86-86.

Gausterer, C, Vogl, C; Steinborn, R; Teppner, I; Kobolak, J; Leitner, N; **Wallner, B**; Vielnascher, R; Hofmann, E; Kolbe, T; Dinnyes, A; Karaghiosoff, M; Müller, M; Strobl, B (2006): Dissection of kinase-dependent and -independent functions of murine Tyk2. European Cytokine Network (17), S1 30-30.

Proceedings (A2)

Wallner, B; Brem, G (2012): Y-chromosomale Vererbung. 73-83.-Gemeinsames Symposium der Deutschen Akademie der Naturforscher Leopoldina und der Österreichischen Akademie der Wissenschaften (ÖAW); Mar 10-12, 2010; Wien, Austria. IN: Das "gläserne" Tier: Ein- und Ausblicke in Genome und Gene von Haustieren. Nova Acta Leopoldina 388; (ISBN: 978-3-8047-3028-1)

Prchal, M; Kobolak, J; Teppner, I; **Wallner, B**; Semper, C; Lassnig, C; Putz, EM; Dinnyes, A; Kolbe, T; Rulicke, T; Karaghiosoff, M; Sexl, V; Strobl, B; Müller, M (2011): Dissection of kinase-dependent and -independent functions of Tyk2 in immunity to infection and tumor-surveillance. -9th Joint Meeting of the ICS/ISICR; OKT 9-12, 2011; Florence, Italy.

Wallner, B; Brem, G (2010): „Y-chromosomale Vererbung“. Das „gläserne“ Tier: Ein- und Ausblicke in Genome und Gene von Haustieren. -Gemeinsames Symposium der Deutschen Akademie der Naturforscher Leopoldina und der Österreichischen Akademie der Wissenschaften (ÖAW); DEZ 10, 2010; Vienna, Austria.

Talks

Wallner, B; Palmieri, N; Doris Rigler, D and Brem, G (2015) A refined horse Y-chromosomal haplotype network for modern horses. 11th Dorothy Russell Havemeyer Foundation, International Equine Genome Mapping Workshop, July 22 - 25; Leonardo Hotel, Hannover, Germany

Wallner, B; Brem, G (2014): Y chromosomale Stammbaumanalysen bei Pferden. Gemeinsames Symposium der Deutschen Akademie der Naturforscher Leopoldina und der Österreichischen Akademie der Wissenschaften (ÖAW); 27. bis 28. März 2014; Wien, Austria. IN: „Geschlechtsabhängige Vererbung - mehr als Gender und Sex“

Wallner B, Vogl C, Valach A, Shukla P, Burgstaller JP, Druml T, Brem G (2013) Tracing male founder lineages in modern horses with Y-chromosomal markers.10th Dorothy Russell Havemeyer Foundation, International Equine Genome Mapping Workshop, July 2013, Furnas, S. Miguel, Azores, Portugal.

Wallner, B; Brem, G (2012): Y-chromosomale Vererbung. Gemeinsames Symposium der Deutschen Akademie der Naturforscher Leopoldina und der Österreichischen Akademie der Wissenschaften (ÖAW); Mar 10-12, 2010; Wien, Austria. IN: Das "gläserne" Tier: Ein- und Ausblicke in Genome und Gene von Haustieren.

Wallner, B; Müller, M; Brem, G; Achmann, R. (2001): Gezielte Isolierung von Y-chromosomalen DNA-Sequenzen beim Pferd und deren Anwendbarkeit zur Charakterisierung phylogenetischer Beziehungen. In Vortragstagung der Deutschen Gesellschaft für Züchtungskunde e.V. und der Gesellschaft für Tierzuchtwissenschaften, München LfTT.

Book Sections

Wallner B, Brem G Untersuchung paternaler Linien beim Lipizzaner mit y-chromosomalen markern (p 287-296). In: Der Lipizzaner im Spiegel der Wissenschaft. Vienna: Austrian Academy of Sciences

Press. 338 p.

Achmann R, **Wallner B**, Schwend K, Traxler B, Müller S, Nechtelberger D, Müller M, Brem G (2000): Abstammungsüberprüfung bei Nutztieren mit Hilfe der Analyse von DNA-Mikrosatelliten-Markern. In: PCR-Methoden und Anwendungen. Graduiertenkolleg Molekulare Veterinärmedizin Justus-Liebig-Universität Gießen (ed.). Fachverlag Köhler, pp. 23-33

Posters

Wallner, B; Palmieri, N; Vogl, C; Schlötterer, C; Brem, G (2015) A Y-chromosomal reference panel to detect single copy nucleotide polymorphisms for paternal line tracking in horses. Annual meeting of the Society for Molecular Biology and Evolution, July 12 – 16 in Vienna, Austria.

Peneder, P; **Wallner, B**; Vogl, C (2015) Exchange of Genetic Material between Non-recombining Sequences on a Genomic Scale. XVth ESEB Meeting, August 10 - 14 in Lausanne, Switzerland.

Shukla, P; Vogl, C; Wallner, B; Rigler, D; Müller, M; Macho-Maschler, S (2015) Exploring transcriptome and miRNAome of Epithelial to Mesenchymal Transition (EMT) in MDCK cells by deep sequencing (2015) 6th EMBO meeting, September 5 – 8 in Birmingham, UK.

Prchal, M; Kobolak, J; Teppner, I; **Wallner, B**; Semper, C; Lassing, C; Putz, EM; Dinnyes, A; Kolbe, T; Rulicke, T; Karaghiosoff, M; Sexl, V; Strobl, B; Müller, M (2011): Dissection of kinase-dependent and -independent functions of Tyk2 in immunity to infection and tumor-surveillance. Cytokine (56), 1 86-86.

Prchal, M; Kobolak, J; Teppner, I; **Wallner, B**; Semper, C; Lassnig, C; Putz, EM; Dinnyes, A; Kolbe, T; Rulicke, T; Karaghiosoff, M; Sexl, V; Strobl, B; Müller, M (2011): Dissection of kinase-dependent and -independent functions of Tyk2 in immunity to infection and tumor-surveillance. -9th Joint Meeting of the ICS/ISICR; OKT 9-12, 2011; Florence, Italy.

Gausterer, C, Vogl, C; Steinborn, R; Teppner, I; Kobolak, J; Leitner, N; **Wallner, B**; Vielnascher, R; Hofmann, E; Kolbe, T; Dinnyes, A; Karaghiosoff, M; Müller, M; Strobl, B (2006): Dissection of kinase-dependent and -independent functions of murine Tyk2. European Cytokine Network (17), S1 30-30.

Vienna, October 2nd, 2015