

Ludwig A. Hothorn

Im Grund 12, D-31867 Lauenau, Germany

Phone: 0049-5043-962622

Email: ludwig@hothorn.de

URL: <http://www.hothorn.de>

Born: May 17, 1949 - Gera, Germany

Nationality: German

Current position

Retired Professor, Leibniz University Hannover, Germany

Areas of specialization

Biostatistics; Multiple comparisons; Simultaneous inference; Quantitative genetics; Statistics in Toxicology

Education

1971	HOCHSCHULINGENIEUR in Chemical Engineering, TU Dresden
1974	DR.-ING. in Chemical Engineering, TU Dresden
1988	DR.SC.NAT. in Biostatistics, Martin-Luther-University Halle
1991	DR.RER.NAT. HABIL. in Biostatistics, Martin-Luther-University Halle

Society Appointments held

1986-1990	Council Member, Society of Biomathematics and Biophysics, Berlin
1982-1990	Speaker 'AG Bioassay', Society of Biomathematics and Biophysics, Berlin
1991-1997	Speaker 'AG Statistical Methods in Pre-clinical Research', German Region of IBS
1993-1997	Vice Speaker 'AG Pharmaceutical Research' German Region IBS
1997-2000	Speaker 'AG Multiple Testing', German Region of IBS
2000-2009	Council Member, International Biometric Society (IBS)
2004-2006	Council Member, German Region IBS
2006-2007	Vice President, German Region IBS
2007-2009	President, German Region IBS
2009-2010	Vice President, German Region IBS

Honours

since 2017	Honorary Member of German Region International Biometric Society
------------	--

Sabbaticals

1998	Department of Epidemiology and Biostatistics, UCSF, USA
2003	Department of Biostatistics, University of Aarhus, Denmark
2009	Scripps Genomic Medicine, La Jolla, USA
2013	Medical University of Vienna, Austria

Societies

1990- present	German Region IBS
---------------	-------------------

Publications, books & talks

JOURNAL AND REPOSITORY ARTICLES

1989	L. Hothorn. On the behavior of Fligner-Wolfe-trend test control versus-k treatments with application in toxicology. <i>Biometrical Journal</i> , 31(7):767–780, 1989.
1989	L. Hothorn. Robustness study on Williams-procedure and Shirley-procedure, with application in toxicology. <i>Biometrical Journal</i> , 31(8):891–903, 1989.
1991	L. Hothorn and W. Lehmacher. A simple testing procedure control versus k treatments for one-sided ordered-alternatives, with application in toxicology. <i>Biometrical Journal</i> , 33(2):179–189, 1991.
1991	T. Kalble, et al. Tumor-induction in a rat model for ureterosigmoidostomy without evidence of nitrosamine formation. <i>Journal of Urology</i> , 146(3):862–866, September 1991.
1991	FJ Krifka, RB Drommer, K Kirsten, L Hothorn, and J Zöller. Vergleichende Untersuchungen zweier Patientengruppen mit primären Mundhöhlenkarzinomen aus dem Zeitraum 1981-1989. <i>Fortschr Kiefer Gesichtschir</i> , 37:40–43, 1991.
1994	L. Hothorn. Biostatistical analysis of the micronucleus mutagenicity assay based on the assumption of a mixing distribution. <i>Environmental Health Perspectives</i> , 102:121–125, January 1994.
1994	L. Hothorn. Multiple comparisons in long-term toxicity studies. <i>Environmental Health Perspectives</i> , 102:33–38, January 1994.
1996	D. Hauschke, V. W. Steinijans, and L. A. Hothorn. A note on Welch's approximate t-solution to bioequivalence assessment. <i>Biometrika</i> , 83(1):236–237, March 1996.
1997	L. A. Hothorn, M. Neuhauser, and H. F. Koch. Analysis of randomized dose-finding-studies: Closure test modifications based on multiple contrast tests. <i>Biometrical Journal</i> , 39(4):467–479, 1997.
1997	L. A Hothorn, KK Lin, C Hamada, and W Rebel. Recommendations for biostatistics of repeated toxicity studies. <i>Drug Information journal</i> , 31(2):327–334, 1997.
1997	M. Neuhäuser and L. A Hothorn. The control of the consumer risk in the Ames assay. <i>Drug Information journal</i> , 31(2):363–367, 1997.
1997	L. A Hothorn and U. Martin. Application of adaptive interim analysis in pharmacology. <i>Drug Information journal</i> , 31:615–619, 1997.
1997	L. A Hothorn. Modifications of the closure principle for analyzing toxicological studies. <i>Drug Information journal</i> , 31(2):403–412, 1997.
1997	S. Kropf, L. A Hothorn, and J. Läuter. Multivariate many-to-one procedures with applications to preclinical trials. <i>Drug Information Journal</i> , 31(2):433–447, 1997.
1998	M. Neuhauser, P. Y. Liu, and L. A. Hothorn. Nonparametric tests for trend: Jonckheere's test, a modification and a maximum test. <i>Biometrical Journal</i> , 40(8):899–909, 1998.
1998	W. R. Fairweather, et al. Biostatistical methodology in carcinogenicity studies. <i>Drug Information Journal</i> , 32(2):401–421, 1998.
1998	S. Lalla, L. A. Hothorn, N. Haag, R. Bader, and F. Bauss. Lifelong administration of high doses of ibandronate increases bone mass and maintains bone quality of lumbar vertebrae in rats. <i>Osteoporosis International</i> , 8(2):97–103, 1998.
1998	P. Bauer, J. Rohmel, W. Maurer, and L. Hothorn. Testing strategies in multi-dose experiments including active control. <i>Statistics in Medicine</i> , 17(18):2133–2146, September 1998.
1998	M. Neuhauser and L. A. Hothorn. An analogue of Jonckheere's trend test for parametric and dichotomous data. <i>Biometrical Journal</i> , 40(1):11–19, 1998.
1999	Y. Benjamini, L. Hothorn, and P. K. Sen. Special issue on multiple comparisons - preface. <i>Journal of Statistical Planning and Inference</i> , 82(1-2):1–4, December 1999.
1999	M. Neuhauser and L. A. Hothorn. An exact Cochran-Armitage test for trend when dose-response shapes an a priori unknown. <i>Computational Statistics & Data Analysis</i> , 30(4):403–412, 1999.
1999	D. Hauschke, M. Kieser, and L. A. Hothorn. Proof of safety in toxicology based on the ratio of two means for normally distributed data. <i>Biometrical Journal</i> , 41(3):295–304, 1999.
1999	L. A. Hothorn. Trend tests in epidemiology: P-values or confidence intervals? <i>Biometrical Journal</i> , 41(7):817–825, 1999.
1999	H. F. Koch and L. A. Hothorn. Exact unconditional distributions for dichotomous data in many-to-one comparisons. <i>Journal of Statistical Planning and Inference</i> , 82(1-2):83–99, 1999.
2000	L. A. Hothorn, M. Hayashi, and D. Seidel. Dose-response relationships in mutagenicity assays including an appropriate positive

- control group: a multiple testing approach. *Environmental and Ecological Statistics*, 7(1):27–42, 2000.
- 2000 F. Bretz and L. A. Hothorn. A powerful alternative to Williams’ test with application to toxicological dose-response relationships of normally distributed data. *Environmental and Ecological Statistics*, 7(2):135–154, 2000.
- 2000 L. A. Hothorn and F. Bretz. Evaluation of animal carcinogenicity studies: Cochran-Armitage trend test vs. multiple contrast tests. *Biometrical Journal*, 42(5):553–567, 2000.
- 2000 L. A. Hothorn and F. Bretz. One-sided simultaneous confidence intervals for effective dose steps in unbalanced designs. *Biometrical Journal*, 42(8):995–1006, 2000.
- 2000 W. Lehmacher, M. Kieser, and L. Hothorn. Sequential and multiple testing for dose-response analysis. *Drug Information Journal*, 34(2):591–597, April 2000.
- 2000 M. Neuhauser and L. A. Hothorn. Parametric location-scale and scale trend tests based on Levene’s transformation. *Computational Statistics & Data Analysis*, 33(2):189–200, 2000.
- 2000 M. Neuhauser, D. Seidel, L. A. Hothorn, and W. Urfer. Robust trend tests with application to toxicology. *Environmental and Ecological Statistics*, 7(1):43–56, 2000.
- 2000 D. P. Lovell, I. Yoshimura, L. A. Hothorn, B. H. Margolin, and K. Soper. Report and summary of the major conclusions from statistics in genotoxicity testing working group from the international workshop on genotoxicity test procedures (iwgtp), march 1999. *Environmental and Molecular Mutagenesis*, 35(3):260–263, 2000.
- 2001 U. Munzel and L. A. Hothorn. A unified approach to simultaneous rank test procedures in the unbalanced one-way layout. *Biometrical Journal*, 43(5):553–569, 2001.
- 2001 A. C. Tamhane and L. A. Hothorn. A multiple comparison procedure for three- and four-armed controlled clinical trials by m. a. Proschan, *Statistics in Medicine* 1999; 18 : 787–798. *Statistics in Medicine*, 20(2):317–318, January 2001.
- 2001 F. Bretz, A. Genz, and L. A. Hothorn. On the numerical availability of multiple comparison procedures. *Biometrical Journal*, 43(5):645–656, 2001.
- 2001 P. Bauer, L. A. Hothorn, and P. Westfall. Special issue multiple comparison procedures. *Biometrical Journal*, 43(5):531–531, 2001.
- 2002 F. Bauss, S. Lalla, R. Endeke, and L. A. Hothorn. Effects of treatment with ibandronate on bone mass, architecture, biomechanical properties, and bone concentration of ibandronate in ovariectomized aged rats. *Journal of Rheumatology*, 29(10):2200–2208, October 2002.
- 2002 F. Bauss, M. Wagner, and L. H. Hothorn. Total administered dose of ibandronate determines its effects on bone mass and architecture in ovariectomized aged rats. *Journal of Rheumatology*, 29(5):990–998, May 2002.
- 2002 E. Biesheuvel and L. A. Hothorn. Many-to-one comparisons in stratified designs. *Biometrical Journal*, 44(1):101–116, 2002.
- 2002 F. Bretz and L. A. Hothorn. Detecting dose-response using contrasts: asymptotic power and sample size determination for binomial data. *Statistics in Medicine*, 21(22):3325–3335, November 2002.
- 2002 L. A. Hothorn. Selected biostatistical aspects of the validation of in vitro toxicological assays. *ATLA-Alternatives to Laboratory Animals*, 30:93–98, 2002.
- 2002 M. Weichert and L. A. Hothorn. Robust hybrid tests for the two-sample location problem. *Communications in Statistics-Simulation and Computation*, 31(2):175–187, 2002.
- 2003 M. Neuhauser, B. Leisler, and L. A. Hothorn. A trend test for the analysis of multiple paternity. *Journal of Agricultural Biological and Environmental Statistics*, 8(1):29–35, March 2003.
- 2003 F. Bretz and L. A. Hothorn. Comparison of exact and resampling based multiple testing procedures. *Communications in Statistics-Simulation and Computation*, 32(2):461–473, 2003.
- 2003 C. Hirotsu and L. A. Hothorn. Impact of the ICH E9 guideline statistical principles for clinical trials on the conduct of clinical trials in Japan. *Drug Information Journal*, 37(4):381–395, 2003.
- 2003 L. A. Hothorn and F. Bretz. Dose-response and thresholds in mutagenicity studies: A statistical testing approach. *ATLA-Alternatives to Laboratory Animals*, 31:97–103, 2003.
- 2003 F. Bretz and L. A. Hothorn. Statistical analysis of monotone or non-monotone dose-response data from in vitro toxicological assays. *ATLA-Alternatives to Laboratory Animals*, 31:81–96, June 2003.
- 2003 D. Hauschke and L. A. Hothorn. Two-stage testing of safety: A statistical view. *ATLA-Alternatives to Laboratory Animals*, 31:77–80, June 2003.
- 2003 F. Bretz, L. A. Hothorn, and J. C. Hsu. Identifying effective and/or safe doses by stepwise confidence intervals for ratios. *Statistics in Medicine*, 22(6):847–858, 2003.
- 2004 G. Dilba, E. Bretz, V. Guiard, and L. A. Hothorn. Simultaneous confidence intervals for ratios with applications to the comparison of several treatments with a control. *Methods of Information in Medicine*, 43(5):465–469, 2004.
- 2004 L. A. Hothorn. A robust statistical procedure for evaluating genotoxicity data. *Environmetrics*, 15(6):635–641, 2004.
- 2004 L. A. Hothorn and F. Bauss. Biostatistical design and analyses of long-term animal studies simulating human postmenopausal osteoporosis. *Drug Information Journal*, 38(1):47–56, 2004.
- 2004 M. Neuhauser, H. Buning, and L. Hothorn. Maximum test versus adaptive tests for the two-sample location problem. *Journal of Applied Statistics*, 31(2):215–227, 2004.
- 2005 L. A. Hothorn. Biostatistics in nonclinical and preclinical drug development. *Biometrical Journal*, 47(3):282–285, 2005.
- 2006 G. Dilba, F. Bretz, L. A. Hothorn, and V. Guiard. Power and sample size computations in simultaneous tests for non-inferiority based on relative margins. *Statistics in Medicine*, 25(7):1131–1147, 2006.
- 2006 J. Eckert, I. Schuphan, L. A. Hothorn, and A. Gathmann. Arthropods on maize ears for detecting impacts of bt maize on nontarget organisms. *Environmental Entomology*, 35(2):554–560, 2006.
- 2006 A. Gathmann, L. Wirooks, L. A. Hothorn, D. Bartsch, and I. Schuphan. Impact of bt maize pollen (mon810) on lepidopteran larvae living on accompanying weeds. *Molecular Ecology*, 15(9):2677–2685, 2006.
- 2006 L. A. Hothorn and R. Oberdoerfer. Statistical analysis used in the nutritional assessment of novel food using the proof of safety. *Regulatory Toxicology and Pharmacology*, 44(2):125–135, 2006.
- 2006 M. Neuhauser and L. A. Hothorn. A robust modification of the ordered-heterogeneity test. *Journal of Applied Statistics*, 33(7):721–727, 2006.

- 2006 L. A. Hothorn. Multiple comparisons and multiple contrasts in randomized dose-response trials-confidence interval oriented approaches. *Journal of Biopharmaceutical Statistics*, 16(5):711–731, 2006.
- 2006 L. A. Hothorn. Statistical analysis of in vivo anticancer experiments: Tumor growth inhibition. *Drug Information Journal*, 40(2):229–238, 2006.
- 2007 L. A. Hothorn. How to deal with multiple treatment or dose groups in randomized clinical trials? *Fundamental & Clinical Pharmacology*, 21(2):137–154, 2007.
- 2007 A. Toschki, L. A. Hothorn, and M. Ross-Nickoll. Effects of cultivation of genetically modified bt maize on epigeic arthropods (araneae; carabidae). *Environmental Entomology*, 36(4):967–981, 2007.
- 2008 G. D. Djira, L. A. Hothorn, and Y. Tsong. Equivalence tests for shelf life and average drug content in stability studies. *Journal of Biopharmaceutical Statistics*, 18(5):985–995, 2008.
- 2008 L. A. Hothorn and M. Hasler. Proof of hazard and proof of safety in toxicological studies using simultaneous confidence intervals for differences and ratios to control. *Journal of Biopharmaceutical Statistics*, 18(5):915–933, 2008.
- 2008 C. Fromke, L. A. Hothorn, and S. Kropf. Nonparametric relevance-shifted multiple testing procedures for the analysis of high-dimensional multivariate data with small sample sizes. *BMC Bioinformatics*, 9:54, 2008.
- 2008 S. Braat, D. Gerhard, and L. A. Hothorn. Joint one-sided and two-sided simultaneous confidence intervals. *Journal of Biopharmaceutical Statistics*, 18(2):293–306, 2008.
- 2008 M. Hasler and L. A. Hothorn. Multiple contrast tests in the presence of heteroscedasticity. *Biometrical Journal*, 50(5):793–800, 2008.
- 2008 M. Hasler, R. Vonk, and L. A. Hothorn. Assessing non-inferiority of a new treatment in a three-arm trial in the presence of heteroscedasticity. *Statistics in Medicine*, 27(4):490–503, 2008.
- 2008 S. Hughes, et al. European regulatory agencies should employ full time statisticians. *BMJ-British Medical Journal*, 336(7638):250–250, 2008.
- 2008 N. Samani, et al. Repeated replication and meta-analysis of the association between chromosome 9p21.3 and coronary artery disease. *Heart*, 94:A15–A15, 2008.
- 2008 F. Schaarschmidt, M. Sill, and L. A. Hothorn. Approximate simultaneous confidence intervals for multiple contrasts of binomial proportions. *Biometrical Journal*, 50(5):782–792, 2008.
- 2008 F. Schaarschmidt, M. Sill, and L. A. Hothorn. Poly-k-trend tests for survival adjusted analysis of tumor rates formulated as approximate multiple contrast test. *Journal of Biopharmaceutical Statistics*, 18(5):934–948, 2008.
- 2008 H. Schunkert, et al. Repeated replication and a prospective meta-analysis of the association between chromosome 9p21.3 and coronary artery disease. *Circulation*, 117(13):1675–1684, 2008.
- 2009 L. A. Hothorn and D. Gerhard. Statistical evaluation of the in vivo micronucleus assay. *Archives of Toxicology*, 83(6):625–634, 2009.
- 2009 L. A. Hothorn, D. Gerhard, and M. Hofmann. Parametric and non-parametric prediction intervals based phase II control charts for repeated bioassay data. *Biologicals*, 37(5):323–330, 2009.
- 2009 L. A. Hothorn and T. Hothorn. Order-restricted scores test for the evaluation of population-based case-control studies when the genetic model is unknown. *Biometrical Journal*, 51(4):659–669, 2009.
- 2009 H. Dette, M. Trampisch, and L. A. Hothorn. Robust designs in noninferiority three-arm clinical trials with presence of heteroscedasticity. *Statistics in Biopharmaceutical Research*, 1(3):268–278, 2009.
- 2009 F. Schaarschmidt, E. Biesheuvel, and L. A. Hothorn. Asymptotic simultaneous confidence intervals for many-to-one comparisons of binary proportions in randomized clinical trials. *Journal of Biopharmaceutical Statistics*, 19(2). 2009.
- 2010 L. A. Hothorn, M. Sill, and F. Schaarschmidt. Evaluation of incidence rates in pre-clinical studies using a Williams-type procedure. *International Journal of Biostatistics*, 6(1):15, 2010.
- 2010 L. A. Hothorn and H. W. Vohr. Statistical evaluation of the local lymph node assay. *Regulatory Toxicology and Pharmacology*, 56(3):352–356, 2010.
- 2010 F. Konietzschke, A. C. Bathke, L. A. Hothorn, and E. Brunner. Testing and estimation of purely nonparametric effects in repeated measures designs. *Computational Statistics & Data Analysis*, 54(8):1895–1905, 2010.
- 2010 D. Gerhard and L. A. Hothorn. Rank transformation in haseman-elston regression using scores for location-scale alternatives. *Human Heredity*, 69(3):143–151, 2010.
- 2010 H. Zimmermann, D. Gerhard, L. A. Hothorn, and T. Dingermann. An alternative to animal experiments in the quality control of erythropoietin. *Pharmazeutische Industrie*, 72(4):708–712, 2010.
- 2010 H. Zimmermann, D. Gerhard, L. A. Hothorn, and T. Dingermann. An alternative to animal experiments in the quality control of erythropoietin part 2. *Pharmazeutische Industrie*, 72(5):884–895, 2010.
- 2011 C. Hirotsu, S. Yamamoto, and L. A. Hothorn. Estimating the dose-response pattern by the maximal contrast type test approach. *Statistics in Biopharmaceutical Research*, 3(1):40–53, 2011.
- 2011 L. A. Hothorn and G. D. Djira. A ratio-to-control Williams-type test for trend. *Pharmaceutical Statistics*, 10(4):289–292, 2011.
- 2011 M. Hasler and L. A. Hothorn. A Dunnett-type procedure for multiple endpoints. *International Journal of Biostatistics*, 7(1):3, 2011.
- 2012 L. A. Hothorn, O. Libiger, and D. Gerhard. Model-specific tests on variance heterogeneity for detection of potentially interacting genetic loci. *BMC Genetics*, 13:59, 2012.
- 2012 P. Pallmann, F. Schaarschmidt, L. A. Hothorn, C. Fischer, H. Nacke, K. U. Priesnitz, and N. J. Schork. Assessing group differences in biodiversity by simultaneously testing a user-defined selection of diversity indices. *Molecular Ecology Resources*, 12(6):1068–1078, 2012.
- 2012 F. Konietzschke and L. A. Hothorn. Evaluation of toxicological studies using a nonparametric Shirley-type trend test for comparing several dose levels with a control group. *Statistics in Biopharmaceutical Research*, 4(1):14–27, 2012.
- 2012 F. Konietzschke and L. A. Hothorn. Rank-based multiple test procedures and simultaneous confidence intervals. *Electronic Journal of Statistics*, 6:738–759, 2012.
- 2012 F. Konietzschke, O. Libiger, and L. A. Hothorn. Nonparametric evaluation of quantitative traits in population-based association studies when the genetic model is unknown. *PLOS One*, 7(2):e31242, 2012.
- 2012 A. Kitsche, L. A. Hothorn, and F. Schaarschmidt. The use of historical controls in estimating simultaneous confidence intervals for

- comparisons against a concurrent control. *Computational Statistics & Data Analysis*, 56(12):3865–3875, 2012.
- 2012 M. Hasler and L. A. Hothorn. A multivariate Williams-type trend procedure. *Statistics in Biopharmaceutical Research*, 4(1):57–65, 2012.
- 2012 E. Herberich and L. A. Hothorn. Statistical evaluation of mortality in long-term carcinogenicity bioassays using a Williams-type procedure. *Regulatory Toxicology and Pharmacology*, 64(1):26–34, 2012.
- 2012 S. Hoffmann, L. A. Hothorn, L. Edler, A. Kleensang, M. Suzuki, P. Phrakonkham, and D. Gerhard. Two new approaches to improve the analysis of balb/c 3t3 cell transformation assay data. *Mutation Research-Genetic Toxicology and Environmental Mutagenesis*, 744(1):36–41, 2012.
- 2012 D. Lin, L. A. Hothorn, G. D. Djira, and F. Bretz. Multiple contrast tests for testing dose–response relationships under order-restricted alternatives. D. Lin et al. *Modeling Dose-Response Microarray Data in Early Drug Development Experiments Using R*. Springer
- 2012 G. Senti, et al. Intralymphatic immunotherapy for cat allergy induces tolerance after only 3 injections. *Journal of Allergy and Clinical Immunology*, 129(5):1290–1296, 2012.
- 2013 J. Strohmaier, et al. The psychiatric vulnerability gene cacna1c and its sex-specific relationship with personality traits, resilience factors and depressive symptoms in the general population. *Molecular Psychiatry*, 18(5):607–613, 2013.
- 2013 L. A. Hothorn, K. Reisinger, T. Wolf, A. Poth, D. Fieblinger, M. Liebsch, and R. Pirow. Statistical analysis of the hen’s egg test for micronucleus induction (HET-MN assay). *Mutation Research-Genetic Toxicology and Environmental Mutagenesis*, 757(1):68–78, 2013.
- 2013 T. Jaki and L. A. Hothorn. Statistical evaluation of toxicological assays: Dunnett or Williams test-take both. *Archives of Toxicology*, 87(11):1901–1910, 2013.
- 2013 F. Konietzschke, S. Bosiger, E. Brunner, and L. A. Hothorn. Are multiple contrast tests superior to the ANOVA? *International Journal of Biostatistics*, 9(1):63–73, 2013.
- 2013 M. Hasler and L. A. Hothorn. Simultaneous confidence intervals on multivariate non-inferiority. *Statistics in Medicine*, 32(10):1720–1729, 2013.
- 2013 C. Ritz, D. Gerhard, and L. A. Hothorn. A unified framework for benchmark dose estimation applied to mixed models and model averaging. *Statistics in Biopharmaceutical Research*, 5(1):79–90, 2013.
- 2013 C. Fromke, L. A. Hothorn, F. Sczesny, J. Onken, and M. Schneider. Analytical method transfer: Improving interpretability with ratio-based statistical approaches. *Journal of Pharmaceutical and Biomedical Analysis*, 74:186–193, 2013.
- 2013 A. K. Krug, et al. Human embryonic stem cell-derived test systems for developmental neurotoxicity: a transcriptomics approach. *Archives of Toxicology*, 87(1):123–143, 2013.
- 2013 C. Loley, I. R. König, L. Hothorn, and A. Ziegler. A unifying framework for robust association testing, estimation, and genetic model selection using the generalized linear model. *European Journal of Human Genetics*, 21(12):1442–1448, 2013.
- 2014 P. Pallmann, L. A. Hothorn, and G. D. Djira. A levene-type test of homogeneity of variances against ordered alternatives. *Computational Statistics*, 29(6):1593–1608, 2014.
- 2014 R. M. Kuiper, D. Gerhard, and L. A. Hothorn. Identification of the minimum effective dose for normally distributed endpoints using a model selection approach. *Statistics in Biopharmaceutical Research*, 6(1):55–66, 2014.
- 2014 L. A. Hothorn. Statistical evaluation of toxicological bioassays - a review. *Toxicology Research*, 3(6):418–432, 2014.
- 2014 A. Kitsche and L. A. Hothorn. Testing for qualitative interaction using ratios of treatment differences. *Statistics in Medicine*, 33(9):1477–1489, 2014.
- 2014 F. Schaarschmidt and L. A. Hothorn. Statistical methods and software for validation studies on new in vitro toxicity assays. *ATLA-Alternatives to Laboratory Animals*, 42(5):318–325, 2014.
- 2014 N. Graf, et al. A critical appraisal of analyzing nasal provocation test results in allergen immunotherapy trials. *Rhinology*, 52(2):137–141, 2014.
- 2015 F. Konietzschke, M. Placzek, F. Schaarschmidt, and L. A. Hothorn. nparcomp: An R software package for nonparametric multiple comparisons and simultaneous confidence intervals. *Journal of Statistical Software*, 64(9), 2015.
- 2015 F. Schaarschmidt, M. Hofmann, T. Jaki, B. Grun, and L. A. Hothorn. Statistical approaches for the determination of cut points in anti-drug antibody bioassays. *Journal of Immunological Methods*, 418:84–100, 2015.
- 2016 L. A. Hothorn. The two-step approach-a significant ANOVA F-test before Dunnett’s comparisons against a control-is not recommended. *Communications in Statistics-Theory and Methods*, 45(11):3332–3343, 2016.
- 2016 A. Kitsche, C. Ritz, and L. A. Hothorn. A general framework for the evaluation of genetic association studies using multiple marginal models. *Human Heredity*, 81(3):150–172, 2016.
- 2016 P. Pallmann and L. A. Hothorn. Analysis of means: a generalized approach using R. *Journal of Applied Statistics*, 43(8):1541–1560, 2016.
- 2016 P. Pallmann and L. A. Hothorn. Boxplots for grouped and clustered data in toxicology. *Archives of Toxicology*, 90(7):1631–1638, 2016.
- 2016 J. Santiago, B. Brandt, M. Wildhagen, U. Hohmann, L. A. Hothorn, M. A. Butenko, and M. Hothorn. Mechanistic insight into a peptide hormone signaling complex mediating floral organ abscission. *Elife*, 5:e15075, 2016.
- 2017 M. Otava, R. Sengupta, Z. Shkedy, D. Lin, S. Pramana, T. Verbeke, P. Haldermans, L. A. Hothorn, D. Gerhard, R. M. Kuiper, F. Klinglmueller, and A. Kasim. Isogenegui: Multiple approaches for dose-response analysis of microarray data using R. *R Journal*, 9(1):14–26, 2017.
- 2017 M. Otava, Z. Shkedy, L. A. Hothorn, W. Talloen, D. Gerhard, and A. Kasim. Identification of the minimum effective dose for normally distributed data using a bayesian variable selection approach. *Journal of Biopharmaceutical Statistics*, 27(6):1073–1088, 2017.
- 2017 M. G. Ruse, C. Ritz, and L. A. Hothorn. Simultaneous inference of a binary composite endpoint and its components. *Journal of Biopharmaceutical Statistics*, 27(1):56–69, 2017.
- 2018 P. Pallmann, C. Ritz, and L. A. Hothorn. Simultaneous small-sample comparisons in longitudinal or multi-endpoint trials using multiple marginal models. *Statistics in Medicine*, 37(9):1562–1576, 2018.
- 2018 M. Hasler and L. A. Hothorn. Multi-arm trials with multiple primary endpoints and missing values. *Statistics in Medicine*, 37(5):710–

721, 2018.

- 2018 U. Hohmann, J. Nicolet, A. Moretti, L. A. Hothorn, and M. Hothorn. The serk3 elongated allele defines a role for bir ectodomains in brassinosteroid signalling. *Nature Plants*, 4(6):345–, 2018.
- 2018 U. Hohmann, J. Santiago, J. Nicolet, V. Olsson, F. M. Spiga, L. A. Hothorn, M. A. Butenko, and M. Hothorn. Mechanistic basis for the activation of plant membrane receptor kinases by serk-family coreceptors. *Proceedings of the National Academy of Sciences of the United States of America*, 115(13):3488–3493, 2018.
- 2019 L.A. Hothorn. Statistical approach for ... a test chemical is considered to be positive... in regulatory toxicology: Trend and pairwise tests. *bioRxiv* 858571; doi: <https://doi.org/10.1101/858571>, (2019), 2019
- 2019 Ludwig A Hothorn and Felix M Kluxen. Robust multiple comparisons against a control group with application *arXiv preprint arXiv:1905.01838*, 2019.
- 2020 L.A. Hothorn and F.M. Kluxen. Statistical analysis of no observed effect concentrations or levels in eco-toxicological assays with overdispersed count endpoints. *bioRxiv* doi: (2020) <https://doi.org/10.1101/2020.01.15.907881>, 2020.
- 2020 L.A. Hothorn and Pirow R. Use compatibility intervals in regulatory toxicology. *Regulatory Toxicology and Pharmacology* (2020) July 6, 104720, 2020.
- 2020 L.A. Hothorn. Comparisons of multiple treatment groups with a negative control or placebo group: Dunnett test vs. closed test procedure. *arXiv:2012.04277* (2020), 2020.
- 2020 L.A. Hothorn. Comparisons of proportions in k dose groups against a negative control assuming order restriction: Williams-type test vs. closed test procedures. *arXiv* 2011.13758v1, 2020.
- 2020 2020. J. Kruppa and L. Hothorn. A comparison study on modeling of clustered and overdispersed count data for multiple comparisons. *Journal of Applied Statistics*, 2020.
- 2020 L.A. Hothorn. Statistical evaluation of in-vivo bioassays in regulatory toxicology considering males and females. *arXiv*, 2020.
- 2020 L.A. Hothorn and F. Schaarschmidt. A modified Armitage test for more than a linear trend on proportions. *ArXiv: 2006.14880*, 2020.
- 2020 L.A. Hothorn and F. Schaarschmidt. A Tukey type trend test for repeated carcinogenicity bioassays, motivated by multiple glyphosate studies. *arXiv:2007.04009* (2020), 2020.
- 2020 L.A. Hothorn and D. Siliotopoulos. Similarity of multiple dose-response curves in interlaboratory studies in regulatory toxicology. *arXiv:2009.12110* (2020), 2020.
- 2020 C. Vogel, F. Schaarschmidt, C. Ritz, F. Koenig, and L. A Hothorn. Model-based simultaneous inference for multiple subgroups and multiple endpoints. *arXiv preprint arXiv:2007.11358*, 2020.
- 2020 Ludwig A Hothorn, Atiar M Rahman, and Frank Schaarschmidt. A versatile trend test for the evaluation of tumor incidences in long-term carcinogenicity bioassays. *arXiv preprint arXiv:2007.12419*, 2020.
- 2020 F. M. Kluxen and L. A. Hothorn. Alternatives to statistical decision trees in regulatory (eco-)toxicological bioassays. *Archives of Toxicology*, 2020.
- 2020 L. A Hothorn. Claiming trend in toxicological and pharmacological dose-response studies: an overview on statistical methods and related R-software. *arXiv preprint arXiv:2007.09631*, 2020.
- 2021 F. M. Kluxen, K. Weber, C. Strupp, S. M. Jensen, L. A. Hothorn, J. C. Garcin, and T. Hofmann. Using historical control data in bioassays for regulatory toxicology. *Regulatory Toxicology and Pharmacology*, 125:105024, 2021.
- 2021 L.A. Hothorn. Closed test procedures for the comparison of dose groups against a negative control group or placebo. *ArXiv*2012.15093 (2021), 2021.
- 2021 L. A Hothorn and S. Kropf. Closed testing procedures for treatment-versus-control comparisons and multiple correlated endpoint. *arXiv preprint arXiv:2103.07661*, 2021.
- 2021 L.A. Hothorn. Simultaneous inference of correlated marginal tests using intersection-union or union-intersection test principle. *arXiv* 2021.2111.08694v1, 2021.
- 2021 L.A. Hothorn, F. Schaarschmidt, and C. Ritz. The maxt-test based on multiple marginal models- a vignette to library(multcomp). <https://zenodo.org/record/4421243>, 2021.
- 2021 L.A. Hothorn. A statistical method for estimating the no-observed-adverse-event-level. *ArXiv* 2101.00427v1 (2021), 2021.
- 2021 M. K Ried, et al. Inositol pyrophosphates promote the interaction of spx domains with the coiled-coil motif of phr transcription factors to regulate plant phosphate homeostasis. *Nature Communications*, 12(1):384, 2021.
- 2021 L. A Hothorn. Simultaneous comparisons of treatments versus control (Dunnett-type tests) for location-scale alternatives. *arXiv:2103.06585*, 2021.
- 2021 L. A Hothorn. A statistical method for estimating the no-observed-adverse-event-level. *arXiv preprint arXiv:2101.00427*, 2021.
- 2021 F. Schaarschmidt, C. Ritz, and L. A. Hothorn. The Tukey trend test: Multiplicity adjustment using multiple marginal models. *Biometrics*, 2021.
- 2022 L. A Hothorn. Hidden multiplicity in the analysis of variance (ANOVA): multiple contrast tests as an alternative. *bioRxiv*, 2022.
- 2022 L. A Hothorn. Seven recommendations for alternatives to the common analysis of variance (ANOVA) with application in the life sciences—using R. *arXiv:2205.15866*, 2022.
- 2022 L. A Hothorn. Simultaneous confidence intervals for the interpretation of primary and secondary effects in factorial designs without a pre-test on interaction. *arXiv:2204.08336*, 2022.
- 2022 L. A Hothorn. Statistical notes on false positive and negative error rates in the evaluation of long-term carcinogenicity bioassays. *bioRxiv*, pages 2022–02, 2022.
- 2022 L.A. Hothorn. Multiple comparison procedures renewed. an overview of the Dunnett’s test and its application: using CRAN R packages. <https://zenodo.org/DOI/10.5281/zenodo.5913372>, 2022.
- 2022 L.A. Hothorn and K. Weber. Evaluation of histological findings with severity grade, to analyze toxicology in-vivo studies. *arXiv* 2022.2201.02810v1, 2022.
- 2022 L.A. Hothorn. Robust statistical evaluation of tumor incidences in long-term rodent carcinogenicity studies: the reformulated poly-k trend test. *bioRxiv* <https://doi.org/10.1101/2022.02.14.48034>, 2022.
- 2022 L.A. Hothorn. Statistical evaluation of mortality-adjusted tumor incidence of rodent long-term carcinogenicity bioassays: trend test and pairwise test. *bioRxiv*2022/481774, 2022.

- 2022 A.-O. Roman, et al. Hsl1 and bam1/2 impact epidermal cell development by sensing distinct signaling peptides. *Nature Communications*, 13(1):876, 2022.
- 2023 L.A. Hothorn. Analysis of means (ANOM) - be careful in case of variance heterogeneity. *10.5281/zenodo.7811859*, 2023.
- 2023 L.A. Hothorn. A case for nonparametrics and alternatives. *10.5281/zenodo.7816673*, 2023.
- 2023 L. A. Hothorn. Consistent ANOVA-type tests for various effect sizes. *arXiv:2303.13945*, 2023.
- 2023 L. A. Hothorn. The Kruskal-Wallis test can not be recommended. *arXiv:2302.05647*, 2023.
- 2023 L. A. Hothorn and Mario Hasler. The Dunnett procedure with possibly heterogeneous variances. *arXiv:2303.09222*, 2023.
- 2023 L. A. Hothorn. Tests for strict monotonic trend in bio-medical dose-response relationships (respective concentration-response or exposure-response relationships) – a biostatistical perspective *arXiv:2311.01480*, 2023.
- 2024 D. Spiliotopoulos et al.. Assessment of the performance of the Ames MPFassay: A multicenter collaborative study with six coded chemicals. *Mutation Research Volume 893, January 2024*, 503718
- 2024 L. A. Hothorn, Christian Ritz, Frank Schaarschmidt, Signe M. Jensen and| Robin Ristl. Simultaneous inference using multiple marginal models. *Pharmaceutical Statistics*, 2024; 0:1–22.
- 2024 L. A. Hothorn. Bartholomew’s Ezk trend test - approximated by a multiple contrast test. *arXiv:2401.13010*, 2024.
- 2024 L. A. Hothorn. Simultaneous comparisons of the variances of k treatments with that of a control: a Levene-Dunnett type procedure. *arXiv:2406.11892*, 2024.
- 2024 L. A. Hothorn. Can the Jonckheere trend test be recommended to evaluate genetic association studies? *zenodo.org/records/14289891*
- 2025 L. A. Hothorn. The Scheffe test procedure in comparison with multiple contrast tests *zenodo.org/records/*
- 2025 L. A. Hothorn, Christian Ritz, Frank Schaarschmidt, Signe M. Jensen and Robin Ristl. Simultaneous Inference Using Multiple Marginal Models. *Pharmaceutical Statistics*, 2025; 24:e2428
- 2025 Matthias Becher, L. A. Hothorn and Frank Konietzschke. Analysis of Covariance in General Factorial Designs Through Multiple Contrast Tests Under Variance Heteroscedasticity. *Statistics in Medicine*, 2025; 44:e70018
- 2025 Mario Hasler, and T. Birr and L. A. Hothorn Multiple Contrast Tests in the Presence of Partial Heteroskedasticity *Biometrical Journal*, 2025; 44:
- Mareen Pigorsch and L. A. Hothorn and Frank Konietzschke. Multiple contrast tests for count data: small sample approximations and their limitations. *Biometrical Journal*, 2025; 67, e70098

BOOKS

- 1990- Hothorn, L.A. Various book chapters (1990-2021)
- 2016 Hothorn, L.A. Statistics in Toxicology using R (2016), Baco Raton: CRC Press, ISBN 978-1-4987-0128-0

SELECTED TALKS SINCE 2012

- Biometrisches Kolloquium Berlin IBS 2012: *Model selection procedures under order restriction- an alternative to related multiple test procedures?*
- Nonclinical Statistics Conference Potsdam 2012: *LOAEL Identification by Model Selection Procedures Under Order Restriction* (with Kuiper and Gerhard)
- Nordic Biometric Conference Stockholm June 2013: *Multiple comparisons with the grand mean*
- MCP2013 Southampton 2013: *MCP’s for non-Gaussian distributed endpoints- using R*
- Medical University of Vienna 2013: *User-defined contrasts within multiple contrast tests- case studies using R*
- Styer Biometric Section, Graz 2013: *Multiple comparisons for non-Gaussian endpoints*
- Paris-Lodron University Salzburg 2014: *Multiple testing by multiple contrasts*
- EIP Conference Lisboa 2014: *Cutpoint estimation assuming a mixing distribution within the mixed model*
- Nonclinical Statistics Conference Brugge 2014: *ADA Cutpoint estimation using R: assumptions, solutions and problems*
- Medical University of Vienna 2014: *Quality ranking*
- Nordic Biometric Conference Reykjavik 2015: *Overview on different multiplicity adjustments- using R*
- Wiener Biometrische Sektion. Medical University of Vienna 2015: *Simultaneous inference using multiple marginal models*
- DAGSTAT Goettingen 2016: *Simultaneous testing on different factors/ covariates: from Bonferroni inequality to multiple marginal models*
- Agrostat Lausanne 2016: *Proof of safety for a new variety/ product relative to a common-used one for multiple endpoints*
- Nonclinical Statistics Conference Cambridge 2016: *Dose-response analysis considering dose both as qualitative factor and as quantitative covariate*

- Internat Workshop on Multiple Marginal Models Hannover 2016: *Multiple, different-scaled, endpoints*
- UseR! Conference, Brussels 2017: *Key note: Dose-response analysis in toxicology and epidemio logy: considering dose both as qualitative factor and quantitative covariate- using R*
- CEN Vienna, 2017: *Dose-response analysis with multiple endpoints: the Tukey trend test based on multiple marginal models* item MCP2022 Bremen 2022: *Simultaneous inference across treatment levels, various generalized linear models, time points, primary endpoints, and effect sizes*

Supervision of doctoral thesis

- H.-F. Koch (1996) Teststrategien für die „many-to-one“ Versuchsanlage im Falle dichotomer Ereignisse. Hannover (1)
- M. Neuhäuser (1996) Trendtests bei a priori unbekannten Erwartungswertprofil. Dissertation University Dortmund (2)
- B. Brandt (1996) Trendtests für location-scale Alternativen. University Hannover (3)
- F. Bretz (1999) Powerful modification of Williams' test on trend. University Hannover (4)
- D. Hauschke (1999) Statistische Aspekte von Sicherheitsstudien. Habilitation, University Dortmund
- M. Weichert (2000) Robuste Mittelwertvergleiche mit gartenbaulichen Anwendungen. University Hannover (5)
- D. Seidel (2000) Trendtest für geordnet kategoriale Daten bei sehr kleinen Fallzahlen. University Hannover (6)
- E. Biesheuvel (2002) Many-to-one comparisons in stratified designs. University Hannover (7)
- G. Dilba (2005) Simultaneous Inference for Ratios of Location Parameters. University Hannover (8)
- C. Froemke (2005) Relevance shifted tests for high dimensional data with small sample sizes. University Hannover (9)
- F. Schaarschmidt (2008) Marginal and simultaneous confidence intervals for abundance data with applications to safety assessment of non-target species. Leibniz University Hannover (10)
- M. Hasler (2009) Extensions of multiple contrast tests. Leibniz University Hannover (11)
- X. Mi (2009) Model Selection Procedure with Familywise Error Rate Control for Binomial Order-Restricted Problems. Leibniz University Hannover (12)
- D. Gerhard (2010) Simultaneous small sample inference based on profile likelihood. Leibniz University Hannover (13)
- A. Kitsche (2014) Evaluation of interaction effects in two-factorial designs by simultaneous confidence intervals in the cell means model. Leibniz University Hannover (14)
- P. Pallmann (2016) Multiple Contrast Tests with Repeated and Multiple Endpoints, with Biological Applications. Leibniz University Hannover (15)
- F. Schaarschmidt (2016) Simultane Konfidenzintervalle für multiple Vergleiche - Ansätze für nicht Gauß-verteilte Daten und Inferenz in linearen Modellen. Habilitation Leibniz University Hannover (16)

Current academic positions: Prof. C. Froemke (Hannover), Prof. F. Bretz (Basel and Hannover), Prof. M. Hasler (Kiel), Prof. J. Kruppa (Osnabrueck), PD Dr. Schaarschmidt (Hannover), Prof. M. Neuhäuser (Remagen), Prof. G. Dilba (South Dakota State University, Brookings), Assoc. Prof. D. Gerhard, University of Canterbury

Member of conference committee

- Annual meetings of the AG Biostatistics of pre-clinic studies, 1991-1995 (organizer)
- DIA Meeting: Biostatistics in toxicology, Brugge, 1996 (organizer)
- International Meeting on Multiple Comparisons, Tel Aviv (member of organizing committee), 1996
- DIA Meeting: Pre-clinical statistics, Nice, 1998 (member of organizing committee)
- DIA Euro-workshop, Prague, 1999 (member of organizing committee)
- International workshop on multivariate distributions, Hannover (1998) (head of organizing committee)

- DIA Meeting: Pre-clinical statistics, Montreaux, 2000 (member of organizing committee)
- 2nd International Conference on Multiple Comparisons, Berlin (2000) (head of organizing committee)
- bmbf-Kolloquium "Biometrie in der biologischen Sicherheitsforschung", Hannover, 2002 (organizer)
- 3rd International Conference on Multiple Comparisons, Bethesda/USA (2002) (member of organizing committee)
- DIA Meeting: Pre-clinical statistics, Barcelona, 2002 (member of organizing committee)
- DIA Meeting: Pre-clinical statistics, Dublin, 2004 (member of organizing committee)
- DIA Euro Meeting, Nice, 2005 (member of organizing committee)
- International Conference on Nonclinical Statistics, Potsdam, 2006 (member of organizing committee)
- Summer school German Region IBS: Multiple tests (St. Andreasberg), 2007 (organizer)
- 55. Biometrisches Kolloquium der Deutschen Region der Internationalen Biometrischen Gesellschaft in Hannover (2009)
- International Conference on Nonclinical Statistics, Lyon 2010 (member program committee)
- 2nd International Conference on Biopharmaceutical Statistics, Berlin 2011 (member program committee)
- International Conference on Nonclinical Statistics, Potsdam 2012 (member program committee)
- International Conference on Simultaneous Inference, Hannover 2013 (head of organizing committee)
- International Conference on Simultaneous Inference, Hannover 2013 (head of organizing committee)
- International Workshop on Multiple Marginal Models Hannover 2016 (organizer)

...