

CURRICULUM VITAE

Gary A. Churchill

January 2006

Address

The Jackson Laboratory
Bar Harbor, Maine 04609

Phone: 207-288-6189
Email: garyc@jax.org

Positions Held

Senior Staff Scientist, The Jackson Laboratory, Bar Harbor, ME (2003-Present)

Staff Scientist, The Jackson Laboratory, Bar Harbor, ME (1998-2003)

Visiting Investigator, The Jackson Laboratory, Bar Harbor, ME (1997-1998)

Associate Professor, Biometrics Unit, Cornell University, Ithaca, NY (1996-1999)

Assistant Professor, Biometrics Unit, Cornell University, Ithaca, NY (1990-1996)

Visiting Assistant Professor, Department of Mathematics, University of Southern California, Los Angeles, CA (1989-1990)

Research Associate, Department of Mathematics, University of Southern California, Los Angeles, CA (1988-1989)

Research Associate, Fred Hutchinson Cancer Research Center, Seattle, WA (1983-1986)

Research Assistant, Department of Psychology, Massachusetts Institute of Technology, Cambridge, MA (1981-1983)

Education

Ph.D. Biostatistics, University of Washington, Seattle, WA (1988)

Dissertation Title: Stochastic Models for DNA Sequence

S.B. Mathematics, Massachusetts Institute of Technology, Cambridge, MA (1983)

Professional Activities and Service

Editor, *Statistical Applications in Genetics and Molecular Biology* (2002-present)

Associate Editor, *Mammalian Genome* (2001-present)

Associate Editor, *Genetics* (1998-2004)

Associate Editor, *Journal of Computational Biology* (1997-2003)

Associate Editor, *Biometrics* (1997-2000)

Associate Editor, *Theoretical Population Biology* (1994-2000)

Scientific Advisory Board: ENCODE Project, NHGRI (2003-present)

Scientific Advisory Board: Diabetes Genome Project (DGAP) (2002-present)

Scientific Director: Computational Biology Resource, The Jackson Laboratory (2000-present)

NIH Human Genome Study Section (1996-2000)

Reviewing for numerous journals including *Science*, *Nature Genetics*, *Nature Reviews*, *Proceedings of the National Academy of Science USA*, *Biostatistics*, *Journal of the American Statistical Association*

Publications by Topic Area

Sequence Analysis

- Churchill GA. 1989. Stochastic models for heterogeneous DNA sequences. *Bull Math Biol* 51:79-94.
- Fangman WL, Henly JW, Churchill GA, Brewer BJ. 1989. Stable maintenance of a 35bp yeast mitochondrial genome. *Mol Cell Biol* 9:1917-1972.
- Navidi WC, Churchill GA, von Haeseler A. 1991. Methods for inferring phylogenies from nucleic acid sequence data using maximum likelihood and linear invariants. *Mol Biol Evol* 8:128-143.
- Churchill GA. 1992. Hidden Markov chains and the analysis of genome structure. *Comput Chem* 16:107-115.
- Churchill GA, von Haeseler A, Navidi WC. 1992. Sample size for a phylogenetic inference. *Mol Biol Evol* 9:753-769.
- Churchill GA. 1989. Stochastic models for heterogeneous DNA sequences. *Bull Math Biol* 51:79-94.
- Churchill GA, Daniels DL, Waterman MS. 1990. The distribution of restriction enzyme sites in *Escherichia coli*. *Nucleic Acids Res* 3:589-597.
- Churchill GA, Waterman MS. 1992. The accuracy of DNA sequences. *Genomics* 14:89-98.
- Churchill GA, Giovannoni J, Tanksley SD. 1993. Pooled-sampling makes high resolution mapping practical with DNA markers. *Proc Natl Acad Sci U S A* 90:16-20.
- von Haeseler A, Churchill GA. 1993. Network models for sequence evolution. *J Mol Evol* 37:77-85.
- Navidi WC, Churchill GA, von Haeseler A. 1993. Phylogenetic inference: Invariants and maximum likelihood. *Biometrics* 47:543-555.
- Churchill GA. 1995. Accurate restoration of DNA sequences. In: Case Studies in Bayesian Statistics 2, Gatsaris C, Hodges JS, Kass RE, Singpurwalla ND (eds).
- Simonsen KL, Churchill GA, Aquadro CF. 1995. Properties of statistical tests of neutrality for DNA polymorphism data. *Genetics* 141:413-429.
- Thorne JL, Churchill GA. 1995. Estimation and reliability of molecular sequence alignments. *Biometrics* 51:100-113.
- Felsenstein J, Churchill GA. 1996. A Hidden Markov model approach to variation among sites in rate of evolution. *Mol Biol Evol* 13:93-104.
- Kelly C, Churchill GA. 1996. Biases in amino acid replacement matrices and alignment scores due to rate heterogeneity. *J Comput Biol* 307-318.
- Schultz TR, Cocroft RB, Churchill GA. 1996. The reconstruction of ancestral character states. *Evolution* 50:504-511.
- Simonsen KL, Churchill GA. 1997. A Markov chain model of coalescence with recombination. *Theor Popul Biol* 52:43-59.
- Churchill GA. 1998. Hidden Markov models. In: Encyclopedia of Biostatistics. John Wiley & Sons, Ltd 3:1908-1916.
- Churchill GA, Lazareva B. 1999. Bayesian restoration of a hidden Markov chain with applications to DNA sequencing. *J Comput Biol* 6(2):261-277.
- Schultz TR, Churchill GA. 1999. The role of subjectivity in reconstructing ancestral character states: A Bayesian approach to unknown rates, states and transformation asymmetries. *Syst Biol* 48:651-664.

- Morozov P, Sitnikova T, Churchill G, Ayala FJ, Rzhetsky A. 2000. A new method for characterizing replacement rate variation in molecular sequences: Application of the Fourier and Wavelet models to drosophila and mammalian proteins. *Genetics* 154(1):381-395.
- Shpak M, Churchill GA. 2000. The information content of a character under a Markovian model of evolution. *Mol Phylogenet Evol* 17(2):231-243.

Genetic Mapping

- Anderson JA, Churchill GA, Atrique JE, Tanksley SD, Sorrells ME. 1993. Optimizing parental selection for genetic linkage maps. *Genome* 36:181-186.
- Churchill GA, Giovannoni J, Tanksley SD. 1993. Pooled-sampling makes high resolution mapping practical with DNA markers. *Proc Natl Acad Sci U S A* 90:16-20.
- Churchill GA, Doerge RW. 1994. Empirical threshold values for quantitative trait mapping. *Genetics* 138:963-971.
- Doerge RW, Churchill GA. 1996. Permutation tests for multiple loci affecting a quantitative character. *Genetics* 142:285-294.
- Nachman MW, Churchill GA. 1996. Heterogeneity in rates of recombination across the mouse genome. *Genetics* 142:537-548.
- Beamer WG, Shultz KL, Tennent BJ, Nadeau JH, Churchill GA, Eicher EM. 1998. Multigenic and imprinting control of ovarian granulosa cell tumorigenesis in mice. *Cancer Res* 58:3694-3699.
- Blauth SL, Steffens JC, Churchill GA, Mutschler MA. 1999. Identification of QTL's controlling acylsugar fatty acid composition in an intraspecific population of *Lycopersicon pennellii*. *Theor Appl Genetics* 99(1-2):373-381.
- Churchill GA, Doerge RW. 1998. Mapping quantitative trait loci in experimental populations. In: *Molecular Dissection of Complex Traits*, Paterson AH (ed). CRC Press 31-41.
- Beamer WG, Shultz KL, Churchill GA, Frankel WN, Baylink DJ, Rosen CJ, Donahue LR. 1999. Quantitative trait loci for bone density in C57BL/6J and CAST/EiJ inbred mice. *Mamm Genome* 10(11):1043-1049.
- Blauth SL, Churchill GA, Mutschler MA. 1998. Identification of quantitative trait loci associated with acylsugar accumulation using intraspecific populations of the wild tomato, *Lycopersicon pennellii*. *Theor Appl Genet* 96(3-4):458-467.
- Blauth SL, Steffens JC, Churchill GA, Mutschler MA. 1999. Identification of QTL's controlling acylsugar fatty acid composition in an intraspecific population of *Lycopersicon pennellii*. *Theor Appl Genetics* 99(1-2):373-381.
- Mahler M, Bristol IJ, Sundberg JP, Churchill GA, Birkenmeier EH, Elson CO, Leiter EH. 1999. Genetic analysis of susceptibility to dextran sulfate sodium-induced colitis in mice. *Genomics* 55:147-156.
- Ripol MI, Churchill GA, de Silva JAG, Sorrells M. 1999. Statistical aspects of genetic mapping in autopolyploids. *Gene* 235:31-41.
- Upadhyaya P, Churchill GA, Birkenmeier EH, Barker JE, Frankel WN. 1999. Genetic modifiers of polycystic kidney disease in intersubspecific *KAT^{2J}* mice. *Genomics* 58:129-137.
- Clemens KE, Churchill GA, Bhatt N, Richardson K, Noonan FP. 2000. Genetic control of susceptibility to UV-induced immunosuppression by interacting quantitative trait loci. *Genes and Immunity* 1:251-259.
- Guay-Woodford LM, Wright CJ, Walz G, Churchill GA. 2000. Quantitative trait loci modulate renal cystic disease severity in the mouse *bpk* model. *J Am Soc Nephrol* 11:1253-1260.

- Livingstone KD, Churchill GA, Jahn MK. 2000. Linkage mapping in populations with karyotypic rearrangements. *J Hered* 91:423-428.
- Reifsnnyder PC, Churchill GA, Leiter EH. 2000. Maternal environment and genotype interact to establish diabetes in mice. *Genome Res* 10(10):1568-1578.
- Rosen CJ, Churchill GA, Donahue LR, Shultz KL, Burgess JK, Powell DR, Beamer WG. 2000. Mapping quantitative trait loci for serum insulin-like growth factor-1 levels in mice. *Bone* 27:521-528.
- Beamer WG, Shultz KL, Donahue LR, Churchill GA, Sen S, Wergedal JR, Baylink DJ, Rosen CJ. 2001. Quantitative trait loci for femoral and lumbar vertebral bone mineral density in C57BL/6J and C3H/HeJ inbred strains of mice. *J Bone Miner Res* 16(7):1195-1206.
- Farmer MA, Sundberg JP, Bristol IJ, Churchill GA, Li R, Elson CO, Leiter EH. 2001. A major quantitative trait locus on chromosome 3 controls colitis severity in IL-10-deficient mice. *Proc Natl Acad Sci USA* 98(23):13820-13825.
- Kim JH, Sen S, Avery CS, Simpson E, Chandler P, Nishina PM, Churchill GA, Naggert JK. 2001. Genetic analysis of a new mouse model for non-insulin-dependent diabetes. *Genomics* 74:273-286.
- Sen S, Churchill GA. 2001. A statistical framework for quantitative trait mapping. *Genetics* 159:371-387.
- Shimomura K, Low-Zeddies SS, King DP, Steeves TDL, Whitely A, Kushla J, Zemenides PD, Lin A, Vitaterna MH, Churchill GA, Takahashi JS. 2001. Genome-wide epistatic interaction analysis reveals complex genetic determinants of circadian behavior in mice. *Genome Research* 11:959-980.
- Sugiyama F, Churchill GA, Higgins DC, Johns C, Makaritsis KP, Gavras H, Paigen B. 2001. Concordance of murine quantitative trait loci for salt-induced hypertension with rat and human loci. *Genomics* 71:70-77.
- Wittenburg H, Lammert F, Wang DHQ, Churchill GA, Li R, Bouchard G, Carey MC, Paigen B. 2001. Interacting QTLs for cholesterol gallstones and gallbladder mucin in AKR and SWR strains of mice. *Physiol Genomics* 8:67-77.
- Beamer WG, Shultz KL, Donahue LR, Churchill GA, Sen S, Wergedal JR, Baylink DJ, Rosen CJ. 2001. Quantitative trait loci for femoral and lumbar vertebral bone mineral density in C57BL/6J and C3H/HeJ inbred strains of mice. *J Bone Miner Res* 20(9):1701-1712.
- Bouxsein ML, Rosen CJ, Turner CH, Ackert CL, Shultz KL, Donahue LR, Churchill GA, Adamo ML, Powell DR, Turner RT, Muller R, Beamer WG. 2002. Generation of a new congenic mouse strain to test the relationships among serum IGF1, bone mineral density and skeletal morphology in vivo. *J Bone and Mineral Research* 17:570-579.
- Broman KW, Rowe LB, Churchill GA, Paigen K. 2002. Crossover interference in the mouse. *Genetics* 160:1123-1131.
- Mahler M, Most C, Schmidtke S, Sundberg JP, Li R, Hendrich HJ, Churchill GA. 2002. Genetics of colitis susceptibility in IL-10-deficient mice: backcross versus F2 results contrasted by principal component analysis. *Genomics* 80(3):274-282.
- Pitman WA, Korstanje R, Churchill GA, Nicodeme E, Albers JJ, Cheung MC, Staton MA, Sampson SS, Harris S, Paigen B. 2002. Quantitative trait locus mapping of genes that regulate HDL cholesterol in SM/J and NZB/B1NJ inbred mice. *Physiol Genomics* 9:93-102.
- Smith Richards BK, Belton BN, Poole AC, Mancuso JJ, Churchill GA, Li R, Volaufova J, Zuberi A, York B.. 2002. QTL analysis of self-selected macronutrient diet intake: fat, carbohydrate, and total kilocalories. *Physiol Genomics* 11:205-217.

- Sugiyama F, Churchill GA, Li R, Libby LJM, Carver T, Yagami K-I, John SWM, Paigen B. 2002. QTL associated with blood pressure, heart rate, and heart weight in CBA/CaJ and BALB/cJ mice. *Physiol Genomics* 10:5-12.
- Ahmadiyeh N, Churchill GA, Shimomura K, Solberg LC, Takahashi JS, Redei EE. 2003. X-Linked and lineage dependent inheritance of coping response to stress. *Mamm Genome* 14:748-757.
- Brich J, Shie F-S, Howell BW, Li R, Tus K, Wakeland EK, Jin L-W, Mumby M, Churchill GA, Herz J, Cooper JA. 2003. Genetic modulation of tau phosphorylation in the mouse. *J Neurosci* 23(1):187-192.
- Broman KW, Wu H, Sen S, Churchill GA. 2003. R/qtl: QTL mapping in experimental crosses. *Bioinformatics* 19(7):889-890.
- Complex Trait Consortium. 2003. The nature and identification of quantitative trait loci: a community's view. *Nat Rev Genet* 4(11):911-916.
- Lyons MA, Wittenburg H, Li R, Walsh KA, Churchill GA, Carey MC, Paigen B. 2003. Quantitative trait loci that determine lipoprotein cholesterol levels in DBA/2J and CAST/Ei inbred mice. *J Lipid Res* 44:953-967.
- Lyons MA, Wittenburg H, Li R, Walsh KA, Leonard MR, Churchill GA, Carey MC, Paigen BJ. 2003. New quantitative trait loci that contribute to cholesterol gallstone formation detected in an intercross of CAST/Ei and 129S1/SvImJ inbred mice. *Physiol Genomics* 14:225-239.
- Lyons MA, Wittenburg H, Li R, Walsh KA, Leonard MR, Korstanje R, Churchill GA, Carey MC, Paigen BJ. 2003. Lith6: a new QTL for cholesterol gallstones from an intercross of CAST/Ei and DBA/2J inbred mouse strains. *J Lipid Res* 44:1763-1771.
- Mathews CE, Graser RT, Bagley RJ, Caldwell JW, Li R, Churchill GA, Serreze DV, Leiter EH. 2003. Genetic analysis of resistance to type I diabetes in ALR/Lt Mice, a NOD related strain with defenses against autoimmune-mediated diabetogenic stress. *Immunogenetics* 55(7):491-496.
- Nadeau JH, Burrage LC, Restivo J, Pao Y-H, Churchill GA, Hoit BD. 2003. Pleiotropy, homeostasis, and functional networks based on assays of cardiovascular traits in genetically randomized populations. *Gen Res* 13:2082-2091.
- Sundberg JP, Boggess D, Silva K, McElwee KJ, King LE, Li R, Churchill GA, Cox GA. 2003. Major locus on mouse chromosome 17 and minor locus on chromosome 9 are linked with alopecia areata in C3H/HeJ mice. *J Invest Dermatol* 120:1-5.
- Wang X, Le Roy I, Nicodeme E, Li R, Wagner R, Petros C, Churchill GA, Harris S, Darvasi A, Kirilovsky J, Roubertoux PL, Paigen BJ. 2003. QTL analysis of HDL cholesterol concentrations using an advanced intercross between inbred mouse strains C57Bl/6J and NZB/B1NJ. *Genome Research* 13(7):1654-1664.
- Wittenburg H, Lyons MA, Li R, Churchill GA, Carey MC, Paigen BJ. 2003. FXR and ABCG5/ABCG8 as determinants of cholesterol gallstone formation from quantitative trait locus mapping in mice. *Gastroenterology* 125:868-881.
- Bouxein ML, Uchiyama T, Rosen CJ, Shultz KL, Donahue LR, Turner CH, Sen S, Churchill GA, Muller R, Beamer WG. 2004. Mapping quantitative trait loci for vertebral trabecular bone volume fraction and microarchitecture in mice. *J Bone Miner Res* 19:587-599.
- Complex Trait Consortium. 2004. The Collaborative Cross, a community resource for the genetic analysis of complex traits. *Nat Genet* 36(11):1133-1137.
- DiPetrillo K, Tsaih SW, Sheehan S, Johns C, Kelmenson P, Gavras H, Churchill GA, Paigen B. 2004. Genetic analysis of blood pressure in C3H/HeJ and SWR/J mice. *Physiol Genomics* 17(2):215-220.

- Grubb SC, Churchill GA, Bogue MA. 2004. A collaborative database of inbred mouse strain characteristics. *Bioinformatics Advance Access* published May 6, 2004.
- Ishimori N, Li R, Kelmenson PM, Korstanje R, Walsh KA, Churchill GA, Forsman-Semb K, Paigen B. 2004. Quantitative trait loci analysis for plasma HDL-cholesterol concentrations and atherosclerosis susceptibility between inbred mouse strains C57BL/6J and 129S1/SvImJ. *Arterioscler Thromb Vasc Biol* 24:161-166.
- Ishimori N, Li R, Lelmenson PM, Korstanje R, Walsh KA, Churchill GA, Forsman-Semb K, Paigen B. 2004. Quantitative trait loci that determine plasma lipids and obesity in C57BL/6J and 129S1/SvImJ inbred mice. *J Lipid Res* 45(9):1624-1632.
- Jin C, Lan H, Attie AD, Churchill GA, Bulutuglo D, Yandell BS. 2004. Selective phenotyping for increased efficiency in genetic mapping studies. *Genetics* 168:2285-2293.
- Korstanje R, Albers JJ, Wolfbauer G, Li R, Tu A-Y, Churchill GA, Paigen BJ. 2004. Quantitative trait locus mapping of genes that regulate phospholipids transfer activity in SM/J and NZB/BINJ inbred mice. *Arterioscler Thromb Vasc Biol* 24:155-160.
- Korstanje R, Eriksson P, Samnegard A, Olsson PG, Forsman-Semb K, Sen S, Churchill GA, Rollins J, Harris S, Hamsten A, Paigen B. 2004. Locating Ath8, a locus for murine atherosclerosis susceptibility and testing several of its candidate genes in mice and humans. *Atherosclerosis* 177(2):443-450.
- Korstanje R, Li R, Howard T, Kelmenson P, Marshall J, Paigen BJ, Churchill GA. 2004. Influence of sex and diet on quantitative trait loci for HDL cholesterol levels in an SM/J by NZB/BINJ intercross population. *J Lipid Res* 45:881-888.
- Lyons MA, Korstanje R, Li R, Walsh KA, Churchill GA, Carey MC, Paigen BJ. 2004. Genetic contributors to lipoprotein cholesterol levels in an intercross of 129S1/SvImJ and RIIS/J inbred mice. *Physiol Genomics* 17:114-121.
- Lyons MA, Wittenburg H, Li R, Walsh KA, Korstanje R, Churchill GA, Carey MC, Paigen BJ. 2004. Quantitative trait loci that determine lipoprotein cholesterol levels in an intercross of 129S1/SvImJ and CASTE/Ei inbred mice. *Physiol Genomics* 17:60-68.
- Peters LL, Swearingen RA, Andersen SG, Gwynn B, Lambert AJ, Li R, Lux SE, Churchill GA. 2004. Identification of quantitative trait loci that modify the severity of hereditary spherocytosis in wan, a new mouse model of band-3 deficiency. *Blood* 103(8):3233-3240.
- Solberg LC, Baum AE, Ahmadiyeh N, Shimomura K, Li R, Turek FW, Churchill GA, Takahashi JS, Redei EE. 2004. Sex- and lineage-specific inheritance of depression-like behavior in the rat. *Mamm Genome* 15(8):648-662.
- Ackerman KG, Huang H, Grasemann H, Puma C, Singer JB, Hill AE, Lander E, Nadeau JH, Churchill GA, Drazen JM, Beier DR. 2005. Interacting Genetic Loci Cause Airway Hyperresponsiveness. *Physiol Genomics* 21:105-111.
- Ahmadiyeh N, Churchill GA, Solberg LC, Baum AE, Shimomura K, Takahashi JS, Redei EE. 2005. Lineage is an Epigenetic Modifier of QTL Influencing Behavioral Coping with Stress. *Behav Genet* 35(2):189-198.
- Bouma GJ, Albrecht KH, Washburn LL, Becknagel AK, Churchill GA, Eicher EM. 2005. Gonadal sex reversal in mutant Dax1 XY mice: A failure to up-regulate Sox9 in pre-Sertoli cells. *Development* 132(13):3045-3054.
- Dorward AM, Shultz KL, Horton LG, Li R, Churchill GA, Beamer WG. 2005. Distal Chr 4 Harbors a Genetic Locus (Gct1) Fundamental for Spontaneous Ovarian Granulosa Cell Tumorigenesis in a Mouse Model. *Cancer Res* 65(4):1259-1264.

- Li R, Lyons MA, Wittenburg H, Paigen BJ, Churchill GA. 2005. Combining data from multiple inbred line crosses improve the power and resolution of QTL mapping. *Genetics* 169(3):1699-1709.
- Lyons MA, Korstanje R, Li R, Sheehan SM, Walsh KA, Rollins JA, Carey MC, Paigen B, Churchill GA. 2005. Single and interacting QTLs for cholesterol gallstones revealed in an intercross between mouse strains NZB and SM. *Mamm Genome* 16(3):152-163.
- Mrug M, Li R, Cui X, Schoeb TR, Churchill GA, Guay-Woodford LM. 2005. Kinesin Family Member 12 Is a Candidate Polycystic Kidney Disease Modifier in the cpk Mouse. *J Am Soc Nephrol* 16:905-916.
- Sen S, Satagopan JM, Churchill GA. 2005. Quantitative Trait Locus Study Design From an Information Perspective. *Genetics* 170(1):447-464.
- Tsaih SW, Lu L, Airey DC, Williams RW, Churchill GA. 2005. Quantitative trait mapping in a diallel cross of recombinant inbred lines. *Mamm Genome* 16(5):344-355.
- Wittenburg H, Lyons MA, Li R, Kurtz U, Mössner J, Churchill GA, Carey MC, Paigen BJ. 2005. Association of a lithogenic *Abcg5/Abcg8* allele on Chromosome 17 (*Lith9*) with cholesterol gallstone formation in PERA/EiJ mice. *Mamm Genome* 16:495-504.
- Yi N, Yandell BS, Churchill GA, Allison DB, Eisen EJ, Pomp D. 2005. Bayesian model selection for genome-wide epistatic quantitative trait Loci analysis. *Genetics* 170(3):1333-1344.
- Peters LL, Zhang W, Lambert AJ, Brugnara C, Churchill GA, Platt OS. 2005. Quantitative trait loci for baseline white blood cell count, platelet count, and mean platelet volume. *Mamm Genome* 16(10):749-63.
- Reifsnnyder PC, Li R, Silveira PA, Churchill GA, Serreze DV, Leiter EH. 2005. Conditioning the genome identifies additional diabetes resistance loci in Type I diabetes resistant NOR/Lt mice. *Genes and Immunity* 6:528-538.
- Ishimori N, Li R, Walsh KA, Korstanje R, Rollins JA, Petkov P, Pletcher MT, Wiltshire T, Donahue LR, Rosen CJ, Beamer WG, Churchill GA, Paigen B. 2006. Quantitative Trait Loci That Determine BMD in C57BL/6J and 129S1/SvImJ Inbred Mice. *J Bone Miner Res* 21(1):105-12.

Gene Expression Microarrays

- Kerr MK, Martin M, Churchill GA. 2000. Analysis of variance for gene expression microarray data. *J Comput Biol* 7:819-837.
- Churchill GA, Oliver B. 2001. Sex, flies and microarrays. *Nat Genet* 29:355-356.
- Kerr MK, Afshari CA, Bennett L, Bushel P, Martinez J, Walker N, Churchill GA. 2001. Statistical analysis of a gene expression microarray experiment with replication. *Statistica Sinica* 12:203-218.
- Kerr MK, Churchill GA. 2001. Bootstrapping cluster analysis: assessing the reliability of conclusions from microarray experiments. *Proc Natl Acad Sci USA* 98:8961-8965.
- Kerr MK, Churchill GA. 2001. Experimental design for gene expression microarrays. *Biostatistics* 2:183-201.
- Kerr MK, Churchill GA. 2001. Statistical design and the analysis of gene expression microarray data. *Genet Res* 77:123-128.
- Churchill, GA. 2002. Fundamentals of experimental design for cDNA microarrays. *Nat Genet* 32 Suppl 2:490-495.
- Oleksiak M, Churchill GA, Crawford DL. 2002. Variation in gene expression within and among natural populations. *Nat Genet* 32(2):261-266.

- Cui XQ, Churchill GA. 2003. Statistical tests for differential expression in cDNA microarray experiments. *Genome Biology* 4:210.1-210.9.
- Cui XQ, Kerr MK, Churchill GA. 2003. Transformations for cDNA microarray data. *Statistical Applications in Genetics and Molecular Biology*, volume 2, article 4.
- Wu H, Kerr MK, Cui XQ, Churchill GA. 2003. MAANOVA: A Software Package for the Analysis of Spotted cDNA Microarray Experiments in the Analysis of Gene Expression Data: An Overview of Methods and Software, Parmigiani G, Garret ES, Irizarry RA, Zeger SL, [eds], Springer, N.Y.
- Kerr MK, Leiter EH, Picard L, Churchill GA. 2002. Sources of Variation in Microarray Experiments. In: *Computational and Statistical Approaches to Genomics*, Wei Zhang and Ilya Shmulevich (eds). Kluwer Academic Publishers 41-51.
- Cui XQ, Churchill GA. 2003. How many mice and how many arrays? Replication in mouse cDNA microarray experiments in *Methods of Microarray Data Analysis III*, Kimberly F. Johnson and Simon M. Lin (eds). Kluwer Academic Publishers, Norwell, MA. 139-154.
- Churchill GA. 2004. Using ANOVA to analyze microarray data. *Biotechniques* 37(2):173-175.
- Lobenhofer EK, Cui XQ, Bennett L, Cable PL, Merrick BA, Churchill GA, Afshari CA. 2004. Exploration of low dose estrogen effects: Identification of No Observed Transcriptional Effect Level (NOTEL). *Toxicol Pathol* 32(4):482-492.
- Mikaelian I, Blades N, Churchill GA, Fancher K, Knowles BB, Eppig JT, Sundberg JP. 2004. Proteotypic classification of spontaneous and transgenic mammary neoplasms. *Breast Cancer Res* 6(6):R668-679.
- Woo Y, Affourtit J, Daigle S, Viale A, Johnson K, Naggert J, Churchill GA. 2004. A comparison of cDNA, oligonucleotide, and affymetrix genechip gene expression microarray platforms. *J Biomol Tech* 15(4):276-284.
- Cui, XQ, Hwang JT, Qiu J, Blades NJ, Churchill GA. 2005. Improved statistical tests for differential gene expression by shrinking variance components. *Biostatistics* 6(1):59-75.
- Woo Y, Krueger W, Kaur A, Churchill GA. 2005. Experimental design for three-color and four-color gene expression microarrays. *Bioinformatics* 21:i459-i467.

Other

- Breslow N, Churchill GA, Beckwith JB, Fernbach DJ, Otherson HB, Tefft M, D'Angio G. 1985. Prognosis for Wilms tumor patients with nonmetastatic disease at diagnosis: Results of the Second National Wilms Tumor study. *J Clin Oncol* 3:521-531.
- Breslow N, Churchill GA, Nesmith B, Thomas PRM, Beckwith JB, Otherson HB, D'Angio G. 1986. Clinicopathological features and prognosis for Wilms tumor patients with metastases at diagnosis. *Cancer* 58:2501-2511.
- Reeb-Whitaker CK, Paigen B, Beamer WG, Bronson RT, Churchill GA, Schweitzer IB, Myers DD. 2001. The impact of reduced frequency of cage changes on the health of mice housed in ventilated cages. *Lab Anim* 35:58-73.
- Petkov PM, Graber JH, Churchill GA, DiPetrillo K, King BL, Paigen K. 2005. Evidence of a Large-Scale Functional Organization of Mammalian Chromosomes. *PLoS Genetics* 1(3)0001-0011.

Book Chapters

- Churchill GA. 1995. Accurate restoration of DNA sequences. In: *Case Studies in Bayesian Statistics 2*, Gatsaris C, Hodges JS, Kass RE, Singpurwalla ND (eds).
- Churchill GA. 1998. Hidden Markov models. In: *Encyclopedia of Biostatistics*. John Wiley & Sons, Ltd 3:1908-1916.
- Churchill GA, Doerge RW. 1998. Mapping quantitative trait loci in experimental populations. In: *Molecular Dissection of Complex Traits*, Paterson AH (ed). CRC Press 31-41.
- Churchill GA. 2000. Complexity and uncertainty in genetics. *Sig Bio Newsletter* 19:3-8.
- Churchill GA. 2001. Inferring ancestral character states. In: *Limits to Knowledge in Evolutionary Genetics*, Clegg M (ed). Plenum Press.
- Churchill GA. 2001. Epistasis. In: *Encyclopedia of Genetics*. Academic Press, New York.
- Kerr MK, Leiter EH, Picard L, Churchill GA. 2002. Sources of Variation in Microarray Experiments. In: *Computational and Statistical Approaches to Genomics*, Wei Zhang and Ilya Shmulevich (eds). Kluwer Academic Publishers 41-51.
- Cui XQ, Churchill GA. 2003. How many mice and how many arrays? Replication in mouse cDNA microarray experiments in *Methods of Microarray Data Analysis III*, Kimberly F. Johnson and Simon M. Lin (eds). Kluwer Academic Publishers, Norwell, MA. 139-154.