

## **PATRICK O. BROWN, Ph.D., M.D.**

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### **Education**

- 1976 University of Chicago, B.A., with honors  
Major: Chemistry
- 1980 University of Chicago, Ph.D. in Biochemistry  
Thesis: Studies on DNA Topoisomerases  
Advisor: Nicholas R. Cozzarelli, Ph.D.
- 1982 University of Chicago, M.D., with honors

### **Post-Graduate Training and Experience**

- 1982-1985 Pediatrics Residency, Children's Memorial Hospital; Chicago  
1987 Diplomate, American Board of Pediatrics.
- 1985-1988 Postdoctoral fellow, University of California, San Francisco.  
Advisors: J. Michael Bishop & Harold E. Varmus.
- 1988-1994 Assistant Professor, Departments of Pediatrics and  
Biochemistry, Stanford University School of Medicine
- 1988-1997 Assistant Investigator, Howard Hughes Medical Institute.
- 1990-1999 Associate Editor, Virology
- 1994-1997 Editorial Board, Journal of Virology.
- 1995-2000 Associate Professor, Department of Biochemistry,  
Stanford University School of Medicine
- 1997-2002 Associate Investigator, Howard Hughes Medical Institute
- 1999-present Editorial Advisory Board, Genome Biology
- 2000-present Professor, Department of Biochemistry,  
Stanford University School of Medicine
- 2000-2003 PubMed Central Advisory Committee
- 2002-2013 Investigator, Howard Hughes Medical Institute
- 2002-present Founder and co-director, Public Library of Science
- 2002-2007 Editorial Board, PNAS
- 2002-2010 Scientific Advisory Board, St. Jude Children's Research  
Hospital
- 2004-2012 Scientific Advisory Board, Canary Foundation
- 2011-present Founder and Director, Impossible Foods, Inc. (Replacing  
animals in the global food system).
- 2011-present Founder, Lyrical Foods, Inc. /Kite Hill
- 2011-2022 CEO, Impossible Foods, Inc.
- 2022-present Founder, President, Impossible Foundation

## Awards and Honors

1976-1982	Medical Scientist Training Program scholarship
1980	William Rainey Harper Fellowship
1981	Marc Perry Galler Prize, University of Chicago
1982	Harold Lumpert Research Award, University of Chicago
1982	John Van Prohaska Award, University of Chicago
1985-1988	Lucille P. Markey Scholar
1998	Jacob Heskell Gabbay Award in Biotechnology and Medicine
1999	Fellow, American Association for the Advancement of Science
2000	National Academy of Sciences Award in Molecular Biology
2001	Member, National Academy of Sciences
2002	Discover Magazine Innovation Award
2002	Takeda Foundation Award
2002	Helsinki Biotechnology Prize
2003	ASM-Promega Biotechnology Award
2004	Wired Magazine Rave Award
2005	World Technology Award
2005	Scientific American SA50
2005	Curt Stern Award, American Society for Human Genetics
2006	American Cancer Society Medal of Honor
2009	Member, National Academy of Medicine
2010	ABRF Award
2010	Association for Molecular Pathology Award
2012	Stanford Inventors Hall of Fame
2018	UN Champion of the Earth Award (Impossible Foods)
2019	UN Global Climate Action Award (Impossible Foods)
2020	IPOEF Inventor of the year
2022	Honorary Doctor of Science, Duke University
2023	Honorary Doctor of Science, SUNY Upstate Medical University

## Publications (reverse chronological order)

1. Eisen M, Brown PO. 2022. Rapid global phaseout of animal agriculture has the potential to stabilize greenhouse gas levels for 30 years and offset 68 percent of CO<sub>2</sub> emissions this century. *PLOS Climate* 1: e0000010.
2. Koh W, Gonzalez V, Natarajan S, Brown PO, Gawad C. 2016. Dynamic ASXL1 Exon Skipping and Alternative Circular Splicing in Single Human Cells. *PLoS One* 11:e0164085.
3. Krusemark CJ, Tillmans N, Brown PO, Harbury P. 2016. Directed Chemical Evolution with an Outsized Genetic Code. *PLoS One* :e0154765.
4. Hogan GJ, Brown PO, Herschlag D. 2015. Evolutionary Conservation and Diversification of Puf RNA Binding Proteins and Their mRNA Targets. *PLoS Biol.* 13:e1002307.
5. Riordan DP, Varma S, West RB, Brown PO. 2015. Automated Analysis and Classification of Histological Tissue Features by Multi-Dimensional Microscopic Molecular Profiling. *PLoS One* 10:e0128975.
6. Isobe T, Hisamori S, Hogan DJ, Zabala M, Hendrickson DG, Dalerba P, Cai S, Scheeren F, Kuo AH, Sikandar SS, Lam JS, Qian D, Dirbas FM, Somlo G, Lao K, Brown PO, Clarke MF, Shimono Y. 2014. miR-142 regulates the tumorigenicity of human breast cancer stem cells through the canonical WNT signaling pathway. *Elife*. PMID:PMC4235011.
7. Lovejoy A, Riordan D, Brown PO. 2014. Transcriptome-Wide Mapping of Pseudouridines: Pseudouridine Synthases Modify Specific mRNAs in *Saccharomyces cerevisiae*. *PLoS One* 9:e110799..
8. Lareau LF, Hite DH, Brown PO. 2014. Distinct stages of the translation elongation cycle revealed by sequencing ribosome-protected mRNA fragments. *Elife* 3:e01257.
9. Wang PL, Bao Y, Yee MC, Barrett SP, Hogan GJ, Olsen MN, Dinneny JR, Brown PO, Salzman J. 2014. Circular RNA is expressed across the eukaryotic tree of life. *PLoS One*. 9:e90859.
10. Salzman J, Chen RE, Olsen ME, Wang PL, Brown PO. 2013. Regulated features of circular RNA expression. *PLoS Genetics* 9:e1003777.
11. Klass DM, Scheibe M, Butter F, Hogan GJ, Mann M, Brown PO. 2013. Quantitative proteomic analysis reveals concurrent RNA-protein interactions and identifies new RNA-binding proteins in *Saccharomyces cerevisiae*. *Genome Res* 23:1028-38.
12. Salzman J, Klass DM, Brown PO. 2013. Improved discovery of molecular interactions in genome-scale data with adaptive model-based normalization.

PLoS One 8:e53930.

13. Tsvetanova NG, Riordan DP, Brown PO. 2012. The yeast Rab GTPase Ypt1 modulates unfolded protein response dynamics by regulating the stability of HAC1 RNA. *PLoS Genet* 8: e1002862.
14. Bates JG, Salzman J, May D, Garcia PB, Hogan GJ, et al. 2012. Extensive Gene-Specific Translational Reprogramming in a Model of B Cell Differentiation and Abl-Dependent Transformation. *PLoS ONE* 7: e37108.
15. Casolari JM, Thomson MA, Moerner WE, Brown PO. 2012. Widespread mRNA Association with Cytoskeletal Motor Proteins and Identification and Dynamics of Myosin-Associated mRNAs in *S. cerevisiae*. *PLoS ONE* 7(2): e31912.
16. Salzman J, Gawad C, Wang PL, Lacayo N, Brown PO. 2012. Circular RNAs are the predominant transcript isoform from hundreds of human genes in diverse cell types. *PLoS ONE* 7(2): e30733
17. Salzman J, Marinelli RJ, Wang PL, Green AE, Nielsen JS, Nelson BH, Drescher CW, Brown PO. 2011. ESRRA-C11orf20 is a Recurrent Gene Fusion in Serous Ovarian Carcinoma. *PLoS Biol.* 9:e1001156.
18. del Alamo M, Hogan DJ, Pechmann S, Albanese V, Brown PO, Frydman J. 2011. Defining the specificity of cotranslationally acting chaperones by systematic analysis of mRNAs associated with ribosome-nascent chain complexes. *PLoS Biol.* 9:e1001100.
19. Riordan DP, Herschlag D, Brown PO. 2011. Identification of recognition elements for specific RNA-binding proteins in the yeast transcriptome. *Nucleic Acids Res.* 39:1501-9.
20. Rubins KM, Hensley LE, Relman DA, Brown PO. 2011. Stunned silence: Gene expression program in human cells infected with monkeypox or vaccinia virus. *PLoS One* 6:e15615.
21. Thompson MA, Casolari JM, Badieirostami M, Brown PO, Moerner WE. 2010. Three-dimensional tracking of single mRNA particles in *S. cerevisiae* using a Double-Helix Point Spread Function. *Proc Natl Acad Sci USA* 107:17864-71.
22. Tsvetanova NG, Klass DM, Salzman J, Brown PO. 2010. Proteome-Wide Search Reveals Unexpected RNA-Binding Proteins in *Saccharomyces cerevisiae*. *PLoS One* 5: e12671.
23. Stodden V, et al. 2010. Reproducible Research: The Need for Data and Code Sharing in Computational Science. *Computing in Science and Engineering*, in press.
24. Gleick PH, et al. 2010. Climate change and the integrity of science. *Science* 328:689-90.

25. Waddell SJ, Popper SJ, Rubins KH, Griffiths MJ, Brown PO, Levin M, Relman DA. 2010. Dissecting interferon-induced transcriptional programs in human peripheral blood cells. *PLoS One* 5:e9753.
26. Houshdaran S, Hawley S, Palmer C, Campan M, Olsen MN, Ventura AP, Knudsen BS, Drescher CW, Urban ND, Brown PO, Laird PW. 2010. DNA methylation profiles of ovarian epithelial carcinoma tumors and cell lines. *PLoS One* 5:e9359.
27. Hendrickson DG, Hogan DJ, McCullough HL, Myers JW, Herschlag D, Ferrell JE, Brown PO. 2009. Concordant regulation of translation and mRNA decay for hundreds of targets of a human microRNA. *PLoS Biology* 7:e1000238.
28. Brown PO, Palmer C. 2009. The preclinical natural history of serous ovarian cancer: defining the target for early detection. *PLoS Medicine* 6: e1000114.
29. Palmer C, Duan X, Hawley S, Scholler N, Thorpe JD, Sahota RA, Wong MQ, Wray A, Bergan LA, Drescher CW, McIntosh MW, Brown PO, Nelson BH, Urban N. 2008. Systematic evaluation of candidate blood markers for detecting ovarian cancer. *PLoS ONE*.3:e2633.
30. Rubins KH, Hensley LE, Bell GW, Wang C, Lefkowitz EJ, Brown PO, Relman DA "Comparative Analysis of Viral Gene Expression Programs during Poxvirus Infection: A Transcriptional Map of the Vaccinia and Monkeypox Genomes." *PLoS ONE* 2008; 3: 7: e2628.
31. Hogan DJ, Riordan DP, Gerber AP, Herschlag D, Brown PO "Diverse RNA-binding proteins interact with functionally related sets of RNAs, suggesting an extensive regulatory system." *PLoS Biol* 2008; 6: 10: e255.
32. Hendrickson DG, Hogan DJ, Herschlag D, Ferrell JE, Brown PO "Systematic Identification of mRNAs Recruited to Argonaute 2 by Specific microRNAs and Corresponding Changes in Transcript Abundance." *PLoS ONE* 2008; 3: 5: e2126.
33. Halbleib JM, Sääf AM, Brown PO, Nelson WJ "Transcriptional Modulation of Genes Encoding Structural Characteristics of Differentiating Enterocytes During Development of a Polarized Epithelium In Vitro." *Mol Biol Cell* 2007; 18:4261-78.
34. Sääf AM, Halbleib JM, Chen X, Tsan Yuen S, Yi Leung S, Nelson WJ, Brown PO "Parallels between Global Transcriptional Programs of Polarizing Caco-2 Intestinal Epithelial Cells In Vitro and Gene Expression Programs in Normal and Colon Cancer." *Mol Biol Cell* 2007; 18:4245-60.
35. Palmer C, Bik EM, Digiulio DB, Relman DA, Brown PO "Development of the Human Infant Intestinal Microbiota." *PLoS Biol* 2007; 5: 7: e177.
36. Buess M, Nuyten DS, Hastie T, Nielsen T, Pesich R, Brown PO

- "Characterization of heterotypic interaction effects in vitro to deconvolute global gene expression profiles in cancer." *Genome Biol* 2007; 8: 9: R191.
37. Popper SJ, Shimizu C, Shike H, Kanegaye JT, Newburger JW, Sundel RP, Brown PO, Burns JC, Relman DA "Gene-expression patterns reveal underlying biological processes in Kawasaki disease." *Genome Biol* 2007; 8: 12: R261.
  38. Hurowitz EH, Drori I, Stodden VC, Donoho DL, Brown PO "Virtual Northern analysis of the human genome." *PLoS ONE* 2007; 2: 5: e460.
  39. Klapholz-Brown Z, Walmsley GG, Nusse YM, Nusse R, Brown PO "Transcriptional program induced by wnt protein in human fibroblasts suggests mechanisms for cell cooperativity in defining tissue microenvironments." *PLoS ONE* 2007; 2: 9: e945.
  40. Chi JT, Rodriguez EH, Wang Z, Nuyten DS, Mukherjee S, van de Rijn M, van de Vijver MJ, Hastie T, Brown PO "Gene expression programs of human smooth muscle cells: tissue-specific differentiation and prognostic significance in breast cancers." *PLoS Genet* 2007; 3: 9: 1770-84.
  41. Lowe AW, Olsen M, Hao Y, Lee SP, Taek Lee K, Chen X, van de Rijn M, Brown PO "Gene expression patterns in pancreatic tumors, cells and tissues." *PLoS ONE* 2007; 2: e323.
  42. Marinelli RJ, Montgomery K, Liu CL, Shah NH, Prapong W, Nitzberg M, Zachariah ZK, Sherlock GJ, Natkunam Y, West RB, Rijn MV, Brown PO, Ball CA "The Stanford tissue microarray database." *Nucleic Acids Res* 2007; 36:D871-7.
  43. Rubins KH, Hensley LE, Wahl-Jensen V, Daddario Dicaprio KM, Young H, Reed DS, Jahrling PB, Brown PO, Relman DA, Geisbert TW "The temporal program of peripheral blood gene expression in the response of non-human primates to Ebola hemorrhagic fever." *Genome Biol* 2007; 8: 8: R174.
  44. Sood R, Zehnder JL, Druzin ML, Brown PO "Gene expression patterns in human placenta." *Proc Natl Acad Sci U S A* 2006; 103:5478-83.
  45. Gerber AP, Luschnig S, Krasnow MA, Brown PO, Herschlag D "Genome-wide identification of mRNAs associated with the translational regulator PUMILIO in *Drosophila melanogaster*." *Proc Natl Acad Sci U S A* 2006; 103: 12: 4487-92.
  46. Soen Y, Mori A, Palmer TD, Brown PO "Exploring the regulation of human neural precursor cell differentiation using arrays of signaling microenvironments." *Mol Syst Biol* 2006; 2: 37.
  47. Chi JT, Wang Z, Nuyten DS, Rodriguez EH, Schaner ME, Salim A, Wang Y, Kristensen GB, Helland A, Børresen-Dale AL, Giaccia A, Longaker MT, Hastie T, Yang GP, Vijver MJ, Brown PO "Gene Expression Programs in Response to Hypoxia: Cell Type Specificity and Prognostic Significance in

- Human Cancers." *PLoS Med* 2006; 3: 3: e47.
48. Diehn M, Bhattacharya R, Botstein D, Brown PO "Genome-Scale Identification of Membrane-Associated Human mRNAs." *PLoS Genet* 2006; 2: 1: e11.
  49. Palmer C, Bik EM, Eisen MB, Eckburg PB, Sana TR, Wolber PK, Relman DA, Brown PO "Rapid quantitative profiling of complex microbial populations." *Nucleic Acids Res* 2006; 34: 1: e5.
  50. Nuyten DS, Kreike B, Hart AA, Chi JT, Sneddon JB, Wessels LF, Peterse HJ, Bartelink H, Brown PO, Chang HY, van de Vijver MJ "Predicting a local recurrence after breast-conserving therapy by gene expression profiling." *Breast Cancer Res* 2006; 8: 5: R6.
  51. Sneddon JB, Zhen HH, Montgomery K, van de Rijn M, Tward AD, West R, Gladstone H, Chang HY, Morganroth GS, Oro AE, Brown PO "Bone morphogenetic protein antagonist gremlin 1 is widely expressed by cancer-associated stromal cells and can promote tumor cell proliferation." *Proc Natl Acad Sci U S A* 2006; 103: 40: 14842-7.
  52. Brown PO, "Exploring along a Crooked Path." *Am J Hum Genet* 2006; 79: 3: 429-33.
  53. Kapp AV, Jeffrey SS, Langerød A, Børresen-Dale AL, Han W, Noh DY, Bukholm IR, Nicolau M, Brown PO, Tibshirani R "Discovery and validation of breast cancer subtypes." *BMC Genomics* 2006; 7: 231.
  54. Rinn JL, Bondre C, Gladstone HB, Brown PO, Chang HY "Anatomic demarcation by positional variation in fibroblast gene expression programs." *PLoS Genet* 2006; 2: 7: e119.
  55. Palmer C, Diehn M, Alizadeh AA, Brown PO "Cell-type specific gene expression profiles of leukocytes in human peripheral blood." *BMC Genomics* 2006; 7: 115.
  56. Demeter J, Beauheim C, Gollub J, Hernandez-Boussard T, Jin H, Maier D, Matese JC, Nitzberg M, Wymore F, Zachariah ZK, Brown PO, Sherlock G, Ball CA "The Stanford Microarray Database: implementation of new analysis tools and open source release of software." *Nucleic Acids Res* 2006; 35:D766-70.
  57. Myers JW, Chi J-T, Gong D, Schaner ME, Brown PO, Ferrell JE. "Minimizing off-target effects by using diced siRNAs for RNA interference". *J RNAi Gene Silencing*. 2006 July; 2(2): 181–194.
  58. West RB, Rubin BP, Miller MA, Subramanian S, Kaygusuz G, Montgomery K, Zhu S, Marinelli RJ, De Luca A, Downs-Kelly E, Goldblum JR, Corless CL, Brown PO, Gilks CB, Nielsen TO, Huntsman D, van de Rijn M "A landscape effect in tenosynovial giant-cell tumor from activation of CSF1 expression by a translocation in a minority of tumor cells." *Proc Natl Acad Sci U S A* 2006;

103: 3: 690-5.

59. West RB, Nuyten DS, Subramanian S, Nielsen TO, Corless CL, Rubin BP, Montgomery K, Zhu S, Patel R, Hernandez-Boussard T, Goldblum JR, Brown PO, Vijver MV, Rijn MV "Determination of Stromal Signatures in Breast Carcinoma." *PLoS Biol* 2005; 3: 6: e187.
60. Arava Y, Boas FE, Brown PO, Herschlag D "Dissecting eukaryotic translation and its control by ribosome density mapping." *Nucleic Acids Res* 2005; 33: 8: 2421-32.
61. Shyamsundar R, Kim YH, Higgins JP, Montgomery K, Jordan M, Sethuraman A, van de Rijn M, Botstein D, Brown PO, Pollack JR "A DNA microarray survey of gene expression in normal human tissues." *Genome Biol* 2005; 6: 3: R22.
62. Chang HY, Nuyten DS, Sneddon JB, Hastie T, Tibshirani R, Sørlie T, Dai H, He YD, van't Veer LJ, Bartelink H, van de Rijn M, Brown PO, van de Vijver MJ "Robustness, scalability, and integration of a wound-response gene expression signature in predicting breast cancer survival." *Proc Natl Acad Sci U S A* 2005; 102: 10: 3738-43.
63. Liang Y, Diehn M, Watson N, Bollen AW, Aldape KD, Nicholas MK, Lamborn KR, Berger MS, Botstein D, Brown PO, Israel MA "Gene expression profiling reveals molecularly and clinically distinct subtypes of glioblastoma multiforme." *Proc Natl Acad Sci U S A* 2005; 102: 16: 5814-9.
64. Diehn JJ, Diehn M, Marmor MF, Brown PO "Differential gene expression in anatomical compartments of the human eye." *Genome Biol* 2005; 6: 9: R74.
65. Chen DS, Soen Y, Stuge TB, Lee PP, Weber JS, Brown PO, Davis MM "Marked Differences in Human Melanoma Antigen-Specific T Cell Responsiveness after Vaccination Using a Functional Microarray." *PLoS Med* 2005; 2: 10: e265.
66. Ball CA, Awad IA, Demeter J, Gollub J, Hebert JM, Hernandez-Boussard T, Jin H, Matese JC, Nitzberg M, Wymore F, Zachariah ZK, Brown PO, Sherlock G "The Stanford Microarray Database accommodates additional microarray platforms and data formats." *Nucleic Acids Res* 2005; 33: Database issue: D580-2.
67. West RB, Harvell J, Linn SC, Lui CL, Prapong W, Hernandez-Boussard T, Montgomery K, Nielsen TO, Rubin BP, Patel R, Goldblum JR, Brown PO, van de Rijn M "Apo D in soft tissue tumors: a novel marker for dermatofibrosarcoma protuberans." *Am J Surg Pathol* 2004; 28: 8: 1063-9. pdf
68. West RB, Corless CL, Chen X, Rubin BP, Subramanian S, Montgomery K, Zhu S, Ball CA, Nielsen TO, Patel R, Goldblum JR, Brown PO, Heinrich MC, van de Rijn M "The novel marker, DOG1, is expressed ubiquitously in gastrointestinal stromal tumors irrespective of KIT or PDGFRA mutation



- status." *Am J Pathol* 2004; 165: 1: 107-13.
69. Munagala K, Tibshirani R, Brown PO "Cancer characterization and feature set extraction by discriminative margin clustering." *BMC Bioinformatics* 2004; 5: 1: 21
  70. Gerber AP, Herschlag D, Brown PO "Extensive Association of Functionally and Cytotopically Related mRNAs with Puf Family RNA-Binding Proteins in Yeast." *PLoS Biol* 2004; 2: 3: E79.
  71. Murray JI, Whitfield ML, Trinklein ND, Myers RM, Brown PO, Botstein D "Diverse and specific gene expression responses to stresses in cultured human cells." *Mol Biol Cell* 2004; 15: 5: 2361-74.
  72. Piedras-Rentería ES, Pyle JL, Diehn M, Glickfeld LL, Harata NC, Cao Y, Kavalali ET, Brown PO, Tsien RW "Presynaptic homeostasis at CNS nerve terminals compensates for lack of a key Ca<sup>2+</sup> entry pathway." *Proc Natl Acad Sci U S A* 2004; 101: 10: 3609-14.
  73. Shakoury-Elizeh M, Tiedeman J, Rashford J, Ferea T, Demeter J, Garcia E, Rolfes R, Brown PO, Botstein D, Philpott CC "Transcriptional remodeling in response to iron deprivation in *Saccharomyces cerevisiae*." *Mol Biol Cell* 2004; 15: 3: 1233-43.
  74. Lapointe J, Li C, Higgins JP, van de Rijn M, Bair E, Montgomery K, Ferrari M, Egevad L, Rayford W, Bergerheim U, Ekman P, DeMarzo AM, Tibshirani R, Botstein D, Brown PO, Brooks JD, Pollack JR "Gene expression profiling identifies clinically relevant subtypes of prostate cancer." *Proc Natl Acad Sci U S A* 2004; 101: 3: 811-6.
  75. Eisen MB, Brown PO, Varmus HE "PLoS Medicine - a medical journal for the internet age" *PLoS Medicine* 2004; 1: 1: e31.
  76. Higgins JP, Wang L, Kambham N, Montgomery K, Mason V, Vogelmann SU, Lemley KV, Brown PO, Brooks JD, van de Rijn M "Gene expression in the normal adult human kidney assessed by complementary DNA microarray." *Mol Biol Cell* 2004; 15: 2: 649-56.
  77. Rubins KH, Hensley LE, Jahrling PB, Whitney AR, Geisbert TW, Huggins JW, Owen A, Leduc JW, Brown PO, Relman DA "The host response to smallpox: analysis of the gene expression program in peripheral blood cells in a nonhuman primate model." *Proc Natl Acad Sci U S A* 2004; 101: 42: 15190-5.
  78. Tu IP, Schaner M, Diehn M, Sikic BI, Brown PO, Botstein D, Fero MJ "A method for detecting and correcting feature misidentification on expression microarrays." *BMC Genomics* 2004; 5: 1: 64.
  79. Peter BJ, Arsuaga J, Breier AM, Khodursky AB, Brown PO, Cozzarelli NR "Genomic transcriptional response to loss of chromosomal supercoiling in *Escherichia coli*." *Genome Biol* 2004; 5: 11: R87.

80. McCaffrey RL, Fawcett P, O'Riordan M, Lee KD, Havell EA, Brown PO, Portnoy DA "A specific gene expression program triggered by Gram-positive bacteria in the cytosol." *Proc Natl Acad Sci U S A* 2004; 101: 31: 11386-91.
81. Chang HY, Sneddon JB, Alizadeh AA, Sood R, West RB, Montgomery K, Chi JT, Rijn Mv M, Botstein D, Brown PO "Gene Expression Signature of Fibroblast Serum Response Predicts Human Cancer Progression: Similarities between Tumors and Wounds." *PLoS Biol* 2004; 2: 2: E7.
82. Hurowitz EH, Brown PO "Genome-wide analysis of mRNA lengths in *Saccharomyces cerevisiae*." *Genome Biol* 2003; 5: 1: R2.
83. Iacobuzio-Donahue CA, Maitra A, Olsen M, Lowe AW, van Heek NT, Rosty C, Walter K, Sato N, Parker A, Ashfaq R, Jaffee E, Ryu B, Jones J, Eshleman JR, Yeo CJ, Cameron JL, Kern SE, Hruban RH, Brown PO, Goggins M "Exploration of global gene expression patterns in pancreatic adenocarcinoma using cDNA microarrays." *Am J Pathol* 2003; 162: 4: 1151-62.
84. Linn SC, West RB, Pollack JR, Zhu S, Hernandez-Boussard T, Nielsen TO, Rubin BP, Patel R, Goldblum JR, Siegmund D, Botstein D, Brown PO, Gilks CB, van de Rijn M "Gene expression patterns and gene copy number changes in dermatofibrosarcoma protuberans." *Am J Pathol* 2003; 163: 6: 2383-95.
85. Chi JT, Chang HY, Haraldsen G, Jahnsen FL, Troyanskaya OG, Chang DS, Wang Z, Rockson SG, van de Rijn M, Botstein D, Brown PO "Endothelial cell diversity revealed by global expression profiling." *Proc Natl Acad Sci U S A* 2003; 100: 19: 10623-8.
86. Schaner ME, Ross DT, Ciaravino G, Sorlie T, Troyanskaya O, Diehn M, Wang YC, Duran GE, Sikic TL, Caldeira S, Skomedal H, Tu IP, Hernandez-Boussard T, Johnson SW, O'Dwyer PJ, Fero MJ, Kristensen GB, Borresen-Dale AL, Hastie T, Tibshirani R, van de Rijn M, Teng NN, Longacre TA, Botstein D, Brown PO, Sikic BI "Gene expression patterns in ovarian carcinomas." *Mol Biol Cell* 2003; 14: 11: 4376-86.
87. Chen X, Leung SY, Yuen ST, Chu KM, Ji J, Li R, Chan AS, Law S, Troyanskaya OG, Wong J, So S, Botstein D, Brown PO "Variation in gene expression patterns in human gastric cancers." *Mol Biol Cell* 2003; 14: 8: 3208-15.
88. Sorlie T, Tibshirani R, Parker J, Hastie T, Marron JS, Nobel A, Deng S, Johnsen H, Pesich R, Geisler S, Demeter J, Perou CM, Lønning PE, Brown PO, Børresen-Dale AL, Botstein D "Repeated observation of breast tumor subtypes in independent gene expression data sets." *Proc Natl Acad Sci U S A* 2003; 100: 14: 8418-23.
89. Holterhus PM, Hiort O, Demeter J, Brown PO, Brooks JD "Differential gene-expression patterns in genital fibroblasts of normal males and 46,XY females

- with androgen insensitivity syndrome: evidence for early programming involving the androgen receptor." *Genome Biol* 2003; 4: 6: R37.
90. Nagy PL, Cleary ML, Brown PO, Lieb JD "Genomewide demarcation of RNA polymerase II transcription units revealed by physical fractionation of chromatin." *Proc Natl Acad Sci U S A* 2003; 100: 11: 6364-9.
91. Chi JT, Chang HY, Wang NN, Chang DS, Dunphy N, Brown PO "Genomewide view of gene silencing by small interfering RNAs." *Proc Natl Acad Sci U S A* 2003; 100: 11: 6343-6.
92. Arava Y, Wang Y, Storey JD, Liu CL, Brown PO, Herschlag D "Genomewide analysis of mRNA translation profiles in *Saccharomyces cerevisiae*." *Proc Natl Acad Sci U S A* 2003; 100: 7: 3889-94.
93. Alter O, Brown PO, Botstein D "Generalized singular value decomposition for comparative analysis of genome-scale expression data sets of two different organisms." *Proc Natl Acad Sci U S A* 2003; 100: 6: 3351-6.
94. Whitney AR, Diehn M, Popper SJ, Alizadeh AA, Boldrick JC, Relman DA, Brown PO "Individuality and variation in gene expression patterns in human blood." *Proc Natl Acad Sci U S A* 2003; 100: 4: 1896-901.
95. Bohen SP, Troyanskaya OG, Alter O, Warnke R, Botstein D, Brown PO, Levy R "Variation in gene expression patterns in follicular lymphoma and the response to rituximab." *Proc Natl Acad Sci U S A* 2003; 100: 4: 1926-30.
96. Baldwin DN, Vanchinathan V, Brown PO, Theriot JA "A gene-expression program reflecting the innate immune response of cultured intestinal epithelial cells to infection by *Listeria monocytogenes*." *Genome Biol* 2003; 4: 1: R2.
97. Diehn M, Sherlock G, Binkley G, Jin H, Matese JC, Hernandez-Boussard T, Rees CA, Cherry JM, Botstein D, Brown PO, Alizadeh AA "SOURCE: a unified genomic resource of functional annotations, ontologies, and gene expression data." *Nucleic Acids Res* 2003; 31: 1: 219-23.
98. Gollub J, Ball CA, Binkley G, Demeter J, Finkelstein DB, Hebert JM, Hernandez-Boussard T, Jin H, Kaloper M, Matese JC, Schroeder M, Brown PO, Botstein D, Sherlock G "The Stanford Microarray Database: data access and quality assessment tools." *Nucleic Acids Res* 2003; 31: 1: 94-6.
99. Roose JP, Diehn M, Tomlinson MG, Lin J, Alizadeh AA, Botstein D, Brown PO, Weiss A "T cell receptor-independent basal signaling via Erk and Abl kinases suppresses RAG gene expression." *PLoS Biol* 2003; 1: 2: E53.
100. Sperger JM, Chen X, Draper JS, Antosiewicz JE, Chon CH, Jones SB, Brooks JD, Andrews PW, Brown PO, Thomson JA "Gene expression patterns in human embryonic stem cells and human pluripotent germ cell tumors." *Proc Natl Acad Sci U S A* 2003; 100: 23: 13350-5.

101. Brown PO, Eisen MB, Varmus HE "Why PLoS became a publisher." *PLoS Biol* 2003; 1: 1: E36.
102. Whitfield ML, Finlay DR, Murray JI, Troyanskaya OG, Chi JT, Pergamenschikov A, McCalmont TH, Brown PO, Botstein D, Connolly MK "Systemic and cell type-specific gene expression patterns in scleroderma skin." *Proc Natl Acad Sci U S A* 2003; 100: 21: 12319-24.
103. Nielsen TO, Hsu FD, O'Connell JX, Gilks CB, Sorensen PH, Linn S, West RB, Liu CL, Botstein D, Brown PO, van de Rijn M "Tissue microarray validation of epidermal growth factor receptor and SALL2 in synovial sarcoma with comparison to tumors of similar histology." *Am J Pathol* 2003; 163: 4: 1449-56.
104. Shepard KA, Gerber AP, Jambhekar A, Takizawa PA, Brown PO, Herschlag D, DeRisi JL, Vale RD "Widespread cytoplasmic mRNA transport in yeast: identification of 22 bud-localized transcripts using DNA microarray analysis." *Proc Natl Acad Sci U S A* 2003; 100: 20: 11429-34.
105. Soen Y, Chen DS, Kraft DL, Davis MM, Brown PO "Detection and Characterization of Cellular Immune Responses Using Peptide-MHC Microarrays." *PLoS Biol* 2003; 1: 3: E65.
106. van de Rijn M, Perou CM, Tibshirani R, Haas P, Kallioniemi O, Kononen J, Torhorst J, Sauter G, Zuber M, Köchli OR, Mross F, Dieterich H, Seitz R, Ross D, Botstein D, Brown P "Expression of cytokeratins 17 and 5 identifies a group of breast carcinomas with poor clinical outcome." *Am J Pathol* 2002; 161: 6: 1991-6.
107. Nielsen TO, West RB, Linn SC, Alter O, Knowling MA, O'Connell JX, Zhu S, Fero M, Sherlock G, Pollack JR, Brown PO, Botstein D, van de Rijn M "Molecular characterisation of soft tissue tumours: a gene expression study." *Lancet* 2002; 359: 9314: 1301-7. PDF
108. Troyanskaya OG, Garber ME, Brown PO, Botstein D, Altman RB "Nonparametric methods for identifying differentially expressed genes in microarray data." *Bioinformatics* 2002; 18: 11: 1454-61.
109. Chang HY, Chi JT, Dudoit S, Bondre C, van de Rijn M, Botstein D, Brown PO "Diversity, topographic differentiation, and positional memory in human fibroblasts." *Proc Natl Acad Sci U S A* 2002; 99: 20: 12877-82.
110. Pollack JR, Sørlie T, Perou CM, Rees CA, Jeffrey SS, Lonning PE, Tibshirani R, Botstein D, Børresen-Dale AL, Brown PO "Microarray analysis reveals a major direct role of DNA copy number alteration in the transcriptional program of human breast tumors." *Proc Natl Acad Sci U S A* 2002; 99: 20: 12963-8.
111. Diehn M, Alizadeh AA, Rando OJ, Liu CL, Stankunas K, Botstein D, Crabtree GR, Brown PO "Genomic expression programs and the integration of the CD28 costimulatory signal in T cell activation." *Proc Natl Acad Sci U*

- S A 2002; 99: 18: 11796-801.
112. DePrimo SE, Diehn M, Nelson JB, Reiter RE, Matese J, Fero M, Tibshirani R, Brown PO, Brooks JD "Transcriptional programs activated by exposure of human prostate cancer cells to androgen." *Genome Biol* 2002; 3: 7: RESEARCH0032.
  113. Willert J, Epping M, Pollack JR, Brown PO, Nusse R "A transcriptional response to Wnt protein in human embryonic carcinoma cells." *BMC Dev Biol* 2002; 2: 1: 8.
  114. Sayama K, Diehn M, Matsuda K, Lunderius C, Tsai M, Tam SY, Botstein D, Brown PO, Galli SJ "Transcriptional response of human mast cells stimulated via the Fc(epsilon)RI and identification of mast cells as a source of IL-11." *BMC Immunol* 2002; 3: 1: 5.
  115. Lossos IS, Alizadeh AA, Diehn M, Warnke R, Thorstenson Y, Oefner PJ, Brown PO, Botstein D, Levy R "Transformation of follicular lymphoma to diffuse large-cell lymphoma: alternative patterns with increased or decreased expression of c-myc and its regulated genes." *Proc Natl Acad Sci U S A* 2002; 99: 13: 8886-91.
  116. Whitfield ML, Sherlock G, Saldanha AJ, Murray JI, Ball CA, Alexander KE, Matese JC, Perou CM, Hurt MM, Brown PO, Botstein D "Identification of genes periodically expressed in the human cell cycle and their expression in tumors." *Mol Biol Cell* 2002; 13: 6: 1977-2000.
  117. Chen X, Cheung ST, So S, Fan ST, Barry C, Higgins J, Lai KM, Ji J, Dudoit S, Ng IO, Van De Rijn M, Botstein D, Brown PO "Gene expression patterns in human liver cancers." *Mol Biol Cell* 2002; 13: 6: 1929-39.
  118. Yoshimoto H, Saltsman K, Gasch AP, Li HX, Ogawa N, Botstein D, Brown PO, Cyert MS "Genome-wide analysis of gene expression regulated by the calcineurin/Crz1p signaling pathway in *Saccharomyces cerevisiae*." *J Biol Chem* 2002; 277: 34: 31079-88.
  119. Wang Y, Liu CL, Storey JD, Tibshirani RJ, Herschlag D, Brown PO "Precision and functional specificity in mRNA decay." *Proc Natl Acad Sci U S A* 2002; 99: 9: 5860-5.
  120. Robinson WH, DiGennaro C, Hueber W, Haab BB, Kamachi M, Dean EJ, Fournel S, Fong D, Genovese MC, de Vegvar HE, Skriner K, Hirschberg DL, Morris RI, Muller S, Pruijn GJ, van Venrooij WJ, Smolen JS, Brown PO, Steinman L, Utz PJ "Autoantigen microarrays for multiplex characterization of autoantibody responses." *Nat Med* 2002; 8: 3: 295-301.
  121. Clément K, Viguerie N, Diehn M, Alizadeh A, Barbe P, Thalamas C, Storey JD, Brown PO, Barsh GS, Langin D "In vivo regulation of human skeletal muscle gene expression by thyroid hormone." *Genome Res* 2002; 12: 2: 281-91.

122. Boldrick JC, Alizadeh AA, Diehn M, Dudoit S, Liu CL, Belcher CE, Botstein D, Staudt LM, Brown PO, Rielman DA "Stereotyped and specific gene expression programs in human innate immune responses to bacteria." *Proc Natl Acad Sci U S A* 2002; 99: 2: 972-7.
123. Leung SY, Chen X, Chu KM, Yuen ST, Mathy J, Ji J, Chan AS, Li R, Law S, Troyanskaya OG, Tu IP, Wong J, So S, Botstein D, Brown PO "Phospholipase A2 group IIA expression in gastric adenocarcinoma is associated with prolonged survival and less frequent metastasis." *Proc Natl Acad Sci U S A* 2002; 99: 25: 16203-8.
124. Tani TH, Khodursky A, Blumenthal RM, Brown PO, Matthews RG "Adaptation to famine: a family of stationary-phase genes revealed by microarray analysis." *Proc Natl Acad Sci U S A* 2002; 99: 21: 13471-6.
125. Eisen MB, Brown PO, Varmus HE "Public-access group supports PubMed Central." *Nature* 2002; 419: 6903: 111.
126. Lin JY, Pollack JR, Chou FL, Rees CA, Christian AT, Bedford JS, Brown PO, Ginsberg MH "Physical mapping of genes in somatic cell radiation hybrids by comparative genomic hybridization to cDNA microarrays." *Genome Biol* 2002; 3: 6: RESEARCH0026.
127. Dunham MJ, Badrane H, Ferea T, Adams J, Brown PO, Rosenzweig F, Botstein D "Characteristic genome rearrangements in experimental evolution of *Saccharomyces cerevisiae*." *Proc Natl Acad Sci U S A* 2002; 99: 25: 16144-9.
128. Garber ME, Troyanskaya OG, Schluens K, Petersen S, Thaesler Z, Pacyna-Gengelbach M, van de Rijn M, Rosen GD, Perou CM, Whyte RI, Altman RB, Brown PO, Botstein D, Petersen I "Diversity of gene expression in adenocarcinoma of the lung." *Proc Natl Acad Sci U S A* 2001; 98: 24: 13784-9.
129. Rothenberg SM, Olsen MN, Laurent LC, Crowley RA, Brown PO "Comprehensive mutational analysis of the Moloney murine leukemia virus envelope protein." *J Virol* 2001; 75: 23: 11851-62.
130. Gasch AP, Huang M, Metzner S, Botstein D, Elledge SJ, Brown PO "Genomic expression responses to DNA-damaging agents and the regulatory role of the yeast ATR homolog Mec1p." *Mol Biol Cell* 2001; 12: 10: 2987-3003.
131. Frueh FW, Hayashibara KC, Brown PO, Whitlock JP "Use of cDNA microarrays to analyze dioxin-induced changes in human liver gene expression." *Toxicol Lett* 2001; 122: 3: 189-203.
132. Lieb JD, Liu X, Botstein D, Brown PO "Promoter-specific binding of Rap1 revealed by genome-wide maps of protein-DNA association." *Nat Genet* 2001; 28: 4: 327-34.

133. Troyanskaya O, Cantor M, Sherlock G, Brown P, Hastie T, Tibshirani R, Botstein D, Altman RB "Missing value estimation methods for DNA microarrays." *Bioinformatics* 2001; 17: 6: 520-5.
134. Courcelle J, Khodursky A, Peter B, Brown PO, Hanawalt PC "Comparative gene expression profiles following UV exposure in wild-type and SOS-deficient *Escherichia coli*." *Genetics* 2001; 158: 1: 41-64.
135. Iyer VR, Horak CE, Scafe CS, Botstein D, Snyder M, Brown PO "Genomic binding sites of the yeast cell-cycle transcription factors SBF and MBF." *Nature* 2001; 409: 6819: 533-8.
136. Hastie T, Tibshirani R, Botstein D, Brown P "Supervised harvesting of expression trees." *Genome Biol* 2001; 2: 1: RESEARCH0003.
137. Haab BB, Dunham MJ, Brown PO "Protein microarrays for highly parallel detection and quantitation of specific proteins and antibodies in complex solutions." *Genome Biol* 2001; 2: 2: RESEARCH0004.
138. Kuhn KM, DeRisi JL, Brown PO, Sarnow P "Global and specific translational regulation in the genomic response of *Saccharomyces cerevisiae* to a rapid transfer from a fermentable to a nonfermentable carbon source." *Mol Cell Biol* 2001; 21: 3: 916-27.
139. Sherlock G, Hernandez-Boussard T, Kasarskis A, Binkley G, Matese JC, Dwight SS, Kaloper M, Weng S, Jin H, Ball CA, Eisen MB, Spellman PT, Brown PO, Botstein D, Cherry JM "The Stanford Microarray Database." *Nucleic Acids Res* 2001; 29: 1: 152-5.
140. Rosenwald A, Alizadeh AA, Widhopf G, Simon R, Davis RE, Yu X, Yang L, Pickeral OK, Rassenti LZ, Powell J, Botstein D, Byrd JC, Grever MR, Cheson BD, Chiorazzi N, Wilson WH, Kipps TJ, Brown PO, Staudt LM "Relation of gene expression phenotype to immunoglobulin mutation genotype in B cell chronic lymphocytic leukemia." *J Exp Med* 2001; 194: 11: 1639-47.
141. Rutherford JC, Jaron S, Ray E, Brown PO, Winge DR "A second iron-regulatory system in yeast independent of Aft1p." *Proc Natl Acad Sci U S A* 2001; 98: 25: 14322-7.
142. Protchenko O, Ferea T, Rashford J, Tiedeman J, Brown PO, Botstein D, Philpott CC "Three cell wall mannoproteins facilitate the uptake of iron in *Saccharomyces cerevisiae*." *J Biol Chem* 2001; 276: 52: 49244-50.
143. Lønning PE, Sørli T, Perou CM, Brown PO, Botstein D, Børresen-Dale AL "Microarrays in primary breast cancer--lessons from chemotherapy studies." *Endocr Relat Cancer* 2001; 8: 3: 259-63.
144. Sørli T, Perou CM, Tibshirani R, Aas T, Geisler S, Johnsen H, Hastie T, Eisen MB, van de Rijn M, Jeffrey SS, Thorsen T, Quist H, Matese JC, Brown PO, Botstein D, Eysteine Lønning P, Børresen-Dale AL "Gene expression

- patterns of breast carcinomas distinguish tumor subclasses with clinical implications." *Proc Natl Acad Sci U S A* 2001; 98: 19: 10869-74.
145. Finlin BS, Gau CL, Murphy GA, Shao H, Kimel T, Seitz RS, Chiu YF, Botstein D, Brown PO, Der CJ, Tamanoi F, Andres DA, Perou CM "RERG is a novel ras-related, estrogen-regulated and growth-inhibitory gene in breast cancer." *J Biol Chem* 2001; 276: 45: 42259-67.
  146. Liu R, Liu H, Chen X, Kirby M, Brown PO, Zhao K "Regulation of CSF1 promoter by the SWI/SNF-like BAF complex." *Cell* 2001; 106: 3: 309-18.
  147. Keller G, Ray E, Brown PO, Winge DR "Haa1, a protein homologous to the copper-regulated transcription factor Ace1, is a novel transcriptional activator." *J Biol Chem* 2001; 276: 42: 38697-702.
  148. Chiang DY, Brown PO, Eisen MB "Visualizing associations between genome sequences and gene expression data using genome-mean expression profiles." *Bioinformatics* 2001; 17 Suppl 1: S49-55.
  149. Li S, Ross DT, Kadin ME, Brown PO, Wasik MA "Comparative genome-scale analysis of gene expression profiles in T cell lymphoma cells during malignant progression using a complementary DNA microarray." *Am J Pathol* 2001; 158: 4: 1231-7.
  150. Roberts RJ, Varmus HE, Ashburner M, Brown PO, Eisen MB, Khosla C, Kirschner M, Nusse R, Scott M, Wold B "Information access. Building a "GenBank" of the published literature." *Science* 2001; 291: 5512: 2318-9.
  151. Miki R, Kadota K, Bono H, Mizuno Y, Tomaru Y, Carninci P, Itoh M, Shibata K, Kawai J, Konno H, Watanabe S, Sato K, Tokusumi Y, Kikuchi N, Ishii Y, Hamaguchi Y, Nishizuka I, Goto H, Nitanda H, Satomi S, Yoshiki A, Kusakabe M, DeRisi JL, Eisen MB, Iyer VR, Brown PO, Muramatsu M, Shimada H, Okazaki Y, Hayashizaki Y "Delineating developmental and metabolic pathways in vivo by expression profiling using the RIKEN set of 18,816 full-length enriched mouse cDNA arrays." *Proc Natl Acad Sci U S A* 2001; 98: 5: 2199-204.
  152. Carmel-Harel O, Stearman R, Gasch AP, Botstein D, Brown PO, Storz G "Role of thioredoxin reductase in the Yap1p-dependent response to oxidative stress in *Saccharomyces cerevisiae*." *Mol Microbiol* 2001; 39: 3: 595-605.
  153. Renne R, Barry C, Dittmer D, Compitello N, Brown PO, Ganem D "Modulation of cellular and viral gene expression by the latency-associated nuclear antigen of Kaposi's sarcoma-associated herpesvirus." *J Virol* 2001; 75: 1: 458-68.
  154. Hastie T, Tibshirani R, Eisen MB, Alizadeh A, Levy R, Staudt L, Chan WC, Botstein D, Brown P "'Gene shaving' as a method for identifying distinct sets of genes with similar expression patterns." *Genome Biol* 2000; 1: 2: RESEARCH0003.



155. Hayward RE, Derisi JL, Alfadhli S, Kaslow DC, Brown PO, Rathod PK "Shotgun DNA microarrays and stage-specific gene expression in *Plasmodium falciparum* malaria." *Mol Microbiol* 2000; 35: 1: 6-14.
156. Gasch AP, Spellman PT, Kao CM, Carmel-Harel O, Eisen MB, Storz G, Botstein D, Brown PO "Genomic expression programs in the response of yeast cells to environmental changes." *Mol Biol Cell* 2000; 11: 12: 4241-57.
157. Khodursky AB, Peter BJ, Cozzarelli NR, Botstein D, Brown PO, Yanofsky C "DNA microarray analysis of gene expression in response to physiological and genetic changes that affect tryptophan metabolism in *Escherichia coli*." *Proc Natl Acad Sci U S A* 2000; 97: 22: 12170-5.
158. Alter O, Brown PO, Botstein D "Singular value decomposition for genome-wide expression data processing and modeling." *Proc Natl Acad Sci U S A* 2000; 97: 18: 10101-6.
159. Perou CM, Sørlie T, Eisen MB, van de Rijn M, Jeffrey SS, Rees CA, Pollack JR, Ross DT, Johnsen H, Akslen LA, Fluge O, Pergamenschikov A, Williams C, Zhu SX, Lønning PE, Børresen-Dale AL, Brown PO, Botstein D "Molecular portraits of human breast tumours." *Nature* 2000; 406: 6797: 747-52.
160. Lossos IS, Alizadeh AA, Eisen MB, Chan WC, Brown PO, Botstein D, Staudt LM, Levy R "Ongoing immunoglobulin somatic mutation in germinal center B cell-like but not in activated B cell-like diffuse large cell lymphomas." *Proc Natl Acad Sci U S A* 2000; 97: 18: 10209-13.
161. Diehn M, Alizadeh AA, Brown PO "Examining the living genome in health and disease with DNA microarrays." *JAMA* 2000; 283: 17: 2298-9.
162. Diehn M, Eisen MB, Botstein D, Brown PO "Large-scale identification of secreted and membrane-associated gene products using DNA microarrays." *Nat Genet* 2000; 25: 1: 58-62.
163. DeRisi J, van den Hazel B, Marc P, Balzi E, Brown P, Jacq C, Goffeau A "Genome microarray analysis of transcriptional activation in multidrug resistance yeast mutants." *FEBS Lett* 2000; 470: 2: 156-60.
164. Ross DT, Scherf U, Eisen MB, Perou CM, Rees C, Spellman P, Iyer V, Jeffrey SS, Van de Rijn M, Waltham M, Pergamenschikov A, Lee JC, Lashkari D, Shalon D, Myers TG, Weinstein JN, Botstein D, Brown PO "Systematic variation in gene expression patterns in human cancer cell lines." *Nat Genet* 2000; 24: 3: 227-35.
165. Scherf, U., Ross, D.T., Waltham, M., Smith, L.H., Lee, J., Kohn, K.W., Reinhold, W.C., Myers, T., Andrews, D.T., Scudiero, D.A., Eisen, M.B., Sausville, E.A., Pommier, Y., Botstein, D., Brown, P.O. and Weinstein, J.N. 2000. A gene expression database for the molecular pharmacology of cancer. *Nature Genetics* 24: 236-244.

166. Laurent LC, Olsen MN, Crowley RA, Savilahti H, Brown PO "Functional characterization of the human immunodeficiency virus type 1 genome by genetic footprinting." *J Virol* 2000; 74: 6: 2760-9.
167. Alizadeh AA, Eisen MB, Davis RE, Ma C, Lossos IS, Rosenwald A, Boldrick JC, Sabet H, Tran T, Yu X, Powell JJ, Yang L, Marti GE, Moore T, Hudson J, Lu L, Lewis DB, Tibshirani R, Sherlock G, Chan WC, Greiner TC, Weisenburger DD, Armitage JO, Warnke R, Levy R, Wilson W, Grever MR, Byrd JC, Botstein D, Brown PO, Staudt LM "Distinct types of diffuse large B-cell lymphoma identified by gene expression profiling." *Nature* 2000; 403: 6769: 503-11.
168. Lee SE, Pelliccioli A, Demeter J, Vaze MP, Gasch AP, Malkova A, Brown PO, Botstein D, Stearns T, Foiani M, Haber JE "Arrest, adaptation, and recovery following a chromosome double-strand break in *Saccharomyces cerevisiae*." *Cold Spring Harb Symp Quant Biol* 2000; 65: 303-14.
169. Reid JL, Iyer VR, Brown PO, Struhl K "Coordinate regulation of yeast ribosomal protein genes is associated with targeted recruitment of Esa1 histone acetylase." *Mol Cell* 2000; 6: 6: 1297-307.
170. Gerton JL, DeRisi J, Shroff R, Lichten M, Brown PO, Petes TD "Inaugural article: global mapping of meiotic recombination hotspots and coldspots in the yeast *Saccharomyces cerevisiae*." *Proc Natl Acad Sci U S A* 2000; 97: 21: 11383-90.
171. Khodursky AB, Peter BJ, Schmid MB, DeRisi J, Botstein D, Brown PO, Cozzarelli NR "Analysis of topoisomerase function in bacterial replication fork movement: use of DNA microarrays." *Proc Natl Acad Sci U S A* 2000; 97: 17: 9419-24.
172. Gross C, Kelleher M, Iyer VR, Brown PO, Winge DR "Identification of the copper regulon in *Saccharomyces cerevisiae* by DNA microarrays." *J Biol Chem* 2000; 275: 41: 32310-6.
173. Zhu G, Spellman PT, Volpe T, Brown PO, Botstein D, Davis TN, Futcher B "Two yeast forkhead genes regulate the cell cycle and pseudohyphal growth." *Nature* 2000; 406: 6791: 90-4.
174. Lyons TJ, Gasch AP, Gaither LA, Botstein D, Brown PO, Eide DJ "Genome-wide characterization of the Zap1p zinc-responsive regulon in yeast." *Proc Natl Acad Sci U S A* 2000; 97: 14: 7957-62.
175. Casagrande R, Stern P, Diehn M, Shamu C, Osario M, Zúñiga M, Brown PO, Ploegh H "Degradation of proteins from the ER of *S. cerevisiae* requires an intact unfolded protein response pathway." *Mol Cell* 2000; 5: 4: 729-35.
176. Staudt LM, Brown PO "Genomic views of the immune system\*." *Annu Rev Immunol* 2000; 18: 829-59.
177. Yun CW, Ferea T, Rashford J, Ardon O, Brown PO, Botstein D, Kaplan J,

- Philpott CC "Desferrioxamine-mediated iron uptake in *Saccharomyces cerevisiae*. Evidence for two pathways of iron uptake." *J Biol Chem* 2000; 275: 14: 10709-15.
178. Sudarsanam P, Iyer VR, Brown PO, Winston F "Whole-genome expression analysis of *snf/swi* mutants of *Saccharomyces cerevisiae*." *Proc Natl Acad Sci U S A* 2000; 97: 7: 3364-9.
179. Ogawa N, DeRisi J, Brown PO "New components of a system for phosphate accumulation and polyphosphate metabolism in *Saccharomyces cerevisiae* revealed by genomic expression analysis." *Mol Biol Cell* 2000; 11: 12: 4309-21.
180. Ferea TL, Brown PO "Observing the living genome." *Curr Opin Genet Dev* 1999; 9: 6: 715-22.
181. Gerton JL, Herschlag D, Brown PO "Stereospecificity of reactions catalyzed by HIV-1 integrase." *J Biol Chem* 1999; 274: 47: 33480-7.
182. Johannes G, Carter MS, Eisen MB, Brown PO, Sarnow P "Identification of eukaryotic mRNAs that are translated at reduced cap binding complex eIF4F concentrations using a cDNA microarray." *Proc Natl Acad Sci U S A* 1999; 96: 23: 13118-23.
183. Perou CM, Jeffrey SS, van de Rijn M, Rees CA, Eisen MB, Ross DT, Pergamenschikov A, Williams CF, Zhu SX, Lee JC, Lashkari D, Shalon D, Brown PO, Botstein D "Distinctive gene expression patterns in human mammary epithelial cells and breast cancers." *Proc Natl Acad Sci U S A* 1999; 96: 16: 9212-7.
184. Ferea TL, Botstein D, Brown PO, Rosenzweig RF "Systematic changes in gene expression patterns following adaptive evolution in yeast." *Proc Natl Acad Sci U S A* 1999; 96: 17: 9721-6.
185. Pollack JR, Perou CM, Alizadeh AA, Eisen MB, Pergamenschikov A, Williams CF, Jeffrey SS, Botstein D, Brown PO "Genome-wide analysis of DNA copy-number changes using cDNA microarrays." *Nat Genet* 1999; 23: 1: 41-6.
186. Alizadeh A, Eisen M, Davis RE, Ma C, Sabet H, Tran T, Powell JI, Yang L, Marti GE, Moore DT, Hudson JR, Chan WC, Greiner T, Weisenburger D, Armitage JO, Lossos I, Levy R, Botstein D, Brown PO, Staudt LM "The lymphochip: a specialized cDNA microarray for the genomic-scale analysis of gene expression in normal and malignant lymphocytes." *Cold Spring Harb Symp Quant Biol* 1999; 64: 71-8.
187. Eisen MB, Brown PO "DNA arrays for analysis of gene expression." *Methods Enzymol* 1999; 303: 179-205.
188. Yang GP, Ross DT, Kuang WW, Brown PO, Weigel RJ "Combining SSH and cDNA microarrays for rapid identification of differentially expressed

- genes." *Nucleic Acids Res* 1999; 27: 6: 1517-23.
189. Brown PO, Botstein D "Exploring the new world of the genome with DNA microarrays." *Nat Genet* 1999; 21: 1 Suppl: 33-7.
  190. Myers LC, Gustafsson CM, Hayashibara KC, Brown PO, Kornberg RD "Mediator protein mutations that selectively abolish activated transcription." *Proc Natl Acad Sci U S A* 1999; 96: 1: 67-72.
  191. Iyer VR, Eisen MB, Ross DT, Schuler G, Moore T, Lee JC, Trent JM, Staudt LM, Hudson J, Boguski MS, Lashkari D, Shalon D, Botstein D, Brown PO "The transcriptional program in the response of human fibroblasts to serum." *Science* 1999; 283: 5398: 83-7.
  192. Sutton RE, Reitsma MJ, Uchida N, Brown PO "Transduction of human progenitor hematopoietic stem cells by human immunodeficiency virus type 1-based vectors is cell cycle dependent." *J Virol* 1999; 73: 5: 3649-60.
  193. Wilson M, DeRisi J, Kristensen HH, Imboden P, Rane S, Brown PO, Schoolnik GK "Exploring drug-induced alterations in gene expression in *Mycobacterium tuberculosis* by microarray hybridization." *Proc Natl Acad Sci U S A* 1999; 96: 22: 12833-8.
  194. McAllister L, Penland L, Brown PO "Enrichment for loci identical-by-descent between pairs of mouse or human genomes by genomic mismatch scanning." *Genomics* 1998; 47: 1: 7-11.
  195. Gerton JL, Ohgi S, Olsen M, DeRisi J, Brown PO "Effects of mutations in residues near the active site of human immunodeficiency virus type 1 integrase on specific enzyme-substrate interactions." *J Virol* 1998; 72: 6: 5046-55.
  196. Heuer TS, Brown PO "Photo-cross-linking studies suggest a model for the architecture of an active human immunodeficiency virus type 1 integrase-DNA complex." *Biochemistry* 1998; 37: 19: 6667-78.
  197. Sutton RE, Wu HT, Rigg R, Böhnlein E, Brown PO "Human immunodeficiency virus type 1 vectors efficiently transduce human hematopoietic stem cells." *J Virol* 1998; 72: 7: 5781-8.
  198. Spellman PT, Sherlock G, Zhang MQ, Iyer VR, Anders K, Eisen MB, Brown PO, Botstein D, Futcher B "Comprehensive identification of cell cycle-regulated genes of the yeast *Saccharomyces cerevisiae* by microarray hybridization." *Mol Biol Cell* 1998; 9: 12: 3273-97.
  199. Eisen MB, Spellman PT, Brown PO, Botstein D "Cluster analysis and display of genome-wide expression patterns." *Proc Natl Acad Sci U S A* 1998; 95: 25: 14863-8.
  200. Alizadeh A, Eisen M, Botstein D, Brown PO, Staudt LM "Probing lymphocyte biology by genomic-scale gene expression analysis." *J Clin*

- Immunol 1998; 18: 6: 373-9.
201. Marton MJ, DeRisi JL, Bennett HA, Iyer VR, Meyer MR, Roberts CJ, Stoughton R, Burchard J, Slade D, Dai H, Bassett DE, Hartwell LH, Brown PO, Friend SH "Drug target validation and identification of secondary drug target effects using DNA microarrays." *Nat Med* 1998; 4: 11: 1293-301.
  202. Lutfiyya LL, Iyer VR, DeRisi J, DeVit MJ, Brown PO, Johnston M "Characterization of three related glucose repressors and genes they regulate in *Saccharomyces cerevisiae*." *Genetics* 1998; 150: 4: 1377-91.
  203. Chu S, DeRisi J, Eisen M, Mulholland J, Botstein D, Brown PO, Herskowitz I "The transcriptional program of sporulation in budding yeast." *Science* 1998; 282: 5389: 699-705.
  204. Yeager M, Wilson-Kubalek EM, Weiner SG, Brown PO, Rein A "Supramolecular organization of immature and mature murine leukemia virus revealed by electron cryo-microscopy: implications for retroviral assembly mechanisms." *Proc Natl Acad Sci U S A* 1998; 95: 13: 7299-304.
  205. Brown PO, Hartwell L "Genomics and human disease--variations on variation." *Nat Genet* 1998; 18: 2: 91-3.
  206. Lashkari DA, DeRisi JL, McCusker JH, Namath AF, Gentile C, Hwang SY, Brown PO, Davis RW "Yeast microarrays for genome wide parallel genetic and gene expression analysis." *Proc Natl Acad Sci U S A* 1997; 94: 24: 13057-62.
  207. Singh IR, Crowley RA, Brown PO "High-resolution functional mapping of a cloned gene by genetic footprinting." *Proc Natl Acad Sci U S A* 1997; 94: 4: 1304-9.
  208. Scottoline BP, Chow S, Ellison V, Brown PO "Disruption of the terminal base pairs of retroviral DNA during integration." *Genes Dev* 1997; 11: 3: 371-82.
  209. Roe T, Chow SA, Brown PO "3'-end processing and kinetics of 5'-end joining during retroviral integration in vivo." *J Virol* 1997; 71: 2: 1334-40.
  210. DeRisi JL, Iyer VR, Brown PO "Exploring the metabolic and genetic control of gene expression on a genomic scale." *Science* 1997; 278: 5338: 680-6.
  211. Gerton JL, Brown PO "The core domain of HIV-1 integrase recognizes key features of its DNA substrates." *J Biol Chem* 1997; 272: 41: 25809-15.
  212. Heuer TS, Brown PO "Mapping features of HIV-1 integrase near selected sites on viral and target DNA molecules in an active enzyme-DNA complex by photo-cross-linking." *Biochemistry* 1997; 36: 35: 10655-65.
  213. Smith V, Chou KN, Lashkari D, Botstein D, Brown PO "Functional analysis of the genes of yeast chromosome V by genetic footprinting."

- Science 1996; 274: 5295: 2069-74.
214. Nilsen BM, Haugan IR, Berg K, Olsen L, Brown PO, Helland DE "Monoclonal antibodies against human immunodeficiency virus type 1 integrase: epitope mapping and differential effects on integrase activities in vitro." *J Virol* 1996; 70: 3: 1580-7.
  215. Schena M, Shalon D, Heller R, Chai A, Brown PO, Davis RW "Parallel human genome analysis: microarray-based expression monitoring of 1000 genes." *Proc Natl Acad Sci U S A* 1996; 93: 20: 10614-9.
  216. DeRisi J, Penland L, Brown PO, Bittner ML, Meltzer PS, Ray M, Chen Y, Su YA, Trent JM "Use of a cDNA microarray to analyse gene expression patterns in human cancer." *Nat Genet* 1996; 14: 4: 457-60.
  217. Shalon D, Smith SJ, Brown PO "A DNA microarray system for analyzing complex DNA samples using two-color fluorescent probe hybridization." *Genome Res* 1996; 6: 7: 639-45.
  218. Dotan I, Scottoline BP, Heuer TS, Brown PO "Characterization of recombinant murine leukemia virus integrase." *J Virol* 1995; 69: 1: 456-68.
  219. Smith V, Botstein D, Brown PO "Genetic footprinting: a genomic strategy for determining a gene's function given its sequence." *Proc Natl Acad Sci U S A* 1995; 92: 14: 6479-83.
  220. Schena M, Shalon D, Davis RW, Brown PO "Quantitative monitoring of gene expression patterns with a complementary DNA microarray." *Science* 1995; 270: 5235: 467-70.
  221. Ellison V, Gerton J, Vincent KA, Brown PO "An essential interaction between distinct domains of HIV-1 integrase mediates assembly of the active multimer." *J Biol Chem* 1995; 270: 7: 3320-6.
  222. Dupuis J, Brown PO, Siegmund D "Statistical methods for linkage analysis of complex traits from high-resolution maps of identity by descent." *Genetics* 1995; 140: 2: 843-56.
  223. Kubalek EW, Le Grice SF, Brown PO "Two-dimensional crystallization of histidine-tagged, HIV-1 reverse transcriptase promoted by a novel nickel-chelating lipid." *J Struct Biol* 1994 Sep-Oct; 113: 2: 117-23.
  224. Ellison V, Brown PO "A stable complex between integrase and viral DNA ends mediates human immunodeficiency virus integration in vitro." *Proc Natl Acad Sci U S A* 1994; 91: 15: 7316-20.
  225. Brown PO, "Genome scanning methods." *Curr Opin Genet Dev* 1994; 4: 3: 366-73.
  226. Chow SA, Brown PO "Substrate features important for recognition and catalysis by human immunodeficiency virus type 1 integrase identified by

- using novel DNA substrates." *J Virol* 1994; 68: 6: 3896-907.
227. Chow SA, Brown PO "Juxtaposition of two viral DNA ends in a bimolecular disintegration reaction mediated by multimers of human immunodeficiency virus type 1 or murine leukemia virus integrase." *J Virol* 1994; 68: 12: 7869-78.
228. Tsuchihashi Z, Brown PO "DNA strand exchange and selective DNA annealing promoted by the human immunodeficiency virus type 1 nucleocapsid protein." *J Virol* 1994; 68: 9: 5863-70.
229. Nelson SF, McCusker JH, Sander MA, Kee Y, Modrich P, Brown PO "Genomic mismatch scanning: a new approach to genetic linkage mapping." *Nat Genet* 1993; 4: 1: 11-8.
230. Roe T, Reynolds TC, Yu G, Brown PO "Integration of murine leukemia virus DNA depends on mitosis." *EMBO J* 1993; 12: 5: 2099-108.
231. Feingold E, Brown PO, Siegmund D "Gaussian models for genetic linkage analysis using complete high-resolution maps of identity by descent." *Am J Hum Genet* 1993; 53: 1: 234-51.
232. Vincent KA, Ellison V, Chow SA, Brown PO "Characterization of human immunodeficiency virus type 1 integrase expressed in *Escherichia coli* and analysis of variants with amino-terminal mutations." *J Virol* 1993; 67: 1: 425-37.
233. Chow SA, Vincent KA, Ellison V, Brown PO "Reversal of integration and DNA splicing mediated by integrase of human immunodeficiency virus." *Science* 1992; 255: 5045: 723-6.
234. Tsuchihashi Z, Brown PO "Sequence requirements for efficient translational frameshifting in the *Escherichia coli* dnaX gene and the role of an unstable interaction between tRNA(Lys) and an AAG lysine codon." *Genes Dev* 1992; 6: 3: 511-9.
235. Brown PO, "Integration of retroviral DNA." *Curr Top Microbiol Immunol* 1990; 157: 19-48.
236. Ellison V, Abrams H, Roe T, Lifson J, Brown P "Human immunodeficiency virus integration in a cell-free system." *J Virol* 1990; 64: 6: 2711-5.
237. Vincent KA, York-Higgins D, Quiroga M, Brown PO "Host sequences flanking the HIV provirus." *Nucleic Acids Res* 1990; 18: 20: 6045-7.
238. Brown PO, Bowerman B, Varmus HE, Bishop JM "Retroviral integration: structure of the initial covalent product and its precursor, and a role for the viral IN protein." *Proc Natl Acad Sci U S A* 1989; 86: 8: 2525-9.
239. Bowerman B, Brown PO, Bishop JM, Varmus HE "A nucleoprotein complex mediates the integration of retroviral DNA." *Genes Dev* 1989; 3: 4:

469-78.

240. Brown PO, Bowerman B, Varmus HE, Bishop JM "Correct integration of retroviral DNA in vitro." *Cell* 1987; 49: 3: 347-56.
241. Brown PO, Cozzarelli NR "Catenation and knotting of duplex DNA by type 1 topoisomerases: a mechanistic parallel with type 2 topoisomerases." *Proc Natl Acad Sci U S A* 1981; 78: 2: 843-7.
242. Brown PO, Cozzarelli NR "A sign inversion mechanism for enzymatic supercoiling of DNA." *Science* 1979; 206: 4422: 1081-3.
243. Brown PO, Peebles CL, Cozzarelli NR "A topoisomerase from *Escherichia coli* related to DNA gyrase." *Proc Natl Acad Sci U S A* 1979; 76: 12: 6110-4.
244. Peebles CL, Higgins NP, Kreuzer KN, Morrison A, Brown PO, Sugino A, Cozzarelli NR "Structure and activities of *Escherichia coli* DNA gyrase." *Cold Spring Harb Symp Quant Biol* 1979; 43 Pt 1: 41-52.
245. Sugino A, Higgins NP, Brown PO, Peebles CL, Cozzarelli NR "Energy coupling in DNA gyrase and the mechanism of action of novobiocin." *Proc Natl Acad Sci U S A* 1978; 75: 10: 4838-42.