George Wright
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Education

University of Maryland at College Park
> **M.A. (1998)** Major: Statistics
> **Ph.D. (December 2000)** Major: Statistics
> Dissertation: "Efficient Semiparametric Estimation via Finite Dimensional Likelihoods"

Reed College
> **B.A. (1993)** Major: Mathematics
> Elected to **Phi Beta Kappa** Honor Society
> Under graduate thesis "Approach to Randomness of the Bernoulli-Leplace Model of Diffusion"

Experience

National Cancer Institute Mathematical Statistician **(**May 2001-present)
> Provides statistical support in the analysis of gene expression and chromosomal abnormalities, particularly as they relate to the molecular characterization of Lymphoma. Acts as Leader of the bioinfomatics/biostatistics core for the Lymphoma Leukemia Molecular profiling project. Develops diagnostic tools for lymphoma classification.

National Cancer Institute Post Doctoral Fellow **(**Dec. 2000-May 2001)
> Provided statistical support in the analysis of micro array data.

Food and Drug Administration Research assistant **(**June 1996-Dec. 1997)
> Worked under an Oak Ridge Fellowship funded by the Institute of Women's Health. Analyzed data from Large sample clinical trials in order to investigate observed gender differences in mortality from Myocardial infarction. Findings resulted in the paper "Clinical trial (GUSTO-1 and INJECT) Evidence of Earlier Death for men than Women after Acute Myocardial Infarction"

University of Maryland at College Park Teaching Assistant (1993-1999)
> Presented Lectures and led Discussions for undergraduate mathematics courses in topics ranging from introductory statistics to mathematical calculus.

 Los Alamos National Laboratory Research Assistant (Summers 1992-1995)
> Worked on a public-private partnership in the area of neural networked automotive control. Provided computer an mathematical support for the design and implementation of several neural networked architectures, to be used in controlling fuel injection, anti-lock brakes and four wheel steering. Wrote the technical report "Using Function Non-Linearity to Determine centers for Local Linear Models."

Awards
> **Web of Science Highly Cited Researcher (2019)**
> **NCI Director's Award of Merit (2018)**
> **NIH Director's Award (2010)**
> **NCI Merit Award (2010)**
> **Elected to Phi Beta Kappa Reed College (1993)**

Publications

1.	Yang, Y., et al., *Oncogenic RAS commandeers amino acid sensing machinery to aberrantly activate mTORC1 in multiple myeloma.* Nat Commun, 2022. **13**(1): p. 5469.
2.	Krushkal, J., et al., *Increased copy number of imprinted genes in the chromosomal region 20q11-q13.32 is associated with resistance to antitumor agents in cancer cell lines.* Clin Epigenetics, 2022. **14**(1): p. 161.
3.	Amador, C., et al., *Gene Expression Signatures for the Accurate Diagnosis of Peripheral T-Cell Lymphoma Entities in the Routine Clinical Practice Effect of ibrutinib with R-CHOP chemotherapy in genetic subtypes of DLBCL.* J Clin Oncol, 2022. **40**(36): p. 4261-4275.
4.	Wilson, W.H., et al., *Effect of ibrutinib with R-CHOP chemotherapy in genetic subtypes of DLBCL.* Cancer Cell, 2021. **39**(12): p. 1643-+.
5.	Wilson, W.H., et al., *Phase 1b/2 study of ibrutinib and lenalidomide with dose-adjusted EPOCH-R in patients with relapsed/refractory diffuse large B-cell lymphoma Genome-wide Screens Identify Lineage- and Tumor-Specific Genes Modulating MHC-I- and MHC-II-Restricted Immunosurveillance of Human Lymphomas.* Leuk Lymphoma, 2021. **62**(9): p. 2094-2106.
6.	Shaffer, A.L., et al., *Overcoming Acquired Epigenetic Resistance to BTK Inhibitors.* Blood Cancer Discovery, 2021. **2**(6): p. 630-647.
7.	Shaffer, A.L., 3rd, et al., *Overcoming Acquired Epigenetic Resistance to BTK Inhibitors.* Blood Cancer Discov, 2021. **2**(6): p. 630-647.
8.	Ramis-Zaldivar, J.E., et al., *MAPK and JAK-STAT pathways dysregulation in plasmablastic lymphoma.* Haematologica, 2021. **106**(10): p. 2682-2693.
9.	Dersh, D., et al., *Genome-wide Screens Identify Lineage- and Tumor-Specific Genes Modulating MHC-I- and MHC-II-Restricted Immunosurveillance of Human Lymphomas.* Immunity, 2021. **54**(1): p. 116-+.
10.	Chiodin, G., et al., *Insertion of atypical glycans into the tumor antigen-binding site identifies DLBCLs with distinct origin and behavior.* Blood, 2021. **138**(17): p. 1570-1582.
11.	Wright, G.W., et al., *A Probabilistic Classification Tool for Genetic Subtypes of Diffuse Large B Cell Lymphoma with Therapeutic Implications.* Cancer Cell, 2020. **37**(4): p. 551-568 e14.
12.	Roschewski, M., et al., *Inhibition of Bruton tyrosine kinase in patients with severe COVID-19.* Sci Immunol, 2020. **5**(48).
13.	Pittaluga, S., et al., *Gene Expression Profiling of Mediastinal Gray Zone Lymphoma and Its Relationship to Primary Mediastinal B-cell Lymphoma and Classical Hodgkin Lymphoma.* Blood Cancer Discovery, 2020. **1**(2): p. 155-161.
14.	Palmisano, A., et al., *Bioinformatics Tools and Resources for Cancer Immunotherapy Study Taming the Heterogeneity of Aggressive Lymphomas for Precision Therapy Genome-wide discovery of somatic coding and noncoding mutations in pediatric endemic and sporadic Burkitt lymphoma.* Methods Mol Biol, 2020. **2055**(12): p. 649-678.
15.	Fish, K., et al., *Rewiring of B cell receptor signaling by Epstein-Barr virus LMP2A.* Proc Natl Acad Sci U S A, 2020. **117**(42): p. 26318-26327.
16.	Danforth, D.N., et al., *Characteristics of Breast Ducts in Normal-Risk and High-risk Women and Their Relationship to Ductal Cytologic Atypia.* Cancer Prev Res (Phila), 2020. **13**(12): p. 1027-1036.
17.	Choi, J., et al., *Regulation of B cell receptor-dependent NF-kappaB signaling by the tumor suppressor KLHL14.* Proc Natl Acad Sci U S A, 2020. **117**(11): p. 6092-6102.
18.	Young, R.M., et al., *Taming the Heterogeneity of Aggressive Lymphomas for Precision Therapy*, in *Annual Review of Cancer Biology, Vol 3*. 2019. p. 429-455.
19.	Grande, B.M., et al., *Genome-wide discovery of somatic coding and non-coding mutations in pediatric endemic and sporadic Burkitt lymphoma.* Blood, 2019.

20.   Wright, G.W., et al., *Genetics of Diffuse Large B-Cell Lymphoma A multiprotein supercomplex controlling oncogenic signalling in lymphoma.* N Engl J Med, 2018. **379**(5): p. 493-494.

21.   Schmitz, R., et al., *Genetics and Pathogenesis of Diffuse Large B-Cell Lymphoma.* N Engl J Med, 2018. **378**(15): p. 1396-1407.

22.   Phelan, J.D., et al., *A multiprotein supercomplex controlling oncogenic signalling in lymphoma.* Nature, 2018. **560**(7718): p. 387-391.

23.   Nakagawa, M., et al., *Targeting the HTLV-I-Regulated BATF3/IRF4 Transcriptional Network in Adult T Cell Leukemia/Lymphoma.* Cancer Cell, 2018. **34**(2): p. 286-297 e10.

24.   Mottok, A., et al., *Molecular classification of primary mediastinal large B-cell lymphoma using routinely available tissue specimens.* Blood, 2018. **132**(22): p. 2401-2405.

25.   Clot, G., et al., *A gene signature that distinguishes conventional and leukemic nonnodal mantle cell lymphoma helps predict outcome.* Blood, 2018. **132**(4): p. 413-422.

26.   Scott, D.W., et al., *New Molecular Assay for the Proliferation Signature in Mantle Cell Lymphoma Applicable to Formalin-Fixed Paraffin-Embedded Biopsies.* J Clin Oncol, 2017. **35**(15): p. 1668-1677.

27.   Jais, J.P., et al., *Reliable subtype classification of diffuse large B-cell lymphoma samples from GELA LNH2003 trials using the Lymph2Cx gene expression assay.* Haematologica, 2017. **102**(10): p. e404-e406.

28.   Czuczman, M.S., et al., *A Phase 2/3 Multicenter, Randomized, Open-Label Study to Compare the Efficacy and Safety of Lenalidomide Versus Investigator's Choice in Patients with Relapsed or Refractory Diffuse Large B-Cell Lymphoma.* Clin Cancer Res, 2017. **23**(15): p. 4127-4137.

29.   Yang, Y., et al., *Targeting Non-proteolytic Protein Ubiquitination for the Treatment of Diffuse Large B Cell Lymphoma.* Cancer Cell, 2016. **29**(4): p. 494-507.

30.   Rui, L., et al., *Epigenetic gene regulation by Janus kinase 1 in diffuse large B-cell lymphoma.* Proc Natl Acad Sci U S A, 2016. **113**(46): p. E7260-E7267.

31.   Hodson, D.J., et al., *Regulation of normal B-cell differentiation and malignant B-cell survival by OCT2.* Proc Natl Acad Sci U S A, 2016. **113**(14): p. E2039-46.

32.   Ceribelli, M., et al., *A Druggable TCF4- and BRD4-Dependent Transcriptional Network Sustains Malignancy in Blastic Plasmacytoid Dendritic Cell Neoplasm.* Cancer Cell, 2016. **30**(5): p. 764-778.

33.   Yuan, J., et al., *Identification of Primary Mediastinal Large B-cell Lymphoma at Nonmediastinal Sites by Gene Expression Profiling.* Am J Surg Pathol, 2015. **39**(10): p. 1322-30.

34.   Wilson, W.H., et al., *Targeting B cell receptor signaling with ibrutinib in diffuse large B cell lymphoma.* Nat Med, 2015. **21**(8): p. 922-6.

35.   Scott, D.W., et al., *Prognostic Significance of Diffuse Large B-Cell Lymphoma Cell of Origin Determined by Digital Gene Expression in Formalin-Fixed Paraffin-Embedded Tissue Biopsies.* J Clin Oncol, 2015. **33**(26): p. 2848-56.

36.   Iqbal, J., et al., *Global microRNA expression profiling uncovers molecular markers for classification and prognosis in aggressive B-cell lymphoma.* Blood, 2015. **125**(7): p. 1137-45.

37.   Yang, Y., et al., *Essential role of the linear ubiquitin chain assembly complex in lymphoma revealed by rare germline polymorphisms.* Cancer Discov, 2014. **4**(4): p. 480-93.

38.   Wright, G., et al., *Inherent difficulties in nonparametric estimation of the cumulative distribution function using observations measured with error: Application to high-dimensional microarray data Gene expression signatures delineate biological and prognostic subgroups in peripheral T-cell lymphoma.* Statistics and it's interface, 2014. **7**(1): p. 69-73.

39.   Scott, D.W., et al., *Determining cell-of-origin subtypes of diffuse large B-cell lymphoma using gene expression in formalin-fixed paraffin-embedded tissue.* Blood, 2014. **123**(8): p. 1214-7.

40.   Schmitz, R., et al., *Oncogenic mechanisms in Burkitt lymphoma.* Cold Spring Harb Perspect Med, 2014. **4**(2).

41.   Iqbal, J., et al., *Gene expression signatures delineate biological and prognostic subgroups in peripheral T-cell lymphoma.* Blood, 2014. **123**(19): p. 2915-2923.

42.   Ceribelli, M., et al., *Blockade of oncogenic IkappaB kinase activity in diffuse large B-cell lymphoma by bromodomain and extraterminal domain protein inhibitors.* Proc Natl Acad Sci U S A, 2014.

111(31): p. 11365-70.

43. Bouska, A., et al., *Genome-wide copy-number analyses reveal genomic abnormalities involved in transformation of follicular lymphoma.* Blood, 2014. **123**(11): p. 1681-90.

44. Dunleavy, K., et al., *Dose-adjusted EPOCH-rituximab therapy in primary mediastinal B-cell lymphoma.* N Engl J Med, 2013. **368**(15): p. 1408-16.

45. Bodor, C., et al., *EZH2 mutations are frequent and represent an early event in follicular lymphoma.* Blood, 2013. **122**(18): p. 3165-8.

46. Barlow, J.H., et al., *Identification of early replicating fragile sites that contribute to genome instability.* Cell, 2013. **152**(3): p. 620-32.

47. Yang, Y., et al., *Exploiting synthetic lethality for the therapy of ABC diffuse large B cell lymphoma.* Cancer Cell, 2012. **21**(6): p. 723-37.

48. Schmitz, R., et al., *Burkitt lymphoma pathogenesis and therapeutic targets from structural and functional genomics.* Nature, 2012. **490**(7418): p. 116-20.

49. Rao, E., et al., *The miRNA-17 approximately 92 cluster mediates chemoresistance and enhances tumor growth in mantle cell lymphoma via PI3K/AKT pathway activation High microvessel density determines a poor outcome in patients with diffuse large B-cell lymphoma treated with rituximab plus chemotherapy.* Leukemia, 2012. **26**(5): p. 1064-72.

50. Johnson, N.A., et al., *Concurrent expression of MYC and BCL2 in diffuse large B-cell lymphoma treated with rituximab plus cyclophosphamide, doxorubicin, vincristine, and prednisone.* J Clin Oncol, 2012. **30**(28): p. 3452-9.

51. Rimsza, L.M., et al., *Accurate classification of diffuse large B-cell lymphoma into germinal center and activated B-cell subtypes using a nuclease protection assay on formalin-fixed, paraffin-embedded tissues.* Clin Cancer Res, 2011. **17**(11): p. 3727-32.

52. Ngo, V.N., et al., *Oncogenically active MYD88 mutations in human lymphoma.* Nature, 2011. **470**(7332): p. 115-9.

53. Cardesa-Salzmann, T.M., et al., *High microvessel density determines a poor outcome in patients with diffuse large B-cell lymphoma treated with rituximab plus chemotherapy.* Haematologica-the Hematology Journal, 2011. **96**(7): p. 996-1001.

54. Williams, P.M., et al., *A novel method of amplification of FFPET-derived RNA enables accurate disease classification with microarrays.* J Mol Diagn, 2010. **12**(5): p. 680-6.

55. Wang, Y., et al., *Critical role for transcriptional repressor Snail2 in transformation by oncogenic RAS in colorectal carcinoma cells.* Oncogene, 2010. **29**(33): p. 4658-70.

56. Rui, L., et al., *Cooperative epigenetic modulation by cancer amplicon genes.* Cancer Cell, 2010. **18**(6): p. 590-605.

57. Hartmann, E.M., et al., *Pathway discovery in mantle cell lymphoma by integrated analysis of high-resolution gene expression and copy number profiling.* Blood, 2010. **116**(6): p. 953-61.

58. Davis, R.E., et al., *Chronic active B-cell-receptor signalling in diffuse large B-cell lymphoma.* Nature, 2010. **463**(7277): p. 88-92.

59. O'Riain, C., et al., *Array-based DNA methylation profiling in follicular lymphoma.* Leukemia, 2009. **23**(10): p. 1858-66.

60. Leich, E., et al., *Follicular lymphomas with and without translocation t(14;18) differ in gene expression profiles and genetic alterations.* Blood, 2009. **114**(4): p. 826-34.

61. Dunleavy, K., et al., *Differential efficacy of bortezomib plus chemotherapy within molecular subtypes of diffuse large B-cell lymphoma.* Blood, 2009. **113**(24): p. 6069-76.

62. Shaffer, A.L., et al., *IRF4 addiction in multiple myeloma.* Nature, 2008. **454**(7201): p. 226-31.

63. Salaverria, I., et al., *Chromosomal alterations detected by comparative genomic hybridization in subgroups of gene expression-defined Burkitt's lymphoma.* Haematologica, 2008. **93**(9): p. 1327-34.

64. O'Shea, D., et al., *The presence of TP53 mutation at diagnosis of follicular lymphoma identifies a high-risk group of patients with shortened time to disease progression and poorer overall survival.* Blood, 2008. **112**(8): p. 3126-9.

65. Lenz, G., et al., *Molecular subtypes of diffuse large B-cell lymphoma arise by distinct genetic*

pathways. Proc Natl Acad Sci U S A, 2008. **105**(36): p. 13520-5.

66. Lenz, G., et al., *Stromal gene signatures in large-B-cell lymphomas.* N Engl J Med, 2008. **359**(22): p. 2313-23.

67. Lenz, G., et al., *Oncogenic CARD11 mutations in human diffuse large B cell lymphoma Distinctive patterns of BCL6 molecular alterations and their functional consequences in different subgroups of diffuse large B-cell lymphoma.* Science, 2008. **319**(5870): p. 1676-9.

68. Lam, L.T., et al., *Cooperative signaling through the signal transducer and activator of transcription 3 and nuclear factor-{kappa}B pathways in subtypes of diffuse large B-cell lymphoma.* Blood, 2008. **111**(7): p. 3701-13.

69. Lam, L.T., et al., *Compensatory IKKalpha activation of classical NF-kappaB signaling during IKKbeta inhibition identified by an RNA interference sensitization screen.* Proc Natl Acad Sci U S A, 2008. **105**(52): p. 20798-803.

70. Wiestner, A., et al., *Point mutations and genomic deletions in CCND1 create stable truncated cyclin D1 mRNAs that are associated with increased proliferation rate and shorter survival.* Blood, 2007. **109**(11): p. 4599-606.

71. Salaverria, I., et al., *Specific secondary genetic alterations in mantle cell lymphoma provide prognostic information independent of the gene expression-based proliferation signature.* J Clin Oncol, 2007. **25**(10): p. 1216-22.

72. Lusa, L., et al., *Appropriateness of some resampling-based inference procedures for assessing performance of prognostic classifiers derived from microarray data Transformation of follicular lymphoma to diffuse large B-cell lymphoma proceeds by distinct oncogenic mechanisms.* Stat Med, 2007. **26**(5): p. 1102-13.

73. Lenz, G., et al., *Aberrant immunoglobulin class switch recombination and switch translocations in activated B cell-like diffuse large B cell lymphoma.* J Exp Med, 2007. **204**(3): p. 633-43.

74. Iqbal, J., et al., *Distinctive patterns of BCL6 molecular alterations and their functional consequences in different subgroups of diffuse large B-cell lymphoma.* Leukemia, 2007. **21**(11): p. 2332-2343.

75. Davies, A.J., et al., *Transformation of follicular lymphoma to diffuse large B-cell lymphoma proceeds by distinct oncogenic mechanisms.* British Journal of Haematology, 2007. **136**(2): p. 286-293.

76. Annunziata, C.M., et al., *Frequent engagement of the classical and alternative NF-kappaB pathways by diverse genetic abnormalities in multiple myeloma.* Cancer Cell, 2007. **12**(2): p. 115-30.

77. Roberts, R.A., et al., *Loss of major histocompatibility class II gene and protein expression in primary mediastinal large B-cell lymphoma is highly coordinated and related to poor patient survival.* Blood, 2006. **108**(1): p. 311-8.

78. Iqbal, J., et al., *BCL2 expression is a prognostic marker for the activated B-cell-like type of diffuse large B-cell lymphoma.* Journal of Clinical Oncology, 2006. **24**(6): p. 961-968.

79. Dave, S.S., et al., *Molecular diagnosis of Burkitt's lymphoma A library of gene expression signatures to illuminate normal and pathological lymphoid biology BCL2 expression is a prognostic marker for the activated B-cell-like type of diffuse large B-cell lymphoma Cyclin D1-negative mantle cell lymphoma: a clinicopathologic study based on gene expression profiling.* N Engl J Med, 2006. **354**(23): p. 2431-42.

80. Fu, K., et al., *Cyclin D1-negative mantle cell lymphoma: a clinicopathologic study based on gene expression profiling.* Blood, 2005. **106**(13): p. 4315-4321.

81. Dunleavy, K., et al., *B-cell recovery following rituximab-based therapy is associated with perturbations in stromal derived factor-1 and granulocyte homeostasis.* Blood, 2005. **106**(3): p. 795-802.

82. Bea, S., et al., *Diffuse large B-cell lymphoma subgroups have distinct genetic profiles that influence tumor biology and improve gene-expression-based survival prediction.* Blood, 2005. **106**(9): p. 3183-90.

83. Dave, S.S., et al., *Prediction of survival in follicular lymphoma based on molecular features of tumor-infiltrating immune cells Molecular diagnosis of primary mediastinal B cell lymphoma identifies a clinically favorable subgroup of diffuse large B cell lymphoma related to Hodgkin lymphoma.* N Engl

J Med, 2004. **351**(21): p. 2159-69.

84.   Wright, G.W. and R.M. Simon, *A random variance model for detection of differential gene expression in small microarray experiments.* Bioinformatics, 2003. **19**(18): p. 2448-2455.

85.   Wright, G., et al., *A gene expression-based method to diagnose clinically distinct subgroups of diffuse large B cell lymphoma.* Proc Natl Acad Sci U S A, 2003. **100**(17): p. 9991-6.

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87.   Rosenwald, A., et al., *The proliferation gene expression signature is a quantitative integrator of oncogenic events that predicts survival in mantle cell lymphoma.* Cancer Cell, 2003. **3**(2): p. 185-197.

88.   Rosenwald, A., et al., *Molecular diagnosis of primary mediastinal B cell lymphoma identifies a clinically favorable subgroup of diffuse large B cell lymphoma related to Hodgkin lymphoma.* Journal of Experimental Medicine, 2003. **198**(6): p. 851-862.

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92.   Rieves, D., et al., *Clinical trial (GUSTO-1 and INJECT) evidence of earlier death for men than women after acute myocardial infarction.* American Journal of Cardiology, 2000. **85**(2): p. 147-153.

Patents

1. CA2659194(A1) METHODS FOR IDENTIFYING, DIAGNOSING, AND PREDICTING SURVIVAL OF LYMPHOMAS (Canada)
2. CA2726811(A1) SURVIVAL PREDICTOR FOR DIFFUSE LARGE B CELL LYMPHOMA (Canada)
3. CA2897828(A1) METHODS FOR IDENTIFYING, DIAGNOSING, AND PREDICTING SURVIVAL OF LYMPHOMAS (Canada)
4. EP2294420(B1) SURVIVAL PREDICTOR FOR DIFFUSE LARGE B CELL LYMPHOMA (Europe)
5. EP2299377(A1) METHODS FOR IDENTIFYING, DIAGNOSING, AND PREDICTING SURVIVAL OF LYMPHOMAS (Europe)
6. USB131475(B2) METHODS FOR IDENTIFYING, DIAGNOSING, AND PREDICTING SURVIVAL OF LYMPHOMAS (United States)
7. US20110152115(A1) METHODS FOR IDENTIFYING, DIAGNOSING, AND PREDICTING SURVIVAL OF LYMPHOMAS (United States)
8. US20110195064(A1) SURVIVAL PREDICTOR FOR DIFFUSE LARGE B CELL LYMPHOMA (United States)
9. US20120225793(A1) METHODS FOR IDENTIFYING, DIAGNOSING, AND PREDICTING SURVIVAL OF LYMPHOMAS (United States)
10. US20150132297(A1) SURVIVAL PREDICTOR FOR DIFFUSE LARGE B CELL LYMPHOMA (United States)
11. US20150167088(A1) METHODS FOR IDENTIFYING, DIAGNOSING, AND PREDICTING SURVIVAL OF LYMPHOMAS (United States)
12. WO2008013910(A2) METHODS FOR IDENTIFYING, DIAGNOSING, AND PREDICTING SURVIVAL OF LYMPHOMAS (Worldwide)
13. WO2009149359(A2) SURVIVAL PREDICTOR FOR DIFFUSE LARGE B CELL LYMPHOMA (Worldwide)
14. WO2015069790(A1) METHODS FOR IDENTIFYING, DIAGNOSING, AND PREDICTING SURVIVAL OF LYMPHOMAS (Worldwide)

Patent Applications

1. No. 62/325,213 EVALUATION OF MANTLE CELL LYMPHOMA AND METHODS RELATED THERETO (United States)