

CURRICULUM VITAE  
University of California, San Francisco

Prepared: January 2009

NAME: Raymond L. White, Ph.D.  
BIRTH: October 23, 1943, Orlando, Florida  
CITIZENSHIP: United States  
CURRENT TITLE: Rudi Schmid Distinguished Professor and Vice Chair  
Director, Ernest Gallo Clinic and Research Center  
Department of Neurology  
University of California, San Francisco

ADDRESS: Ernest Gallo Clinic and Research Center at UCSF  
5858 Horton Street, Suite 200  
Emeryville, CA 94608  
Phone: (510) 985-3102 Fax: (510) 985-3888  
E-mail: [rwhite@gallo.ucsf.edu](mailto:rwhite@gallo.ucsf.edu)

EDUCATION:

1965	B.S.	University of Oregon	Microbiology
1971	Ph.D.	Massachusetts Institute of Technology	Microbiology

FELLOWSHIP TRAINING:

1971-1975	Fellow, Jane Coffin Childs Foundation, Stanford University Medical School Department of Biochemistry
1966-1971	Graduate Fellow, National Institutes of Health, MIT Department of Biology
1965-1966	Woodrow Wilson Fellow, Scholastic Honors Award, MIT Department of Biology
1961	National Merit Scholarship Finalist

PROFESSIONAL EXPERIENCE:

2004-present	Rudi Schmid Distinguished Professor and Vice Chair, Department of Neurology, University of California, San Francisco
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PROFESSIONAL EXPERIENCE (cont'd):

2003-2004 Professor and Vice Chair, Department of Neurology, University of California, San Francisco

2002-present Director, Ernest Gallo Clinic and Research Center, Emeryville, California

2000-2002 Chief Scientific Officer, DNA Sciences, Inc., Fremont, California

1999-2001 Senior Director of Science, Huntsman Cancer Institute, University of Utah, Salt Lake City, Utah

1997-2002 Adjunct Professor, Department of Human Genetics, University of Utah School of Medicine, Salt Lake City, Utah

1994-1999 Executive Director, Huntsman Cancer Institute, University of Utah, Salt Lake City, Utah

1994-2001 Chairman, Department of Oncological Sciences, University of Utah School of Medicine, Salt Lake City, Utah

1985-1997 Professor, Department of Human Genetics, University of Utah School of Medicine, Salt Lake City, Utah

1984-1994 Co-Chairman, Department of Human Genetics, University of Utah School of Medicine, Salt Lake City, Utah

1980-1994 Investigator, Howard Hughes Medical Institute, University of Utah Medical Center, Salt Lake City, Utah

1980-1984 Associate Professor, Department of Cellular, Viral & Molecular Biology, University of Utah School of Medicine, Salt Lake City, Utah

1978-1980 Associate Professor, Department of Microbiology, University of Massachusetts School of Medicine, Worcester, Massachusetts

1975-1978 Assistant Professor, Department of Microbiology, University of Massachusetts School of Medicine, Worcester, Massachusetts

1972-1975 Postdoctoral Fellow with Professor David Hogness, Stanford University School of Medicine, Stanford, California

1971-1972 Research Associate and Instructor, Massachusetts Institute of Technology, Cambridge, Massachusetts

AWARDS AND HONORS:

- January 2008 Elected to the American College of Neuropsychopharmacology
- October 2005 Elected to the Institute of Medicine
- April 2005 Elected to the American Academy of Arts & Sciences
- April 1995 1995 Sword of Hope Award, American Cancer Society, Utah Division
- July 1993 1993 Governor's Medal for Science and Technology, Utah
- June 1993 Appointed Distinguished Professor of Human Genetics and Biology, University of Utah
- June 1993 University of Utah 1993 Rosenblatt Prize for Excellence
- April 1992 Brandeis University 1992 Lewis S. Rosenstiel Award for Distinguished Work in Basic Medical Sciences
- April 1992 Elected to the National Academy of Sciences
- 1991 Named the Thomas D. Dee II Professor of Human Genetics, University of Utah School of Medicine, Salt Lake City, Utah
- September 1991 National Health Council 1991 National Medical Research Award
- November 1990 National Neurofibromatosis Foundation Friedrich von Recklinghausen Award
- June 1990 University of Utah Distinguished Research Award
- June 1990 General Motors Cancer Research Foundation Charles S. Mott Prize
- November 1989 American Society of Human Genetics Allan Award for Cancer Research
- May 1989 American Association for Cancer Research Rosenthal Foundation Award

PROFESSIONAL MEMBERSHIPS:

- Member National Academy of Sciences
- Member Society for Neuroscience
- Member American Academy of Arts and Sciences
- Member Institute of Medicine
- Member Genetics Society of America
- Member American Society of Human Genetics
- Member American College of Neuropsychopharmacology
- Member Research Society on Alcoholism

## PROFESSIONAL ACTIVITIES:

### **Professional Organizations:**

Currently Member of the Scientific Advisory Board, The Burnham Institute (05/96)  
Currently Member of the Scientific Advisory Board, The Genome Institute of Singapore (09/00)  
1994-2004 Member of the Board on Biology and Commission on Life Sciences (11/95), National Research Council  
1991-1993 Advisory Board on Biobehavioral Sciences and Mental Disorders, Institute of Medicine, National Academy of Sciences, Washington, D.C.

### **Service to Professional Publications:**

Currently Associate Editor, *Cancer Research*, American Association for Cancer Research  
Currently *Ad hoc* Reviewer, *Proceedings of the National Academy of Medicine*  
1987-1990 Subject Area Editor, *Genomics*, Academic Press, Inc.

### **Government Service:**

1992-1994 Human Genome Studies External Advisory Committee  
Los Alamos National Laboratory, New Mexico  
1991-1993 Board of Advisors, National Flow Cytometry Resource  
Los Alamos National Laboratory, New Mexico  
1989-1991 Advisory Council, National Deafness and Other Communication Disorders  
National Institutes of Health  
1984 Ad hoc Member, National Institutes of Health General Medical Science Institute Council  
1979-1983 Member, National Institutes of Health Study Section

### **University Service:**

2005-2009 Reviewer, Prusiner Laboratory Fairchild Program  
2008 Member, Department of Neurology and Ernest Gallo Clinic and Research Center  
Statistical Geneticist Search Committee  
2005-2006 Member, Institute for Human Genetics Faculty Search Committee  
2004 Member, Departments of Neurology and Physiology Faculty Search Committee  
2004 Member, School of Medicine Stewardship Committee

TEACHING ACTIVITIES:

I am an active participant in the Gallo Center Journal Club and the Gallo Center Annual Retreat. I supervise one (1) postdoctoral fellow in my laboratory and hold weekly laboratory and genetics working group meetings to guide the ongoing research in my lab. In addition, I spend approximately five (5) hours per week mentoring the junior faculty at the Gallo Center.

Total Annual Hours of Informal Teaching 2007-2008	340
Total Annual Hours of Informal Teaching 2008-2009	340
Total Anticipated Annual Hours of Informal Teaching 2009-2010	340

RESEARCH SUPPORT:

Active

N/A (White) State of California/UCSF <i>Alcoholism/Addiction Research Program/Human Genetics</i>	Ongoing \$628,100 direct/current yr
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At the request of the Governor, the State Legislature augmented state appropriated funds at UCSF to support additional staff and a new drug development program for alcoholism and addiction. Funding for future years is uncertain, can only be appropriated one year at a time, and will depend on prevailing economic and political circumstances in California.

W81XWH-08-1-0007 (Joslyn) U.S. Department of the Army <i>Identification of Alcoholism Susceptibility Genes: A Candidate Gene Approach</i>	01/01/08 - 12/31/09 \$155,956 direct/yr 1 \$316,816 direct/yr 1-2
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The major goal of this project is to test the hypothesis that three identified loci are genetically associated with alcoholism endophenotypes as was suggested by initial discovery experiments.  
Role: Co-Investigator

W81XWH-08-1-0006 (Brush) U.S. Department of the Army <i>Whole Genome Scan for Chromosomal Regions Affecting the Level of Response to Alcohol</i>	01/01/08 - 12/31/09 \$139,174 direct/yr 1 \$281,517 direct/yr 1-2
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The major goal of this project is to perform two whole genome linkage scans under the hypothesis that these will reveal significant evidence for chromosomal regions linked either to alcohol diagnosis for level of response variables.  
Role: Co-Investigator

RESEARCH SUPPORT (cont'd):

Pending

1 P50 AA017072-01 (Messing et al)	05/01/09 - 04/30/13
NIH/NIAAA	\$178,986 direct/yr 1
<i>Alcohol Center for Translational Genetics (ACTG)</i>	\$744,244 direct/yrs 1-4
<i>Research Component 8: Polymorphisms in Candidate Genes for Alcoholism Risk in Humans</i>	

The major goal of this center grant is to provide a unique center for the detailed study across species of novel genes that may lead to the development of new approaches for preventing and treating alcohol use disorders in humans.

Role: Director (Research Component 8)

*IF THIS PROJECT IS FUNDED, EFFORT ON THE PROJECT FROM THE STATE OF CA WILL BE REDUCED ACCORDINGLY.*

Past

DAMD17-01-1-0800 (White)	07/15/01 - 07/16/07 (NCE)
U.S. Department of the Army/DoD	\$195,300 direct/yr 1
<i>Identification of Alcoholism Susceptibility Genes</i>	\$790,915 direct/yrs 1-6

This major goal of this project is to examine a large number of genes implicated in the biology of alcoholism to see whether common alleles of these genes affect susceptibility.

W81XWH-04-1-0154 (White, Director)	01/05/04 - 01/04/07 (NCE)
U.S. Department of the Army/DoD	\$703,578 direct/yr 1
<i>Translational Center for the Study of Alcoholism</i>	\$1,427,515 direct/yrs 1-3

This is a large center grant (6 components) that aims to reduce the incidence, impact, and costs of substance abuse through development of therapeutics that mitigate and/or ultimately cure or prevent the addicted states. The initial objectives focus on increasing our understanding of the molecular signaling pathways and neural circuitry that underlie addiction.

W81XWH-04-1-0155 (Co-PI)	01/05/04 - 01/04/06
U.S. Department of the Army	\$220,209 direct/yr 1
<i>Identification of Alleles of PKC<math>\epsilon</math> as Risk Factors in Alcohol Use Disorders</i>	\$448,339 direct/yrs 1-2

The major goals of this project were to investigate whether high Level of Response (LR) in PKC $\epsilon$  null mice reflects enhanced sensitivity or diminished acute tolerance to alcohol and whether high LR is associated with altered ethanol reward, aversion, and reinforcement in a gene dose-dependent manner.

## PUBLICATIONS:

1. White, R.L. and Fox, M.S. 1974. On the molecular basis of high negative interference. PNAS USA 71:1544-1548.
2. Fox, M.S. and White, R.L. 1974. Heterozygotes as intermediates of bacteriophage recombination. In: Mechanisms of Recombination (R. Grell, ed.), New York: Plenum Publishing, pp. 41-55.
3. Hogness, D.S., Wensink, P.C., Glover, D.M., White, R.L., Finnegan, D.J. and Donelson, J.E. 1974. The arrangement of DNA sequences in the chromosomes of *Drosophila melanogaster*. In: The Eukaryotic Chromosome (W.J. Peacock and R.D., eds.), Canberra: Australian National University Press.
4. White, R.L. and Fox, M.S. 1975. Genetic heterozygosity in unreplicated bacteriophage recombinants. Genetics 81:33-50.
5. White, R.L. and Fox, M.S. 1975. Genetic consequence of transfection with heteroduplex bacteriophage DNA. Molec Genet 41:163-171.
6. Glover, D.M., White, R.L., Finnegan, D.J. and Hogness, D.S. 1975. Characterization of six cloned DNAs from *Drosophila melanogaster*, including one that contains the genes from rRNA. Cell 5:149-157.
7. Thomas, M., White, R.L. and Davis, R.W. 1976. Hybridization of RNA to double-stranded DNA: Formation of R-loops. PNAS USA 73:2294-2298.
8. White, R.L. and Hogness, D.S. 1977. R-loop mapping of 18S and 28S sequences in the long and short repeating units of *Drosophila melanogaster* rDNA. Cell 10:177-192.
9. White, R.L. and Rosbash, M. 1979. Modification of a DNA cloning vehicle to give a high strand separation temperature. Gene 7:97-107.
10. Beckingham, K. and White, R.L. 1980. The rDNA of *Calliphora erythrocephala*: An analysis of hybrid plasmids containing rDNA. J Mol Biol 137:349-373.
11. Botstein, D., White, R.L., Skolnick, M. and Davis, R.W. 1980. Construction of a genetic linkage map in man using restriction fragment length polymorphisms. Am J Hum Genet 32:314-331.
12. Kurnit, D., Orkin, S. and White, R.L. 1980. Prenatal diagnosis of human DNA sequence variation. Meths Cell Biol 25:311-330.
13. White, R.L. 1980. In search of DNA polymorphism in humans. In: Banbury Report 4: Cancer Incidence in Defined Populations (J. Cairns, J. Lyon and M.S. Skolnick, eds.), New York: Cold Spring Harbor Laboratory, pp. 409-420.

14. Wyman, A. and White, R.L. 1980. A highly polymorphic locus in human DNA. *PNAS USA* 77:6754-6758.
15. Schafer, M. and White, R.L. 1981. Length variation in the non-transcribed spacer of *Calliphora erythrocephala* ribosomal DNA is due to a 350 base-pair repeat. *J Mol Biol* 146:179-199.
16. Skolnick, M. and White, R.L. 1981. Pathways to genotypic changes underlying new phenotypes. *In* Population and Biological Aspects of Human Mutation (E.B. Hood and I.H. Porter, eds.), New York: Academy Press, pp. 329-336.
17. de Martinville, B., Wyman, A., White, R.L. and Francke, U. 1982. Assignment of the first random restriction fragment length polymorphism (RFLP) locus (D14S1) to a region of human chromosome 14. *Am J Hum Genet* 34:216-226.
18. White, R. 1982. DNA polymorphism: New approaches to the genetics of cancer. *Cancer Surveys* 1:175-186.
19. Page, D., de Martinville, B., Barker, D., Wyman, A., White, R.L., Francke, U. and Botstein, D. 1982. Single-copy sequence hybridizes to polymorphic and homologous loci on human X and Y chromosomes. *PNAS USA* 79:5352-5356.
20. Skolnick, M. and White, R.L. 1982. Strategies for detecting and characterizing restriction fragment length polymorphisms (RFLPs). *In*: Human Gene Mapping 6 (K. Berg, et al, eds.), Basel: S. Karger, pp. 58-67.
21. White, R.L., Schafer, M., Barker, D., Wyman, A. and Skolnick, M. 1982. DNA sequence polymorphism at arbitrary loci. *In* 6<sup>th</sup> International Congress of Human Genetics Vol 1. New York: Alan Liss.
22. White, R. and Skolnick, M. 1982. DNA sequence polymorphism and the genetics of epilepsy. *In*: Genetic Basis of the Epilepsies (V.E. Anderson, et al, eds.), New York: Raven Press, pp. 311-316.
23. White, R.L., Barker, D., Cavenee, W. and Leach, R. 1983. Genetic analysis of familial cancers. *In*: Perspectives on Genes and the Molecular Biology of Cancer (D. Robberson and G. Saunders, eds.), New York: Raven Press, pp. 43-49.
24. White, R.L., Barker, D., Cavenee, W., Leach, R., Drayna, D., Holm, T., Berkowitz, J. and Leppert, M. 1983. Approaches to human genetics based on DNA sequence polymorphism. *In*: Recombinant DNA and Medical Genetics (H. Harris and K.H. Hirschhorn, eds.), New York: Academic Press, pp. 73-77.
25. White, R.L., Barker, D., Holm, T., Berkowitz, J., Leppert, M., Cavenee, W., Leach, R. and Drayna, D. 1983. Approaches to linkage analysis in the human. *In*: Banbury Report 14: Recombinant DNA Applications to Human Disease (C.T. Caskey and R.L. White, eds.), New York: Cold Spring Harbor Laboratory, pp. 235-250.

26. Barker, D., McCoy, M., Weinberg, R., Goldfarb, M., Wigler, M., Burt, R., Gardner, E. and White, R.L. 1983. A test of the role of two oncogenes in inherited predisposition to colon cancer. *Mol Biol and Med* 1:199-206.
27. Cavenee, W., Dryja, T., Phillips, R., Benedict, R., Godbout, B., Gallie, B., Murphree, A.L. and White, R.L. 1983. Expression of recessive alleles by chromosomal mechanisms in retinoblastoma. *Nature* 305: No 5937, pp. 779-784.
28. de Martinville, B., Schafer, M., White, R.L. and Francke, U. 1983. Chromosomal assignments of three random RFLP loci defined by base-pair changes in Msp sites. *Mol Biol Med* 1:415-424.
29. Cavenee, W., Leach, R., Mohandas, T., Pearson, P. and White, R.L. 1984. Isolation and regional localization of DNA segments revealing polymorphic loci from human chromosome 13. *Am J Hum Genet* 36:10-24.
30. Barker, D., Schafer, M. and White, R.L. 1984. Restriction sites containing CpG show a higher frequency of polymorphism in human DNA. *Cell* 36:131-138.
31. Dryja, T.P., Cavenee, W., White, R.L., Rapaport, J., Petersen, R., Albert, D.M. and Bruns, G.A.P. 1984. Homozygosity of chromosome 13 in retinoblastoma. *New Eng J Med* 310:550-553.
32. Drayna, D., Davies, K., Hartley, D., Mandel, J-L., Camerino, G., Williamson R. and White, R.L. 1984. Genetic mapping of the human X chromosome by using restriction fragment length polymorphisms. *PNAS USA* 81:2836-2839.
33. Naylor, S.L., Sakaguchi, A.Y., Barker, D., White, R.L. and Shows, T.B. 1984. DNA polymorphic loci mapped to human chromosomes 3, 5, 11, 17, 18, and 22. *PNAS USA* 81:2447-2451.
34. White, R.L., Leppert, M., Bishop, D.T., Barker, D., Berkowitz, J., Brown, C., Callahan, P., Holm, T. and Jerominski, L. 1984. High resolution linkage map of human chromosome 11p. In: *Chromosomes Today Vol VIII* (M.D. Bennett, A. Gropp and U. Wolf, eds.), London: George Allen & Unwin, pp. 23-32.
35. Hartley, D., Davies, K., Drayna, D., White, R. and Williamson, R. 1984. A cytological map of the human X chromosome—evidence for non-random recombination. *Nucleic Acids Res* 12:5577-5585.
36. White, R.L., Leppert, M., Drayna, D., Leach, R. and Barker, D. 1984. Human genetic linkage studies with DNA markers. *In* *Advances in Gene Technology: Human Genetic Disorders. Proceedings of the 16<sup>th</sup> Miami Winter Symposium* (Fazal Ahman, et al, eds.), ICSU Short Reports I:86-89.
37. Barker, D., Hoff, M., Oliphant, A. and White, R.L. 1984. A second type II restriction endonuclease from *thermus aquaticus* with an unusual sequence specificity. *Nucleic Acids Res* 12: No 14, pp. 5567-5581.

38. White, R.L. 1984. Looking for epilepsy genes. *Ann Neurol* 16(Supplement):S12-S17.
39. White, R.L. 1984. DNA in medicine: Human genetics. *The Lancet*, December 1:1257-1262.
40. Barker, D., Holm, T. and White, R.L. 1984. A locus on chromosome 11p with multiple restriction site polymorphisms. *Am J Hum Genet* 36:1159-1171.
41. White, R.L., Leppert, M., Bishop, D.T., Barker, D., Berkowitz, J., Brown, C., Callahan, P., Holm, T. and Jerominski, L. 1985. Construction of linkage maps with DNA markers for human chromosomes. *Nature* 313:101-105.
42. White, R.L. 1985. Medical genetics IV: Diagnosis when the gene locus is unknown. *Hosp Pract* (15 May 1985) :103-113.
43. Oberle, I., Drayna, D., Camerino, G., White, R.L. and Mandel, J-L. 1985. The telomeric region of the human X chromosome long arm: Presence of a highly polymorphic DNA marker and analysis of recombination frequency. *PNAS USA* 82:2824-2828.
44. Levine, F., Erlich, H., Mach, B., Leach, R., White, R.L. and Pious, D. 1985. Deletion mapping of HLA and chromosome 6p genes. *PNAS USA* 82:3741-3845.
45. Gitschier, J., Drayna, D., Tuddenham, E.G.D., White, R.L. and Lawn, R.M. 1985. Genetic mapping and diagnosis of haemophilia A achieved through a BclI polymorphism in the factor VIII gene. *Nature* 314:738-740.
46. Litt, M. and White, R.L. 1985. A highly polymorphic locus in human DNA revealed by cosmid-derived probes. *PNAS USA* 82:6206-6210.
47. White, R.L. 1985. DNA sequence polymorphisms revitalize linkage approaches in human genetics. *Trends in Genetics* Vol 1, No 6, pp. 177-181.
48. Drayna, D. and White, R.L. 1985. The genetic structure of the human X chromosome. *Science* 230:753-758.
49. White, R.L., Woodward, S., Leppert, M., O'Connell, P., Nakamura, Y., Hoff, M., Herbst, J., Lalouel, J-M., Dean, M. and Vande Woude, G. 1985. A closely linked genetic marker for cystic fibrosis. *Nature* 318:382-384.
50. Johnson, J., Gatti, R., Cavenee, W., Drayna, D. and White R. 1985. Preliminary characterization of the 14q32 region in a patient with ataxia telangiectasia (AT). *In: ICSU Short Reports* 2:193-194.
51. Davies, K.E., Mattei, M.G., Veenema, H., McGlade, S., Harper, K., Tommerup, N., Nielsen, K.B., Mikkelsen, M., Beighton, P., Drayna, D., White, R.L. and Pembrey, M.E. 1985. Linkage studies of X-linked mental retardation: High frequency of recombination in the telomeric region of the human X chromosome. *Hum Genet* 70:249-255.

52. White, R.L. 1986. Mapping human chromosomes. The Harvey Lectures. Series 80:67-87.
53. Drayna, D. and White, R.L. 1986. Genetic map of the human X chromosome and its use in the study of X-linked muscular dystrophies. In: Molecular Biology of Muscle Development (Proceedings of UCLA Symposia on Molecular and Cellular Biology, New Series.) New York: Alan K. Liss, pp. 903-909.
54. Leach, R., DeMars, R., Hasstedt, S. and White, R.L. 1986. Construction of a map of the short arm of human chromosome 6. PNAS USA 83:3909-3914.
55. Lathrop, G.M., Lalouel, J-M. and White, R.L. 1986. Construction of human linkage maps: Likelihood calculations for multilocus linkage analysis. Genet Epidemiol 3:39-52.
56. Leppert, M., Hasstedt, S., Holm, T., O'Connell, P., Wu, L., Ash, O., Williams, R. and White, R. 1986. A DNA probe for the LDL receptor gene is tightly linked to hypercholesterolemia in a pedigree with early coronary disease. Am J of Hum Genet 39:300-306.
57. Leppert, M., Cavenee, W., Callahan, P., Holm, T., O'Connell, P., Thompson, K., Lathrop, G.M., Lalouel, J-M. and White, R. 1986. A primary genetic map of chromosome 13q. Am J of Hum Genet 39:694-698.
58. White, R.L. and Lalouel, J-M. 1986. Investigation of genetic linkage in human families. Ch. 3 In: Advances in Human Genetics Vol 16 (H. Harris, K. Hirschhorn, eds.), New York: Plenum, pp. 121-228.
59. White, R.L., Nakamura, Y., Julier, C., Silva, A., O'Connell, P., Leppert, M., Lathrop, M. and Lalouel, J-M. 1986. Linkage maps of human chromosomes. In: DNA Probes: Applications in Genetic and Infectious Disease and Cancer. Cold Spring Harbor Laboratory Current Commun. Mole. Biol. (L.S. Lerman, ed.), New York: Cold Spring Harbor, pp. 43-47.
60. White, R.L. 1986. Search for the cystic fibrosis gene. Science 234:1054-1055.
61. Beaudet, A., Bowcock, A., Buchwald, M., Cavalli-Sforza, L., Farrall, M., King, M-C., Klinger, K., Lalouel, J-M., Lathrop, M., Naylor, S., Ott, J., Tsui, L-C., Wainwright, B., Watkins, P., White, R.L. and Williamson, R. 1986. Linkage of cystic fibrosis to tightly linked DNA markers: Joint report from a collaborative study. Am J of Hum Genet 39:681-693.
62. White, R.L., Leppert, M., O'Connell, P., Nakamura, Y., Woodward, S., Hoff, M., Herbst, J., Dean, M., Vande Woude, G., Lathrop, M. and Lalouel, J-M. 1986. Further linkage data on cystic fibrosis: The Utah study. Am J of Hum Genet 39:681-693.
63. White, R. and Lalouel, J-M. 1987. Genetic Linkage Maps of Human Chromosomes 6p, 11p, 12, 13q, X. In: Genetic Maps 1987: A Compilation of Linkage and Restriction Maps of Genetically Studied Organisms Vol 4 (S.J. O'Brien, ed.), New York: Cold Spring Harbor, pp. 650-653.

64. Dean, M., Park, M., O'Connell, P., White, R., Vande Woude, G. 1987. The met oncogene: A tyrosine kinase and a marker for cystic fibrosis. *In: Molecular Mechanisms in the Regulation of Cell Behavior.* New York: Alan R. Liss, pp. 107-112.
65. White, R.L., Leppert, M., O'Connell, P., Nakamura, Y., Julier, C., Woodward, S., Silva, A., Wolff, R., Lathrop, M. and Lalouel, J-M. 1987. Construction of human genetic linkage maps. I. Progress and perspectives. *In: Cold Spring Harbor Symp. Quant. Biol. 51, The Molecular Biology of Homo Sapiens.* New York: Cold Spring Harbor, pp. 29-37.
66. Lalouel, J-M., Lathrop, M. and White, R.L. 1987. Construction of human genetic linkage maps. II. Methodological issues. *In: Cold Spring Harbor Symp. Quant. Biol. 51, The Molecular Biology of Homo Sapiens.* New York: Cold Spring Harbor, pp. 39-47.
67. Nakamura, Y., Julier, C., Wolff, R., Holm, T., O'Connell, P., Leppert, M. and White, R. 1987. Characterization of a "midisatellite" sequence. *Nucl. Acids Res.* 15:2537-2547.
68. Silva, J.P., Johnson, J. and White, R. 1987. Characterization of a highly polymorphic region 5' to J<sub>H</sub> in the human immunoglobulin heavy chain. *Nucl Acids Res* 15:3845-3857.
69. Nakamura, Y., Leppert, M., O'Connell, P., Wolff, R., Culver, M., Martin, C., Fujimoto, E., Hoff, M., Kumlin, E. and White, R. 1987. Variable number of tandem repeat (VNTR) markers for human gene mapping. *Science* 235:1616-1622.
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71. White, R. 1987. Polymorphic DNA markers on the genomic map: Signposts for localization of unknown genes. *Somatic Cell and Molecular Genetics* 13:361-363.
72. White, R., Leppert, M., O'Connell, P., Nakamura, Y., Holm, T., Lathrop, M. and Lalouel, J-M. 1987. Linkage maps of human genes. *Acta Pediatr Jpn* 29:482-488.
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75. O'Connell, P., Lathrop, M., Law, M., Leppert, M., Nakamura, Y., Hoff, M., Kumlin, E., Thomas, W., Elsner, T., Ballard, L., Goodman, P., Azen, E., Sadler, J.E., Cai, G.Y., Lalouel, J-M. and White, R. 1987. A primary genetic linkage map for human chromosome 12. *Genomics* 1:93-102.
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## CURRENT RESEARCH INTERESTS/PROGRAM:

My current research consists of investigations into the genetic basis for susceptibility to alcohol abuse. Improved understanding of the molecular mechanisms that underlie susceptibility is expected to identify new targets for therapeutics useful for reducing craving and recidivism in recovering alcoholics. Our approach is through discovery and characterization of the genes and their variants that cause susceptibility to alcohol abuse. Two distinct approaches are being developed: 1) Detection and association/sib pair analysis of variants in an extended set of candidate genes, designed to identify even rare variants that may create significant susceptibility to alcohol abuse. Such rare variants may or may not collectively explain the population burden of genetic susceptibility; however, we do expect them to identify key molecular mechanisms that will lead to new targets for therapeutic development. 2) Association studies based on a high-density genome-wide scan are now undergoing analysis in conjunction with our candidate gene analyses.

The detection of new variants in candidate genes and their analysis by association/sib pair methods make use of a unique population of subjects developed by our collaborator Marc Schuckit at UCSD. For more than 20 years, Dr. Schuckit has been clinically characterizing the *response to an alcohol challenge* of incoming freshmen at UCSD and San Diego State, who indicated a family history of alcohol abuse. Significant variation was seen across the subject set, and evidence, including linkage, has been developed indicating a significant genetic basis for the variation. Importantly, individuals with a low intrinsic level of response to alcohol are four-fold more susceptible to alcohol abuse later in life.

The cohort has continued to expand and has been followed to the present, providing a remarkable subject set for genetic analysis of a quantitative strongly linked to alcoholism.

More recently, Dr. Schuckit has begun developing a new subject set, based on a sib-pair analysis strategy. For this cohort, the incoming freshmen are asked not only about alcohol abuse in their family, but also whether they have a sib, who would be willing to participate in the study. More than 130 candidate-gene genes have now been sequenced in DNA samples from this Sib-pair Cohort. A number of variants showing association have been discovered and are now at various stages of characterization.

## REPRESENTATIVE PUBLICATIONS:

Anderson, C.B., Neufeld, K.L. and White, R.L. 2002. Subcellular distribution of Wnt pathway proteins in normal and neoplastic colon. *Proc Natl Acad Sci U S A*. Jun 25;99(13):8683-8.

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**Role:** I was senior author and principal investigator of the research reported in each of these Papers, with the exception of the Botstein et al. 1980. For the latter paper I played a major role in developing the ideas and approach represented.