CURRICULUM VITAE

Richard Paul Woychik

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Education

1984	Ph.D.	Case Western Reserve University, Cleveland, OH.
1978	M.S.	University of Wisconsin, Madison, WI.
1977	B.S.	University of Wisconsin, Madison, WI.

Professional Appointments

Jun 2020-Present	Director, National Institute of Environmental Health Sciences (NIEHS) & National Toxicology Program (NTP)
Oct 2019-Jun 2020	Acting Director, NIEHS, NTP
Feb 2011-Oct 2019	Deputy Director, NIEHS
Aug 2002- Jan 2011	President and Chief Executive Officer, The Jackson Laboratory, Bar Harbor, ME
Jan 2001 – Aug. 2002	Chief Scientific Officer, Lynx Therapeutics, Hayward, CA.
Dec 1998 – Dec 2000	Senior Director, Parke-Davis Laboratory of Molecular Genetics, Alameda, CA.
Dec 1998 – 2002	Adjunct Professor, Dept. of Pediatrics, Case Western Reserve University, Cleveland, OH.
Dec 1998 – 2003	Adjunct Professor, Dept. of Pharmacology, Case Western Reserve University, Cleveland, OH.
Aug 1997 – Nov 1998	Professor and Vice Chairman for Research, Dept. of Pediatrics, Case Western Reserve University, Cleveland, OH.
Oct 1997 – Nov 1998	Professor, Dept. of Genetics, Case Western Reserve University, Cleveland, OH.

Oct 1997 – Nov 1998	Professor, Dept. of Pharmacology, Case Western Reserve University, Cleveland, OH.
1992 – 2002	Adjunct Professor, Dept. of Pathology, College of Veterinary Medicine, University of Tennessee, Knoxville, TN.
1996 - July 1997	Director, Office of Functional Genomics, Oak Ridge National Laboratory, Oak Ridge, TN
1996 - 1997	Research Professor, College of Arts and Sciences, Dept. of Biology, University of Tennessee, Knoxville, TN.
1995 - 1996	Head, Mammalian Genetics Section, Oak Ridge National Laboratory, Oak Ridge, TN
1989 - 1997	Adjunct Associate Professor, School of Biomedical Sciences at the Oak Ridge National Laboratory, University of Tennessee, Knoxville, TN.
1987 - 1997	Senior Research Scientist, Mammalian Genetics Section, Life Sciences Division, Oak Ridge National Laboratory, Oak Ridge, TN.
1984 - 1987	Postdoctoral Fellow, Department of Genetics, Harvard Medical School, Boston, Massachusetts. Preceptor: Dr. Philip Leder.
1983 - 1984	Postdoctoral Researcher, Department of Molecular Biology and Microbiology, Case Western Reserve University, Cleveland, Ohio. Preceptor: Dr. Fritz Rottman

Military Service

United States Naval Reserve, 1972-1978.

Honors and Awards

Postdoctoral Fellowship, The Jane Coffin Childs Memorial Fund, 1984-1985,

Postdoctoral Fellowship, Howard Hughes Medical Institute, 1986.

Significant Event Award, 1989, Oak Ridge National Laboratory,

Significant Event Award, 1992, Oak Ridge National Laboratory,

Oak Ridge National Laboratory, Publication Award, 1994.

Professional Service

Editorial Boards

Mutation Research – Reviews, 2008-2014.
Mutation Research, 1996-2003.
Technology Transfer Tactics, 5/2007-2009.
Principal Investigator Advisor, 2009-2011.

Professional Societies

American Association for the Advancement of Science

International Mammalian Genome Society

Society of Toxicology

Environmental Mutagenesis and Genomics Society

Publications

1. Revzin, A. and R.P. Woychik. Quantitation of the interaction of Escherichia coli RNA polymerase holoenzyme with double-helical DNA using a thermodynamically rigorous centrifugation method. *Biochemistry* **20**:250-256, 1981.

2. McCorquodale, D.J., C.W. Chen, M.K. Joseph, and R.P. Woychik. Modification of RNA polymerase from Escherichia coli by pre-early gene products of bacteriophage T5. *J. Virol.* **40**:958-962, 1981.

3. Sasavage, N.L., M. Smith, S. Gillam, R.P. Woychik, and F.M. Rottman. Variation in the polyadenylation site of bovine prolactin mRNA. *Proc. Natl. Acad. Sci.* **79**:223-227, 1982.

4. Woychik, R.P., S.A. Camper, R.L. Lyons, S. Horowitz, E.C. Goodwin, and F.M. Rottman. Cloning and nucleotide sequencing of the bovine growth hormone gene. *Nucleic. Acids Res.* **10**:7197-7210, 1982.

5. Nilson, J.H., A.R. Thomason, M.T. Cserbak, C.L. Moncam, and R.P. Woychik. Nucleotide sequence of a cDNA for the common a subunit of the bovine pituitary glycoprotein hormones. *J. Biol. Chem*. **258**:4679-4682, 1982.

6. Rottman, F.M., S.A. Camper, and R.P. Woychik. Role of posttranscriptional mRNA modification in the maintenance of eucaryotic mRNA levels. Proceedings Alfred Benzon Symposium 19 Gene Expression, Munksgaard, Copenhagen.

7. Camper, S.A., D.N. Luck, Y. Yao, R.P. Woychik, R.G. Goodwin, R.H. Lyons, and F.M. Rottman. Characterization of the bovine prolactin gene. *DNA* **3**:237-249, 1984.

8. Woychik, R.P., R.H. Lyons, L. Post, and F.M. Rottman. Requirement for the 3' flanking region of the bovine growth hormone gene for accurate polyadenylation. *Proc. Natl. Acad. Sci.* **81**:3944-3948, 1984.

9. Desrosiers, R.C., J. Kamine, A. Bakker, D. Silva, R.P. Woychik, D.D. Sakai, and F.M. Rottman. Synthesis of bovine growth hormone in primates by using a Herpes virus vector. *Mol. Cell. Biol*. **5**:2796-2803, 1985.

10. Woychik, R.P., T.A. Stewart, L.G. Davis, P. D'Eustachio, and P. Leder. An inherited limb deformity created by insertional mutagenesis in a transgenic mouse. *Nature* **318**:36-40, 1985.

11. Pfarr, D., L. Rieser, R.P. Woychik, F. Rottman, M. Rosenberg, and M. Reff. Differential effects of polyadenylation regions on gene expression in mammalian cells. *DNA* **5**:115-122, 1986.

12. Woychik, R. P., B. R. Beatty, and W. L. McKinney, Jr. Insertional mutagenesis in transgenic mice. In: Multilevel Health Effects Research: From Molecules to Man, ed. by J.F. Park and R. A. Pelroy. Battele Press, Columbus, Ohio, pp. 87-90, 1989.

13. Woychik, R. P., W. M. Generoso, L. B. Russell, K. T. Cain, N. L. A. Cacheiro, S. J. Bultman, P. B. Selby, M. E. Dickinson, B. L. M. Hogan and J. C. Rutledge. Molecular and genetic characterization of a radiation-induced structural rearrangement in mouse chromosome 2 causing new mutations at the limb deformity and agouti loci. *Proc. Natl. Acad. Sci.* **87**:2588-2592, 1990.

14. Woychik, R. P., B. R. Beatty, W. L. McKinney, D. K. Andreadis, A. J. Chang and P. E. Barker. Insertional mutagenesis in transgenic mice. In: Banbury Report 34: Biology of Mammalian Germ Cell Mutagenesis, Cold Spring Harbor Laboratory press, pp. 377-381, 1990.

15. Van der Meer-de Jong, R., M. E. Dickinson, R. P. Woychik, L. Stubbs, C. Hetherington & B. L. M. Hogan. Location of the gene involving the small eye mutation on mouse chromosome 2 suggests homology with human aniridia 2 (AN2). *Genomics* **7**:270-275, 1990.

16. Maas, R. L., R. Zeller, R. P. Woychik, T. F. Vogt and P. Leder. Formin encoding transcripts are disrupted in two mutant limb deformity alleles. *Nature* **346**:853-855, 1990.

17. Woychik, R. P., D. Maas, R. Zeller, T. F. Vogt, and P. Leder. The formins: a novel class of proteins deduced from the variable transcripts of the limb deformity gene. *Nature* **346**:850-853, 1990.

18. Jacobson, K.B., H. F. Arlinghaus, H. W. Schmitt, R. A. Sachleben, G. M. Brown, N. Thonnard, F. V. Sloop, R. S. Foote, F. W. Larimer, R. P. Woychik, M. W. England, K. L. Burchett, and D. A. Jacobson. The use of stable isotopes for DNA sequencing. *Genomics* **9**:51-59, 1991.

19. Arlinghaus, H.F, N. Thonnard, M.T. Sparr, R. A. Sachleben, F.W. Larimer, R. S. Foote, R. P. Woychik, G. M. Brown, F. V. Sloop, and K. B. Jacobson. Potential Application of Sputter-Initiated Resonance Ionization spectroscopy for DNA sequencing. *Anal. Biochem*. **63**:402-407, 1991.

20. Bultman, S., L. B. Russell, G. A. Gutierrez-Espeleta, and R. P. Woychik. Molecular characterization of a region of DNA associated with mutations at the agouti locus in the mouse. *Proc. Natl. Acad. Sci*. **88**:8062-8066, 1991.

21. Sachleben, R.A., G. M. Brown, F. V. Sloop, H. F. Arlinghaus, R. S. Foote, F. W. Larimer, R. P. Woychik, N. Thonnard, N., and K. B. Jacobson. Resonance ionization spectroscopy for multiplex sequencing of tin-labeled DNA. *Genet. Anal. Tech. and Applications* **8**(6):167-170, 1991.

22. Furth, P.A., L. Hennighausen, C. Baker, B.R. Beatty, and R.P. Woychik. Utility of the human cytomegalovirus promoter/ enhancer in transgenic mice. *Nucleic Acids Res*. **19**(22):6205-6208, 1991.

23. Brown GM, Allison DP, Warmack RJ, Jacobson KB, Larimer FW, Woychik RP, Carrier WL. Electrochemically induced adsorption of radio-labeled DNA on gold and HOPG substrates for STM investigations. *Ultramicroscopy* **38**(3-4):253-64, 1991. PubMed PMID: 1785142.

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31. Moyer, J.M., M.J. Lee-Tischler, H.Y. Kwon, J.J. Schrick, E.D. Avner, W.E. Sweeney, V.L. Godfrey, N.L.A. Cacheiro, J.E. Wilkinson, and R.P. Woychik. Candidate gene associated with a mutation causing recessive polycystic kidney disease in mice. *Science* **264**:1329-1333, 1994.

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33. Michaud, E.J., M.J. van Vugt, S.J. Bultman, H.O. Sweet, M.T. Davisson, and R.P. Woychik. Differential expression of a new dominant agouti allele (A^{iapy}) is correlated with methylation state and is influenced by parental lineage. *Genes & Dev.* **8**:1463-1472, 1994. PubMed PMID: 7926745.

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36. Shelby, M.D., L.B. Russell, R.P. Woychik, J.W. Allen, L.M. Wiley, and J.B. Favor. Laboratory research methods in male-mediated developmental toxicity. In: Male-

Mediated Developmental Toxicity, ed. by D.R. Mattison and A.F. Olshan. Plenum Press, New York, N.Y., pp. 379-384, 1994.

37. Woychik, R.P., J.E. Wilkinson, J.H. Moyer, M.J. Lee-Tischler, H.Y. Kwon, J.J. Schrick, B. Yoder, E.D. Avner, W.E. Sweeney, and V.L. Godfrey. Insertional Mutagenesis and PKD. *Kid. International* **47**(3):732, 1995.

38. Schrick, J.J., M.E. Dickinson, B.L.M. Hogan, P.B. Selby, and R.P. Woychik. Molecular and phenotypic characterization of a new mouse insertional mutation that causes a defect in the distal vertebrae of the spine. *Genetics* **140**:1061-1067, 1995.

39. Schrick, J.J., L. Onuchic, S.T. Reeders, J.R. Korenberg, X.N. Chen, J.H. Moyer, J.E. Wilkinson, and R.P. Woychik. Characterization of the human homologue of the mouse Tg737 candidate polycystic kidney disease gene. *Human Mol. Genet*. **4**:559-567, 1995.

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41. Klebig, M. L., J.E. Wilkinson, J.G. Geisler, and R.P. Woychik. Ectopic expression of the agouti gene in transgenic mice causes obesity, features of Type II diabetes, and yellow fur. *Proc. Natl. Acad. Sci.* **92**:4728-4732, 1995.

42. Zemel, M.B., J.H. Kim, R.P. Woychik, E.J. Michaud, S.H. Kadwell, I.R. Patel, L. Overton, and W.O. Wilkison. Agouti regulation of intracellular calcium: role in the insulin resistance of (A^{vy}) viable yellow mice. *Proc. Natl. Acad. Sci.* **92**:4733-4737, 1995.

43. Yoder, B.K., W.G. Richards, W.E. Sweeney, J.E. Wilkinson, E.D. Avner, and R.P. Woychik. Insertional mutagenesis and molecular analysis of a new gene associated with polycystic kidney disease. *Proc. Assoc. Am. Phy.* **107**: 313-323, 1995.

44. Culiat, C.T., L.J. Stubbs, R.P. Woychik, L.B. Russell, D.K. Johnson, and E.M. Rinchik. Deficiency of the β3 subunit of the type A γ-aminobutyric acid receptor causes cleft palate in mice. *Nature Genetics* **11**:344-346, 1995.

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46. Klebig, M. L., J.E. Wilkinson, and R.P. Woychik. Molecular analysis of the mouse agouti gene and the role of dominant agouti-locus mutations in obesity and insulin resistance. In: Molecular and Genetic Aspects of Obesity - Pennington Nutrition Series, Vol. 5, ed. by G. Bray and D. York, Louisiana State University Press, Baton Rouge, Louisiana, 1996.

47. Jones, B.H., J.H. Kim, M.B. Zemel, R.P. Woychik, E.J. Michaud, W.O. Wilkison, and N. Moustaid. The agouti gene product upregulates expression of adipose fatty acid synthetase and stearoyl-CoA desaturase genes. A possible role for $[Ca^{2+}]i$ in agouti signaling. *Am. J. Physiol.* **270**:E192-E196, 1996.

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49. Richards, W.G., B.K. Yoder, R.J. Isfort, P.G. Detilleux, C. Foster, N. Neilsen, R.P. Woychik, and J.E. Wilkinson. Oval cell proliferation associated with the murine insertional mutation TgN737Rpw. *Am. J. Path.* **149**: 1919-1930, 1996.

50. Kim, J.H., R. Mynatt, J.W. Moore, R.P. Woychik, N. Moustaid, and M.B. Zemel. The effects of calcium channel blockade on agouti-induced obesity. *FASEB J.* **10**: 1646-1652, 1996.

51. Mynatt, R.L., R.J. Miltenberger, M.L. Klebig, L.L. Keifer, J-H Kim, M.B. Zemel, J.E. Wilkinson, W.O. Wilkison, and R.P. Woychik. Analysis of the function of the agouti gene in obesity and diabetes. In: Proceedings International Business Communications 2nd Annual International Symposium: Obesity, Advances in Understanding and Treatment. Ed. by L.A. Weston. International Business Communications, Southborough, Massachusetts, 1996.

52. Mynatt, R.L., R.J. Miltenberger, M.L. Klebig, M.B. Zemel, J.E. Wilkinson, W.O. Wilkison, and R.P. Woychik. Combined effects of insulin treatment and adipose tissue-specific agouti expression on the development of obesity. *Proc. Natl. Acad. Sci.* **94**:919-922, 1997.

53. Richards, W.G., B.K. Yoder, R.J. Isfort, P.G. Detilleux, C. Foster, N. Neilsen, R.P. Woychik, and J.E. Wilkinson. Isolation and characterization of liver epithelial cell lines from wild-type and mutant TgN737Rpw mice. *Am. J. Path*. **150**:1189-1197, 1997.

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60. Justice, M.J., B. Zheng, R.P. Woychik, and A. Bradley. Using targeted large deletions and high-efficiency N-ethyl-N-nitrosourea mutagenesis for functional analyses of the mammalian genome. *Methods* **13**:423-436, 1997.

61. Michaud, E.J., R.L. Mynatt, R.J. Miltenberger, M.L. Klebig, J.E. Wilkinson, M.B. Zemel, W.O. Wilkison, and R.P. Woychik. Role of the agouti gene in obesity. *J. Endocrinol.* **155**:207-209, 1997.

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63. Isfort, R.J., D.B. Cody, W.G. Richards, B.K. Yoder, J.E. Wilkinson, and R.P. Woychik. Characterization of growth factor responsiveness and alterations in growth factor homeostasis involved in the tumorigenic conversion of mouse oval cells. *Growth Factors* **15**:81-94, 1998.

64. Richards, W.G., W.E. Sweeney, B.K. Yoder, J.E. Wilkinson, R.P.Woychik, and E.D. Avner. Epidermal growth factor receptor activity mediates renal cyst formation in polycystic kidney disease. *J. Clin. Invest.* **101**:935-939, 1998.

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68. Woychik, R.P. and K. Alagramam. Insertional mutagenesis in transgenic mice generated by the pronuclear microinjection procedure. *International Journal of Developmental Biology* **42**:1009-17, 1998.

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targeting constructs for mammalian genes'. *Mutation Res*. **423**(1-2):191, 1999. PubMed PMID: 10029697.

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