

**Rudolf Jaenisch**

**CURRICULUM VITAE**

**Date of Birth:** April 22, 1942  
**Place of Birth:** Wolfelsgrund, Germany  
**Citizenship:** United States  
**Education:** M.D. 1967, University of Munich, Germany

**Associations, Memberships and Honors:**

Member, National Academy of Sciences  
Fellow, American Academy of Arts and Sciences  
Member, International Society for Stem Cell Research  
Member, American Association for the Advancement of Science  
Member, German Academy of Natural Sciences Leopoldina  
Associate Member, European Molecular Biology Organization  
Editorial Board, *Developmental Dynamics*, 1992-2000  
Editorial Board, *Development*, 1989-1998  
Editorial Board, *Molecular Reproduction and Development*, 1988-1996  
1996 Boehringer Mannheim Molecular Bioanalytics Prize  
2001 First Peter Gruber Foundation Award in Genetics  
2002 Robert Koch Prize for Excellence in Scientific Achievement  
2003 Charles Rodolphe Brupbacher Foundation Cancer Award  
2006 Max Delbrück Medal for Molecular Medicine  
2007 Vilcek Foundation Prize for Achievements of Prominent Immigrants  
2008 Meira and Shaul G. Massry Prize

**Professional Experience:**

9/68-1/70 Postdoctoral Fellow, Max Planck Institute for Biochemistry, Munich, Germany; research on replication and transcription of *E. coli* phages M13 and PhiX174.

2/70-2/72 Postdoctoral Fellow with Dr. Arnold Levine, Department of Biochemistry, Princeton University, Princeton, New Jersey. Research on replication, transcription, and transformation with SV40 virus.

2/72-10/72 Visiting Fellow with Dr. Beatrice Mintz, Institute for Cancer Research, Fox Chase, Philadelphia, Pennsylvania  
Research on the *in vitro* cultivation and reimplantation of isolated mouse embryos; micromanipulation techniques.

11/72-1/76 Assistant Research Professor, The Salk Institute, La Jolla, CA  
1/76-1/77 Associate Research Professor, The Salk Institute, La Jolla, CA  
Research on the interaction of viruses with early mammalian embryos, generation of first transgenic mice.

2/77-7/84 Head, Department of Tumor Virology, Heinrich Pette Institute for Experimental Virology and Immunology, University of Hamburg, Germany. Research on genetic disease, cancer, and mammalian development.

7/84-present Member, Whitehead Institute for Biomedical Research, and Professor of Biology, Massachusetts Institute of Technology Cambridge, Massachusetts. Research on cancer, epigenetic regulation, development, and nuclear cloning.

**Peer-reviewed Publications:**

1. Jaenisch, R., Hofschneider, P.H., & Preuss, A. On the tertiary structure and biological properties of fX 174 replicative form. *J. Mol. Biol.* **21**, 501-516 (1966).
2. Benzinger, R., Jaenisch, R., & Hofschneider, P.H. A simple method for separating the replicative form from single-stranded fX 174 DNA. *J. Mol. Biol.* **21**, 493-499 (1966).
3. Benzinger R., Delius, H., Jaenisch, R., & Hofschneider, P.H. Preparation and properties of *E. coli* competent for infectious DNA from bacteriophage fX 174, M13, and RNA from bacteriophage M12. *Eur. J. Biochem.* **2**, 414-428 (1967).
4. Jaenisch, R. & Hofschneider, P.H., Preuss, A. Isolation of circular DNA by zonal centrifugation. Separation of normal length, double length, and catenated M13 replicative form DNA and of host specific episomal DNA. *Biochim. Biophys. Acta* **190**, 88-100 (1969).
5. Jaenisch, R., Jacob, E., & Hofschneider, P.H. Replication of the small coliphage M13: evidence for long-living M13 specific messenger RNA. *Nature* **227**, 59-60 (1970).
6. Jaenisch, R. & Levine, A.J. DNA replication in SV40 infected cells. V. Circular and catenated oligomers of SV40 DNA. *Virology* **44**, 480-493 (1971).
7. Jaenisch, R., Mayer, A., & Levine, A.J. Replicating SV40 DNA molecules containing closed circular template strands. *Nature New Biol.* **233**, 72-75 (1971).
8. Jaenisch, R. & Levine, A.J. Infection of primary African Green Monkey Cells with SV40 monomeric and dimeric DNA. *J. Mol. Biol.* **61**, 735-738 (1971).
9. Jaenisch, R. Evidence for SV40 specific RNA containing viral and host specific sequences. *Nature New Biol.* **235**, 46-47 (1972).
10. Jaenisch, R. & Levine, A.J. The effect of cycloheximide on the rate of formation of SV40 oligomeric DNA. *Virology* **48**, 373-379 (1972).
11. Dubbs, R., Kit, S., Jaenisch, R., & Levine, A. Isolation of SV40 recombinants from cells infected with oligomeric forms of SV40 DNA. *J. Virol.* **9**, 717-719 (1972).
12. Jacob, E., Jaenisch, R., & Hofschneider, P.H. Replication of the single-stranded DNA phage M13: on the *in vivo* transcription of the M13 replicative DNA. *Eur. J. Biochem.* **32**, 432-443 (1973).
13. Jaenisch, R. & Levine, A. DNA replication in SV40 infected cells. Formation of SV40 catenated and circular dimers. *J. Mol. Biol.* **73**, 199-212 (1973).
14. Jaenisch, R. & Mintz, B. Simian virus 40 DNA sequences in DNA of healthy adult mice derived from preimplantation blastocysts injected with viral DNA. *Proc. Natl. Acad. Sci. USA* **71**, 1250-1254 (1974).
15. Jaenisch, R., Fan, H., & Croker, B. Infection of preimplantation mouse embryos and of newborn mice with leukemia virus: tissue distribution of viral DNA and RNA and leukemogenesis in the adult animal. *Proc. Natl. Acad. Sci. USA* **72**, 4008-4012 (1975).
16. Jaenisch, R. Germ line integration and Mendelian transmission of the exogenous Moloney leukemia virus. *Proc. Natl. Acad. Sci. USA* **73**, 1260-1264 (1976).
17. Berns, A. & Jaenisch, R. Increase of AKR-specific sequences in tumor tissues of leukemic AKR mice. *Proc. Natl. Acad. Sci. USA* **73**, 2448-2452 (1976).
18. Strand, M., August, J.T., & Jaenisch, R. Oncornavirus gene expression during embryonal

- development of the mouse. *Virology* **76**, 886-890 (1977).
19. Jaenisch, R. Germ line integration of Moloney leukemia virus: effect of homozygosity at the M-MuLV locus. *Cell* **12**, 691-696 (1977).
  20. Fan, H., Jaenisch, R., & Mclsaac, P. Low multiplicity infection of Moloney leukemia virus in mouse cells: effect on number of viral DNA copies and virus production in producer cells. *J. Virol.* **28**, 801-809 (1978).
  21. Breindl, M. & Jaenisch, R. Conformation of Moloney leukemia proviral sequences in chromatin from leukemic and non-leukemic cells of BALB/Mo mice. *Nature* **277**, 320-322 (1979).
  22. Jaenisch, R. Moloney leukemia virus gene expression and gene amplification in preleukemic and leukemic BALB/Mo mice. *Virology* **93**, 80-90 (1979).
  23. Bacheler, C., Jaenisch, R., & Fan, H. Highly inducible cell lines derived from mice genetically transmitting the Moloney MuLV genome. *J. Virol.* **29**, 899-906 (1979).
  24. Breindl, M., Doehmer, J., Willecke, K., Dausman, J., & Jaenisch, R. Germ line integration of Moloney leukemia virus: identification of the chromosomal integration. *Proc. Natl. Acad. Sci. USA* **76**, 1938-1942 (1979).
  25. van der Putten, H., Terwindt, E., Berns, A., & Jaenisch, R. The integration sites of endogenous and exogenous Moloney murine leukemia virus. *Cell* **18**, 109-116 (1979).
  26. Jaenisch, R. & Hoffman, E. Transcription of endogenous C-type viruses in resting and proliferating tissues of BALB/Mo mice. *Virology* **98**, 289-297 (1979).
  27. Jaenisch, R. Retroviruses and embryogenesis: microinjection of Moloney leukemia virus into midgestation mouse embryos. *Cell* **19**, 181-188 (1980).
  28. Nobis, P. & Jaenisch, R. Passive immunotherapy prevents expression of endogenous Moloney virus and amplification of proviral DNA in BALB/Mo mice. *Proc. Natl. Acad. Sci. USA* **77**, 3677-3681 (1980).
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  31. Jähner, D. & Jaenisch, R. Integration of Moloney leukemia virus into the germ line of mice: correlation between genotype and virus activation. *Nature* **287**, 456-458 (1980).
  32. Jaenisch, R., Jähner, D., Nobis, P., Simon, I., Löhler, J., Harbers, K., & Grotkopp, D. Chromosomal position and activation of retroviral genomes inserted into the germ line of mice. *Cell* **24**, 519-529 (1981).
  33. Stuhlmann, H., Jähner, D., & Jaenisch, R. Infectivity and methylation of retroviral genomes is correlated with expression in the animal. *Cell* **26**, 221-232 (1981).
  34. Greenberger, J.S., Shaddock, R.K., Jaenisch, R., Waheed, A., & Sakakeeny, M.A. Effects of murine leukemia virus infection on long-term hematopoiesis *in vitro* are emphasized by increased survival of bone marrow cultures derived from BALB/Mo mice. *Cancer Res.* **41**, 3556 (1981).
  35. Harbers, K., Schnieke, A., Stuhlmann, H., Jähner, D., & Jaenisch, R. DNA methylation and gene expression: endogenous retroviral genome becomes infectious after molecular cloning. *Proc. Natl. Acad. Sci. USA* **78**, 7609-7613 (1981).

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50. Harbers, K., Kuehn, M., Delius, H., & Jaenisch, R. Insertion of retrovirus into the first intron of  $\alpha 1(I)$  collagen gene leads to embryonic lethal mutation in mice. *Proc. Natl. Acad. Sci. USA* **81**, 1504-1508 (1984).
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52. Breindl, M., Harbers, K., & Jaenisch, R. Retrovirus-induced lethal mutation in collagen I gene of mice is associated with an altered chromatin structure. *Cell* **38**, 9-16 (1984).
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54. Stuhlmann, H., Cone, R., Mulligan, R.C., & Jaenisch, R. Introduction of a selectable gene into different animal tissue by a retrovirus recombinant vector. *Proc. Natl. Acad. Sci. USA* **81**, 7151-7155 (1984).
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63. Soriano, P., Cone, R.D., Mulligan, R.C., & Jaenisch, R. Tissue-specific and ectopic expression of genes introduced into transgenic mice by retroviruses. *Science* **234**, 1409-1413 (1986).
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67. Harbers, K., Soriano, P., Müller, U., & Jaenisch, R. High frequency of unequal recombination in pseudoautosomal region shown by proviral insertion in transgenic mouse. *Nature* **324**, 682-685 (1986).
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69. Colombo, M. P., Jaenisch, R., & Wettstein, P. J. Endogenous retroviruses lead to the expression of a histocompatibility antigen detectable by skin graft rejection. *Proc. Natl. Acad. Sci. USA* **84**, 189-193 (1987).
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71. Soriano, P., Gridley, T., & Jaenisch, R. Retroviruses and insertional mutagenesis in mice: Proviral integration at the *Mov* 34 locus leads to early embryonic death. *Genes & Devel.* **1**, 366-375 (1987).
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- mouse embryos by retroviral vectors. Proc. Natl. Acad. Sci. USA **86**, 2224-2228 (1989).
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