

RUDOLF JAENISCH

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
Member, National Institute of Medicine
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, *Proceedings of the National Academy of Sciences*, 2004-
Editorial Board, *Developmental Dynamics*, 1992-2000
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
2009 James R. Killian Jr. Faculty Achievement Award
2009 Ernst Schering Prize
2010 Orden Pour le Mérite
2010 Kazemi Prize of the Royan Institute
2010 Order of Merit of the Federal Republic of Germany
2011 MGH Warren Triennial Prize
2011 Wolf Prize for Medicine
2011 United States National Medal of Science
2011 J. Allyn Taylor International Prize in Medicine
2012 ISSCR McEwen Award for Innovation
2012-Vice President, International Society for Stem Cell Research
2013 Franklin Institute Laureate

Professional Experience:

9/68-1/70 **Postdoctoral Fellow**, Max Planck Institute for Biochemistry, Munich;
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;
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
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, development,
nuclear cloning, epigenetic regulation, and reprogramming.

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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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).
36. Harbers, K., Jähner, D., & Jaenisch, R. Microinjection of cloned retroviral genomes into mouse zygotes: integration and expression in the animal. *Nature* **293**, 540-542 (1981).
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51. Jaenisch, R. & Jähner, D. Methylation, expression and chromosomal position of genes in mammals. *Biochim. Biophys. Acta* **782**, 1-9 (1984).
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60. Jaenisch, R. Mammalian neural crest cells participate in normal embryonic development on microinjection into postimplantation mouse embryos. *Nature* **318**, 181-183 (1985).
61. Hartung, S., Jaenisch, R., & Breindl, M. Retrovirus insertion inactivates mouse $\alpha 1(I)$ collagen gene by blocking initiation of transcription. *Nature* **320**, 365-367 (1986).
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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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