

16th ISTT Prize
Prof. Rudolf Jaenisch

TT2025, Zurich, Switzerland



The ISTT Prize is awarded to investigators who have made outstanding contributions to the field of transgenic technologies. The selection of Prof. Rudolf Jaenisch as the 16th ISTT Prize winner was made by the ISTT Prize Committee, recognizing his exceptional contribution to the field of animal transgenesis, over a career spanning more than 50 years in the field. The prize honors Jaenisch's groundbreaking body of work in the development of transgenic animals, epigenetics and the generation and use of induced pluripotent stem (iPS) cells.

Among his many accomplishments, were the landmark papers in 1974 and 1976, where following injection of retrovirus DNA into mouse blastocysts, he demonstrated that viral DNA sequences had integrated into the mouse genome and subsequently showed they could be passed on to their offspring in a Mendelian manner. These were the first transgenic mice to be generated! Following the creation of iPS cell experiments by Prof. Yamanaka, Jaenisch was one of the three groups who showed that iPS cells can form viable germ line chimaeras and demonstrated their therapeutic potential in a humanized sickle cell anemia mouse model. In addition, the publication in 2013 of the "One-step" CRISPR method radically changed the generation of site-specific targeted mice from an inefficient, lengthy, labor intensive and expensive process, to a highly efficient, streamlined and relatively cheap technique reducing the number of animals used per project, and altering the *modus operandi* of transgenic facilities and of the ISTT community worldwide.

Prof. Jaenisch's current work at the Whitehead Institute for Biomedical Research, of which he is a founding member, focuses on understanding the epigenetic regulation of gene expression in mammalian development and disease. He has developed tools to edit DNA methylation in mice for functional studies of epigenetic regulation. These are among the landmark publications of Prof. Jaenisch, which together have revolutionized the understanding of embryonic development, cloning, epigenetic regulation, cancer and disease, and have transformed the work of the transgenic community and the scope of our activities, for which we are indebted.

Jaenisch Lab: <https://jaenischlab.wi.mit.edu/>