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Mouse artificial chromosome vectors for animal transgenesis

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Random integration of conventional gene delivery vectors such as viruses, plasmids, P1 phage-derived artificial chromosomes, bacterial artificial chromosomes and yeast artificial chromosomes can be associated with transgene silencing. Various human artificial chromosomes (HACs) exhibit several potential characteristics desired for an ideal gene delivery vector, including stable episomal maintenance and the capacity to carry large genomic loci with their regulatory elements, thus allowing the physiological regulation of the introduced gene in a manner similar to that of native chromosomes. Although HAC vector was very stable in human cells, the HAC was not always stable in rodent cells or tissues. In this study, to overcome this problem, we developed mouse artificial chromosome (MAC), which exhibited stable episomal maintenance *in vivo* and *in vitro*. Furthermore, we developed several mouse lines containing MAC vector with defined large human genomic region (200kb, 380kb, 700kb, 1.5Mb, 30Mb). Thus, MAC vector and chromosome transfer technology will be useful for animal transgenesis.

Biography

Kazuki has completed his Ph.D. at the age of 27 years from Tottori University and postdoctoral studies from Tottori University. He is an Assistant Professor (2005-present), at Graduate School of Medical Science, Tottori University. He has developed human and mouse artificial chromosomes for use as gene delivery vectors to overcome various problems in existing conventional vector systems. He has published more than 40 papers in reputed journals.

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