

## **Abstract**

Conditional gene targeting allows spatial and temporal control of genetic modifications and is used to study gene functions in specific tissues or cell types. Gene targeting may lead to inactivation of the gene by insertions or deletions. Conditional gene targeting uses various methods for generation of transgenic mutant animals, such as technology of targeted disruption of gene using embryonic stem cells, methodology based on bacterial artificial chromosomes, or a new revolutionary technology of targeted disruption of genes using programmable nucleases, which is rapidly evolving and seems to be more efficient and cheaper method for conditional gene targeting. The aim of this work is to overview methods and technologies for generation conditional animal models, and overview conditional recombination systems with emphasis on inducible systems, and also provides a summary of the main international resources for rodent mutagenesis.

### **Key words:**

transgenic animal model, gene, targeting, conditional allele