6 good reasons to employ our repository Knockout mouse models in your *in vivo* studies

Commentary by Alessia Armezzani, PhD 27/08/2019

If you study human diseases, you certainly know that Knockout mice are invaluable *in vivo* models to shed light on their genetic and molecular mechanisms and underpin the development of diagnostic and therapeutic strategies.

Knockout mice also offer powerful biological contexts to develop, test, and study the mechanisms of action of new drugs, thereby reducing unexpected physiological responses in clinical studies.

Here are 6 good reasons why you should start working with one of our more than 2000 Knockout lines currently available at our repository.

1 You can choose where and when to Knockout your gene of interest

The high versatility of the model design allows you to also access the conditional Knockout (Figure 1, *tm*1c). As such, you can decide to inactivate your gene of interest in a certain tissue or cell type, or at a specific age or time-point of animal development, thereby bypassing most common limitations of constitutive or whole body Knockouts such as embryonic lethality. Moreover, this genetic strategy enables you to obtain cell-specific functions of drugs and genetic therapies you seek to develop and test.

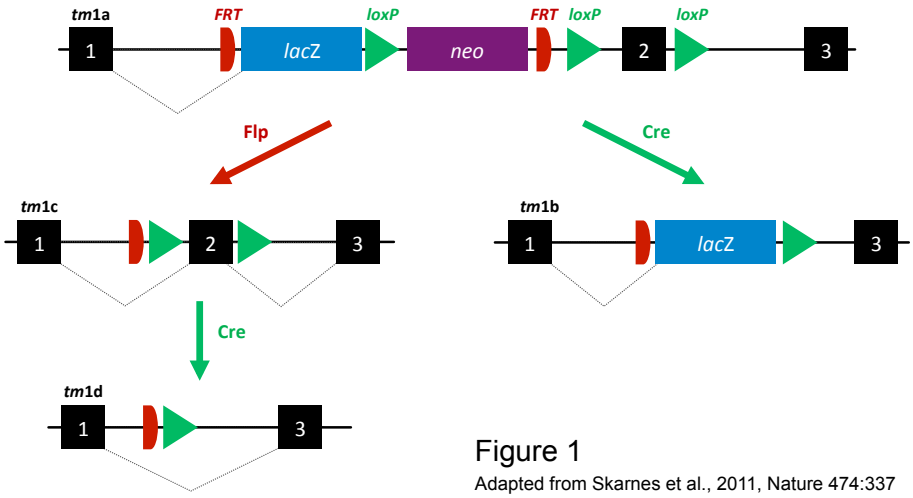


Figure 1
Adapted from Skarnes et al., 2011, Nature 474:337

2 You can rescue the Knockout by restoring the wild-type phenotype

The model design also features the possibility of rescuing the Knockout phenotype by restoring the expression of your gene of interest (Figure 1, *tm*1c). This is extremely important in clinical studies, because it provides you with useful information on on-target alleles and off-target effects.

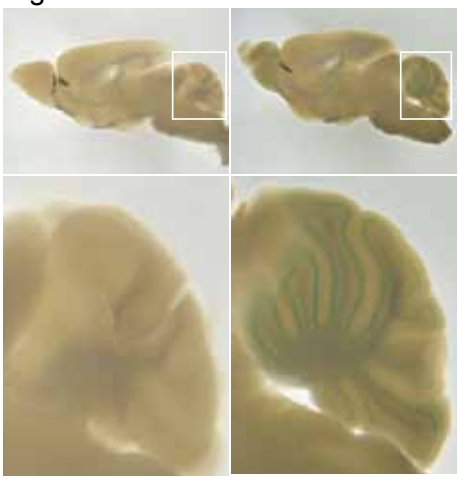
3 You can access lacZ reporter Knockout mice

Another interesting advantage of these lines is that they are lacZ reporter Knockout animals (Figure 2). These mice can therefore be used to investigate normal gene expression in heterozygous mice, and perform promoter activity.

4 You get already phenotyped lines

All of our Knockout mouse lines are systematically and rigorously phenotyped by the International Mouse Phenotyping Consortium (IMPC). The IMPC phenotype pipeline measures more than 500 parameters at both embryonic and adult time-points, and across multiple systems and disease states, including metabolic, cardiovascular, immunological and neurological. Importantly, the IMPC has developed a translational algorithm that automatically provides a quantitative measure of how well a mouse model recapitulates the clinical features of a human disease.

Figure 2



Wild-type IL15+/-

www.mousephenotype.org

5 You get your fully validated model in as fast as 2 months

Today, it takes about one year to generate and validate a single Knockout mouse line, zigzagging through a laborious and expensive multistep process that eventually ends up with the wrong strain. If you choose our catalog lines instead, you can obtain your ready-to-use model in a few clicks and receive it within 2 months, avoiding the risk of failure in the line-generation process, and saving you time and money.

6 You secure your program with freedom to operate

If you are a for-profit organization or collaborate with one, and you want to employ a mouse model in your studies, you definitely need to acquire the rights that cover the technology used to generate that specific line to secure your research and discoveries. genOway has built a unique license portfolio for all technologies employed to create rodent models, thereby guaranteeing you the freedom to operate with such line.

Alessia Armezzani is scientific communication manager at genOway.

Access our ready-to-use Knockout mouse catalog.

https://www.genoway.com/service/em/eucomm082019.htm