김 병 곤
이주대학교 의과대학

Beginners' Guide to the Use of Genetically Modified Animals for Neuroscience Researches

Byung Gon Kim, MD, PhD

Departments of Brain Science and Neurology, Ajou University School of Medicine, Suwon, Korea

In the post-genome era, genetically modified animals have become popular tools to study functional aspect of a gene of interest. For example, it is not possible to convincingly demonstrate a causal link between a specific gene and and its role in pathogenesis of a certain disease without an animal model without the gene knocked out. Currently, there are many public or commercial resources that provide information on the availability of genetically modified animals. It would be highly unlikely not being able to find an established knock-out (KO) mouse line of genes with known functions. Pitfalls in using KO mouse is embryonic lethality and/or functional compensation by seemingly unrelated genes. To avoid the two biggest problems, conditional KO technologies have become a standard method and are now widely available. Many clever transgenic mouse lines are used to isolate specific types of cells, visualize certain structures in a living state, and to monitor activity of certain gene products. Furthermore, CRISPR technology has made streamlined generation of genetically modified animals. The aim of this lecture is to introduce current advancement of genetically modified animals and to provide practical tips using these lines to researchers who have not been exposed to the use of genetically modified animals.

Byung Gon Kim, MD, PhD

Departments of Brain Science and Neurology, Ajou University
School of Medicine, 164, Worldcup Street, Yeongtong-Gu, Suwon
16499, Korea
Tel: +81-31-219-4495   Fax: +81-31-219-4444
E-mail: kimbg@ajou.ac.kr