Supporting Bibliography for C57BL/6N, C57BL/6J Substrain Panel


   - The C57BL/6 mouse is the most well-known inbred mouse strain and has been widely used as a genetic background for congenic and mutant mice. A number of C57BL/6 substrains have been derived from the C57BL/6 founder line and are reported to differ in several phenotypes. There are several major sources of C57BL/6 substrains for the biomedical research community. The importance of their genetic and phenotypic differences among substrains, however, has not yet been well recognized by biomedical researchers.

   - The genotyping of SNP loci clearly demonstrates genetic differences between C57BL/6J and C57BL/6N substrains at 11 loci. These data will be useful for accurate genetic monitoring of genetically engineered mice with the C57BL/6 background.

   - Researchers must seriously consider the substrain status of C57BL/6 when using such resources for investigating novel functions of genes. The data presented in this study strongly support the increasing importance of high-quality control of the genetic background of knockout mice.


   - C57BL/6N inbred mice are used as the genetic background for producing knockout mice in large-scale projects worldwide; however, the genetic divergence among C57BL/6N-derived substrains has not been verified. Here, the authors identified novel single nucleotide polymorphisms (SNPs) specific to the C57BL/6NJ strain and selected useful SNPs for the genetic monitoring of C57BL/6N derived substrains. They assert that this information will be useful for accurate genetic monitoring of mouse strains with a C57BL/6N-derived background.


   - Incomplete description of background strain can lead to confusion and error. While C57BL/6N and C57BL/6J are derived from the same parental C57BL/6 strain, there are key genotypic and phenotypic differences between these substrains. Common practice for many researchers is to publish without addressing this variance; the shorthand “C57BL/6” is often used to describe both substrains. The authors found that 58% of articles involving genetically modified mouse models did not completely address background strain.

   - This review describes these two substrains and highlights the importance of separate consideration in mouse model development. The authors encourage all researchers to include full background substrain information, and carefully describe any breeding to nonisogenic strains in all publications.