



A snapshot from the *Quick Guide of Mouse Nomenclature* (JAX) schematically illustrates the basic rules of nomenclature for the most common class of genetically modified mice.

Why standardized nomenclatures?

Standardized Genetic Nomenclature

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In the *Guide for the Care and Use of Laboratory Animals: 8th Edition (2011)*, NRC:

"Genetic characteristics are important with regard to the selection and management of animals for use in breeding colonies and in biomedical research.... Accurate recording, with **standardized nomenclature** when available, of both the strain and substrain or of the genetic background of animals used in a research project is important. ... The International Committee on Standardized Genetic Nomenclature for Mice and the Rat Genome and Nomenclature Committee maintain online guidelines for these species (MGI 2009). "(p83)

What does a proper nomenclature tell?

The followings are the key components in a mouse nomenclature and its corresponding significance in scientific communication.

Locus name: may be a gene name identifying a unit of inheritance

Alleles: variants or mutation of a locus associating with the locus to be illustrated. It differentiates "versions" of the same gene/locus.

Genetic background: including "donor" and "recipient" of the genetic modification, congenic or a mixed genetic background may make a difference in phenotypes.

A registered lab code: identifying where the genetic modifications are made/designed.

Could a nomenclature change with time?

Yes. Genetic background of a transgenic strain may change unintentionally (simply due to ill-informed or breeding) or purposely (due to scientific requirements) by backcrossing to certain reference strain (e.g. C57BL/6J, FVB, CBA, etc.). Different variants of *modifying genes* in different genetic background could lead to inconsistency of data from different laboratories.

Yes. A modified allele may be engineered for genetic modification (e.g. loxP flanked fragment). The modified progenies of such strain must have the appropriately amended nomenclature.

Yes. Some domains, e.g. highly expanded CAG/polyglutamine repeats are unstable. Nomenclature must reflect such characteristic changes accordingly.

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Resources

Detail guides for the *Standardized Genetic Nomenclature* is available from [Mouse Genome Informatics \(MGI\)](#). A [quick guide](#) and an [interactive tutorial](#) on mouse nomenclature is provided by The Jackson Laboratory.

If required, free consultation on giving a new mouse nomenclature is available from Dr. Siva Tsang (SO/APCF; email: tsangwh@ust.hk).

Laboratory Codes

Laboratory codes are important in specifying a mutation or a genetically modified allele by specifying the laboratory of origin. After creating a new genetically modified strain in HKUST or by a contracted commercial service, a PI may need a lab code on the nomenclature. One should register for a laboratory code with his/her own name from [Institute for Laboratory Animal Research \(ILAR\)](#). Alternatively, when one is not going to generate a significant number of genetically modified strains, an already registered HKUST lab code "Hkust" (capital letter "H" and small letter "kust") can be used instead.