Mutant

A mutant is an organism or a new genetic character arising or resulting from an instance of mutation, which is a base-pair sequence change within the DNA of a gene or chromosome of an organism. The natural occurrence of genetic mutations is integral to the process of evolution. The study of mutants is an integral part of biology; by understanding the effect that a mutation in a gene has, it is possible to establish the normal function of that gene.

In some organisms mutants can be created by gene targeting to assess the function of any given gene. This experimental approach is called reverse genetics.

For example, a collection of knockout-moss mutants can be used to identify genes with so far unknown functions.

Although not all mutations have a noticeable phenotypic effect, the common usage of the word “mutant” is generally a pejorative term only used for noticeable mutations.

Previously, people used the word “sport” (related to spurt) to refer to abnormal specimens. The scientific usage is broader, referring to any organism differing from the wild type.

Mutants should not be confused with organisms born with developmental abnormalities, which are caused by errors during morphogenesis. In a developmental abnormality, the DNA of the organism is unchanged and the abnormality cannot be passed on to progeny. Conjoined twins are the result of developmental abnormalities.

Chemicals that cause developmental abnormalities are called teratogens; these may also cause mutations, but their effect on development is not related to mutations. Chemicals that induce mutations are called mutagens. Most mutagens are also considered to be carcinogens.