Genotoxicity Study

A genotoxicity study is designed to detect compounds that cause genetic damage either directly or indirectly in cells exposed to the toxic substrates. Genotoxicity studies may be performed *in vitro* or *in vivo.*

Compounds which are positive in tests that detect such damage have the potential to cause cancer and/or heritable defects. No single test is capable of detecting all relevant genotoxic agents; therefore, the usual approach is to carry out a battery of tests that are complementary rather than representing different levels of hierarchy.

A standard study battery has the following tests:

1. A test for gene mutation in bacteria,
2. An *in vitro* test with cytogenetic (concerned with the study of the structure and function of the cell) evaluation of chromosomal damage with mammalian cells,
3. An *in vivo* test for chromosomal damage using rodent haematopoietic (blood or blood cell forming) cells.