

The LD₅₀

The LD₅₀ is a standardized measure for expressing and comparing the toxicity of chemicals.

In toxicology, LD₅₀ for “lethal dose 50%,” is a measure of how much of a substance constitutes a lethal dose in half of test subjects. The LD₅₀ is the dose that kills half (50%) of the animals tested (LD = “lethal dose”). The animals are usually rats or mice, although rabbits, guinea pigs, hamsters, and so on are sometimes used. In all these tests, the dose must be calculated relative to the size of the animal. The most common units are milligrams of chemical per kilogram of test animal (mg/kg or ppm).

Because a single test may kill as many as 100 animals, the United States and other members of the Organization for Economic Cooperation and Development agreed in December 2000 to phase out the LD₅₀ test in favor of alternatives that greatly reduce (or even eliminate) deaths of the test animals.

Dose response

LD50: refers to median lethal dose (dose that kills half the subjects)

ED50: refers to median effective dose (dose that produces desired effect in 50% of subjects)

TI (TI= LD50/ED50): refers to therapeutic index and it s a measure of the drugs' safety margin.

Therapeutic Index (TI) expresses a fraction of the dose of a drug that meets safety standard.

TI= LD50/ED50 (the ratio of the lethal dose in 50% of the population to the effective dose in 50% of the population).