

Table S1. Glossary of Terms

Term	Definition	Example
Alternative hypothesis	What is expected to be true instead of H_0 ; this is usually the research question	$H_a: \mu > 0$
Association	A relationship between two variables	Linear or nonlinear relationship between age and body weight in young animals
Biological replicates	Biologically distinct samples	Different animals
Blocking	Grouping of subjects with similar responses	Different mouse strains
Categorical data	Data that can be divided into groups	Age group
Causation	One event occurs as a result of another event	Toxic response to harmful agent
Central tendency	A typical value in a distribution of values	Mean (μ) of a normal distribution
Confidence interval	An estimated range of values for a parameter, computed from a sample, that is likely to contain the true parameter value	A 95% confidence interval for the mean of a normal distribution, as calculated from a sample, has a probability of 0.95 of containing the mean of the population
Confounding	The effects of one factor cannot be separated from the effects of another factor	All animals with treatment "A" fed diet "X" and all animals with treatment "B" fed diet "Y"
Continuous data	Data that can take any value over a range	Body weight
Controlled experiment	An experiment in which one or more factors are changed while all the other factors are held constant	An experiment to compare the effect of diet "Y" to the standard diet "X"
Covariate	A variable that might predict an outcome	Age
Discrete data	Data that can only take particular distinct values	Number of animals with a lesion

Term	Definition	Example
Descriptive statistics	Numbers that summarize a sample	Mean
Factor	The variable manipulated in an experiment	Dose
Limit of Blank (<i>LoB</i>)	Highest concentration measured using a blank sample with no analyte	0.01 mg/L
Limit of Detection (<i>LoD</i>)	The lowest concentration of analyte that can be detected and distinguished from <i>LoB</i>	0.1 mg/L
Limit of Quantitation (<i>LoQ</i>)	The lowest concentration of analyte that can be detected and reliably measured	0.15 mg/L
Null hypothesis	The statement that there is no effect/no difference/no association	$H_0: \mu = 0$
Numeric data (Quantitative data)	Data that can be measured or counted	Body weight
Ordinal data	Data that can be arranged in an order from smallest to largest	Severity grade
Parameter	A numerical characteristic that describes a population	Mean of a distribution
Population	The group of subjects for which inferences are to be made	All female B6C3F1 mice in existence
P-value	The probability that a calculated test statistic is as extreme as, or more extreme than, the observed result if H_0 is true.	$p = 0.04$
Replication	Repeating the experiment under the same conditions	Conducting the experiment 3 times in the same laboratory
Reproducibility	The degree to which a new study can obtain the same results as found in a previous analysis	Determining whether two different laboratories achieve the same experimental results under very similar experimental conditions
Sample	A smaller group of a population that represents the population.	10 specific female B6C3F1 mice
Standard deviation	The average deviation of scores from the mean	10 ppm

Term	Definition	Example
Standard error	The standard deviation of the sampling distribution of the mean	5.8 ppm
Statistic	A number that describes a characteristic of a sample	Mean
Statistical power	The probability that a statistical test will reject H_0 if H_0 is actually false	80% power
Statistical test	A procedure that uses data from a sample to reject or fail to reject H_0	Welch's t-test
Test statistic	A number that quantifies the compatibility between the data and H_0	t-statistic used to compare two groups
Transforming data	Applying a mathematical function to data to improve statistical properties of a distribution	Applying logarithm to help make a skewed distribution look more normal
Technical replicates	Repeated measurements on the same sample	Different blood samples from the same animal
Variable	A characteristic	Dose