**fit\_via**

A function for performing curve fitting on relative viability or fractional viability drug dose-response data

**Data Preparation**

* This function fits relative viability (RV) or fractional viability (FV) data to a 4 parameter logistic (i.e. sigmoidal) model and returns pharmacological information related to potency and efficacy
* Make sure the ‘fit\_via.m’ function is in the current file path
* FV can be calculated by dividing the living number of cells by the total number of cells (live + dead) in treatment wells FV values can be normalized to the vehicle control if basal cell death is high (this is not necessary for low basal cell death)
* RV can be calculated by dividing living number of cells in treated conditions by the living number of cells in control conditions.
* Replicate doses do not need to be averaged and can be included as another row in the vector.
* Doses do not need to be in sequential order.

**fit\_via structure**

fit\_via(data)

data – 2 column matrix that contains

column 1: linear scale concentrations

column 2: corresponding FV or RV values.

**Running fit\_via**

* Generate ‘data variable as described in fit\_via structure.
* To run the supplied example data (README-fit\_via\_Ex.mat):

load README-fit\_via\_Ex.mat;

* FV or RV data can be modeled to a sigmoid function using fit\_via to quantify efficacy and potency:

[fitresult, header] = fit\_via(data)

* Fit\_via requires a 2 column matrix that contains concentrations (linear scale) in the first column and FV (or RV) data in the 2nd column. FV (or RV) values should be on a scale between 0 and 1.
* The function returns the fitting result (fitresult) and a vector containing the description of each column in fitresult (header)

Graphical user interface, application, table, Excel

Description automatically generated

Example output from fit\_via

* xy\_fit – model predictions from sigmoidal fits. First column contains log(concentrations), second column contains predicted FV(RV) values, and third column contains log normalized concentrations
* xy\_scatter – contains original data sent to fit\_via and a third column with log normalized concentrations
* AOC – area over the curve
* EC50 – half maximal response concentration (model parameter)
* Emax – Maximal response (model parameter)
* Hill – hill slope (model parameter)
* IC50 – the dose that results in 50% live and dead (for FV) or a 50% reduction in population size (for RV)