Package 'CausCor'

November 10, 2023

Title Calculate Correlations and Estimate Causality

Version 0.1.3

Description This tool performs pairwise correlation analysis and estimate causality.
Particularly, it is useful for detecting the metabolites that would be altered by the gut bacteria.

URL https://github.com/sugym/CausCor

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Language en-US

Encoding UTF-8

RoxygenNote 7.1.2

Imports cowplot, dplyr, ggplot2, grDevices, magrittr, stats, WriteXLS

Suggests testthat (>= 3.0.0)

Config/testthat/edition 3

NeedsCompilation no

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filter_40 *Make list of A-B pair causal correlations - 40% Filtering version*

Description

Make list of A-B pair causal correlations - 40% Filtering version

Usage

```
filter_40(
  a_mat,
  b_mat,
  a_category,
  b_category,
  min_cor,
  min_r2,
  min_sample = ceiling((ncol(a_mat) - 1) * 0.4),
  max_sample = ncol(a_mat) - 1 - min_sample
)
```

Arguments

a_mat	Matrix of measurements of A for each sample.
b_mat	Matrix of measurements of B for each sample.
a_category	Category name of A.
b_category	Category name of B.
min_cor	Minimum spearman correlation coefficient.
min_r2	Minimum R2 score.
min_sample	Minimum number of samples. The default is 40% of the total samples.
max_sample	Maximum number of samples. The default is 60% of the total samples.

filter_cc *Make list of A-B pair causal correlations*

Description

Make list of A-B pair causal correlations

Usage

```
filter_cc(
  a_mat,
  b_mat,
  a_category,
  b_category,
  min_cor,
  min_r2,
  min_sample,
  max_sample = ncol(a_mat) - 1,
  direction = T
)
```

Arguments

a_mat	Matrix of measurements of A for each sample.
b_mat	Matrix of measurements of B for each sample.
a_category	Category name of A.
b_category	Category name of B.
min_cor	Minimum spearman correlation coefficient.
min_r2	Minimum R2 score.
min_sample	Minimum number of samples.
max_sample	Maximum number of samples. The default is the total number of samples.
direction	Extract only directional associations where a change in category A causes a change in category B. The default is True.

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filter_n *Make list of A-B pair causal correlations - Normal Filtering version*

Description

Make list of A-B pair causal correlations - Normal Filtering version

Usage

```
filter_n(a_mat, b_mat, a_category, b_category, min_cor, min_r2, min_sample)
```

Arguments

a_mat	Matrix of measurements of A for each sample.
b_mat	Matrix of measurements of B for each sample.
a_category	Category name of A.
b_category	Category name of B.

min_cor	Minimum spearman correlation coefficient.
min_r2	Minimum R2 score.
min_sample	Minimum number of samples.

`plot_16` *Save scatter plots*

Description

Save scatter plots

Usage

```
plot_16(a_mat, b_mat, list, out_info, x_italic = F, y_italic = T)
```

Arguments

a_mat	Matrix of measurements of A for each sample.
b_mat	Matrix of measurements of B for each sample.
list	List of results.
out_info	Output directory.
x_italic	Italicize the x-axis label of the plot. The default is False.
y_italic	Italicize the y-axis label of the plot. The default is True.

`save_text` *Save list as a text file*

Description

Save list as a text file

Usage

```
save_text(list, out_info, file_type)
```

Arguments

list	List of results.
out_info	Output directory.
file_type	Choose from "excel", "csv", "tsv".

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