Package 'InvasionCorrection'

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Type Package

Title Invasion Correction

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Description The correction is achieved under the assumption that non-migrating cells of the essay approximately form a quadratic flow profile due to frictional effects, compare law of Hagen-Poiseuille for flow in a tube. The script fits a conical plane to give xyz-coordinates of the cells. It outputs the number of migrated cells and the new corrected coordinates.

License GPL-3

Depends lattice, stats, utils

LazyData TRUE

RoxygenNote 5.0.1

NeedsCompilation no

Repository CRAN

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R topics documented:

`correctByConicalPlane` *Correct invasion data by conical plane*

Description

Correct z-component of a 3D collagen invasion essay. The correction is achieved under the assumption that non-migrating cells of the essay approximately form a quadratic flow profile due to frictional effects, compare law of Hagen-Poiseuille for flow in a tube.

Usage

```
correctByConicalPlane(filename, nrfits = 1000, threshold = -30,
  plot = FALSE, write_csv = TRUE)
```

Arguments

`filename`	Name of data file in csv format. It should contain columns "Pos_X", "Pos_Y" and "Pos_Z".
`nrfits`	Numeric, Number of randomly chosen starting points for the optimization. Choose lower values for speeding up computational time. Choose higher values for more reliable optimization results.
`threshold`	Numeric, A threshold for counting cells as being invaded or not. When cells move towards negative z-direction, threshold should be negative.
`plot`	Boole, if TRUE exemplary 3D plots before and after the correction are plotted
`write_csv,`	if TRUE resulting corrected values are saved as a csv file

Value

Data.frame containing input positions, corrected z-positions as well as number and percentage of invaded cells.

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