

Package ‘caffsim’

August 13, 2017

Title Simulation of Plasma Caffeine Concentrations by Using Population Pharmacokinetic Model

Version 0.1.0

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Description Simulate plasma caffeine concentrations using population pharmacokinetic model.

Depends R (>= 3.3.2)

Encoding UTF-8

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LazyData true

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Imports mgcv, dplyr, ggplot2

NeedsCompilation no

URL <https://github.com/asancpt/caffsim>

BugReports <https://github.com/asancpt/caffsim/issues>

RoxygenNote 6.0.1

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caffConcTime	<i>Create a dataset of the concentration-time curve of single oral administration of caffeine</i>
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Description

caffConcTime will create a dataset of the concentration-time curve

Usage

```
caffConcTime(Weight, Dose, N = 20)
```

Arguments

Weight	Body weight (kg)
Dose	Dose of single caffeine (mg)
N	The number of simulated subjects

Value

The dataset of concentration and time of simulated subjects

See Also

<https://asancpt.github.io/caffsim>

Examples

```
caffConcTime(Weight = 20, Dose = 200, N = 20)
caffConcTime(20, 200)
```

caffConcTimeMulti	<i>Create a dataset of the concentration-time curve of multiple dosing of caffeine</i>
-------------------	--

Description

caffConcTimeMulti will create a dataset of the concentration-time curve of multiple oral administrations of caffeine

Usage

```
caffConcTimeMulti(Weight, Dose, N = 20, Tau = 8, Repeat = 4)
```

Arguments

Weight	Body weight (kg)
Dose	Dose of single caffeine (mg)
N	The number of simulated subjects
Tau	The interval of multiple dosing (hour)
Repeat	The number of dosing

Value

The dataset of concentration and time of simulated subjects of multiple dosing

See Also

<https://asancpt.github.io/caffsim>

Examples

```
caffConcTimeMulti(Weight = 20, Dose = 200, N = 20, Tau = 8, Repeat = 4)
caffConcTimeMulti(20, 200)
```

caffDataset	<i>Create a dataset for simulation of single dose of caffeine</i>
-------------	---

Description

caffDataset will create a dataset for simulation of single dose of caffeine

Usage

```
caffDataset(Weight, Dose, N = 20)
```

Arguments

Weight	Body weight (kg)
Dose	Dose of single caffeine (mg)
N	The number of simulated subjects

Value

The dataset of pharmacokinetic parameters of subjects after single caffeine dose following multi-variate normal

See Also

<https://asancpt.github.io/caffsim>

Examples

```
caffDataset(Weight = 20, Dose = 200, N = 20)
caffDataset(20, 500)
```

caffDatasetMulti	Create a dataset for simulation of multiple dose of caffeine
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Description

caffDatasetMulti will create a dataset for simulation of multiple dose of caffeine

Usage

```
caffDatasetMulti(Weight, Dose, N = 20, Tau = 24)
```

Arguments

Weight	Body weight (kg)
Dose	Dose of multiple caffeine (mg)
N	The number of simulated subjects
Tau	The interval of multiple dosing (hour)

Value

The dataset of pharmacokinetic parameters of subjects after multiple caffeine dose following multivariate normal

See Also

<https://asancpt.github.io/caffsim>

Examples

```
caffDatasetMulti(Weight = 20, Dose = 200, N = 20, Tau = 8)
caffDatasetMulti(20, 500)
```

caffPlot	Create concentration-time curve after single dose of caffeine
----------	---

Description

caffPlot will create concentration-time curve after single dose of caffeine

Usage

```
caffPlot(caffConcTimeData, log = FALSE)
```

Arguments

caffConcTimeData	Concentration-time dataset having column names Subject, Time, and Conc (case-sensitive)
log	y axis log

Value

The concentration-time curve

See Also

<https://asancpt.github.io/caffsim>

Examples

```
caffPlot(caffConcTime(Weight = 20, Dose = 200, N = 20))
```

caffPlotMulti	<i>Create concentration-time curve after multiple doses of caffeine</i>
---------------	---

Description

caffPlotMulti will create concentration-time curve after multiple doses of caffeine

Usage

```
caffPlotMulti(caffConcTimeMultiData, log = FALSE)
```

Arguments

caffConcTimeMultiData	Concentration-time dataset having column names Subject, Time, and Conc (case-sensitive)
log	y axis log

Value

The concentration-time curve

See Also

<https://asancpt.github.io/caffsim>

Examples

```
caffPlotMulti(ConcTimeMulti(Weight = 20, Dose = 200, N = 20, Tau = 8, Repeat = 4))
```

`UnitTable`*Unit data of PK parameters*

Description

A dataset containing information regarding unit data of pharmacokinetic parameters

Usage

```
UnitTable
```

Format

A data frame with 16 rows and 2 variables:

Parameters Abbreviated pharmacokinetic parameters

Parameter Pharmacokinetic parameters in full name

See Also

<https://asancpt.github.io/caffsim>

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