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

```r
caffConcTime(Weight = 20, Dose = 200, N = 20)
caffConcTime(20, 200)
```
### caffConcTimeMulti

*Create a dataset of the concentration-time curve of multiple dosing of caffeine*

#### Description

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

#### Usage

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

#### Arguments

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>Body weight (kg)</td>
</tr>
<tr>
<td>Dose</td>
<td>Dose of single caffeine (mg)</td>
</tr>
<tr>
<td>N</td>
<td>The number of simulated subjects</td>
</tr>
<tr>
<td>Tau</td>
<td>The interval of multiple dosing (hour)</td>
</tr>
<tr>
<td>Repeat</td>
<td>The number of dosing</td>
</tr>
</tbody>
</table>

#### Value

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

#### See Also

[https://asancpt.github.io/caffsim](https://asancpt.github.io/caffsim)

#### Examples

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

### caffDescstat

*Calculate descriptive statistics of simulated PK parameters*

#### Description

`caffDescstat` will calculate descriptive statistics of simulated PK parameters.

#### Usage

```r
caffDescstat(caffPkparamData)
```
Arguments
caffPkparamData
data frame generated by caffPkparam function

Value
The descriptive statistics of pharmacokinetic parameters

See Also
https://asancpt.github.io/caffsim

Examples
caffDescstat(caffPkparam(20,500))
caffDescstat(caffPkparamMulti(20,500))
caffDescExample <- cbind(caffDescstat(caffPkparam(20,500)),
class(caffDescstat(caffPkparam(50,500))[,2])
colnames(caffDescExample)[2:3] <- c('20 kg', '50 kg')
caffDescExample

caffOverdose

Calculate a duration of plasma caffeine concentration over specified toxic limits

Description
caffOverdose calculates a time duration of plasma caffeine concentration over specified toxic limits (40 mg/L or 80 mg/L)

Usage
caffOverdose(caffConcTimeData)

Arguments
caffConcTimeData
data frame containing concentration-time data

Value
descriptive statistics of duration of toxic concentrations

See Also
https://asan.shinyapps.io/caff/
caffPkparam

Examples

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

caffPkparam Create a dataset for simulation of single dose of caffeine

Description

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

Usage

caffPkparam(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 multivariate normal

See Also

https://asancpt.github.io/caffsim

Examples

caffPkparam(Weight = 20, Dose = 200, N = 20)
caffPkparam(20,500)
**caffPkparamMulti**  
*Create a dataset for simulation of multiple dose of caffeine*

**Description**

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

**Usage**

```r
caffPkparamMulti(Weight, Dose, N = 20, Tau = 8)
```

**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**

```r
caffPkparamMulti(Weight = 20, Dose = 200, N = 20, Tau = 8)
caffPkparamMulti(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**

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

Arguments
caffConcTimeData
data frame of 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

Create concentration-time curve after multiple doses of caffeine

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

Usage
caffPlotMulti(caffConcTimeMultiData, log = FALSE)

Arguments
caffConcTimeMultiData
data frame of 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(caffConcTimeMulti(Weight = 20, Dose = 200, N = 20, Tau = 8, Repeat = 4))
### caffShiny

**Run shiny app to interactively simulate plasma caffeine concentration.**

**Description**

caffShiny runs an internal shiny app Caffeine Concentration Predictor in order to interactively simulate plasma caffeine concentration.

**Usage**

caffShiny()

**See Also**

https://asan.shinyapps.io/caff/

### 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
Index

* datasets
  UnitTable, 8
  caffConcTime, 2
  caffConcTimeMulti, 3
  caffDescstat, 3
  caffOverdose, 4
  caffPkparam, 5
  caffPkparamMulti, 6
  caffPlot, 6
  caffPlotMulti, 7
  caffShiny, 8

UnitTable, 8