Package 'titeIR'

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Type Package

Title Isotonic Designs for Phase 1 Trials with Late-Onset Toxicities

Version 0.1.0

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Description Functions to design phase 1 trials using an isotonic regression based design incorporating time-to-event information. Simulation and design functions are available, which incorporate information about followup and DLTs, and apply isotonic regression to devise estimates of DLT probability.

License GPL-3

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LazyData true

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NeedsCompilation no

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Contents

`isotitedose` *Dose assignment for TITE-IR designs*

Description

Calculate the next dose assignment for a TITE-IR design.

Usage

```
isotitedose(followup, DLT, assignment, obswin, doses, target = 1/3,
  safety = 0.05)
```

Arguments

`followup`	A vector of followup times
`DLT`	A vector of DLT results. `FALSE` or 0 is interpreted as no observed DLT and `TRUE` or 1 is interpreted as observed DLT.
`assignment`	a vector of dose assignments. Doses should be labeled in consecutive integers from 1 to number of dose levels.
`obswin`	The observation window with respect to which the MTD is defined.
`doses`	An integer providing the number of doses.
`target`	Target DLT rate
`safety`	The safety factor to prevent overly aggressive escalation

Value

an integer specifying the recommended dose level

See Also

`isotitesim` for simulations

Examples

```
isotitedose(followup = c(6, 5, 4, 3, 2, 1), DLT = c(0, 0, 0, 0, 0, 0),
 assignment = c(1, 1, 1, 2, 2, 2), obswin = 6, doses = 6)
```

`isotitesim` *Simulate TITE-IR designs*

Description

Simulates trials based on the TITE-IR design.

Usage

```
isotitesim(PI, target, n, nsim, obswin = 1, rate = 1, safety = 0.05,
  accrual = "poisson", restrict = TRUE)
```

Arguments

`PI`	A vector of true toxicity probabilities at each dose
`target`	Target DLT rate
`n`	Sample size of the trial
`nsim`	Number of trial replicates
`obswin`	The observation window with respect to which the MTD is defined
`rate`	Patient arrival rate: expected number of arrivals per observation window
`safety`	The safety factor to prevent overly aggressive escalation
`accrual`	Specify the accrual distribution. Can be either `"poisson"` or `"fixed"`. Partial strings are also acceptable.
`restrict`	If `TRUE`, do not allow escalation immediately after a toxic outcome (require coherent escalation)

Value

Object of type `isotite` which provides results from TITE-IR simulations

See Also

`isotitedose` for dose recommendation

Examples

```
isotitesim(PI = c(0.05, 0.10, 0.20, 0.30, 0.50, 0.70),
 target = 1/3, n = 24, nsim = 10, obswin = 6, rate = 12)
```

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