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.
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isotitedose  

*Dose assignment for TITE-IR designs*

**Description**

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

**Usage**

```r
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**

```r
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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