Package ‘PWMEnrich.Hsapiens.background’

April 7, 2026

Maintainer Diego Diez <diego10ruiz@gmail.com>

License GPL-3

Title H. sapiens background for PWMEnrich

Type Package

LazyLoad yes

Author Robert Stojnic

Description PWMEnrich pre-compiled background objects for H. sapiens (human) and MotifDb H. sapiens motifs.

Version 4.44.0

biocViews Homo_sapiens_Data, CGHData

Date 2015-09-30

Depends R (>= 2.10), methods, PWMEnrich

git_url https://git.bioconductor.org/packages/PWMEnrich.Hsapiens.background

git_branch RELEASE_3_22

git_last_commit 98e080a

git_last_commit_date 2025-10-29

Repository Bioconductor 3.22

Date/Publication 2026-04-07

Contents

`PWMEnrich.Hsapiens.background-package`

PWMEnrich.Hsapiens.background package overview

Description

This package provides a set of pre-compiled genomic background files for the `PWMEnrich` package and H. sapiens (human). The backgrounds were pre-compiled using unique 2kb promoters in human.

- `MotifDb.Hsap.PFM` - a list of position frequency matrices (PFMs) from `MotifDb`
- `MotifDb.Hsap` - the corresponding PWMs generated by using the background frequencies of A,C,G,T in a set of 2kb human (hg19) promoters.
- `PWMLogn.hg19.MotifDb.Hsap` - pre-compiled threshold-free lognormal background for MotifDb human PWMs. The lognormal distribution is fitted to 500bp chunks of 2kb human (hg19) promoters.
- `PWMCutoff4.hg19.MotifDb.Hsap`, `PWMCutoff5.hg19.MotifDb.Hsap` - pre-compiled Z-score background with cutoff of 4 and 5 (base e) for MotifDb human PWMs. The number of hits is counted in 2kb human (hg19) promoters.
- `PWMPvalueCutoff1e2.hg19.MotifDb.Hsap`, `PPWMPvalueCutoff1e3.hg19.MotifDb.Hsap`, `PPWMPvalueCutoff1e4.hg19.MotifDb.Hsap` - pre-compiled Z-score background with P-value cutoff of 0.01, 0.001, and 0.0001 for MotifDb human PWMs. The number of hits with smaller P-value than cutoff is counted in 2kb human (hg19) promoters.

Usage

```
data(MotifDb.Hsap.PFM)
data(MotifDb.Hsap)
data(PWMLogn.hg19.MotifDb.Hsap)
data(PWMCutoff4.hg19.MotifDb.Hsap)
data(PWMCutoff5.hg19.MotifDb.Hsap)
data(PWMPvalueCutoff1e2.hg19.MotifDb.Hsap)
data(PWMPvalueCutoff1e3.hg19.MotifDb.Hsap)
data(PWMPvalueCutoff1e4.hg19.MotifDb.Hsap)
```

Details

All of these objects were created with the appropriate functions available in the `PWMEnrich` package (see Section 'See also'). We recommend using these functions to generate backgrounds for a custom set of background sequences and/or DNA motifs.

This package also contains the 2kb upstream sequences for human genes (`hg19.upstream2000`) which were removed from the BSgenome.Hsapiens.UCSC.hg19 package starting from Bioconductor version 3.0.

Author(s)

Robert Stojnic
Cambridge Systems Biology Centre
University of Cambridge, UK

Maintainer: Robert Stojnic <`robert.stojnic@gmail.com`>

See Also

`makeBackground`, `makePWMLognBackground`, `makePWMCutoffBackground`, `makePWMEmpiricalBackground`.

Examples

```
data(PWMLogn.hg19.MotifDb.Hsap)

res = motifEnrichment(DNAString("TGCATCAAGTGTGTAGTGCAAGTGAGTGATGAGTAGAAGTTGAGTGAGGTAGATGC"),
  PWMLogn.hg19.MotifDb.Hsap)

groupReport(res)[1:10]
```

Index