

Package ‘ABADData’

April 13, 2017

Type Package

Title Averaged gene expression in human brain regions from Allen Brain Atlas

Version 1.4.0

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Description Provides the data for the gene expression enrichment analysis conducted in the package 'ABAEnrichment'. The package includes three datasets which are derived from the Allen Brain Atlas: (1) Gene expression data from Human Brain (adults) averaged across donors, (2) Gene expression data from the Developing Human Brain pooled into five age categories and averaged across donors and (3) a developmental effect score based on the Developing Human Brain expression data. All datasets are restricted to protein coding genes.

License GPL (>= 2)

Depends R (>= 3.2)

Suggests BiocStyle, knitr

VignetteBuilder knitr

biocViews ExpressionData, Homo_sapiens_Data, MicroarrayData, RNASeqData

NeedsCompilation no

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ABADData-package

Gene expression data from Allen Brain Atlas to use with enrichment analysis package ABAEnrichment

Description

This package provides the data used in the gene expression enrichment package 'ABAEnrichment'. It contains three datasets on gene expression in adult and developing human brains which base on data provided by the Allen Brain Atlas project [1-4]. The data and its processing is described in the package vignette. For usage of the data for gene expression enrichment analyses please refer to the 'ABAEnrichment' vignette.

Details

Package: ABADData
Type: Package
Version: 0.99.3
Date: 2015-08-06
License: GPL (>= 2)

For details see `vignette("ABADData", package="ABADData")`.

Author(s)

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References

- [1] Hawrylycz, M.J. et al. (2012) An anatomically comprehensive atlas of the adult human brain transcriptome, Nature 489: 391-399. doi:[10.1038/nature11405](https://doi.org/10.1038/nature11405)
- [2] Miller, J.A. et al. (2014) Transcriptional landscape of the prenatal human brain, Nature 508: 199-206. doi:[10.1038/nature13185](https://doi.org/10.1038/nature13185)
- [3] Allen Institute for Brain Science. Allen Human Brain Atlas [Internet]. Available from: <http://human.brain-map.org/>
- [4] Allen Institute for Brain Science. BrainSpan Atlas of the Developing Human Brain [Internet]. Available from: <http://brainspan.org/>

See Also

```
vignette("ABADData", package="ABADData")  
vignette("ABAEnrichment", package="ABAEnrichment")  
datasets\_ABADData
```

Examples

```
## require averaged gene expression data (microarray) from adult human brain regions  
data(dataset_adult)  
## look at first lines
```

```
head(dataset_adult)
```

datasets_ABADData	<i>Gene expression data from Allen Brain Atlas to use with enrichment analysis package ABAEnrichment</i>
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Description

These datasets are used in the enrichment analysis package 'ABAEnrichment'. They contain data on gene expression in human brain regions which base on datasets provided by the Allen Brain Atlas project[1-4]. 'dataset_adult' contains microarray expression data from six adult individuals, 'dataset_5_stages' contains RNA-seq data from 42 individuals grouped into five developmental stages (prenatal to adult) and 'dataset_dev_effect' contains scores measuring the age effect on expression per gene and brain region. The expression data in 'dataset_adult' and 'dataset_5_stages' are averaged across donors.

Usage

```
data(dataset_adult)
data(dataset_5_stages)
data(dataset_dev_effect)
```

Details

For details on the data and its processing see the package vignette.

Value

All three datasets in the package are represented in a data frame with the following columns:

hgnc_symbol HGNC-symbols

entrezgene Entrez-IDs

ensembl_gene_id Ensembl-IDs

structure brain region ID as used in the ontology from Allen Brain Atlas

signal normalized microarray data, RNA-seq data or developmental effect score

age_category developmental stage. 0: all stages, 1: prenatal, 2: infant (0-2 yrs), 3: child (3-11), 4: adolescent (12-19 yrs), 5: adult (>19 yrs)

Source

[1] Allen Institute for Brain Science. Allen Human Brain Atlas [Internet]. Available from: <http://human.brain-map.org/>

[2] Allen Institute for Brain Science. BrainSpan Atlas of the Developing Human Brain [Internet]. Available from: <http://brainspan.org/>

References

[3] Hawrylycz, M.J. et al. (2012) An anatomically comprehensive atlas of the adult human brain transcriptome, Nature 489: 391-399. doi:10.1038/nature11405

[4] Miller, J.A. et al. (2014) Transcriptional landscape of the prenatal human brain, Nature 508: 199-206. doi:10.1038/nature13185

See Also

```
vignette("ABADData", package="ABADData")  
vignette("ABAEnrichment", package="ABAEnrichment")
```

Examples

```
data(dataset_adult)  
head(dataset_adult)  
  
data(dataset_5_stages)  
head(dataset_5_stages)  
  
data(dataset_dev_effect)  
head(dataset_dev_effect)
```

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