

# Package ‘bcellViper’

May 16, 2024

**Type** Package

**Title** Human B-cell transcriptional interactome and normal human B-cell expression data

**Version** 1.41.0

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**Description** This package provides a human B-cell context-specific transcriptional regulatory network and a human normal B-cells dataset for the examples in package viper.

**License** GPL (>=2)

**Depends** R(>= 2.14.0), Biobase, methods

**LazyLoad** yes

**biocViews** ExperimentData, Genome, Homo\_sapiens\_Data, CancerData

**Collate** "

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bcellViper-package     *Human B-cell interactome and normal and tumor B-cell phenotypes  
expression data*

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### Description

This package contains an interactome (regulon), expression data (dset), a list of normal sample IDs (normalSamples) and a short example of the ARACNE algorithm output (bcellaracne.adj file) required to run the examples of package viper.

### Details

Package:     bcellViper  
Type:        Package  
Version:     0.99.2  
Date:        2013-04-15  
License:     GPL (>=2)  
LazyLoad:    yes

### Author(s)

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### References

Basso, K. et al. Reverse engineering of regulatory networks in human B cells. *Nature genetics* 37, 382-90 (2005).

Gautier, L., Cope, L., Bolstad, B. M., and Irizarry, R. A. 2004. affy—analysis of Affymetrix GeneChip data at the probe level. *Bioinformatics* 20, 3 (Feb. 2004), 307-315.

Alvarez, M. J., Sumazin, P., Rajbhandari, P. & Califano, A. Correlating measurements across samples improves accuracy of large-scale expression profile experiments. *Genome biology* 10, R143 (2009).

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`dset`*Human normal and tumor B-cell phenotypes expression data*

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**Description**

The expression data (dset) is a numeric matrix with genes (6,249) in rows and samples (211) in columns. Gene identifiers and sample names are contained in the rownames and colnames attributes, respectively. The samples represent several normal and tumor B-cell phenotypes, 5 naive B-cell, 5 memory B-cells, 5 centroblasts and 5 centrocytes phenotypes. The data is a subset from the Gene Expression Omnibus series GSE2350 (Basso et.al, 2005), where the original raw data (Affymetrix H-GU95Av2 gene arrays) was normalized by MAS5 (Gautier et.al, 2004) after generating custom probe-cluster with the cleaner algorithm (Alvarez et.al, 2009).

**Usage**

```
data(bcellViper)
```

**References**

Basso, K. et al. Reverse engineering of regulatory networks in human B cells. *Nature genetics* 37, 382-90 (2005).

Gautier, L., Cope, L., Bolstad, B. M., and Irizarry, R. A. 2004. *affy*—analysis of Affymetrix GeneChip data at the probe level. *Bioinformatics* 20, 3 (Feb. 2004), 307-315.

Alvarez, M. J., Sumazin, P., Rajbhandari, P. & Califano, A. Correlating measurements across samples improves accuracy of large-scale expression profile experiments. *Genome biology* 10, R143 (2009).

**Examples**

```
data(bcellViper)
dset
```

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`regulon`*Human B-cell context-specific transcriptional interactome*

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**Description**

The interactome is a human B-cell context-specific transcriptional regulatory network reverse engineered by the ARACNE algorithm from 254 normal and tumor B-cell phenotypes (Basso et.al, 2005). It represents 621 transcription factors (TF) and 6,249 target genes associated by 172,240 interactions. The interactome is contained in a list object of S3 class 'regulon' where each element represent a transcriptional regulator (transcription factor) and contains two vectors: (1) a named numeric vector indicating the mode of regulation (MoR) for each target gene, whose ID is indicated by the names attribute of the vector. (2) a numeric vector indicating the confidence score for the TF-target interaction.

**Usage**

```
data(bcellViper)
```

**References**

Basso, K. et al. Reverse engineering of regulatory networks in human B cells. *Nature genetics* 37, 382-90 (2005).

**Examples**

```
data(bcellViper)  
print(regulon[1])
```

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