Package 'CascadeData'

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Type Package

Title Experimental Data of Cascade Experiments in Genomics

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Imports

Suggests

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Description These experimental expression data (5 leukemic 'CLL' B-lymphocyte of aggressive form from 'GSE39411', <doi:10.1073/pnas.1211130110>), after B-cell receptor stimulation, are used as examples by packages such as the 'Cascade' one, a modeling tool allowing gene selection, reverse engineering, and prediction in cascade networks. Jung, N., Bertrand, F., Bahram, S., Vallat, L., and Maumy-Bertrand, M. (2014) <doi:10.1093/bioinformatics/btt705>.

License GPL (>= 2)

Encoding UTF-8

RoxygenNote 7.1.1

URL <https://fbertran.github.io/CascadeData/>,
<https://github.com/fbertran/CascadeData/>

BugReports <https://github.com/fbertran/CascadeData/issues/>

NeedsCompilation no

Repository CRAN

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R topics documented:

CascadeData-package   *Experimental Data of Cascade Experiments in Genomics*

Description

These are the data from the agressive subject group the from GSE39411 dataset, `https://www.ncbi.nlm.nih.gov/geo/query/acc.cgi?acc=GSE39411`, Vallat, L., Kemper, C. A., Jung, N., Maumy-Bertrand, M., Bertrand, F., ..., Bahram, S. (2013). Reverse-engineering the genetic circuitry of a cancer cell with predicted intervention in chronic lymphocytic leukemia. Proceedings of the National Academy of Sciences, 110(2), 459-464, doi: 10.1073/pnas.1211130110

Details

5 leukemic CLL B-lymphocyte of aggressive form were stimulated in vitro with an anti-IgM antibody, activating the B-cell receptor (BCR). We analyzed the gene expression at 4 time points (60, 90, 210 and 390 minutes). Each gene expression measurement is performed both in stimulated cells and in control unstimulated cells.

The data were normalized and are ready to use.

These Experimental Data are used as examples by packages such as the Cascade one doi: 10.1093/bioinformatics/btt705 in one of its vignettes. The Cascade package is a modeling tool allowing gene selection, reverse engineering, and prediction in Cascade networks.

Data were collected on HG-U133_Plus_2, Affymetrix Human Genome U133 Plus 2.0 Array.

Author(s)

This package has been written by Frederic Bertrand, Myriam Maumy-Bertrand and Nicolas Jung with biological insights from Laurent Vallat.

Maintainer: Frederic Bertrand <frederic.bertrand@math.unistra.fr>

References

Jung, N., Bertrand, F., Bahram, S., Vallat, L., and Maumy-Bertrand, M. (2013). Cascade: a R-package to study, predict and simulate the diffusion of a signal through a temporal gene network. *Bioinformatics*, btt705.

Vallat, L., Kemper, C. A., Jung, N., Maumy-Bertrand, M., Bertrand, F., ... & Bahram, S. (2013). Reverse-engineering the genetic circuitry of a cancer cell with predicted intervention in chronic lymphocytic leukemia. *Proceedings of the National Academy of Sciences*, 110(2), 459-464.

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micro_S   *Stimulated dataset*

Description

This is the stimulated data part of the GSE39411 dataset, `https://www.ncbi.nlm.nih.gov/geo/query/acc.cgi?acc=GSE39411`. Data were normalized and are ready to use.

Format

A data frame with 54613 probesets measured 6 times throught 4 time points.

Details

5 leukemic CLL B-lymphocyte of aggressive form were stimulated in vitro with an anti-IgM antibody, activating the B-cell receptor (BCR). We analyzed the gene expression at 4 time points (60, 90, 210 and 390 minutes). Each gene expression measurement is performed both in stimulated cells and in control unstimulated cells. This is the stimulated cells dataset.

Data were collected on HG-U133_Plus_2, Affymetrix Human Genome U133 Plus 2.0 Array.

References

Vallat, L., Kemper, C. A., Jung, N., Maumy-Bertrand, M., Bertrand, F., . . . , Bahram, S. (2013). Reverse-engineering the genetic circuitry of a cancer cell with predicted intervention in chronic lymphocytic leukemia. Proceedings of the National Academy of Sciences, 110(2), 459-464, doi: 10.1073/pnas.1211130110.

Examples

```
data(micro_S)
```

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micro_US   *Unstimulated control dataset*

Description

This is the unstimulated data part of the GSE39411 dataset, `https://www.ncbi.nlm.nih.gov/geo/query/acc.cgi?acc=GSE39411`. Data were normalized and are ready to use.

Format

A data frame with 54613 probesets measured 6 times throught 4 time points.

Details

5 leukemic CLL B-lymphocyte of aggressive form were stimulated in vitro with an anti-IgM anti-body, activating the B-cell receptor (BCR). We analyzed the gene expression at 4 time points (60, 90, 210 and 390 minutes). Each gene expression measurement is performed both in stimulated cells and in control unstimulated cells. This is the unstimulated cells dataset.

Data were collected on HG-U133_Plus_2, Affymetrix Human Genome U133 Plus 2.0 Array.

References

Vallat, L., Kemper, C. A., Jung, N., Maumy-Bertrand, M., Bertrand, F., . . . , Bahram, S. (2013). Reverse-engineering the genetic circuitry of a cancer cell with predicted intervention in chronic lymphocytic leukemia. Proceedings of the National Academy of Sciences, 110(2), 459-464, doi: 10.1073/pnas.1211130110.

Examples

```
data(micro_US)
```

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