

# Package ‘HighlyReplicatedRNASeq’

November 12, 2024

**Type** Package  
**Title** Collection of Bulk RNA-Seq Experiments With Many Replicates  
**Version** 1.18.0  
**Description** Gene-level count matrix data for bulk RNA-seq dataset with many replicates. The data are provided as easy to use SummarizedExperiment objects. The source data that is made accessible through this package comes from <https://github.com/bartongroup/profDGE48>.  
**URL** <https://github.com/const-ae/HighlyReplicatedRNASeq>  
**BugReports** <https://github.com/const-ae/HighlyReplicatedRNASeq/issues>  
**License** MIT + file LICENSE  
**Encoding** UTF-8  
**Depends** SummarizedExperiment, ExperimentHub  
**Imports** S4Vectors  
**Suggests** BiocStyle, BiocFileCache, knitr, rmarkdown  
**biocViews** ExperimentHub, ExperimentData, ExpressionData, SequencingData, RNASeqData  
**RoxygenNote** 7.1.0  
**Roxygen** list(markdown = TRUE)  
**VignetteBuilder** knitr  
**git\_url** <https://git.bioconductor.org/packages/HighlyReplicatedRNASeq>  
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HighlyReplicatedRNASeq

*HighlyReplicatedRNASeq: Collection of Bulk RNA-Seq Experiments With Many Replicates***Description**

The HighlyReplicatedRNASeq package provides access to the count matrix results from studies with many replicates. These datasets can be valuable for benchmarking tools designed to handle RNA-seq data.

**Details**

Available datasets:

- Schurch et al. (2016): 86 samples of *S. cerevisiae* in two conditions
  - [Schurch16\(\)](#) / [Schurch16\\_metadata\(\)](#)

At the moment, this package contains only one dataset, but more datasets can be added in the future.

Schurch16

*Get the RNA-seq counts from Schurch et al. (2016)***Description**

The data contains bulk RNA-seq count on 86 samples in two conditions. The first condition is wild type *S. cerevisiae* (taxonomic id: 1247190). The second condition is the same strain with a snf2 knockout.

**Usage**

```
Schurch16(hub = ExperimentHub())
```

```
Schurch16_metadata(hub = ExperimentHub())
```

**Arguments**

hub                    an [ExperimentHub](#) object that is used to load the resource "EH3315" and "EH3316".  
Default: [ExperimentHub\(\)](#)

**Details**

Schurch et al. originally generated this dataset to benchmark RNA-seq differential expression tools and find out how many replicates are necessary to detect most differentially expressed genes. The data that is returned by this package comes from the GitHub [repository](#) that accompanied the study.

**Value**

Schurch16() returns a [SummarizedExperiment](#) with 7126 genes and 86 samples.

Schurch16\_metadata() returns a [ExperimentHub](#) object with the metadata on the Schurch16 dataset.

**Author(s)**

Constantin Ahlmann-Eltze

**References**

Schurch, N. J., Schofield, P., Gierliński, M., Cole, C., Sherstnev, A., Singh, V., ... Barton, G. J. (2016). How many biological replicates are needed in an RNA-seq experiment and which differential expression tool should you use? *RNA*, 22(6), 839–851. <https://doi.org/10.1261/rna.053959.115>

**Examples**

```
Schurch16_metadata()

se <- Church16()

dim(se)
colData(se)
summary(c(assay(se, "counts")))
```

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