# Package ‘CENTREprecomputed’

March 12, 2026

**Title** Hub package for the precomputed data of CENTRE and example data

**Version** 1.0.0

**Description** Interface and documentation for the Experiment Hub records needed by the CENTRE Bioconductor software package. The Experiment Hub records contains the precomputed fisher combined p-values, CRUP correlations. Additionally, the records hold ChIP-seq and RNA-seq data used for the example of the software package.

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**VignetteBuilder** knitr

**URL** https://github.com/slrvv/CENTREprecomputed

**BugReports** https://github.com/slrvv/CENTREprecomputed/issues

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`CENTREprecomputed-package`

*CENTREprecomputed: Experiment Data package interface for the precomputed data of CENTRE and example data*

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## Description

This is an Experiment Data package for the CENTRE Bioconductor software package. It serves as an interface for the CENTRE PrecomputedData database which contains the precomputed fisher combined p-values, CRUP correlations and the ChIP-seq and RNA-seq data used for the example. The PrecomputedDataLight.db contains the fisher combined p-value and the correlation between CRUP-PP and -EP scores for every enhancer-target (ET) pair at 500kb. The example ChIP-seq and RNA-seq can be downloaded from the ExperimentHub.

## Format

Database with tables:

**combinedTestData** -log transformed p-values of the Wilcoxon rank sum tests for each ET pair.

**crup_cor** correlation between CRUP-PP and -EP scores for each ET pair.

## Details

The combined p-value is computed from the p-values of four wilcoxon-rank sum tests for each ET. The four tests are on the CAGE-seq dataset, the DNAse-hypersensitive region dataset, the DNAse-seq-gene expression dataset and the CRUP-EP-gene expression dataset. For more information check the CENTRE article in references

## Author(s)

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## Source

http://owww.molgen.mpg.de/~CENTRE_data/CENTREexperimentData/PrecomputedDataLight.db

## References

Trisevgeni Rapakoulia, Sara Lopez Ruiz De Vargas, Persia Akbari Omgba, Verena Laupert, Igor Ulitsky, Martin Vingron, CENTRE: a gradient boosting algorithm for Cell-type-specific ENhancer-Target pREdiction, Bioinformatics, Volume 39, Issue 11, November 2023, btad687, https://doi.org/10.1093/bioinformatics/btad687

## See Also

Useful links:

- https://github.com/slrvv/CENTREprecomputed
- Report bugs at https://github.com/slrvv/CENTREprecomputed/issues

## Examples

```
library(ExperimentHub)
hub <- ExperimentHub()
eh <- query(hub, "CENTREprecomputed")
eh[["EH9540"]] ## PrecomputedData database
```

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CENTREprecompDb *Database for the CENTRE precomputed data*

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## Description

The CENTREprecompDb object provides access to CENTRE's Precomputed SQLite Database PrecomputedDataLight.db. Inside the database is combinedTestData, crup_cor and metadata. For more information check the computeGenericFeatures() function from the CENTRE package.

## Usage

```
CENTREprecompDb(x)

tables(x)
```

## Arguments

| | |
|---|---|
| x | sqlite file path |

## Details

CENTREprecompDb is the object that provides access to CENTRE's database. tables(CENTREprecompDb) shows the tables inside the database and their columns.

## Value

Object of class CENTREprecompDb

## References

Based on CompoundDb::CompDb class.

## Examples

```
#The object is accessed through the ExperimentHub record
eh <- ExperimentHub::ExperimentHub()
centreprecompdb <- eh[["EH9540"]]
tables(centreprecompdb)
```

`fetch_data_precomp` *Fetch data from the CENTREprecompDb database*

## Description

Function to fetch data from the CENTREprecomputed package database through the `CENTREprecompDb` object.

## Usage

```
fetch_data_precomp(x, table, columns, entries, column_filter)
```

## Arguments

| | |
|---|---|
| `x` | `CENTREprecompDb` object. |
| `table` | Table of the database on which to search. Can be combinedTestData or cor_CRUP. |
| `columns` | Columns to select. Equivalent to X in SELECT X. |
| `entries` | Element ID to select. Equivalen to ID in SELECT X FROM TABLE WHERE ID in Z. If entries or column_filter is missing the program assumes the query is SELECT X FROM TABLE. |
| `column_filter` | Column on which to apply filter. Equivalent to Z in SELECT X FROM TABLE WHERE ID in Z. If entries or column_filter is missing the program assumes the query is SELECT X FROM TABLE. |

## Value

data.frame with the data queried.

## References

Based on the package CompoundDb query engine internal functions.

## See Also

`vignette("CENTREprecomputed")`

## Examples

```
eh <- ExperimentHub::ExperimentHub()
centreprecompdb <- eh[["EH9540"]]

res <- fetch_data_precomp(centreprecompdb,
    table = "crup_cor",
    columns = c("pair", "cor_CRUP"),
    entries = "EH38E3440167",
    column_filter = "symbol38"
)
```

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