

# Package ‘Qtlizer’

May 8, 2024

**Title** Comprehensive QTL annotation of GWAS results

**Version** 1.18.0

**Description** This R package provides access to the Qtlizer web server. Qtlizer annotates lists of common small variants (mainly SNPs) and genes in humans with associated changes in gene expression using the most comprehensive database of published quantitative trait loci (QTLs).

**Depends** R (>= 3.6.0)

**License** GPL-3

**Encoding** UTF-8

**LazyData** false

**BugReports** <https://github.com/matmu/Qtlizer/issues>

**Imports** httr, curl, GenomicRanges, stringi

**Suggests** BiocStyle, testthat, knitr, rmarkdown

**RoxygenNote** 6.1.1

**VignetteBuilder** knitr

**biocViews** GenomeWideAssociation, SNP, Genetics, LinkageDisequilibrium

**git\_url** <https://git.bioconductor.org/packages/Qtlizer>

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communicate	<i>URL building and request/response handling</i>
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**Description**

URL building and request/response handling

**Usage**

```
communicate(q, corr, ld_method, n.tries = 2)
```

**Arguments**

q	The qtlizer query. Can either be a single string or a vector.
corr	Linkage disequilibrium based on 1000 Genomes Phase 3 European. Optional value between 0 and 1. Default value is NA.
ld_method	There are two methods. Default method is "r2". The other opportunity is to use "dprime".

**Value**

Data frame with results.

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get_qtls	<i>Query Qtlizer</i>
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**Description**

Query Qtlizer database for expression quantitative trait loci (eQTLs) in human.

**Usage**

```
get_qtls(query, corr = NA, max_terms = 5, ld_method = "r2",
         ref_version = "hg19", return_obj = "dataframe")
```

**Arguments**

query	The query consists of search terms and can be a single string or a vector. Qtlizer allows to query both variants (Rsid, ref_version:chr:pos) and genes (Symbol consisting of letters and numbers according to the HGNC guidelines). Minimum allowed term length is 2.
corr	Linkage disequilibrium based on 1000 Genomes Phase 3 European. If this optional value between 0 and 1 is set, the input variants are enriched for proxy variants passing the threshold. Default value is NA.

max_terms	Number of terms in a single HTTP request. Default value is 5. A large value can lead to a very large result set and a error by the database.
ld_method	There are two methods available: "r2" (default) and "dprime".
ref_version	Two possible versions are supported: hg19 (GRCh37) or hg38 (GRCh38). Default value is "hg19". This argument is only considered if a GenomicRanges::GRanges object is returned.
return_obj	The user can choose to get the QTL data to be returned as data frame or as a GenomicRanges::GRanges object. The default value is "dataframe".

**Value**

Data frame or GenomicRanges::GRanges object containing QTL data.

**Examples**

```
get_qtls("rs4284742")
get_qtls(c("rs4284742", "DEFA1"))
get_qtls("rs4284742,DEFA1")
get_qtls("rs4284742", return_obj="granges", ref_version="hg38")
get_qtls("rs4284742", corr=0.6)
```

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vector_split	<i>Splits vector v into n subvectors</i>
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**Description**

Splits vector v into n subvectors

**Usage**

```
vector_split(v, n)
```

**Arguments**

v	input vector
n	number of subvectors

**Value**

List with subvectors.

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