IlluminaHumanMethylation27k.db

November 11, 2026

`IlluminaHumanMethylation27kACCNUM`
Map Manufacturer identifiers to Accession Numbers

Description

IlluminaHumanMethylation27kACCNUM is an R object that contains mappings between a manufacturer's identifiers and manufacturers accessions.

Details

For chip packages such as this, the ACCNUM mapping comes directly from the manufacturer. This is different from other mappings which are mapped onto the probes via an Entrez Gene identifier.

Each manufacturer identifier maps to a vector containing a GenBank accession number.

Mappings were based on data provided by: Entrez Gene ftp://ftp.ncbi.nlm.nih.gov/gene/DATA With a date stamp from the source of: 2011-Mar16

Examples

```
x <- IlluminaHumanMethylation27kACCNUM
# Get the probe identifiers that are mapped to an ACCNUM
mapped_probes <- mappedkeys(x)
# Convert to a list
xx <- as.list(x[mapped_probes])
if(length(xx) > 0) {
  # Get the ACCNUM for the first five probes
  xx[1:5]
  # Get the first one
  xx[[1]]
}
```

IlluminaHumanMethylation27kALIAS2PROBE

Map between Common Gene Symbol Identifiers and Manufacturer Identifiers

Description

IlluminaHumanMethylation27kALIAS is an R object that provides mappings between common gene symbol identifiers and manufacturer identifiers.

Details

Each gene symbol is mapped to a named vector of manufacturer identifiers. The name represents the gene symbol and the vector contains all manufacturer identifiers that are found for that symbol. An NA is reported for any gene symbol that cannot be mapped to any manufacturer identifiers.

This mapping includes ALL gene symbols including those which are already listed in the SYMBOL map. The SYMBOL map is meant to only list official gene symbols, while the ALIAS maps are meant to store all used symbols.

Mappings were based on data provided by: Entrez Gene ftp://ftp.ncbi.nlm.nih.gov/gene/DATA With a date stamp from the source of: 2011-Mar16

Examples

```
# Convert the object to a list
xx <- as.list(IlluminaHumanMethylation27kALIAS2PROBE)
if(length(xx) > 0){
    # Get the probe identifiers for the first two aliases
    xx[1:2]
    # Get the first one
    xx[[1]]
}
```

IlluminaHumanMethylation27k.db

Bioconductor annotation data package

Description

Welcome to the IlluminaHumanMethylation27k.db annotation Package. The purpose of this package is to provide detailed information about the IlluminaHumanMethylation27k platform. This package is updated biannually.

You can learn what objects this package supports with the following command:

`ls("package:IlluminaHumanMethylation27k.db")`

Each of these objects has their own manual page detailing where relevant data was obtained along with some examples of how to use it.

Examples

```
ls("package:IlluminaHumanMethylation27k.db")
```

IlluminaHumanMethylation27kBLAME

Who checked the latest build of these annotations into version control?

Description

IlluminaHumanMethylation27kBLAME answers the important question of where to point the finger when it turns out that an annotation is out of date. It comes with a free money-back guarantee; your purchase price will be refunded.

Details

Typically this will be an overworked and underprepared grad student or RA.

Examples

```
IlluminaHumanMethylation27kBLAME
```

IlluminaHumanMethylation27kCHR

Map Manufacturer IDs to Chromosomes

Description

IlluminaHumanMethylation27kCHR is an R object that provides mappings between a manufacturer identifier and the chromosome that contains the gene of interest.

Details

Each manufacturer identifier maps to a vector of chromosomes. Due to inconsistencies that may exist at the time the object was built, the vector may contain more than one chromosome (e.g., the identifier may map to more than one chromosome). If the chromosomal location is unknown, the vector will contain an NA.

Mappings were based on data provided by: Entrez Gene ftp://ftp.ncbi.nlm.nih.gov/gene/DATA With a date stamp from the source of: 2011-Mar16

Examples

```
x <- IlluminaHumanMethylation27kCHR
# Get the probe identifiers that are mapped to a chromosome
mapped_probes <- mappedkeys(x)
# Convert to a list
xx <- as.list(x[mapped_probes])
if(length(xx) > 0) {
  # Get the CHR for the first five probes
  xx[1:5]
  # Get the first one
  xx[[1]]
}
```

IlluminaHumanMethylation27kCHRLENGTHS

A named vector for the length of each of the chromosomes

Description

IlluminaHumanMethylation27kCHRLENGTHS provides the length measured in base pairs for each of the chromosomes.

Details

This is a named vector with chromosome numbers as the names and the corresponding lengths for chromosomes as the values.

Total lengths of chromosomes were derived by calculating the number of base pairs on the sequence string for each chromosome.

Examples

```
tt <- IlluminaHumanMethylation27kCHRLENGTHS
# Length of chromosome 1
tt["1"]
```

IlluminaHumanMethylation27kCHRLOC

Map Manufacturer IDs to Chromosomal Location

Description

IlluminaHumanMethylation27kCHRLOC is an R object that maps manufacturer identifiers to the starting position of the gene. The position of a gene is measured as the number of base pairs.

The CHRLOCEND mapping is the same as the CHRLOC mapping except that it specifies the ending base of a gene instead of the start.

Details

Each manufacturer identifier maps to a named vector of chromosomal locations, where the name indicates the chromosome. Due to inconsistencies that may exist at the time the object was built, these vectors may contain more than one chromosome and/or location. If the chromosomal location is unknown, the vector will contain an NA.

Chromosomal locations on both the sense and antisense strands are measured as the number of base pairs from the p (5' end of the sense strand) to q (3' end of the sense strand) arms. Chromosomal locations on the antisense strand have a leading "-" sign (e. g. -1234567).

Since some genes have multiple start sites, this field can map to multiple locations.

Mappings were based on data provided by: UCSC Genome Bioinformatics (Homo sapiens) ftp://hgdownload.cse.ucsc.edu/go
With a date stamp from the source of: 2010-Mar22

Examples

```
x <- IlluminaHumanMethylation27kCHRLOC
# Get the probe identifiers that are mapped to chromosome locations
mapped_probes <- mappedkeys(x)
# Convert to a list
xx <- as.list(x[mapped_probes])
if(length(xx) > 0) {
  # Get the CHRLOC for the first five probes
  xx[1:5]
  # Get the first one
  xx[[1]]
}
```

IlluminaHumanMethylation27kCOLORCHANNEL

Color Channel for locus assay

Description

IlluminaHumanMethylation27kCOLORCHANNEL is an R object that provides mappings between a manufacturer identifier and the color channel for the assay for that locus

Details

Value is a simple Grn or Red for each probe, based simply on the Illumina manifest,

Mappings were based on data provided by: Illimina http://Illumina.com Downloaded 2010-Oct-10

Examples

```
x <- IlluminaHumanMethylation27kCOLORCHANNEL
# Get the probe identifiers that are mapped
mapped_probes <- mappedkeys(x)
# Convert to a list
xx <- as.list(x[mapped_probes])
```

```
if(length(xx) > 0) {
  # Get the values for the first five probes
  xx[1:5]
}
```

IlluminaHumanMethylation27kCPGCOORDINATE

Map Manufacturer IDs to genomic coordinate

Description

IlluminaHumanMethylation27kCPGCOORDINATE is an R object that provides mappings between a manufacturer identifier and the CpG coordinate as defined by Illumina in the manifest.

Details

Simple probe mapping to CpG coordinate within the human genome, Build 36, as defined by Illumina.

Mappings were based on data provided by: Illimina http://Illumina.com Downloaded 19-Sep-2009

Examples

```
x <- IlluminaHumanMethylation27kCPGCOORDINATE
# Get the probe identifiers that are mapped to a CpG coordinate
mapped_probes <- mappedkeys(x)
# Convert to a list
xx <- as.list(x[mapped_probes])
if(length(xx) > 0) {
  # Get the CHR for the first five probes
  xx[1:5]
}
```

IlluminaHumanMethylation27kCPGS

Number of CpG dinucleotides in target genomic sequence

Description

IlluminaHumanMethylation27kCPGS is an R object that provides mappings between Illumina probe IDs and the number of CpGs in the source sequence targeted by Illumina, based on information in their manifest.

Details

Probe mapping to CpG density within the human genome, Build 36, as defined by Illumina.

Mappings were based on data provided by: Illimina http://Illumina.com Downloaded 11-Jan-2011

Examples

```
as.list(IlluminaHumanMethylation27kCPGS)[150:200]
```

IlluminaHumanMethylation27kDISTTOTSS

Map Manufacturer IDs to the distance to the transcript start of the nearest gene

---

Description

IlluminaHumanMethylation27kDISTTOTSS is an R object that provides mappings between a manufacturer identifier and the distance to the transcript start site of the nearest transcript, as defined by Illumina in the manifest.

Details

Simple probe mapping to CpG coordinate within the human genome, Build 36, as defined by Illumina.

Mappings were based on data provided by: Illimina http://Illumina.com Downloaded 19-Sep-2009

Examples

```
x <- IlluminaHumanMethylation27kDISTTOTSS
# Get the probe identifiers that are mapped to disttotss
mapped_probes <- mappedkeys(x)
# Convert to a list
xx <- as.list(x[mapped_probes])
if(length(xx) > 0) {
  # Get the value for the first five probes
  xx[1:5]
}
```

IlluminaHumanMethylation27kENSEMBL

Map Ensembl gene accession numbers with Entrez Gene identifiers

---

Description

IlluminaHumanMethylation27kENSEMBL is an R object that contains mappings between Entrez Gene identifiers and Ensembl gene accession numbers.

Details

This object is a simple mapping of Entrez Gene identifiers http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=gene to Ensembl gene Accession Numbers.

Mappings were based on data provided by BOTH of these sources: http://www.ensembl.org/biomart/martview/ ftp://ftp.ncbi.nlm.nih.gov/gene/DATA

This mapping is a combination of NCBI to ensembl IDs from BOTH NCBI and ensembl. Users who wish to only use mappings from NCBI are encouraged to see the ncbi2ensembl table in the appropriate organism package. Users who wish to only use mappings from ensembl are encouraged to see the ensembl2ncbi table which is also found in the appropriate organism packages. These mappings are based upon the ensembl table which is contains data from BOTH of these sources in an effort to maximize the chances that you will find a match.

Mappings were based on data provided by: Entrez Gene ftp://ftp.ncbi.nlm.nih.gov/gene/DATA With a date stamp from the source of: 2011-Mar16

Examples

```
x <- IlluminaHumanMethylation27kENSEMBL
# Get the entrez gene IDs that are mapped to an Ensembl ID
mapped_genes <- mappedkeys(x)
# Convert to a list
xx <- as.list(x[mapped_genes])
if(length(xx) > 0) {
  # Get the Ensembl gene IDs for the first five genes
  xx[1:5]
  # Get the first one
  xx[[1]]
}
#For the reverse map ENSEMBL2PROBE:
# Convert to a list
xx <- as.list(IlluminaHumanMethylation27kENSEMBL2PROBE)
if(length(xx) > 0){
   # Gets the entrez gene IDs for the first five Ensembl IDs
   xx[1:5]
   # Get the first one
   xx[[1]]
}
```

IlluminaHumanMethylation27kENTREZID

Map between Manufacturer Identifiers and Entrez Gene

Description

IlluminaHumanMethylation27kENTREZID is an R object that provides mappings between manufacturer identifiers and Entrez Gene identifiers.

Details

Each manufacturer identifier is mapped to a vector of Entrez Gene identifiers. An NA is assigned to those manufacturer identifiers that can not be mapped to an Entrez Gene identifier at this time.

If a given manufacturer identifier can be mapped to different Entrez Gene identifiers from various sources, we attempt to select the common identifiers. If a concensus cannot be determined, we select the smallest identifier.

Mappings were based on data provided by: Entrez Gene ftp://ftp.ncbi.nlm.nih.gov/gene/DATA With a date stamp from the source of: 2011-Mar16

References

http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=gene

Examples

```
x <- IlluminaHumanMethylation27kENTREZID
# Get the probe identifiers that are mapped to an ENTREZ Gene ID
mapped_probes <- mappedkeys(x)
# Convert to a list
xx <- as.list(x[mapped_probes])
if(length(xx) > 0) {
  # Get the ENTREZID for the first five probes
  xx[1:5]
  # Get the first one
  xx[[1]]
}
```

IlluminaHumanMethylation27kENZYME

Map between Manufacturer IDs and Enzyme Commission (EC) Numbers

---

Description

IlluminaHumanMethylation27kENZYME is an R object that provides mappings between manufacturer identifiers and EC numbers.

Details

Each manufacturer identifier maps to a named vector containing the EC number that corresponds to the enzyme produced by that gene. The name corresponds to the manufacturer identifier. If this information is unknown, the vector will contain an NA.

Enzyme Commission numbers are assigned by the Nomenclature Committee of the International Union of Biochemistry and Molecular Biology http://www.chem.qmw.ac.uk/iubmb/enzyme/ to allow enzymes to be identified.

An Enzyme Commission number is of the format EC x.y.z.w, where x, y, z, and w are numeric numbers. In IlluminaHumanMethylation27kENZYME2PROBE, EC is dropped from the Enzyme Commission numbers.

Enzyme Commission numbers have corresponding names that describe the functions of enzymes in such a way that EC x is a more general description than EC x.y that in turn is a more general description than EC x.y.z. The top level EC numbers and names are listed below:

EC 1 oxidoreductases

EC 2 transferases

EC 3 hydrolases

EC 4 lyases

EC 5 isomerases

EC 6 ligases

The EC name for a given EC number can be viewed at http://www.chem.qmul.ac.uk/iupac/jcbn/index.html#6

Mappings between probe identifiers and enzyme identifiers were obtained using files provided by: KEGG GENOME ftp://ftp.genome.jp/pub/kegg/genomes With a date stamp from the source of: 2011-Mar15

References

ftp://ftp.genome.ad.jp/pub/kegg/pathways

Examples

```
x <- IlluminaHumanMethylation27kENZYME
# Get the probe identifiers that are mapped to an EC number
mapped_probes <- mappedkeys(x)
# Convert to a list
xx <- as.list(x[mapped_probes])
if(length(xx) > 0) {
  # Get the ENZYME for the first five probes
  xx[1:5]
  # Get the first one
  xx[[1]]
}
```

`IlluminaHumanMethylation27kENZYME2PROBE` *Map between Enzyme Commission Numbers and Manufacturer Identifiers*

Description

IlluminaHumanMethylation27kENZYME2PROBE is an R object that maps Enzyme Commission (EC) numbers to manufacturer identifiers.

Details

Each EC number maps to a named vector containing all of the manufacturer identifiers that correspond to the gene that produces that enzyme. The name of the vector corresponds to the EC number.

Enzyme Commission numbers are assigned by the Nomenclature Committee of the International Union of Biochemistry and Molecular Biology http://www.chem.qmw.ac.uk/iubmb/enzyme/ to allow enzymes to be identified.

An Enzyme Commission number is of the format EC x.y.z.w, where x, y, z, and w are numeric numbers. In IlluminaHumanMethylation27kENZYME2PROBE, EC is dropped from the Enzyme Commission numbers.

Enzyme Commission numbers have corresponding names that describe the functions of enzymes in such a way that EC x is a more general description than EC x.y that in turn is a more general description than EC x.y.z. The top level EC numbers and names are listed below:

EC 1 oxidoreductases

EC 2 transferases

EC 3 hydrolases

EC 4 lyases

EC 5 isomerases

EC 6 ligases

The EC name for a given EC number can be viewed at http://www.chem.qmul.ac.uk/iupac/jcbn/index.html#6

Mappings were based on data provided by: KEGG GENOME ftp://ftp.genome.jp/pub/kegg/genomes With a date stamp from the source of: 2011-Mar15

References

ftp://ftp.genome.ad.jp/pub/kegg/pathways

Examples

```
 # Convert to a list
 xx <- as.list(IlluminaHumanMethylation27kENZYME2PROBE)
if(length(xx) > 0){
    # Get the probe identifiers for the first five enzyme
    #commission numbers
    xx[1:5]
    # Get the first one
    xx[[1]]
 }
```

IlluminaHumanMethylation27kGENENAME
Map between Manufacturer IDs and Genes

Description

IlluminaHumanMethylation27kGENENAME is an R object that maps manufacturer identifiers to the corresponding gene name.

Details

Each manufacturer identifier maps to a named vector containing the gene name. The vector name corresponds to the manufacturer identifier. If the gene name is unknown, the vector will contain an NA.

Gene names currently include both the official (validated by a nomenclature committee) and preferred names (interim selected for display) for genes. Efforts are being made to differentiate the two by adding a name to the vector.

Mappings were based on data provided by: Entrez Gene ftp://ftp.ncbi.nlm.nih.gov/gene/DATA With a date stamp from the source of: 2011-Mar16

Examples

```
x <- IlluminaHumanMethylation27kGENENAME
# Get the probe identifiers that are mapped to a gene name
mapped_probes <- mappedkeys(x)
# Convert to a list
xx <- as.list(x[mapped_probes])
if(length(xx) > 0) {
  # Get the GENENAME for the first five probes
  xx[1:5]
  # Get the first one
  xx[[1]]
}
```

IlluminaHumanMethylation27kGO
Map between Manufacturer IDs and Gene Ontology (GO)

Description

IlluminaHumanMethylation27kGO is an R object that provides mappings between manufacturer identifiers and the GO identifiers that they are directly associated with.

Details

Each Entrez Gene identifier is mapped to a list of lists. The names on the outer list are GO identifiers. Each inner list consists of three named elements: GOID, Ontology, and Evidence.

The GOID element matches the GO identifier named in the outer list and is included for convenience when processing the data using 'lapply'.

The Ontology element indicates which of the three Gene Ontology categories this identifier belongs to. The categories are biological process (BP), cellular component (CC), and molecular function (MF).

The Evidence element contains a code indicating what kind of evidence supports the association of the GO identifier to the Entrez Gene id. The evidence codes in use include:

IMP: inferred from mutant phenotype

IGI: inferred from genetic interaction

IPI: inferred from physical interaction

ISS: inferred from sequence similarity

IDA: inferred from direct assay

IEP: inferred from expression pattern

IEA: inferred from electronic annotation

TAS: traceable author statement

NAS: non-traceable author statement

ND: no biological data available

IC: inferred by curator

Mappings between probe identifiers and GO information were obtained through their mappings to Entrez Gene identifiers. NAs are assigned to probe identifiers that can not be mapped to any Gene Ontology information. Mappings between Gene Ontology identifiers an Gene Ontology terms and other information are available in a separate data package named GO.

Mappings were based on data provided by: Gene Ontology ftp://ftp.geneontology.org/pub/go/godatabase/archive/latest-lite/ With a date stamp from the source of: 20110312

Examples

```
x <- IlluminaHumanMethylation27kGO
# Get the probe identifiers that are mapped to a GO ID
mapped_probes <- mappedkeys(x)
# Convert to a list
xx <- as.list(x[mapped_probes])
if(length(xx) > 0) {
    # Try the firest one
    got <- xx[[1]]
    got[[1]][["GOID"]]
    got[[1]][["Ontology"]]
    got[[1]][["Evidence"]]

}
```

IlluminaHumanMethylation27kGO2ALLPROBES *Map between Gene Ontology (GO) Identifiers and all Manufacturer Identifiers in the subtree*

Description

IlluminaHumanMethylation27kGO2ALLPROBES is an R object that provides mappings between a given GO identifier and all manufactuerer identifiers annotated at that GO term or one of its children in the GO ontology.

Details

GO consists of three ontologies—molecular function (MF), biological process (BP), and cellular component (CC). All ontologies are structured as directed acyclic graphs (DAGs). Each node in each DAG (tree) is a GO term (id) associated with a named vector of manufacturer identifiers. The name associated with each manufacturer id corresponds to the evidence code for that GO identifier. This object IlluminaHumanMethylation27kGO2ALLPROBES maps between a given GO identifier and all manufactuerer identifiers annotated at that GO term or one of its children in the GO ontology.

The evidence code indicates what kind of evidence supports the association between the GO and Entrez Gene identifiers. Evidence codes currently in use include:

IMP - inferred from mutant phenotype

IGI - inferred from genetic interaction

IPI - inferred from physical interaction

ISS - inferred from sequence similarity

IDA - inferred from direct assay

IEP - inferred from expression pattern

IEA - inferred from electronic annotation

TAS - traceable author statement

NAS - non-traceable author statement

ND - no biological data available

IC - inferred by curator

A GO identifier may be mapped to the same manufacturer identifier more than once but the evidence code can be different. Mappings between Gene Ontology identifiers and Gene Ontology terms and other information are available in a separate data package named GO.

Mappings were based on data provided by:

Gene Ontology ftp://ftp.geneontology.org/pub/go/godatabase/archive/latest-lite/ With a date stamp from the source of: 20110312 and Entrez Gene ftp://ftp.ncbi.nlm.nih.gov/gene/DATA With a date stamp from the source of: 2011-Mar16

References

ftp://ftp.ncbi.nlm.nih.gov/gene/DATA/

Examples

```
# Convert to a list
xx <- as.list(IlluminaHumanMethylation27kGO2ALLPROBES)
if(length(xx) > 0){
    # Get the probe identifiers for the top 2nd and 3nd GO identifiers
    goids <- xx[2:3]
    # Get all the probe identifiers for the first element of goids
    goids[[1]]
    # Evidence code for the mappings
    names(goids[[1]])
}
```

IlluminaHumanMethylation27kGO2PROBE

Map between Gene Ontology (GO) and Manufacturer Identifiers

Description

IlluminaHumanMethylation27kGO2PROBE is an R object that provides mappings between GO identifiers and manufacturer identifiers.

Details

Each GO term maps to a named vector of manufacturer identifiers. The name associated with each manufacturer identifier corresponds to the evidence code for that GO identifier. The evidence code indicates what kind of evidence supports the association between the GO and Entrez Gene identifiers. Evidence codes currently in use include:

IMP - inferred from mutant phenotype

IGI - inferred from genetic interaction

IPI - inferred from physical interaction

ISS - inferred from sequence similarity

IDA - inferred from direct assay

IEP - inferred from expression pattern

IEA - inferred from electronic annotation

TAS - traceable author statement

NAS - non-traceable author statement

ND - no biological data available

IC - inferred by curator

A GO identifier may be mapped to the same probe identifier more than once but the evidence code can be different. Mappings between Gene Ontology identifiers an Gene Ontology terms and other information are available in a separate data package named GO.

Mappings were based on data provided by:

Entrez Gene ftp://ftp.ncbi.nlm.nih.gov/gene/DATA With a date stamp from the source of: 2011-Mar16

References

ftp://ftp.ncbi.nlm.nih.gov/gene/DATA/

Examples

```
# Convert to a list
xx <- as.list(IlluminaHumanMethylation27kGO2PROBE)
if(length(xx) > 0){
    # Get the probe identifiers for the top 2nd and 3nd GO identifiers
    goids <- xx[2:3]
    # Get the probe identifiers for the first element of goids
    goids[[1]]
    # Evidence code for the mappings
    names(goids[[1]])
}
```

IlluminaHumanMethylation27kISCPGISLAND

Determine whether a probe is within a CpG island

Description

IlluminaHumanMethylation27kISCPGISLAND is an R object that provides mappings between a manufacturer identifier and whether or not the CpG site being assayed meets Illumina's criteria for being in a CpG island as defined by Illumina in the manifest.

Details

Value is a simple TRUE or FALSE for each probe, based simply on the Illumina manifest, TRUE meaning that the CpG site is within a CpG island.

Mappings were based on data provided by: Illimina http://Illumina.com Downloaded 19-Sep-2009

Examples

```
x <- IlluminaHumanMethylation27kISCPGISLAND
# Get the probe identifiers that are mapped
mapped_probes <- mappedkeys(x)
# Convert to a list
xx <- as.list(x[mapped_probes])
if(length(xx) > 0) {
  # Get the values for the first five probes
  xx[1:5]
}
```

IlluminaHumanMethylation27kMAP *Map between Manufacturer Identifiers and cytogenetic maps/bands*

Description

IlluminaHumanMethylation27kMAP is an R object that provides mappings between manufacturer identifiers and cytoband locations.

Details

Each manufacturer identifier is mapped to a vector of cytoband locations. The vector length may be one or longer, if there are multiple reported chromosomal locations for a given gene. An NA is reported for any manufacturer identifiers that cannot be mapped to a cytoband at this time.

Cytogenetic bands for most higher organisms are labeled p1, p2, p3, q1, q2, q3 (p and q are the p and q arms), etc., counting from the centromere out toward the telomeres. At higher resolutions, sub-bands can be seen within the bands. The sub-bands are also numbered from the centromere out toward the telomere. Thus, a label of 7q31.2 indicates that the band is on chromosome 7, q arm, band 3, sub-band 1, and sub-sub-band 2.

The physical location of each band on a chromosome can be obtained from another object named "organism"CYTOLOC in a separate data package for human(humanCHRLOC), mouse(mouseCHRLOC), and rat(ratCHRLOC).

Mappings were based on data provided by: Entrez Gene ftp://ftp.ncbi.nlm.nih.gov/gene/DATA With a date stamp from the source of: 2011-Mar16

References

http://www.ncbi.nlm.nih.gov

Examples

```
x <- IlluminaHumanMethylation27kMAP
# Get the probe identifiers that are mapped to any cytoband
mapped_probes <- mappedkeys(x)
# Convert to a list
xx <- as.list(x[mapped_probes])
if(length(xx) > 0) {
  # Get the MAP for the first five probes
  xx[1:5]
  # Get the first one
  xx[[1]]
}
```

IlluminaHumanMethylation27kMAPCOUNTS

Number of mapped keys for the maps in package IlluminaHumanMethylation27k.db

---

Description

IlluminaHumanMethylation27kMAPCOUNTS provides the "map count" (i.e. the count of mapped keys) for each map in package IlluminaHumanMethylation27k.db.

Details

This "map count" information is precalculated and stored in the package annotation DB. This allows some quality control and is used by the checkMAPCOUNTS function defined in AnnotationDbi to compare and validate different methods (like `count.mappedkeys(x)` or `sum(!is.na(as.list(x)))`) for getting the "map count" of a given map.

See Also

mappedkeys, count.mappedkeys, checkMAPCOUNTS

Examples

```
IlluminaHumanMethylation27kMAPCOUNTS
mapnames <- names(IlluminaHumanMethylation27kMAPCOUNTS)
IlluminaHumanMethylation27kMAPCOUNTS[mapnames[1]]
x <- get(mapnames[1])
sum(!is.na(as.list(x)))
count.mappedkeys(x)   # much faster!

## Check the "map count" of all the maps in package IlluminaHumanMethylation27k.db
checkMAPCOUNTS("IlluminaHumanMethylation27k.db")
```

IlluminaHumanMethylation27kNUID

Map Illumina probe IDs to the NuID representation of the target sequence

---

Description

IlluminaHumanMethylation27kNUID is an R object that provides mappings between Illumina probe IDs and the NuID string generated by lumi::seq2id(sourceSeq) based on the target sequences provided by Illumina in the 27k manifest.

Details

Probe ID to NuID conversion, without the agonizing wait.

Mappings were based on data provided by: Illimina http://Illumina.com Downloaded 11-Jan-2011

Examples

```
as.list(IlluminaHumanMethylation27kNUID)[150:200]
```

`IlluminaHumanMethylation27kOMIM` *Map between Manufacturer Identifiers and Mendelian Inheritance in Man (MIM) identifiers*

Description

IlluminaHumanMethylation27kOMIM is an R object that provides mappings between manufacturer identifiers and OMIM identifiers.

Details

Each manufacturer identifier is mapped to a vector of OMIM identifiers. The vector length may be one or longer, depending on how many OMIM identifiers the manufacturer identifier maps to. An NA is reported for any manufacturer identifier that cannot be mapped to an OMIM identifier at this time.

OMIM is based upon the book Mendelian Inheritance in Man (V. A. McKusick) and focuses primarily on inherited or heritable genetic diseases. It contains textual information, pictures, and reference information that can be searched using various terms, among which the MIM number is one.

Mappings were based on data provided by: Entrez Gene ftp://ftp.ncbi.nlm.nih.gov/gene/DATA With a date stamp from the source of: 2011-Mar16

References

http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=gene http://www3.ncbi.nlm.nih.gov/entrez/query.fcgi?db=OMIM

Examples

```
x <- IlluminaHumanMethylation27kOMIM
# Get the probe identifiers that are mapped to a OMIM ID
mapped_probes <- mappedkeys(x)
# Convert to a list
xx <- as.list(x[mapped_probes])
if(length(xx) > 0) {
  # Get the OMIM for the first five probes
  xx[1:5]
  # Get the first one
  xx[[1]]
}
```

IlluminaHumanMethylation27kORGANISM
The Organism information for IlluminaHumanMethylation27k

Description

IlluminaHumanMethylation27kORGANISM is an R object that contains a single item: a character string that names the organism for which IlluminaHumanMethylation27k was built. IlluminaHumanMethylation27kORGPKG is an R object that contains a chararcter vector with the name of the organism package that a chip package depends on for its gene-centric annotation.

Details

Although the package name is suggestive of the organism for which it was built, IlluminaHumanMethylation27kORGANISM provides a simple way to programmatically extract the organism name. IlluminaHumanMethylation27kORGPKG provides a simple way to programmatically extract the name of the parent organism package. The parent organism package is a strict dependency for chip packages as this is where the gene cetric information is ultimately extracted from. The full package name will always be this string plus the extension ".db". But most programatic acces will not require this extension, so its more convenient to leave it out.

Examples

```
IlluminaHumanMethylation27kORGANISM
IlluminaHumanMethylation27kORGPKG
```

IlluminaHumanMethylation27kPATH
Mappings between probe identifiers and KEGG pathway identifiers

---

Description

KEGG (Kyoto Encyclopedia of Genes and Genomes) maintains pathway data for various organisms. IlluminaHumanMethylation27kPATH maps probe identifiers to the identifiers used by KEGG for pathways in which the genes represented by the probe identifiers are involved

Details

Each KEGG pathway has a name and identifier. Pathway name for a given pathway identifier can be obtained using the KEGG data package that can either be built using AnnBuilder or downloaded from Bioconductor http://www.bioconductor.org.

Graphic presentations of pathways are searchable at url http://www.genome.ad.jp/kegg/pathway.html by using pathway identifiers as keys.

Mappings were based on data provided by: KEGG GENOME ftp://ftp.genome.jp/pub/kegg/genomes With a date stamp from the source of: 2011-Mar15

References

http://www.genome.ad.jp/kegg/

Examples

```
x <- IlluminaHumanMethylation27kPATH
# Get the probe identifiers that are mapped to a KEGG pathway ID
mapped_probes <- mappedkeys(x)
# Convert to a list
xx <- as.list(x[mapped_probes])
if(length(xx) > 0) {
  # Get the PATH for the first five probes
  xx[1:5]
  # Get the first one
  xx[[1]]
}
```

IlluminaHumanMethylation27kPATH2PROBE

Map between Kyoto Encyclopedia of Genes and Genomes (KEGG) pathway identifiers and Manufacturer Identifiers

---

Description

IlluminaHumanMethylation27kPATH2PROBE is an R object that provides mappings between KEGG identifiers and manufacturer identifiers.

Details

Each KEGG identifier is mapped to a named vector of manufacturer identifiers. The name represents the KEGG identifier and the vector contains all manufacturer identifiers that are found in that particular pathway. An NA is reported for any KEGG identifier that cannot be mapped to any manufacturer identifiers.

Pathway name for a given pathway identifier can be obtained using the KEGG data package that can either be built using AnnBuilder or downloaded from Bioconductor http://www.bioconductor.org.

Graphic presentations of pathways are searchable at http://www.genome.ad.jp/kegg/pathway.html using pathway identifiers as keys.

Mappings were based on data provided by: KEGG GENOME ftp://ftp.genome.jp/pub/kegg/genomes With a date stamp from the source of: 2011-Mar15

References

http://www.genome.ad.jp/kegg/

Examples

```
# Convert the object to a list
xx <- as.list(IlluminaHumanMethylation27kPATH2PROBE)
if(length(xx) > 0){
    # Get the probe identifiers for the first two pathway identifiers
    xx[1:2]
    # Get the first one
    xx[[1]]
}
```

`IlluminaHumanMethylation27kPFAM`

Map Manufacturer IDs to Pfam IDs

Description

IlluminaHumanMethylation27kPFAM is an R object that provides mappings between a manufacturer identifier and the associated Pfam identifiers.

Details

Each manufacturer identifier maps to a named vector of Pfam identifiers. The name for each Pfam identifier is the IPI accession numbe where this Pfam identifier is found.

If the Pfam is a named NA, it means that the associated Entrez Gene id of this manufacturer identifier is found in an IPI entry of the IPI database, but there is no Pfam identifier in the entry.

If the Pfam is a non-named NA, it means that the associated Entrez Gene id of this manufacturer identifier is not found in any IPI entry of the IPI database.

Mappings were based on data provided by: The International Protein Index ftp://ftp.ebi.ac.uk/pub/databases/IPI/current With a date stamp from the source of: 2011-Feb18

References

Kersey P. J., Duarte J., Williams A., Karavidopoulou Y., Birney E., Apweiler R. The International Protein Index: An integrated database for proteomics experiments. Proteomics 4(7): 1985-1988 (2004) http://www.ebi.ac.uk/IPI/IPIhelp.html

Examples

```
x <- IlluminaHumanMethylation27kPFAM
# Get the probe identifiers that are mapped to any Pfam ID
mapped_probes <- mappedkeys(x)
# Convert to a list
xx <- as.list(x[mapped_probes])
# randomly display 10 probes
sample(xx, 10)
```

IlluminaHumanMethylation27kPMID *Map between Manufacturer Identifiers and PubMed Identifiers*

Description

IlluminaHumanMethylation27kPMID is an R object that provides mappings between manufacturer identifiers and PubMed identifiers.

Details

Each manufacturer identifier is mapped to a named vector of PubMed identifiers. The name associated with each vector corresponds to the manufacturer identifier. The length of the vector may be one or greater, depending on how many PubMed identifiers a given manufacturer identifier is mapped to. An NA is reported for any manufacturer identifier that cannot be mapped to a PubMed identifier.

Titles, abstracts, and possibly full texts of articles can be obtained from PubMed by providing a valid PubMed identifier. The pubmed function of annotate can also be used for the same purpose.

Mappings were based on data provided by: Entrez Gene ftp://ftp.ncbi.nlm.nih.gov/gene/DATA With a date stamp from the source of: 2011-Mar16

References

http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=PubMed

Examples

```
    x <- IlluminaHumanMethylation27kPMID
    # Get the probe identifiers that are mapped to any PubMed ID
    mapped_probes <- mappedkeys(x)
    # Convert to a list
    xx <- as.list(x[mapped_probes])
if(length(xx) > 0){
    # Get the PubMed identifiers for the first two probe identifiers
    xx[1:2]
    # Get the first one
    xx[[1]]
    if(interactive() && !is.null(xx[[1]]) && !is.na(xx[[1]])
       && require(annotate)){
        # Get article information as XML files
        xmls <- pubmed(xx[[1]], disp = "data")
        # View article information using a browser
        pubmed(xx[[1]], disp = "browser")
    }
}
```

IlluminaHumanMethylation27kPMID2PROBE

Map between PubMed Identifiers and Manufacturer Identifiers

Description

IlluminaHumanMethylation27kPMID2PROBE is an R object that provides mappings between PubMed identifiers and manufacturer identifiers.

Details

Each PubMed identifier is mapped to a named vector of manufacturer identifiers. The name represents the PubMed identifier and the vector contains all manufacturer identifiers that are represented by that PubMed identifier. The length of the vector may be one or longer, depending on how many manufacturer identifiers are mapped to a given PubMed identifier.

Titles, abstracts, and possibly full texts of articles can be obtained from PubMed by providing a valid PubMed identifier. The pubmed function of annotate can also be used for the same purpose

Mappings were based on data provided by: Entrez Gene ftp://ftp.ncbi.nlm.nih.gov/gene/DATA With a date stamp from the source of: 2011-Mar16

Examples

```
# Convert the object to a list
xx <- as.list(IlluminaHumanMethylation27kPMID2PROBE)
if(length(xx) > 0){
    # Get the probe identifiers for the first two PubMed identifiers
    xx[1:2]
    # Get the first one
    xx[[1]]
    if(interactive() && require(annotate)){
        # Get article information as XML files for a PubMed id
        xmls <- pubmed(names(xx)[1], disp = "data")
        # View article information using a browser
        pubmed(names(xx)[1], disp = "browser")
    }
}
```

IlluminaHumanMethylation27kPROSITE

Map Manufacturer IDs to PROSITE ID

Description

IlluminaHumanMethylation27kPROSITE is an R object that provides mappings between a manufacturer identifier and the associated PROSITE identifiers.

Details

Each manufacturer identifier maps to a named vector of PROSITE identifiers. The name for each PROSITE identifier is the IPI accession numbe where this PROSITE identifier is found.

If the PROSITE is a named NA, it means that the associated Entrez Gene id of this manufacturer identifier is found in an IPI entry of the IPI database, but there is no PROSITE identifier in the entry.

If the PROSITE is a non-named NA, it means that the associated Entrez Gene id of this manufacturer identifier is not found in any IPI entry of the IPI database.

Mappings were based on data provided by: The International Protein Index ftp://ftp.ebi.ac.uk/pub/databases/IPI/current With a date stamp from the source of: 2011-Feb18

References

Kersey P. J., Duarte J., Williams A., Karavidopoulou Y., Birney E., Apweiler R. The International Protein Index: An integrated database for proteomics experiments. Proteomics 4(7): 1985-1988 (2004) http://www.ebi.ac.uk/IPI/IPIhelp.html

Examples

```
 x <- IlluminaHumanMethylation27kPROSITE
# Get the probe identifiers that are mapped to any PROSITE ID
mapped_probes <- mappedkeys(x)
# Convert to a list
xxx <- as.list(x[mapped_probes])
# randomly display 10 probes
xxx[sample(1:length(xxx), 10)]
```

IlluminaHumanMethylation27kREFSEQ

Map between Manufacturer Identifiers and RefSeq Identifiers

Description

IlluminaHumanMethylation27kREFSEQ is an R object that provides mappings between manufacturer identifiers and RefSeq identifiers.

Details

Each manufacturer identifier is mapped to a named vector of RefSeq identifiers. The name represents the manufacturer identifier and the vector contains all RefSeq identifiers that can be mapped to that manufacturer identifier. The length of the vector may be one or greater, depending on how many RefSeq identifiers a given manufacturer identifier can be mapped to. An NA is reported for any manufacturer identifier that cannot be mapped to a RefSeq identifier at this time.

RefSeq identifiers differ in format according to the type of record the identifiers are for as shown below:

NG_XXXXX: RefSeq accessions for genomic region (nucleotide) records

NM_XXXXX: RefSeq accessions for mRNA records

NC_XXXXX: RefSeq accessions for chromosome records

NP_XXXXX: RefSeq accessions for protein records

XR_XXXXX: RefSeq accessions for model RNAs that are not associated with protein products

XM_XXXXX: RefSeq accessions for model mRNA records

XP_XXXXX: RefSeq accessions for model protein records

Where XXXXX is a sequence of integers.

NCBI http://www.ncbi.nlm.nih.gov/RefSeq/ allows users to query the RefSeq database using RefSeq identifiers.

Mappings were based on data provided by: Entrez Gene ftp://ftp.ncbi.nlm.nih.gov/gene/DATA With a date stamp from the source of: 2011-Mar16

References

http://www.ncbi.nlm.nih.gov http://www.ncbi.nlm.nih.gov/RefSeq/

Examples

```
x <- IlluminaHumanMethylation27kREFSEQ
# Get the probe identifiers that are mapped to any RefSeq ID
mapped_probes <- mappedkeys(x)
# Convert to a list
xx <- as.list(x[mapped_probes])
if(length(xx) > 0) {
  # Get the REFSEQ for the first five probes
  xx[1:5]
  # Get the first one
  xx[[1]]
}
```

IlluminaHumanMethylation27kSVNID

What is the in-house Subversion ID of this annotation package?

Description

IlluminaHumanMethylation27kSVNID answers the important question of where to point the finger when it turns out an annotation is out of date. Naturally, this particular feature will also indicate if the user has ended up with an out-of-date copy of the package, so that both maintainers and users can track any such discontinuities.

Details

The revision ID should include a numeric change identifier and its author.

Examples

```
x <- IlluminaHumanMethylation27kSVNID
show(x)
```

IlluminaHumanMethylation27kSYMBOL

Map between Manufacturer Identifiers and Gene Symbols

Description

IlluminaHumanMethylation27kSYMBOL is an R object that provides mappings between manufacturer identifiers and gene abbreviations.

Details

Each manufacturer identifier is mapped to an abbreviation for the corresponding gene. An NA is reported if there is no known abbreviation for a given gene.

Symbols typically consist of 3 letters that define either a single gene (ABC) or multiple genes (ABC1, ABC2, ABC3). Gene symbols can be used as key words to query public databases such as Entrez Gene.

Mappings were based on data provided by: Entrez Gene ftp://ftp.ncbi.nlm.nih.gov/gene/DATA With a date stamp from the source of: 2011-Mar16

References

http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=gene

Examples

```
x <- IlluminaHumanMethylation27kSYMBOL
# Get the probe identifiers that are mapped to a gene symbol
mapped_probes <- mappedkeys(x)
# Convert to a list
xx <- as.list(x[mapped_probes])
if(length(xx) > 0) {
  # Get the SYMBOL for the first five probes
  xx[1:5]
  # Get the first one
  xx[[1]]
}
```

IlluminaHumanMethylation27kUNIGENE *Map between Manufacturer Identifiers and UniGene cluster identifiers*

Description

IlluminaHumanMethylation27kUNIGENE is an R object that provides mappings between manufacturer identifiers and UniGene identifiers.

Details

Each manufacturer identifier is mapped to a UniGene identifier. An NA is reported if the manufacturer identifier cannot be mapped to UniGene at this time.

A UniGene identifier represents a cluster of sequences of a gene. Using UniGene identifiers one can query the UniGene database for information about the sequences or the Entrez Gene database for information about the genes.

Mappings were based on data provided by: Entrez Gene ftp://ftp.ncbi.nlm.nih.gov/gene/DATA With a date stamp from the source of: 2011-Mar16

References

http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=gene

Examples

```
x <- IlluminaHumanMethylation27kUNIGENE
# Get the probe identifiers that are mapped to an UNIGENE ID
mapped_probes <- mappedkeys(x)
# Convert to a list
xx <- as.list(x[mapped_probes])
if(length(xx) > 0) {
  # Get the UNIGENE for the first five probes
  xx[1:5]
  # Get the first one
  xx[[1]]
}
```

IlluminaHumanMethylation27kUNIPROT *Map Uniprot accession numbers with Entrez Gene identifiers*

Description

IlluminaHumanMethylation27kUNIPROT is an R object that contains mappings between Entrez Gene identifiers and Uniprot accession numbers.

Details

This object is a simple mapping of Entrez Gene identifiers http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=gene to Uniprot Accessions.

Mappings were based on data provided by: Entrez Gene ftp://ftp.ncbi.nlm.nih.gov/gene/DATA With a date stamp from the source of: 2011-Mar16

Examples

```
x <- IlluminaHumanMethylation27kUNIPROT
# Get the entrez gene IDs that are mapped to an Uniprot ID
mapped_genes <- mappedkeys(x)
# Convert to a list
xx <- as.list(x[mapped_genes])
if(length(xx) > 0) {
  # Get the Uniprot IDs for the first five genes
  xx[1:5]
  # Get the first one
  xx[[1]]
}
```

IlluminaHumanMethylation27k_dbconn

Collect information about the package annotation DB

Description

Some convenience functions for getting a connection object to (or collecting information about) the package annotation DB.

Usage

```
IlluminaHumanMethylation27k_dbconn()
IlluminaHumanMethylation27k_dbfile()
IlluminaHumanMethylation27k_dbschema(file="", show.indices=FALSE)
IlluminaHumanMethylation27k_dbInfo()
```

Arguments

file	A connection, or a character string naming the file to print to (see the file argument of the cat function for the details).
show.indices	The CREATE INDEX statements are not shown by default. Use show.indices=TRUE to get them.

Details

IlluminaHumanMethylation27k_dbconn returns a connection object to the package annotation DB. IMPORTANT: Don't call dbDisconnect on the connection object returned by IlluminaHumanMethylation27k_dbconn or you will break all the AnnDbObj objects defined in this package!

IlluminaHumanMethylation27k_dbfile returns the path (character string) to the package annotation DB (this is an SQLite file).

IlluminaHumanMethylation27k_dbschema prints the schema definition of the package annotation DB.

IlluminaHumanMethylation27k_dbInfo prints other information about the package annotation DB.

Value

IlluminaHumanMethylation27k_dbconn: a DBIConnection object representing an open connection to the package annotation DB.

IlluminaHumanMethylation27k_dbfile: a character string with the path to the package annotation DB.

IlluminaHumanMethylation27k_dbschema: none (invisible NULL).

IlluminaHumanMethylation27k_dbInfo: none (invisible NULL).

See Also

dbGetQuery, dbConnect, dbconn, dbfile, dbschema, dbInfo

Examples

```
## Count the number of rows in the "probes" table:
dbGetQuery(IlluminaHumanMethylation27k_dbconn(), "SELECT COUNT(*) FROM probes")

## The connection object returned by IlluminaHumanMethylation27k_dbconn() was
## created with:
dbConnect(SQLite(), dbname=IlluminaHumanMethylation27k_dbfile(), cache_size=64000,
synchronous=0)

IlluminaHumanMethylation27k_dbschema()

IlluminaHumanMethylation27k_dbInfo()
```

IlluminaHumanMethylation27k_getControls

Retrieve control probe addresses, optionally by control probe type

---

Description

A convenience function to retrieve addresses of Illumina control probes.

Usage

```
IlluminaHumanMethylation27k_getControls(type=NULL)
```

Arguments

type	Optional control probe type. If NULL, all control probes will be returned.

Details

IlluminaHumanMethylation27k_getControls simply queries a VIEW in the SQLite database accompanying this package to obtain control probe addresses.

Value

A data.frame with fields Address and Type for each probe returned.

See Also

dbconn, dbfile, dbschema, dbInfo

Examples

```
## Get all the control probe addresses
IlluminaHumanMethylation27k_getControls()

## Get only the bisulfite conversion controls
IlluminaHumanMethylation27k_getControls('Bisulfite')
```

IlluminaHumanMethylation27k_getProbeOrdering

Retrieve probe IDs in the order loaded from the manifest

Description

A convenience function to provide consistent probe ordering from IDATs.

Usage

```
IlluminaHumanMethylation27k_getProbeOrdering()
```

Value

A vector of Probe_ID strings in the order found in the original manifest.

Examples

```
ordering <- IlluminaHumanMethylation27k_getProbeOrdering()
```

IlluminaHumanMethylation27k_getProbes *Retrieve probe addresses by design and/or color channel for processing*

Description

A convenience function to retrieve probe addresses by design or color channel.

Usage

```
IlluminaHumanMethylation27k_getProbes(color=NULL, design='I')
```

Arguments

color	Optional color for design I. If NULL, both will be returned as a list.
design	Optional probe design type. If NULL, both will be returned in a list.

Details

IlluminaHumanMethylation27k_getProbes simply queries a VIEW in the SQLite database accompanying this package to obtain probe addresses en masse.

Value

If no arguments are provided, a list of two data frames for probes, one for each color channel. If arguments are provided, the value depends on them.

See Also

dbconn, dbfile, dbschema, dbInfo

Examples

```
## Get both channels' worth of probes for processing IDAT files
IlluminaHumanMethylation27k_getProbes(color='Red')
```

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