Introducción a R (II)

FSC

Contents

Antes de empezar. . .

Los materiales de esta clase han sido preparados utilizando dos libros que están disponibles bajo licencia OUP y que os invito a explorar:

Hands-on programming with R https://rstudio-education.github.io/hopr/

Data Science with R https://rafalab.github.io/dsbook/

Paquetes en R

Ya hemos hablado acerca de una de las principales características de R: las funciones se construyen a partir del propio lenguaje y juntas conforman diferentes paquetes, que no son mas que conjuntos de funciones especificas para un cierto tema. Un paquete contiene código, documentación, ejemplos de uso y datasets.

Los paquetes de R pueden ser de uso personal o compartidos con la comunidad a traves fundamentalmente de 3 tipos de repositorios:

- CRAN: Es el repositorio oficial y consiste en una red de ftp y web servers mantenidos por la comunidad de R en todo el mundo. Para que un paquete pueda ser distribuido a través de CRAN necesita pasar una serie de requerimientos.

- Bioconductor: Es una coleccion de paquetes especificos de análisis de datos biomédicos y también mantenidos y testados por un grupo específico de expertos.

- Github: Aqui no hay control sobre los paquetes, como en los dos anteriores. Pero hoy en dia es una de las formas más comunes de compartir paquetes.

Instalar paquetes de CRAN

Para ello usamos el comando:

```
## Loading required package: sm
```

```
## Package 'sm', version 2.2-5.6: type help(sm) for summary information
```

```
## Loading required package: zoo
```

```
##
## Attaching package: 'zoo'
```

```
## The following objects are masked from 'package:base':
##
##     as.Date, as.Date.numeric
```

Este es el paquete más antiguo de R. Suele ser útil usar la opción *dependencies=T* porque bajará automáticamente todos los paquetes de los que el paquete de interés depende.

Se pueden instalar varios paquetes a la vez usando la notación vectorial.

Instalar paquetes de Bioconductor

Instalar paquetes via *devtools*

El paquete devtools forma parte de CRAN, por lo tanto podemos instalarlo usando:

A partir de ahi se pueden instalar paquetes de distintas fuentes usando distintas funciones:

```
install_bioc() from Bioconductor,
install_bitbucket() from Bitbucket,
install_cran() from CRAN,
install_git() from a git repository,
install_github() from GitHub,
install_local() from a local file,
install_svn() from a SVN repository,
install_url() from a URL, and
install_version() from a specific version of a CRAN package.
```

Lo usaremos mucho durante el resto del curso porque algunos de los datasets que necesitamos vienen en paquetes contribuidos pero fuera de CRAN.

Entornos en R (environment)

Para seguir avanzando es importante que entendamos cómo R guarda los objetos. En realidad funciona de una forma parecida al sistema de ficheros de un ordenador. Cada objeto se guarda dentro de un environment

(o entorno) que a su vez puede estar dentro de otro, con una estructura jerárquica. Vamos a ver la estructura de nuestro entorno en esta sesion:

```r
#install.packages("pryr")
library(pryr)
```

```
## Warning: package 'pryr' was built under R version 3.6.2
```

```
## Registered S3 method overwritten by 'pryr':
##   method      from
##   print.bytes Rcpp
```

```
##
## Attaching package: 'pryr'
```

```
## The following objects are masked from 'package:purrr':
##
##     compose, partial
```

```
## The following object is masked from 'package:data.table':
##
##     address
```

```r
parenvs(all = TRUE)
```

```
##    label                                name
## 1  <environment: R_GlobalEnv>           ""
## 2  <environment: package:pryr>          "package:pryr"
## 3  <environment: package:vioplot>       "package:vioplot"
## 4  <environment: package:zoo>           "package:zoo"
## 5  <environment: package:sm>            "package:sm"
## 6  <environment: package:rvest>         "package:rvest"
## 7  <environment: package:xml2>          "package:xml2"
## 8  <environment: package:usethis>       "package:usethis"
## 9  <environment: package:devtools>      "package:devtools"
## 10 <environment: package:dslabs>        "package:dslabs"
## 11 <environment: package:forcats>       "package:forcats"
## 12 <environment: package:stringr>       "package:stringr"
## 13 <environment: package:purrr>         "package:purrr"
## 14 <environment: package:tibble>        "package:tibble"
## 15 <environment: package:ggplot2>       "package:ggplot2"
## 16 <environment: package:tidyverse>     "package:tidyverse"
## 17 <environment: package:data.table>    "package:data.table"
## 18 <environment: package:tidyr>         "package:tidyr"
## 19 <environment: package:readr>         "package:readr"
## 20 <environment: package:xlsx>          "package:xlsx"
## 21 <environment: package:dplyr>         "package:dplyr"
## 22 <environment: package:stats>         "package:stats"
## 23 <environment: package:graphics>      "package:graphics"
## 24 <environment: package:grDevices>     "package:grDevices"
## 25 <environment: package:utils>         "package:utils"
## 26 <environment: package:datasets>      "package:datasets"
## 27 <environment: package:methods>       "package:methods"
## 28 <environment: 0x0000000013069828>    "Autoloads"
## 29 <environment: base>                  ""
## 30 <environment: R_EmptyEnv>            ""
```

```r
x <- 5
where("x")
```

```
## <environment: R_GlobalEnv>
```

```
#> <environment: R_GlobalEnv>
where("mean")
```

```
## <environment: base>
```

R_EmptyEnv es el único entorno que no tiene ningún padre. Los entornos de R no se almacenan físicamente en tu ordenador, están en memoria RAM.

Para explorar la jerarquía de nuestro entorno tenemos algunas funciones:

```r
as.environment("package:stats")
```

```
## <environment: package:stats>
## attr(,"name")
## [1] "package:stats"
## attr(,"path")
## [1] "C:/Users/fscabo/Documents/R/R-3.6.1/library/stats"
```

```r
globalenv()
```

```
## <environment: R_GlobalEnv>
```

```r
baseenv()
```

```
## <environment: base>
```

```r
emptyenv()
```

```
## <environment: R_EmptyEnv>
```

```r
parent.env(globalenv())
```

```
## <environment: package:pryr>
## attr(,"name")
## [1] "package:pryr"
## attr(,"path")
## [1] "C:/Users/fscabo/Documents/R/R-3.6.1/library/pryr"
```

```r
search()
```

```
##  [1] ".GlobalEnv"        "package:pryr"       "package:vioplot"
##  [4] "package:zoo"       "package:sm"         "package:rvest"
##  [7] "package:xml2"      "package:usethis"    "package:devtools"
## [10] "package:dslabs"    "package:forcats"    "package:stringr"
## [13] "package:purrr"     "package:tibble"     "package:ggplot2"
## [16] "package:tidyverse" "package:data.table" "package:tidyr"
## [19] "package:readr"     "package:xlsx"       "package:dplyr"
## [22] "package:stats"     "package:graphics"   "package:grDevices"
## [25] "package:utils"     "package:datasets"   "package:methods"
## [28] "Autoloads"         "package:base"
```

globalenv(), baseenv(), los environments en el search path, y emptyenv() se conectan como se muestra en la figura. Cada vez que se abre un nuevo paquete con library() se inserta entre el global environment y el ultimo entorno de paquete generado.

Los objetos guardados en un entorno pueden ser vistos con:
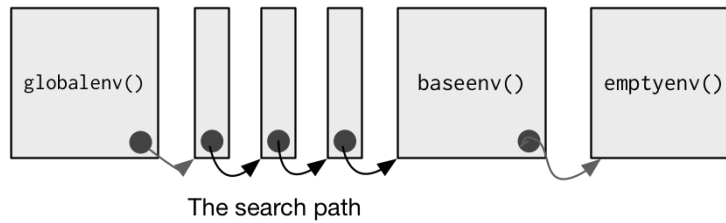
Figure 1: Jerarquía de entornos

```r
ls(emptyenv())
```

```
## character(0)
```

```r
ls(globalenv())
```

```
## [1] "x"
```

En cualquier momento podemos saber cual es el entorno con el que está trabajando R:

```r
environment()
```

```
## <environment: R_GlobalEnv>
```

```r
new<-"Hello Global"
```

Si guardamos algo en ese objeto new R lo sobreescribira:

```r
new <- "Hello Active"

new
```

```
## [1] "Hello Active"
## "Hello Active"
```

Algunas funciones guardan objetos temporales.

```r
roll <- function() {
  die <- 1:6
  dice <- sample(die, size = 2, replace = TRUE)
  sum(dice)
  return(environment())
}
```

Para no sobreescribir un posible objeto que se llame "dice", R crea un nuevo entorno cada vez que se evalua una funcion. De ahi las dependencias que hemos visto al principio.Al finalizar la evaluación, R vuelve al entorno global:

```r
show_env <- function(){
  list(ran.in = environment(),
    parent = parent.env(environment()),
    objects = ls.str(environment()))
}
show_env()
```

```
## $ran.in
## <environment: 0x00000000182845d8>
##
```

```
## $parent
## <environment: R_GlobalEnv>
##
## $objects
```

R ha creado un nuevo *runtime environment* durante el tiempo que ha estado ejecutando la función.

Programando en R

Motivational example: Máquina Tragaperras

Para simular estos datos necesitamos hacer dos cosas:

1. Generar combinaciones de tres elementos de entre los siguientes símbolos: diamonds (DD), sevens (7), triple bars (BBB), double bars (BB), single bars (B), cherries (C), and zeroes (0).

Cada símbolo aparece según su probabilidad en la rueda.

2. Asignar un premio a cada combinación

Las máquinas tragaperras de la marca Manitoba tienen el siguiente esquema de premios:

Combination	Prize($)
DD DD DD	100
7 7 7	80
BBB BBB BBB	40
BB BB BB	25
B B B	10
C C C	10
Any combination of bars	5
C C *	5
C * C	5
* C C	5
C * *	2
* C *	2
* * C	2

Cada vez que jugamos a la maquina necesitamos pagar 1 dollar. Queremos crear un programa que nos de un *score* cada vez que jugamos. Podriamos hacer nuestro programa como un script o como una función

Estrategia general en programación

Hay tres recomendaciones que pueden ayudaros a hacer programas por muy complejos que sean:

- Romper el problema en subproblemas mas pequeños
- Escribir en lenguaje natural las instrucciones que se necesitarán para cada parte
- Usar ejemplos concretos

Un programa en R tiene dos tipos de tareas: paralelas y secuenciales

Instrucciones secuenciales

Un ejemplo de instrucciones secuenciales sería la siguiente función:

```r
play <- function() {
  # step 1: generate symbols
  symbols <- get_symbols()
```
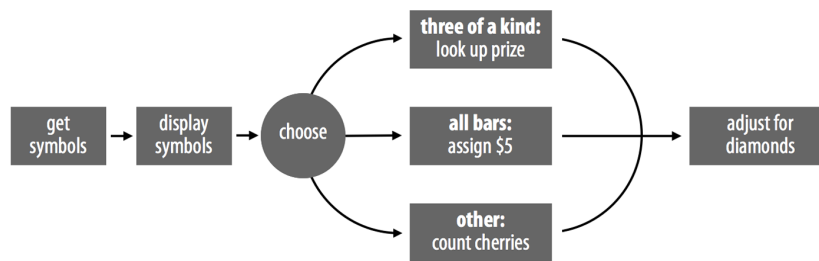
Figure 2: Esquema juego

```r
  # step 2: display the symbols
  print(symbols)
  # step 3: score the symbols
  score(symbols)
}
```

Genera los simbolos al azar, los muestra y les da una puntuacion de acuerdo con las reglas del juego.

Vamos a escribir una función para la primera tarea:

```r
get_symbols <- function() {
  wheel <- c("DD", "7", "BBB", "BB", "B", "C", "0")
  sample(wheel, size = 3, replace = TRUE,
    prob = c(0.03, 0.03, 0.06, 0.1, 0.25, 0.01, 0.52))
}
get_symbols()
```

```
## [1] "B"  "DD" "B"
```

```r
get_symbols()
```

```
## [1] "0"  "DD" "0"
```

```r
get_symbols()
```

```
## [1] "B" "0" "0"
```

Casos paralelos

Una vez que se eligen los tres símbolos hay que decidir como se puntua. Aqui tenemos que mirar varias cosas en paralelo como muestra la figura.

Cómo testamos cada una de esas opciones?

- Opción 1: ¿Son los tres iguales? Por ejemplo,

```r
symbols<-c("7","7","7")
symbols[1] == symbols[2] & symbols[2] == symbols[3]
```

```
## [1] TRUE
## TRUE
symbols[1] == symbols[2] & symbols[1] == symbols[3]
```

```
## [1] TRUE
```

7

```
## TRUE
all(symbols == symbols[1])
```

[1] TRUE
TRUE

O equivalentemente:

```
length(unique(symbols) == 1)
```

[1] 1

Y tenemos la primera opción programada.

Nota: && y || funcionan como sólo uno excepto porque no evaluan la segunda condicion si la primera es clara

- Opción 2: ¿tenemos todos símbolos de tipo B?

Es decir, entre nuestros símbolos tenemos alguna de estas combinaciones:

```
symbols <- c("B", "BBB", "BB")
```

```
symbols[1] == "B" | symbols[1] == "BB" | symbols[1] == "BBB" &
  symbols[2] == "B" | symbols[2] == "BB" | symbols[2] == "BBB" &
  symbols[3] == "B" | symbols[3] == "BB" | symbols[3] == "BBB"
```

[1] TRUE
TRUE

Pero no parece una solución muy elegante:

```
all(symbols %in% c("B", "BB", "BBB"))
```

[1] TRUE
TRUE

Hay overlapping entre el caso 1 y el 2: "B-B-B"

```
symbols <- c("B", "B", "B")
all(symbols %in% c("B", "BB", "BBB"))
```

[1] TRUE
TRUE

Nuestro programa ya contendría:

```
same <- symbols[1] == symbols[2] && symbols[2] == symbols[3]
bars <- symbols %in% c("B", "BB", "BBB")
```

- Opción 3: Si no se da ninguna de las anteriores, cuantas cerezas (C) tenemos?

```
count.c<-sum(symbols == "C")
```

if

Utilizamos el comando `if` para seleccionar situaciones que cumplen una determinada condicion.Si se cumple esto, haz aquello:

```r
if (this) {
  that
}
```

```
## Error in eval(expr, envir, enclos): object 'this' not found
```

this tiene que ser el resultado de un test lógico y resultar por tanto en TRUE o FALSE.
Si la condución se cumple (TRUE) se ejecutará el código entre corchetes. Si no se cumple (FALSE) no se hará nada.

Por ejemplo, si un número es negativo, multiplica por (-1) para hacerlo positivo:

```r
num<-(-1)
num<-2
if (num < 0) {
  num <- num * -1
}
```

```r
num <- -2
if (num < 0) {
  num <- num * -1
}
num
```

```
## [1] 2
```

```
## 2
```

```r
num <- 4
if (num < 0) {
  num <- num * -1
}
num
```

```
## [1] 4
```

```
## 4
```

El resultado del test lógico tiene que ser un vector de una sola dimension. Si es un vector de varios TRUE/FALSE se evaluará sólo el primer elemento del vector.

*Recuerda: las funciones **any** y **all** condensan las entradas de un vector lógico en un solo valor*

Puedes incluir tantas lineas de código como quieras entre los corchetes:

```r
num <- -1
if (num < 0) {
  print("num is negative.")
  print("Don't worry, I'll fix it.")
  num <- num * -1
  print("Now num is positive.")
}
```

```
## [1] "num is negative."
## [1] "Don't worry, I'll fix it."
## [1] "Now num is positive."
```

```
## "num is negative."
## "Don't worry, I'll fix it."
## "Now num is positive."
```

```r
num
```

```
## [1] 1
## 1
```

Ejercicios:

Qué devuelven los siguientes códigos? (Intenta razonarlo y no ejecutarlo) Caso 1.

```r
x <- 1
if (3 == 3) {
  x <- 2
}
x
```

```
## [1] 2
```

Caso 2.

```r
x <- 1
if (TRUE) {
  x <- 2
}
x
```

```
## [1] 2
```

Case 3.

```r
x <- 1
if (x == 1) {
  x <- 2
  if (x == 1) {
    x <- 3
  }
}
x
```

```
## [1] 2
```

else

Hasta ahora si no se cumple la condicion impuesta, R no hace nada. Pero puede ser interesante que R haga una cosa distinta si se cumple que si no se cumple la condición. Para eso usamos `else`

```r
if (this) {
  Plan A
} else {
  Plan B
}
```

```
## Error: <text>:2:8: unexpected symbol
## 1: if (this) {
## 2:   Plan A
##           ^
```

Vamos a intentar hacer un código que redondee un decimal al entero más cercano:

```r
a <- 3.14
```

la función `trunc` nos da el entero más cercano:
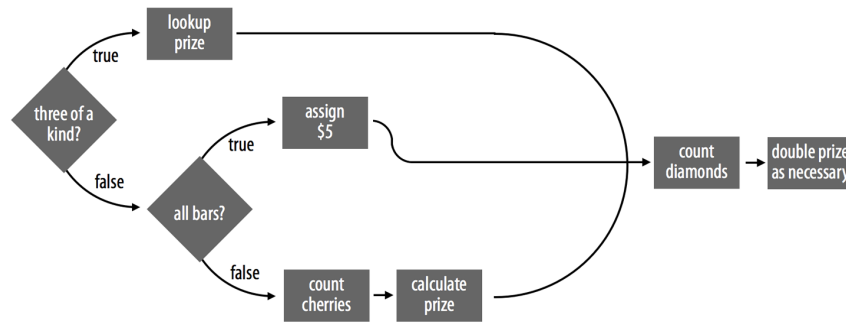
Figure 3: Esquema juego

```
dec <- a - trunc(a)
dec
```

```
## [1] 0.14
```

```
## 0.14
```

```
if (dec >= 0.5) {
  a <- trunc(a) + 1
} else {
  a <- trunc(a)
}
a
```

```
## [1] 3
```

```
## 3
```

Si hay más de dos casos, podemos usar `else if`:

```
a <- 1
b <- 1
if (a > b) {
  print("A wins!")
} else if (a < b) {
  print("B wins!")
} else {
  print("Tie.")
}
```

```
## [1] "Tie."
```

```
## "Tie."
```

Volviendo a la función que calcula el score para cada combinación de la máquina tragaperras, tenemos ocho posibles escenarios excluyentes, que se resumen en la figura 2.

Ya teniamos como testar cada una de las opciones y ahora sabemos como unirlas con if/else. Vamos a rellenar el cuerpo de la funcion *score()*

```
score <- function(symbols) {
  # calculate a prize
  prize
```

```
}
```

Donde calculate de prize va a ser:

```r
score <- function (x) {
  # identify case
  same <- x[1] == x[2] && x[2] == x[3]
  bars <- x %in% c("B", "BB", "BBB")

  # get prize
  if (same & x[1]!=0) {
    payouts <- c("DD" = 100, "7" = 80, "BBB" = 40, "BB" = 25,
      "B" = 10, "C" = 10, "0" = 0)
    prize <- unname(payouts[x[1]])
  } else if (all(bars)) {
    prize <- 5
  } else {
    cherries <- sum(x == "C")
    prize <- c(0, 2, 5)[cherries + 1]
  }

  # adjust for diamonds
  diamonds <- sum(x == "DD")
  prize * 2 ^ diamonds
}
score(symbols)
```

```
## [1] 10
```

Finalmente nuestro programa entero es asi:

```r
play <- function() {
  symbols <- get_symbols()
  print(symbols)
  score(symbols)
}
```

Juguemos:

```r
play()
```

```
## [1] "B"  "DD" "0"
```

```
## [1] 0
```

```r
play()
```

```
## [1] "0" "0" "B"
```

```
## [1] 0
```

```r
play()
```

```
## [1] "7" "0" "0"
```

```
## [1] 0
```

for and while loops

Vamos a intentar ver si estamos ante una tragaperras fraudulenta. Generamos un data.frame que contenga todas las posibles combinaciones de valores que podemos obtener. Para eso usamos la función *expand.grid*

```
wheel <- c("DD", "7", "BBB", "BB", "B", "C", "0")
combos <- expand.grid(wheel, wheel, wheel, stringsAsFactors = FALSE)
View(combos)
```

Vamos a calcular la probabilidad de obtener cada una de estas combinaciones usando las probabilidades que hemos utilizado en get_symbols

```
prob <- c("DD" = 0.03, "7" = 0.03, "BBB" = 0.06,
  "BB" = 0.1, "B" = 0.25, "C" = 0.01, "0" = 0.52)

combos$prob1 <- prob[combos$Var1]
combos$prob2 <- prob[combos$Var2]
combos$prob3 <- prob[combos$Var3]
View(combos)
```

Si las tiradas son independientes:

```
combos$prob <- combos$prob1 * combos$prob2 * combos$prob3
sum(combos$prob)
```

```
## [1] 1
```

```
View(combos)
```

Vamos a añadir una columna a nuestro data.frame combos que contenga el premio para cada combinación que hemos creado:

```
for (i in 1:nrow(combos)) {
  symbols <- c(combos[i, 1], combos[i, 2], combos[i, 3])
  combos$prize[i] <- score(symbols)
}
View(combos)
```

Ahora podemos calcular el premio esperado:

```
sum(combos$prize * combos$prob)
```

```
## [1] 0.538014
```

Por lo tanto esta máquina paga mas o menos el 54% de lo que juegas. . .

Importación de datos en R

En la clase anterior hemos leido archivos que estaban en datasets almacenados en librerias de R. Sin embargo, es comun tener la necesidad de leer datos a partir de diferentes tipos de archivos (.txt, .cvs, .xlsx) o incluso de otras fuentes como paginas web o bases de datos.

Importacion de datos desde archivos

Cuando se trata de importar datos a partir de un archivo en una unidad de disco a la que tenemos acceso en local o en remoto lo primero que tenemos que hacer es identificar dicha unidad y decirle a R cual es el lugar que queremos usar como directorio de trabajo *working_directory*. Es el lugar desde el que se leeran y en el que se escribira todo.

```r
getwd()
```

[1] "C:/Users/fscabo/Desktop/MasterDataScience_KSchool/Session2_ImportExport_v2"

Para cambiar al *working_directory* que queremos usar podemos utilizar la funcion *setwd()* o usar la GUI de RStudio en Session -> Set Working directory -> Choose Path

En esta sesion vamos a usar algunos de los datasets almacenados en el paquete dslabs de R.Irizarry en su libro Data Science Book. Vamos a copiar el archivo de datos el ejemplo murders en nuestro *working_directory*

```r
dir <- system.file(package="dslabs") #extracts the location of package
dir
```

[1] "C:/Users/fscabo/Documents/R/R-3.6.1/library/dslabs"

```r
filename <- file.path(dir,"extdata/murders.csv")
file.copy(filename, "murders.csv")
```

[1] FALSE

Ahora podeis comprobar que el archivo "murders.csv" esta en vuestro working directory.

```r
list.files()
```

Funciones standard

Se trata de un archivo con extension .csv pequeño y facil de manejar. Hay varias funciones basicas que podemos usar para ello:

```r
dat <- read.csv("DataSets/murders.csv")
head(dat)
```

```
##         state abb region population total
## 1    Alabama  AL  South    4779736   135
## 2     Alaska  AK   West     710231    19
## 3    Arizona  AZ   West    6392017   232
## 4   Arkansas  AR  South    2915918    93
## 5 California  CA   West   37253956  1257
## 6   Colorado  CO   West    5029196    65
```

Alternativamente podriamos haber utilizado la funcion *read.delim* tambien del paquete base que es una de las mas flexibles pero también que requiere mas parametrizacion:

```r
dat2 <- read.delim("DataSets/murders.csv",sep=",",header=T)
head(dat2)
```

```
##         state abb region population total
## 1    Alabama  AL  South    4779736   135
## 2     Alaska  AK   West     710231    19
## 3    Arizona  AZ   West    6392017   232
## 4   Arkansas  AR  South    2915918    93
## 5 California  CA   West   37253956  1257
## 6   Colorado  CO   West    5029196    65
```

Vamos a ver de que clase es el objeto dat

```r
class(dat)
```

[1] "data.frame"

Es una buena señal, lo ha leido como data.frame. Si recordais podemos acceder cada una de las columnas del data.frame con el símbolo $

```
dat$state
```

```
##  [1] Alabama              Alaska              Arizona
##  [4] Arkansas             California          Colorado
##  [7] Connecticut          Delaware            District of Columbia
## [10] Florida              Georgia             Hawaii
## [13] Idaho                Illinois            Indiana
## [16] Iowa                 Kansas              Kentucky
## [19] Louisiana            Maine               Maryland
## [22] Massachusetts        Michigan            Minnesota
## [25] Mississippi          Missouri            Montana
## [28] Nebraska             Nevada              New Hampshire
## [31] New Jersey           New Mexico          New York
## [34] North Carolina       North Dakota        Ohio
## [37] Oklahoma             Oregon              Pennsylvania
## [40] Rhode Island         South Carolina      South Dakota
## [43] Tennessee            Texas               Utah
## [46] Vermont              Virginia            Washington
## [49] West Virginia        Wisconsin           Wyoming
## 51 Levels: Alabama Alaska Arizona Arkansas California ... Wyoming
```

Sin embargo tenemos un problema porque la variable state se he volcado en R como factor y como ya hemos comentado anteriormente está desaconsejado utilizar los factores en R salvo en ocasiones puntuales dado que internamente para R por eficiencia los factores son realmente almacenados como numericos y transformaciones numerico -> string pueden ser complicadas. Por ello seria mucho mejor no leer los strings como factores. R tiene una opcion para ello:

```
dat <- read.csv("DataSets/murders.csv", stringsAsFactors = FALSE)
class(dat$state)
```

```
## [1] "character"
```

Utilizamos una de las funciones fundamentales del paquete *dplyr* para volver a poner la variable *state* como un factor por medio de:

```
dat <- mutate(dat, region =  as.factor(region))
```

Abrid el archivo *murders.csv* y volvedlo a guardar como archivo *.xlsx*. Vamos a leerlo utilizando el paquete *library(xlsx)*

```
dat2 <- read.xlsx(file = "DataSets/murders.xlsx",sheetIndex = 1)
class(dat2)
```

```
## [1] "data.frame"
```

```
head(dat2)
```

```
##          state abb region population total
## 1     Alabama  AL  South    4779736   135
## 2      Alaska  AK   West     710231    19
## 3     Arizona  AZ   West    6392017   232
## 4    Arkansas  AR  South    2915918    93
## 5  California  CA   West   37253956  1257
## 6    Colorado  CO   West    5029196    65
```

```
class(dat2$state)
```

```
## [1] "factor"
```

```
identical(dat$state,dat2$state)
```

```
## [1] FALSE
```

```
identical(as.matrix(dat$state),as.matrix(dat2$state))
```

```
## [1] TRUE
```

Other function to read tabulated data into R is read.table:

```
dat3=read.table(file = "DataSets/murders.csv",header = T,sep=",")
head(dat3)
```

```
##          state abb region population total
## 1     Alabama  AL  South    4779736   135
## 2      Alaska  AK   West     710231    19
## 3     Arizona  AZ   West    6392017   232
## 4    Arkansas  AR  South    2915918    93
## 5  California  CA   West   37253956  1257
## 6    Colorado  CO   West    5029196    65
```

NOTA IMPORTANTE: ASCII es un sistema de codificacion que convierte los caracteres en números. ASCII usa 7 bits (0000001) por lo que se pueden generar un total de 128 símbolos. Para lenguages con un gran número de símbolos se puede utilizar otra codificación llamada UTF para la que se pueden escoger combinaciones de 8, 16 o 24 bits. RStudio utiliza UTF-8. **NOTA IMPORTANTE 2:** Todos los archivos que hemos leido hasta ahora son archivos de texto; i.e. se pueden leer con un editor cualquiera. Archivos xls, html, json son binarios y necesitaremos otro tipo de herramientas para leerlos.

Cómo abrir grandes archivos

El paquete *data.table* contiene funciones para leer archivos de varios megas de RAM. En particular *fread()* funciona muy bien y se le pueden ajustar los parámetros: sep, colClasses and nrows. bit64::integer64 types también se detectan y leer automáticamente sin necesidad de transformarlos antes en caracter.También es interesante mostrar el progreso en la lectura del archivo para tener una idea de la duracion de la lectura.Otro parámetro que hereda de las funciones básicas de lectura es stringsAsFactors.

```
counts.rnaseq=fread("DataSets/Counts.genes.DiffAll.genes.limma.random.txt",sep = "\t",showProgress=T)
#head(counts.rnaseq)
class(counts.rnaseq)
```

```
## [1] "data.table" "data.frame"
```

Esta función devuelve un objeto data.table en lugar de un data.frame a no ser que se le especifique: *data.table=FALSE*. Ejemplo de tiempos (del manual de *data.table*):

```
n = 1e6
DT = data.table( a=sample(1:1000,n,replace=TRUE),
                 b=sample(1:1000,n,replace=TRUE),
                 c=rnorm(n),
                 d=sample(c("foo","bar","baz","qux","quux"),n,replace=TRUE),
                 e=rnorm(n),
                 f=sample(1:1000,n,replace=TRUE) )
DT[2,b:=NA_integer_]
DT[4,c:=NA_real_]
DT[3,d:=NA_character_]
DT[5,d:=""]
DT[2,e:=+Inf]
DT[3,e:=-Inf]
```

```
write.table(DT,
            "DataSets/test.csv",
            sep=",",
            row.names=FALSE,
            quote=FALSE)

cat("File size (MB):",
    round(file.info("test.csv")$size/1024^2),"\n")
```

File size (MB): NA

```
system.time(DF1 <-read.csv("DataSets/test.csv",stringsAsFactors=FALSE))
```

```
##    user  system elapsed
##    4.30    0.19    4.53
```

```
system.time(DF2 <- read.table("DataSets/test.csv",header=TRUE,sep=",",quote="",
    stringsAsFactors=FALSE,comment.char="",nrows=n,
    colClasses=c("integer","integer","numeric",
                 "character","numeric","integer")))
```

```
##    user  system elapsed
##    1.21    0.07    1.28
```

```
system.time(DT <- fread("DataSets/test.csv"))
```

```
##    user  system elapsed
##    0.10    0.06    0.06
```
```
  #require(sqldf)
  #require(ff)
```

```
identical(DF1,DF2)
```

[1] TRUE

```
all.equal(as.data.table(DF1), DT)
```

[1] TRUE

tidyverse

Ya hemos visto como el paquete *xlsx* (y otros) contenian funciones para leer archivos excel en R. El paquete *tidyverse* también puede utilizarse para ello a traves de las funciones:

Function	Separador	Sufijo
read_table	espacio	txt
read_csv	,	csv
read_csv2	;	csv
read_tsv	tab	tsv
read_delim	general	txt

The readxl package provides functions to read-in Microsoft Excel formats:

Function	Format	Typical suffix
read_excel	auto detect the format	xls, xlsx
read_xls	original format	xls
read_xlsx	new format	xlsx

Si os fijáis todas estas funciones son parecidas a las que teníamos en el paquete base separadas por un punto como *read.csv*. Comparemos ambas funciones:

```r
library(tidyverse)
dat=read.csv("DataSets/murders.csv")
class(dat)
```

```
## [1] "data.frame"
```

```r
head(dat)
```

```
##         state abb region population total
## 1     Alabama  AL  South    4779736   135
## 2      Alaska  AK   West     710231    19
## 3     Arizona  AZ   West    6392017   232
## 4    Arkansas  AR  South    2915918    93
## 5  California  CA   West   37253956  1257
## 6    Colorado  CO   West    5029196    65
```

```r
dat2=read_csv("DataSets/murders.csv")
class(dat2)
```

```
## [1] "spec_tbl_df" "tbl_df"      "tbl"          "data.frame"
```

```r
head(dat2)
```

```
## # A tibble: 6 x 5
##   state       abb   region population total
##   <chr>       <chr> <chr>       <dbl> <dbl>
## 1 Alabama     AL    South     4779736   135
## 2 Alaska      AK    West       710231    19
## 3 Arizona     AZ    West      6392017   232
## 4 Arkansas    AR    South     2915918    93
## 5 California  CA    West     37253956  1257
## 6 Colorado    CO    West      5029196    65
```

OMG: What´s that? *Tibbles* son nuevos tipos de data.frames que contienen muchas de las buenas prácticas que hemos ido mencionando. Por ejemplo:

- Tibble nunca cambia el tipo de una variable (si es caracter, es caracter, no factor...)

```r
tibble(x = letters)
```

```
## # A tibble: 26 x 1
##    x
##    <chr>
##  1 a
##  2 b
##  3 c
##  4 d
##  5 e
##  6 f
##  7 g
```

```
##  8 h
##  9 i
## 10 j
## # ... with 16 more rows
```

```
tibble(x = 1:3, y = list(1:5, 1:10, 1:20))
```

```
## # A tibble: 3 x 2
##       x y
##   <int> <list>
## 1     1 <int [5]>
## 2     2 <int [10]>
## 3     3 <int [20]>
```

- Tibble nunca cambia el nombre de las variables

```
names(tibble("Old Alphabet" = letters))
```

```
## [1] "Old Alphabet"
```

```
names(data.frame("Old Alphabet" = letters))
```

```
## [1] "Old.Alphabet"
```

- Evalua los argumentos secuencialmente

```
#data.frame(z=1:5,y=z ^ 2)
tibble(x = 1:5, y = x ^ 2)
```

```
## # A tibble: 5 x 2
##       x     y
##   <int> <dbl>
## 1     1     1
## 2     2     4
## 3     3     9
## 4     4    16
## 5     5    25
```

- El objetivo fundamental de tibble es almacenar las variables de una forma consistente, por lo que no hace uso de row.names

- Printing: Por defecto solo se escriben en pantalla las 10 primeras filas y todas las columnas que quepan. Se puede cambiar el tipo de letra, color, etc. tibble.print_max = Inf muestra todas las filas

```
tibble(x = 1:5, y = x ^ 2)
```

```
## # A tibble: 5 x 2
##       x     y
##   <int> <dbl>
## 1     1     1
## 2     2     4
## 3     3     9
## 4     4    16
## 5     5    25
```

```
data.frame(x=1:5,y=(1:5)^2)
```

```
##   x y
## 1 1 1
## 2 2 4
```

```
## 3 3  9
## 4 4 16
## 5 5 25
```

- Subsetting siempre devuelve otro objeto tibble, sea de las dimensiones que sea

```
df1 <- data.frame(x = 1:3, y = 3:1)
class(df1[, 1:2])
```

```
## [1] "data.frame"
```

```
class(df1[, 1])
```

```
## [1] "integer"
```

```
df2 <- tibble(x = 1:3, y = 3:1)
class(df2[, 1:2])
```

```
## [1] "tbl_df"     "tbl"        "data.frame"
```

```
class(df2[, 1])
```

```
## [1] "tbl_df"     "tbl"        "data.frame"
```

Si una columna no tiene exactamente el nombre por el que se la llama no se hace partial matching:

```
df <- data.frame(abc = 1)
df$a
```

```
## [1] 1
```

```
df2 <- tibble(abc = 1)
df2$a
```

```
## Warning: Unknown or uninitialised column: 'a'.
```

```
## NULL
```

Tidy **data**

La organización Gapminder trata de desenmascarar falsos mitos acerca del estado del mundo en terminos de pobreza, desigualdad, etc a través del uso de datos. Utilizando el dataset *gapminder* del paquete *dslabs* trataremos de contestar a dos preguntas: * Es cierto que el mundo se divide en paises occidentales ricos y no-occidentales pobres? * Han aumentado las diferencias entre paises en los últimos 40 años?

1. Descargamos los datos:

```
library(dslabs)
data(gapminder)
#si no tienes el paquete instalado
#gapminder=read.csv("DataSets/Gapminder.csv")
```

2. Exploramos los datos:

```
View(gapminder)
head(gapminder)
```

```
##                   country year infant_mortality life_expectancy fertility
## 1                 Albania 1960           115.40           62.87      6.19
## 2                 Algeria 1960           148.20           47.50      7.65
## 3                  Angola 1960           208.00           35.98      7.32
## 4     Antigua and Barbuda 1960               NA           62.97      4.43
## 5               Argentina 1960            59.87           65.39      3.11
```

```
## 6              Armenia 1960                NA           66.86        4.55
##    population          gdp continent           region
## 1    1636054           NA    Europe Southern Europe
## 2   11124892  13828152297    Africa Northern Africa
## 3    5270844           NA    Africa   Middle Africa
## 4      54681           NA  Americas       Caribbean
## 5   20619075 108322326649  Americas   South America
## 6    1867396           NA      Asia    Western Asia
```

```
str(gapminder)
```

```
## 'data.frame':    10545 obs. of  9 variables:
##  $ country        : Factor w/ 185 levels "Albania","Algeria",..: 1 2 3 4 5 6 7 8 9 10 ...
##  $ year           : int  1960 1960 1960 1960 1960 1960 1960 1960 1960 1960 ...
##  $ infant_mortality: num  115.4 148.2 208 NA 59.9 ...
##  $ life_expectancy : num  62.9 47.5 36 63 65.4 ...
##  $ fertility      : num  6.19 7.65 7.32 4.43 3.11 4.55 4.82 3.45 2.7 5.57 ...
##  $ population     : num  1636054 11124892 5270844 54681 20619075 ...
##  $ gdp            : num  NA 1.38e+10 NA NA 1.08e+11 ...
##  $ continent      : Factor w/ 5 levels "Africa","Americas",..: 4 1 1 2 2 3 2 5 4 3 ...
##  $ region         : Factor w/ 22 levels "Australia and New Zealand",..: 19 11 10 2 15 21 2 1 22 21
```

3. Para trabajar con el universo tidyverse necesitamos que los datos esten en formato "tidy"

```
tidy_data <- gapminder %>%
  filter(country %in% c("South Korea", "Germany")) %>%
  select(country, year, fertility)
```

```
head(tidy_data)
```

```
##        country year fertility
## 1      Germany 1960      2.41
## 2 South Korea 1960      6.16
## 3      Germany 1961      2.44
## 4 South Korea 1961      5.99
## 5      Germany 1962      2.47
## 6 South Korea 1962      5.79
```

```
tidy_data %>%
  ggplot(aes(year, fertility, color = country)) +
  geom_point()
```

```
## Warning: Removed 2 rows containing missing values (geom_point).
```
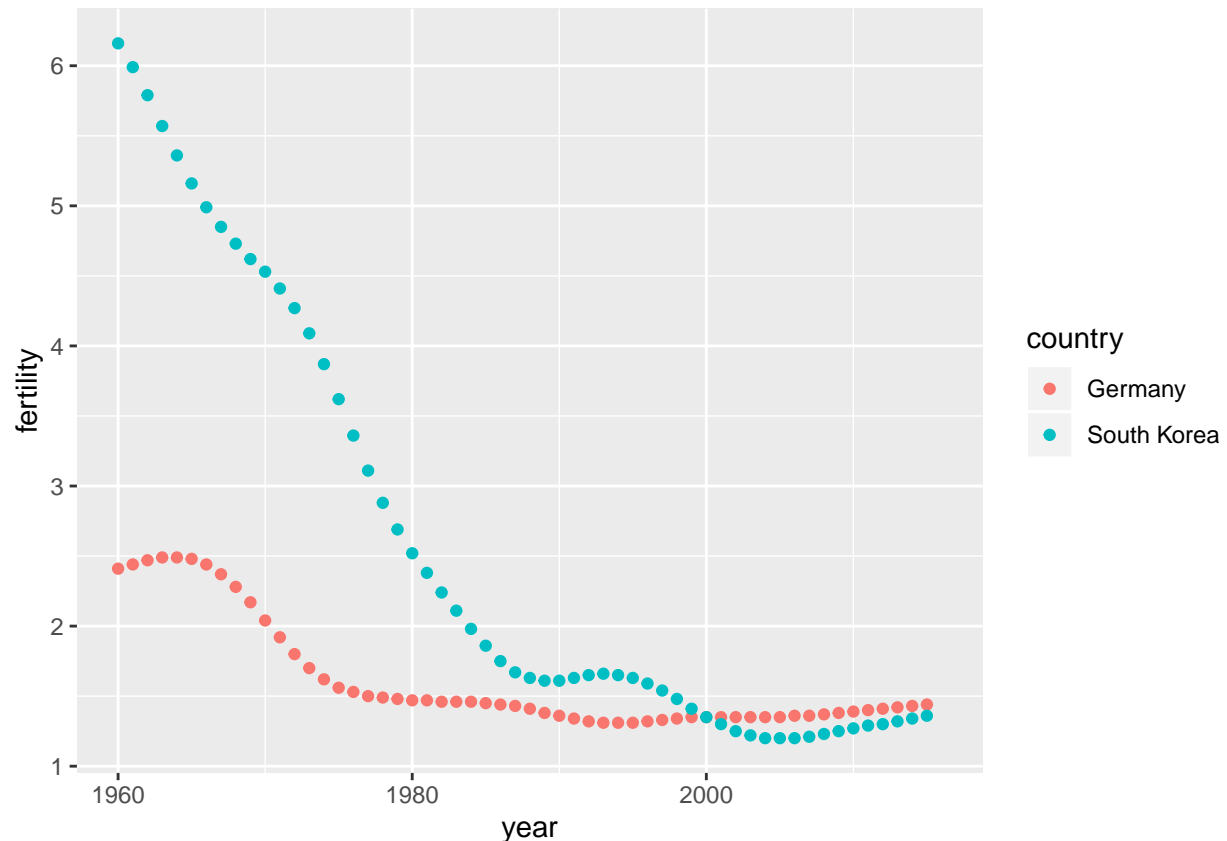
Este plot ha sido tan fácil de producir porque los datos estaban en formato *tidy*. QUe significa esto? Que cada medida especifica de pais & fecha ocupa una fila de un *tibble* o *data.frame*. Las columnas serian cada una de las observaciones que queramos mirar (fertilidad, esperanza de vida...)

```
path <- system.file("extdata", package="dslabs")
filename <- file.path(path,  "fertility-two-countries-example.csv")
wide_data <- read_csv(filename)
```

```
## Parsed with column specification:
## cols(
##    .default = col_double(),
##    country = col_character()
## )

## See spec(...) for full column specifications.
```

```
wide_data<-read_csv("DataSets/fertility-two-countries-example.csv")
```

```
## Parsed with column specification:
## cols(
##    .default = col_double(),
##    country = col_character()
## )
## See spec(...) for full column specifications.
```

```
wide_data
```

```
## # A tibble: 2 x 57
##    country `1960` `1961` `1962` `1963` `1964` `1965` `1966` `1967` `1968`
```

```
##     <chr>    <dbl>  <dbl>  <dbl>  <dbl>  <dbl>  <dbl>  <dbl>  <dbl>  <dbl>
## 1 Germany   2.41   2.44   2.47   2.49   2.49   2.48   2.44   2.37   2.28
## 2 South ~   6.16   5.99   5.79   5.57   5.36   5.16   4.99   4.85   4.73
## # ... with 47 more variables: `1969` <dbl>, `1970` <dbl>, `1971` <dbl>,
## #   `1972` <dbl>, `1973` <dbl>, `1974` <dbl>, `1975` <dbl>, `1976` <dbl>,
## #   `1977` <dbl>, `1978` <dbl>, `1979` <dbl>, `1980` <dbl>, `1981` <dbl>,
## #   `1982` <dbl>, `1983` <dbl>, `1984` <dbl>, `1985` <dbl>, `1986` <dbl>,
## #   `1987` <dbl>, `1988` <dbl>, `1989` <dbl>, `1990` <dbl>, `1991` <dbl>,
## #   `1992` <dbl>, `1993` <dbl>, `1994` <dbl>, `1995` <dbl>, `1996` <dbl>,
## #   `1997` <dbl>, `1998` <dbl>, `1999` <dbl>, `2000` <dbl>, `2001` <dbl>,
## #   `2002` <dbl>, `2003` <dbl>, `2004` <dbl>, `2005` <dbl>, `2006` <dbl>,
## #   `2007` <dbl>, `2008` <dbl>, `2009` <dbl>, `2010` <dbl>, `2011` <dbl>,
## #   `2012` <dbl>, `2013` <dbl>, `2014` <dbl>, `2015` <dbl>
```

```r
#seleccionamos las primeras 9 columnas
select(wide_data, country, `1960`:`1967`)
```

```
## # A tibble: 2 x 9
##   country      `1960` `1961` `1962` `1963` `1964` `1965` `1966` `1967`
##   <chr>         <dbl>  <dbl>  <dbl>  <dbl>  <dbl>  <dbl>  <dbl>  <dbl>
## 1 Germany        2.41   2.44   2.47   2.49   2.49   2.48   2.44   2.37
## 2 South Korea    6.16   5.99   5.79   5.57   5.36   5.16   4.99   4.85
```

5. Convertir wide_data en tidy_data

```r
new_tidy_data <- wide_data %>%
  pivot_longer(cols=`1960`:`2015`,names_to="year",values_to = "fertility")
new_tidy_data
```

```
## # A tibble: 112 x 3
##    country year  fertility
##    <chr>   <chr>     <dbl>
##  1 Germany 1960       2.41
##  2 Germany 1961       2.44
##  3 Germany 1962       2.47
##  4 Germany 1963       2.49
##  5 Germany 1964       2.49
##  6 Germany 1965       2.48
##  7 Germany 1966       2.44
##  8 Germany 1967       2.37
##  9 Germany 1968       2.28
## 10 Germany 1969       2.17
## # ... with 102 more rows
```

```r
class(new_tidy_data$year)
```

```
## [1] "character"
```

```r
new_tidy_data <- wide_data %>%
  pivot_longer(cols=`1960`:`2015`,
               names_to="year",
               values_to = "fertility",
               names_ptypes = list(year=integer()))
class(new_tidy_data$year)
```

```
## [1] "integer"
```

A veces se necesita volver de tidy data a wide data:

```
new_wide_data <- new_tidy_data %>%
  pivot_wider(names_from=year,values_from = fertility)
new_wide_data
```

```
## # A tibble: 2 x 57
##   country `1960` `1961` `1962` `1963` `1964` `1965` `1966` `1967` `1968`
##   <chr>    <dbl>  <dbl>  <dbl>  <dbl>  <dbl>  <dbl>  <dbl>  <dbl>  <dbl>
## 1 Germany   2.41   2.44   2.47   2.49   2.49   2.48   2.44   2.37   2.28
## 2 South ~   6.16   5.99   5.79   5.57   5.36   5.16   4.99   4.85   4.73
## # ... with 47 more variables: `1969` <dbl>, `1970` <dbl>, `1971` <dbl>,
## #   `1972` <dbl>, `1973` <dbl>, `1974` <dbl>, `1975` <dbl>, `1976` <dbl>,
## #   `1977` <dbl>, `1978` <dbl>, `1979` <dbl>, `1980` <dbl>, `1981` <dbl>,
## #   `1982` <dbl>, `1983` <dbl>, `1984` <dbl>, `1985` <dbl>, `1986` <dbl>,
## #   `1987` <dbl>, `1988` <dbl>, `1989` <dbl>, `1990` <dbl>, `1991` <dbl>,
## #   `1992` <dbl>, `1993` <dbl>, `1994` <dbl>, `1995` <dbl>, `1996` <dbl>,
## #   `1997` <dbl>, `1998` <dbl>, `1999` <dbl>, `2000` <dbl>, `2001` <dbl>,
## #   `2002` <dbl>, `2003` <dbl>, `2004` <dbl>, `2005` <dbl>, `2006` <dbl>,
## #   `2007` <dbl>, `2008` <dbl>, `2009` <dbl>, `2010` <dbl>, `2011` <dbl>,
## #   `2012` <dbl>, `2013` <dbl>, `2014` <dbl>, `2015` <dbl>
```

Importando datos de bases de datos

Datos estructurados: RMySQL –> RMariaDB

MariaDB es un servidor de bases de datos. Podemos interaccionar con el usando un cliente o bien progra-maticamente usando APIs (Application Programming Interface). Si interaccionamos a traves de un cliente como mysql empezariamos conectandonos a la base de datos con el comando:

mysql -u root -p -h localhost

Existe un paquete de R para hacer lo mismo y traernos datos:

```
library(RMariaDB)
```

```
## Warning: package 'RMariaDB' was built under R version 3.6.2
```

En primer lugar creamos una objeto de conexion a la base de datos y podemos ver todas las bases de datos que hay dentro de ella:

```
ensembl_con <- dbConnect(MariaDB(),
                         host = "ensembldb.ensembl.org",
                         user = "anonymous",
                         port = 5306,
                         password = "")
dbGetQuery(ensembl_con, "SHOW DATABASES")
```

```
##                                            Database
## 1                                information_schema
## 2                                     PERCONA_SCHEMA
## 3                 acanthochromis_polyacanthus_core_94_1
## 4                 acanthochromis_polyacanthus_core_95_1
## 5                 acanthochromis_polyacanthus_core_96_1
## 6                 acanthochromis_polyacanthus_core_97_1
## 7                 acanthochromis_polyacanthus_core_98_1
## 8                 acanthochromis_polyacanthus_core_99_1
## 9         acanthochromis_polyacanthus_otherfeatures_94_1
## 10        acanthochromis_polyacanthus_otherfeatures_95_1
```

```
## 11            acanthochromis_polyacanthus_otherfeatures_96_1
## 12            acanthochromis_polyacanthus_otherfeatures_97_1
## 13            acanthochromis_polyacanthus_otherfeatures_98_1
## 14            acanthochromis_polyacanthus_otherfeatures_99_1
## 15                   acanthochromis_polyacanthus_rnaseq_94_1
## 16                   acanthochromis_polyacanthus_rnaseq_95_1
## 17                   acanthochromis_polyacanthus_rnaseq_96_1
## 18                   acanthochromis_polyacanthus_rnaseq_97_1
## 19                   acanthochromis_polyacanthus_rnaseq_98_1
## 20                   acanthochromis_polyacanthus_rnaseq_99_1
## 21                                 accipiter_nisus_core_99_1
## 22                               accipiter_nisus_rnaseq_99_1
## 23                                 aedes_aegypti_core_48_1b
## 24                                 aedes_aegypti_core_49_1b
## 25                                 aedes_aegypti_core_50_1c
## 26                                 aedes_aegypti_core_51_1c
## 27                                 aedes_aegypti_core_52_1d
## 28                                 aedes_aegypti_core_53_1d
## 29                                 aedes_aegypti_core_54_1d
## 30                                 aedes_aegypti_core_55_1d
## 31                            ailuropoda_melanoleuca_core_60_1
## 32                            ailuropoda_melanoleuca_core_61_1a
## 33                            ailuropoda_melanoleuca_core_62_1b
## 34                             ailuropoda_melanoleuca_core_63_1
## 35                             ailuropoda_melanoleuca_core_64_1
## 36                             ailuropoda_melanoleuca_core_65_1
## 37                             ailuropoda_melanoleuca_core_66_1
## 38                             ailuropoda_melanoleuca_core_67_1
## 39                             ailuropoda_melanoleuca_core_68_1
## 40                             ailuropoda_melanoleuca_core_69_1
## 41                             ailuropoda_melanoleuca_core_70_1
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## 47                             ailuropoda_melanoleuca_core_76_1
## 48                             ailuropoda_melanoleuca_core_77_1
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## 63                             ailuropoda_melanoleuca_core_92_1
## 64                             ailuropoda_melanoleuca_core_93_1
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## 66                          ailuropoda_melanoleuca_core_95_1
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## 70                          ailuropoda_melanoleuca_core_99_1
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## 73            ailuropoda_melanoleuca_otherfeatures_62_1b
## 74             ailuropoda_melanoleuca_otherfeatures_63_1
## 75             ailuropoda_melanoleuca_otherfeatures_64_1
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## 110            ailuropoda_melanoleuca_otherfeatures_99_1
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## 112                          amazona_collaria_rnaseq_99_1
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## 114                     amphilophus_citrinellus_core_95_5
## 115                     amphilophus_citrinellus_core_96_5
## 116                     amphilophus_citrinellus_core_97_5
## 117                     amphilophus_citrinellus_core_98_5
## 118                     amphilophus_citrinellus_core_99_5
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## 150                           anabas_testudineus_core_95_11
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## 154                           anabas_testudineus_core_99_11
## 155                         anabas_testudineus_rnaseq_94_11
## 156                         anabas_testudineus_rnaseq_95_11
## 157                         anabas_testudineus_rnaseq_96_11
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## 222                          anolis_carolinensis_core_56_1a
## 223                          anolis_carolinensis_core_57_1a
## 224                          anolis_carolinensis_core_58_1b
## 225                          anolis_carolinensis_core_59_1c
## 226                          anolis_carolinensis_core_60_1d
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## 229                       anolis_carolinensis_core_63_2
## 230                       anolis_carolinensis_core_64_2
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## 334                       anolis_carolinensis_rnaseq_92_2
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## 343                            anopheles_gambiae_core_49_3j
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## 496                 astyanax_mexicanus_otherfeatures_93_102
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## 549                                   bos_grunniens_rnaseq_99_3
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## 870                 caenorhabditis_elegans_funcgen_87_250
## 871                 caenorhabditis_elegans_funcgen_88_250
## 872                 caenorhabditis_elegans_funcgen_89_250
## 873                 caenorhabditis_elegans_funcgen_90_250
## 874                 caenorhabditis_elegans_funcgen_91_260
```

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## 875                caenorhabditis_elegans_funcgen_92_260
## 876                caenorhabditis_elegans_funcgen_93_260
## 877                caenorhabditis_elegans_funcgen_94_260
## 878                caenorhabditis_elegans_funcgen_95_260
## 879                caenorhabditis_elegans_funcgen_96_260
## 880                caenorhabditis_elegans_funcgen_97_269
## 881                caenorhabditis_elegans_funcgen_98_269
## 882                caenorhabditis_elegans_funcgen_99_269
## 883                        calidris_pugnax_core_96_1
## 884                        calidris_pugnax_core_97_1
## 885                        calidris_pugnax_core_98_1
## 886                        calidris_pugnax_core_99_1
## 887              calidris_pugnax_otherfeatures_96_1
## 888              calidris_pugnax_otherfeatures_97_1
## 889              calidris_pugnax_otherfeatures_98_1
## 890              calidris_pugnax_otherfeatures_99_1
## 891                      calidris_pugnax_rnaseq_96_1
## 892                      calidris_pugnax_rnaseq_97_1
## 893                      calidris_pugnax_rnaseq_98_1
## 894                      calidris_pugnax_rnaseq_99_1
## 895                       calidris_pygmaea_core_96_1
## 896                       calidris_pygmaea_core_97_1
## 897                       calidris_pygmaea_core_98_1
## 898                       calidris_pygmaea_core_99_1
## 899                     calidris_pygmaea_rnaseq_96_1
## 900                     calidris_pygmaea_rnaseq_97_1
## 901                     calidris_pygmaea_rnaseq_98_1
## 902                     calidris_pygmaea_rnaseq_99_1
## 903                     callithrix_jacchus_core_56_3
## 904                     callithrix_jacchus_core_57_3
## 905                   callithrix_jacchus_core_58_321
## 906                  callithrix_jacchus_core_59_321a
## 907                  callithrix_jacchus_core_60_321b
## 908                  callithrix_jacchus_core_61_321c
## 909                  callithrix_jacchus_core_62_321d
## 910                   callithrix_jacchus_core_63_321
## 911                   callithrix_jacchus_core_64_321
## 912                   callithrix_jacchus_core_65_321
## 913                   callithrix_jacchus_core_66_321
## 914                   callithrix_jacchus_core_67_321
## 915                   callithrix_jacchus_core_68_321
## 916                   callithrix_jacchus_core_69_321
## 917                   callithrix_jacchus_core_70_321
## 918                   callithrix_jacchus_core_71_321
## 919                   callithrix_jacchus_core_72_321
## 920                   callithrix_jacchus_core_73_321
## 921                   callithrix_jacchus_core_74_321
## 922                   callithrix_jacchus_core_75_321
## 923                   callithrix_jacchus_core_76_321
## 924                   callithrix_jacchus_core_77_321
## 925                   callithrix_jacchus_core_78_321
## 926                   callithrix_jacchus_core_79_321
## 927                   callithrix_jacchus_core_80_321
## 928                   callithrix_jacchus_core_81_321
```

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## 929                         callithrix_jacchus_core_82_321
## 930                         callithrix_jacchus_core_83_321
## 931                         callithrix_jacchus_core_84_321
## 932                         callithrix_jacchus_core_85_321
## 933                         callithrix_jacchus_core_86_321
## 934                         callithrix_jacchus_core_87_321
## 935                         callithrix_jacchus_core_88_321
## 936                         callithrix_jacchus_core_89_321
## 937                         callithrix_jacchus_core_90_321
## 938                         callithrix_jacchus_core_91_321
## 939                           callithrix_jacchus_core_92_1
## 940                           callithrix_jacchus_core_93_1
## 941                           callithrix_jacchus_core_94_1
## 942                           callithrix_jacchus_core_95_1
## 943                           callithrix_jacchus_core_96_1
## 944                           callithrix_jacchus_core_97_1
## 945                           callithrix_jacchus_core_98_1
## 946                           callithrix_jacchus_core_99_1
## 947                        callithrix_jacchus_funcgen_92_1
## 948                        callithrix_jacchus_funcgen_93_1
## 949                        callithrix_jacchus_funcgen_94_1
## 950                        callithrix_jacchus_funcgen_95_1
## 951                        callithrix_jacchus_funcgen_96_1
## 952                        callithrix_jacchus_funcgen_97_1
## 953                        callithrix_jacchus_funcgen_98_1
## 954                        callithrix_jacchus_funcgen_99_1
## 955                 callithrix_jacchus_otherfeatures_56_3
## 956                 callithrix_jacchus_otherfeatures_57_3
## 957               callithrix_jacchus_otherfeatures_58_321
## 958              callithrix_jacchus_otherfeatures_59_321a
## 959              callithrix_jacchus_otherfeatures_60_321b
## 960              callithrix_jacchus_otherfeatures_61_321c
## 961              callithrix_jacchus_otherfeatures_62_321d
## 962               callithrix_jacchus_otherfeatures_63_321
## 963               callithrix_jacchus_otherfeatures_64_321
## 964               callithrix_jacchus_otherfeatures_65_321
## 965               callithrix_jacchus_otherfeatures_66_321
## 966               callithrix_jacchus_otherfeatures_67_321
## 967               callithrix_jacchus_otherfeatures_68_321
## 968               callithrix_jacchus_otherfeatures_69_321
## 969               callithrix_jacchus_otherfeatures_70_321
## 970               callithrix_jacchus_otherfeatures_71_321
## 971               callithrix_jacchus_otherfeatures_72_321
## 972               callithrix_jacchus_otherfeatures_73_321
## 973               callithrix_jacchus_otherfeatures_74_321
## 974               callithrix_jacchus_otherfeatures_75_321
## 975               callithrix_jacchus_otherfeatures_76_321
## 976               callithrix_jacchus_otherfeatures_77_321
## 977               callithrix_jacchus_otherfeatures_78_321
## 978               callithrix_jacchus_otherfeatures_79_321
## 979               callithrix_jacchus_otherfeatures_80_321
## 980               callithrix_jacchus_otherfeatures_81_321
## 981               callithrix_jacchus_otherfeatures_82_321
## 982               callithrix_jacchus_otherfeatures_83_321
```

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## 983                   callithrix_jacchus_otherfeatures_84_321
## 984                   callithrix_jacchus_otherfeatures_85_321
## 985                   callithrix_jacchus_otherfeatures_86_321
## 986                   callithrix_jacchus_otherfeatures_87_321
## 987                   callithrix_jacchus_otherfeatures_88_321
## 988                   callithrix_jacchus_otherfeatures_89_321
## 989                   callithrix_jacchus_otherfeatures_90_321
## 990                   callithrix_jacchus_otherfeatures_91_321
## 991                          callithrix_jacchus_rnaseq_92_1
## 992                          callithrix_jacchus_rnaseq_93_1
## 993                          callithrix_jacchus_rnaseq_94_1
## 994                          callithrix_jacchus_rnaseq_95_1
## 995                          callithrix_jacchus_rnaseq_96_1
## 996                          callithrix_jacchus_rnaseq_97_1
## 997                          callithrix_jacchus_rnaseq_98_1
## 998                          callithrix_jacchus_rnaseq_99_1
## 999                         callorhinchus_milii_core_97_613
## 1000                        callorhinchus_milii_core_98_613
## 1001                        callorhinchus_milii_core_99_613
## 1002              callorhinchus_milii_otherfeatures_97_613
## 1003              callorhinchus_milii_otherfeatures_98_613
## 1004              callorhinchus_milii_otherfeatures_99_613
## 1005                      callorhinchus_milii_rnaseq_97_613
## 1006                      callorhinchus_milii_rnaseq_98_613
## 1007                      callorhinchus_milii_rnaseq_99_613
## 1008                        camelus_dromedarius_core_99_2
## 1009                        camelus_dromedarius_rnaseq_99_2
## 1010                           canis_familiaris_core_48_2f
## 1011                           canis_familiaris_core_49_2g
## 1012                           canis_familiaris_core_50_2h
## 1013                           canis_familiaris_core_51_2i
## 1014                           canis_familiaris_core_52_2j
## 1015                           canis_familiaris_core_53_2k
## 1016                           canis_familiaris_core_54_2l
## 1017                           canis_familiaris_core_55_2m
## 1018                           canis_familiaris_core_56_2m
## 1019                           canis_familiaris_core_57_2m
## 1020                           canis_familiaris_core_58_2n
## 1021                           canis_familiaris_core_59_2o
## 1022                           canis_familiaris_core_60_2p
## 1023                           canis_familiaris_core_61_2q
## 1024                           canis_familiaris_core_62_2r
## 1025                            canis_familiaris_core_63_2
## 1026                            canis_familiaris_core_64_2
## 1027                            canis_familiaris_core_65_2
## 1028                            canis_familiaris_core_66_2
## 1029                            canis_familiaris_core_67_2
## 1030                           canis_familiaris_core_68_31
## 1031                           canis_familiaris_core_69_31
## 1032                           canis_familiaris_core_70_31
## 1033                           canis_familiaris_core_71_31
## 1034                           canis_familiaris_core_72_31
## 1035                           canis_familiaris_core_73_31
## 1036                           canis_familiaris_core_74_31
```

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## 1037                       canis_familiaris_core_75_31
## 1038                       canis_familiaris_core_76_31
## 1039                       canis_familiaris_core_77_31
## 1040                       canis_familiaris_core_78_31
## 1041                       canis_familiaris_core_79_31
## 1042                       canis_familiaris_core_80_31
## 1043                       canis_familiaris_core_81_31
## 1044                       canis_familiaris_core_82_31
## 1045                       canis_familiaris_core_83_31
## 1046                       canis_familiaris_core_84_31
## 1047                       canis_familiaris_core_85_31
## 1048                       canis_familiaris_core_86_31
## 1049                       canis_familiaris_core_87_31
## 1050                       canis_familiaris_core_88_31
## 1051                       canis_familiaris_core_89_31
## 1052                       canis_familiaris_core_90_31
## 1053                       canis_familiaris_core_91_31
## 1054                       canis_familiaris_core_92_31
## 1055                       canis_familiaris_core_93_31
## 1056                       canis_familiaris_core_94_31
## 1057                       canis_familiaris_core_95_31
## 1058                       canis_familiaris_core_96_31
## 1059                       canis_familiaris_core_97_31
## 1060                       canis_familiaris_core_98_31
## 1061                       canis_familiaris_core_99_31
## 1062                      canis_familiaris_funcgen_55_2m
## 1063                      canis_familiaris_funcgen_56_2m
## 1064                      canis_familiaris_funcgen_57_2m
## 1065                      canis_familiaris_funcgen_58_2n
## 1066                      canis_familiaris_funcgen_59_2o
## 1067                      canis_familiaris_funcgen_60_2p
## 1068                      canis_familiaris_funcgen_61_2q
## 1069                      canis_familiaris_funcgen_62_2r
## 1070                       canis_familiaris_funcgen_63_2
## 1071                       canis_familiaris_funcgen_64_2
## 1072                       canis_familiaris_funcgen_65_2
## 1073                       canis_familiaris_funcgen_66_2
## 1074                       canis_familiaris_funcgen_67_2
## 1075                      canis_familiaris_funcgen_68_31
## 1076                      canis_familiaris_funcgen_69_31
## 1077                      canis_familiaris_funcgen_70_31
## 1078                      canis_familiaris_funcgen_71_31
## 1079                      canis_familiaris_funcgen_72_31
## 1080                      canis_familiaris_funcgen_73_31
## 1081                      canis_familiaris_funcgen_74_31
## 1082                      canis_familiaris_funcgen_75_31
## 1083                      canis_familiaris_funcgen_76_31
## 1084                      canis_familiaris_funcgen_77_31
## 1085                      canis_familiaris_funcgen_78_31
## 1086                      canis_familiaris_funcgen_79_31
## 1087                      canis_familiaris_funcgen_80_31
## 1088                      canis_familiaris_funcgen_81_31
## 1089                      canis_familiaris_funcgen_82_31
## 1090                      canis_familiaris_funcgen_83_31
```

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## 1091                        canis_familiaris_funcgen_84_31
## 1092                        canis_familiaris_funcgen_85_31
## 1093                        canis_familiaris_funcgen_86_31
## 1094                        canis_familiaris_funcgen_87_31
## 1095                        canis_familiaris_funcgen_88_31
## 1096                        canis_familiaris_funcgen_89_31
## 1097                        canis_familiaris_funcgen_90_31
## 1098                        canis_familiaris_funcgen_91_31
## 1099                        canis_familiaris_funcgen_92_31
## 1100                        canis_familiaris_funcgen_93_31
## 1101                        canis_familiaris_funcgen_94_31
## 1102                        canis_familiaris_funcgen_95_31
## 1103                        canis_familiaris_funcgen_96_31
## 1104                        canis_familiaris_funcgen_97_31
## 1105                        canis_familiaris_funcgen_98_31
## 1106                        canis_familiaris_funcgen_99_31
## 1107             canis_familiaris_otherfeatures_48_2f
## 1108             canis_familiaris_otherfeatures_49_2g
## 1109             canis_familiaris_otherfeatures_50_2h
## 1110             canis_familiaris_otherfeatures_51_2i
## 1111             canis_familiaris_otherfeatures_52_2j
## 1112             canis_familiaris_otherfeatures_53_2k
## 1113             canis_familiaris_otherfeatures_54_2l
## 1114             canis_familiaris_otherfeatures_55_2m
## 1115             canis_familiaris_otherfeatures_56_2m
## 1116             canis_familiaris_otherfeatures_57_2m
## 1117             canis_familiaris_otherfeatures_58_2n
## 1118             canis_familiaris_otherfeatures_59_2o
## 1119             canis_familiaris_otherfeatures_60_2p
## 1120             canis_familiaris_otherfeatures_61_2q
## 1121             canis_familiaris_otherfeatures_62_2r
## 1122              canis_familiaris_otherfeatures_63_2
## 1123              canis_familiaris_otherfeatures_64_2
## 1124              canis_familiaris_otherfeatures_65_2
## 1125              canis_familiaris_otherfeatures_66_2
## 1126              canis_familiaris_otherfeatures_67_2
## 1127             canis_familiaris_otherfeatures_68_31
## 1128             canis_familiaris_otherfeatures_69_31
## 1129             canis_familiaris_otherfeatures_70_31
## 1130             canis_familiaris_otherfeatures_71_31
## 1131             canis_familiaris_otherfeatures_72_31
## 1132             canis_familiaris_otherfeatures_73_31
## 1133             canis_familiaris_otherfeatures_74_31
## 1134             canis_familiaris_otherfeatures_75_31
## 1135             canis_familiaris_otherfeatures_76_31
## 1136             canis_familiaris_otherfeatures_77_31
## 1137             canis_familiaris_otherfeatures_78_31
## 1138             canis_familiaris_otherfeatures_79_31
## 1139             canis_familiaris_otherfeatures_80_31
## 1140             canis_familiaris_otherfeatures_81_31
## 1141             canis_familiaris_otherfeatures_82_31
## 1142             canis_familiaris_otherfeatures_83_31
## 1143             canis_familiaris_otherfeatures_84_31
## 1144             canis_familiaris_otherfeatures_85_31
```

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## 1145                      canis_familiaris_otherfeatures_86_31
## 1146                      canis_familiaris_otherfeatures_87_31
## 1147                      canis_familiaris_otherfeatures_88_31
## 1148                      canis_familiaris_otherfeatures_89_31
## 1149                      canis_familiaris_otherfeatures_90_31
## 1150                      canis_familiaris_otherfeatures_91_31
## 1151                      canis_familiaris_otherfeatures_92_31
## 1152                      canis_familiaris_otherfeatures_93_31
## 1153                      canis_familiaris_otherfeatures_94_31
## 1154                      canis_familiaris_otherfeatures_95_31
## 1155                      canis_familiaris_otherfeatures_96_31
## 1156                      canis_familiaris_otherfeatures_97_31
## 1157                      canis_familiaris_otherfeatures_98_31
## 1158                      canis_familiaris_otherfeatures_99_31
## 1159                          canis_familiaris_rnaseq_68_31
## 1160                          canis_familiaris_rnaseq_69_31
## 1161                          canis_familiaris_rnaseq_70_31
## 1162                          canis_familiaris_rnaseq_71_31
## 1163                          canis_familiaris_rnaseq_72_31
## 1164                          canis_familiaris_rnaseq_73_31
## 1165                          canis_familiaris_rnaseq_74_31
## 1166                          canis_familiaris_rnaseq_75_31
## 1167                          canis_familiaris_rnaseq_76_31
## 1168                          canis_familiaris_rnaseq_77_31
## 1169                          canis_familiaris_rnaseq_78_31
## 1170                          canis_familiaris_rnaseq_79_31
## 1171                          canis_familiaris_rnaseq_80_31
## 1172                          canis_familiaris_rnaseq_81_31
## 1173                          canis_familiaris_rnaseq_82_31
## 1174                          canis_familiaris_rnaseq_83_31
## 1175                          canis_familiaris_rnaseq_84_31
## 1176                          canis_familiaris_rnaseq_85_31
## 1177                          canis_familiaris_rnaseq_86_31
## 1178                          canis_familiaris_rnaseq_87_31
## 1179                          canis_familiaris_rnaseq_88_31
## 1180                          canis_familiaris_rnaseq_89_31
## 1181                          canis_familiaris_rnaseq_90_31
## 1182                          canis_familiaris_rnaseq_91_31
## 1183                          canis_familiaris_rnaseq_92_31
## 1184                          canis_familiaris_rnaseq_93_31
## 1185                          canis_familiaris_rnaseq_94_31
## 1186                          canis_familiaris_rnaseq_95_31
## 1187                          canis_familiaris_rnaseq_96_31
## 1188                          canis_familiaris_rnaseq_97_31
## 1189                          canis_familiaris_rnaseq_98_31
## 1190                          canis_familiaris_rnaseq_99_31
## 1191                       canis_familiaris_variation_48_2f
## 1192                       canis_familiaris_variation_49_2g
## 1193                       canis_familiaris_variation_50_2h
## 1194                       canis_familiaris_variation_51_2i
## 1195                       canis_familiaris_variation_52_2j
## 1196                       canis_familiaris_variation_53_2k
## 1197                       canis_familiaris_variation_54_2l
## 1198                       canis_familiaris_variation_55_2m
```

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## 1199                         canis_familiaris_variation_56_2m
## 1200                         canis_familiaris_variation_57_2m
## 1201                         canis_familiaris_variation_58_2n
## 1202                         canis_familiaris_variation_59_2o
## 1203                         canis_familiaris_variation_60_2p
## 1204                         canis_familiaris_variation_61_2q
## 1205                         canis_familiaris_variation_62_2r
## 1206                          canis_familiaris_variation_63_2
## 1207                          canis_familiaris_variation_64_2
## 1208                          canis_familiaris_variation_65_2
## 1209                          canis_familiaris_variation_66_2
## 1210                          canis_familiaris_variation_67_2
## 1211                         canis_familiaris_variation_68_31
## 1212                         canis_familiaris_variation_69_31
## 1213                         canis_familiaris_variation_70_31
## 1214                         canis_familiaris_variation_71_31
## 1215                         canis_familiaris_variation_72_31
## 1216                         canis_familiaris_variation_73_31
## 1217                         canis_familiaris_variation_74_31
## 1218                         canis_familiaris_variation_75_31
## 1219                         canis_familiaris_variation_76_31
## 1220                         canis_familiaris_variation_77_31
## 1221                         canis_familiaris_variation_78_31
## 1222                         canis_familiaris_variation_79_31
## 1223                         canis_familiaris_variation_80_31
## 1224                         canis_familiaris_variation_81_31
## 1225                         canis_familiaris_variation_82_31
## 1226                         canis_familiaris_variation_83_31
## 1227                         canis_familiaris_variation_84_31
## 1228                         canis_familiaris_variation_85_31
## 1229                         canis_familiaris_variation_86_31
## 1230                         canis_familiaris_variation_87_31
## 1231                         canis_familiaris_variation_88_31
## 1232                         canis_familiaris_variation_89_31
## 1233                         canis_familiaris_variation_90_31
## 1234                         canis_familiaris_variation_91_31
## 1235                         canis_familiaris_variation_92_31
## 1236                         canis_familiaris_variation_93_31
## 1237                         canis_familiaris_variation_94_31
## 1238                         canis_familiaris_variation_95_31
## 1239                         canis_familiaris_variation_96_31
## 1240                         canis_familiaris_variation_97_31
## 1241                         canis_familiaris_variation_98_31
## 1242                         canis_familiaris_variation_99_31
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## 1244                             canis_lupus_dingo_core_96_1
## 1245                             canis_lupus_dingo_core_97_1
## 1246                             canis_lupus_dingo_core_98_1
## 1247                             canis_lupus_dingo_core_99_1
## 1248                   canis_lupus_dingo_otherfeatures_95_1
## 1249                   canis_lupus_dingo_otherfeatures_96_1
## 1250                   canis_lupus_dingo_otherfeatures_97_1
## 1251                   canis_lupus_dingo_otherfeatures_98_1
## 1252                   canis_lupus_dingo_otherfeatures_99_1
```

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## 1253                    canis_lupus_dingo_rnaseq_95_1
## 1254                    canis_lupus_dingo_rnaseq_96_1
## 1255                    canis_lupus_dingo_rnaseq_97_1
## 1256                    canis_lupus_dingo_rnaseq_98_1
## 1257                    canis_lupus_dingo_rnaseq_99_1
## 1258         canis_lupus_familiarisbasenji_core_99_11
## 1259      canis_lupus_familiarisbasenji_funcgen_99_11
## 1260       canis_lupus_familiarisbasenji_rnaseq_99_11
## 1261       canis_lupus_familiarisgreatdane_core_99_31
## 1262    canis_lupus_familiarisgreatdane_funcgen_99_31
## 1263     canis_lupus_familiarisgreatdane_rnaseq_99_31
## 1264                          capra_hircus_core_92_1
## 1265                          capra_hircus_core_93_1
## 1266                          capra_hircus_core_94_1
## 1267                          capra_hircus_core_95_1
## 1268                          capra_hircus_core_96_1
## 1269                          capra_hircus_core_97_1
## 1270                          capra_hircus_core_98_1
## 1271                          capra_hircus_core_99_1
## 1272                       capra_hircus_funcgen_92_1
## 1273                       capra_hircus_funcgen_93_1
## 1274                       capra_hircus_funcgen_94_1
## 1275                       capra_hircus_funcgen_95_1
## 1276                       capra_hircus_funcgen_96_1
## 1277                       capra_hircus_funcgen_97_1
## 1278                       capra_hircus_funcgen_98_1
## 1279                       capra_hircus_funcgen_99_1
## 1280                 capra_hircus_otherfeatures_92_1
## 1281                 capra_hircus_otherfeatures_93_1
## 1282                 capra_hircus_otherfeatures_94_1
## 1283                 capra_hircus_otherfeatures_95_1
## 1284                 capra_hircus_otherfeatures_96_1
## 1285                 capra_hircus_otherfeatures_97_1
## 1286                 capra_hircus_otherfeatures_98_1
## 1287                 capra_hircus_otherfeatures_99_1
## 1288                        capra_hircus_rnaseq_92_1
## 1289                        capra_hircus_rnaseq_93_1
## 1290                        capra_hircus_rnaseq_94_1
## 1291                        capra_hircus_rnaseq_95_1
## 1292                        capra_hircus_rnaseq_96_1
## 1293                        capra_hircus_rnaseq_97_1
## 1294                        capra_hircus_rnaseq_98_1
## 1295                        capra_hircus_rnaseq_99_1
## 1296                     capra_hircus_variation_92_1
## 1297                     capra_hircus_variation_93_1
## 1298                     capra_hircus_variation_94_1
## 1299                     capra_hircus_variation_95_1
## 1300                     capra_hircus_variation_96_1
## 1301                     capra_hircus_variation_97_1
## 1302                     capra_hircus_variation_98_1
## 1303                     capra_hircus_variation_99_1
## 1304                       carlito_syrichta_core_89_1
## 1305                       carlito_syrichta_core_90_1
## 1306                       carlito_syrichta_core_91_2
```

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## 1307                       carlito_syrichta_core_92_2
## 1308                       carlito_syrichta_core_93_2
## 1309                       carlito_syrichta_core_94_2
## 1310                       carlito_syrichta_core_95_2
## 1311                       carlito_syrichta_core_96_2
## 1312                       carlito_syrichta_core_97_2
## 1313                       carlito_syrichta_core_98_2
## 1314                       carlito_syrichta_core_99_2
## 1315                    carlito_syrichta_funcgen_91_2
## 1316                    carlito_syrichta_funcgen_92_2
## 1317                    carlito_syrichta_funcgen_93_2
## 1318                    carlito_syrichta_funcgen_94_2
## 1319                    carlito_syrichta_funcgen_95_2
## 1320                    carlito_syrichta_funcgen_96_2
## 1321                    carlito_syrichta_funcgen_97_2
## 1322                    carlito_syrichta_funcgen_98_2
## 1323                    carlito_syrichta_funcgen_99_2
## 1324              carlito_syrichta_otherfeatures_91_2
## 1325              carlito_syrichta_otherfeatures_92_2
## 1326              carlito_syrichta_otherfeatures_93_2
## 1327              carlito_syrichta_otherfeatures_94_2
## 1328              carlito_syrichta_otherfeatures_95_2
## 1329              carlito_syrichta_otherfeatures_96_2
## 1330              carlito_syrichta_otherfeatures_97_2
## 1331              carlito_syrichta_otherfeatures_98_2
## 1332              carlito_syrichta_otherfeatures_99_2
## 1333                      castor_canadensis_core_96_1
## 1334                      castor_canadensis_core_97_1
## 1335                      castor_canadensis_core_98_1
## 1336                      castor_canadensis_core_99_1
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## 1338            castor_canadensis_otherfeatures_97_1
## 1339            castor_canadensis_otherfeatures_98_1
## 1340            castor_canadensis_otherfeatures_99_1
## 1341                    castor_canadensis_rnaseq_96_1
## 1342                    castor_canadensis_rnaseq_97_1
## 1343                    castor_canadensis_rnaseq_98_1
## 1344                    castor_canadensis_rnaseq_99_1
## 1345                      catagonus_wagneri_core_99_2
## 1346                    catagonus_wagneri_rnaseq_99_2
## 1347                          cavia_aperea_core_90_10
## 1348                          cavia_aperea_core_91_10
## 1349                          cavia_aperea_core_92_10
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## 1352                          cavia_aperea_core_95_10
## 1353                          cavia_aperea_core_96_10
## 1354                          cavia_aperea_core_97_10
## 1355                          cavia_aperea_core_98_10
## 1356                          cavia_aperea_core_99_10
## 1357                       cavia_porcellus_core_48_1c
## 1358                       cavia_porcellus_core_49_1c
## 1359                       cavia_porcellus_core_50_1d
## 1360                        cavia_porcellus_core_51_3
```

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## 1361                           cavia_porcellus_core_52_3a
## 1362                           cavia_porcellus_core_53_3a
## 1363                           cavia_porcellus_core_54_3a
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## 1365                           cavia_porcellus_core_56_3a
## 1366                           cavia_porcellus_core_57_3a
## 1367                           cavia_porcellus_core_58_3b
## 1368                           cavia_porcellus_core_59_3c
## 1369                           cavia_porcellus_core_60_3d
## 1370                           cavia_porcellus_core_61_3e
## 1371                           cavia_porcellus_core_62_3f
## 1372                            cavia_porcellus_core_63_3
## 1373                            cavia_porcellus_core_64_3
## 1374                            cavia_porcellus_core_65_3
## 1375                            cavia_porcellus_core_66_3
## 1376                            cavia_porcellus_core_67_3
## 1377                            cavia_porcellus_core_68_3
## 1378                            cavia_porcellus_core_69_3
## 1379                            cavia_porcellus_core_70_3
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## 1381                            cavia_porcellus_core_72_3
## 1382                            cavia_porcellus_core_73_3
## 1383                            cavia_porcellus_core_74_3
## 1384                            cavia_porcellus_core_75_3
## 1385                            cavia_porcellus_core_76_3
## 1386                            cavia_porcellus_core_77_3
## 1387                            cavia_porcellus_core_78_3
## 1388                            cavia_porcellus_core_79_3
## 1389                            cavia_porcellus_core_80_3
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## 1392                            cavia_porcellus_core_83_3
## 1393                            cavia_porcellus_core_84_3
## 1394                            cavia_porcellus_core_85_3
## 1395                            cavia_porcellus_core_86_3
## 1396                            cavia_porcellus_core_87_3
## 1397                            cavia_porcellus_core_88_3
## 1398                            cavia_porcellus_core_89_3
## 1399                            cavia_porcellus_core_90_4
## 1400                            cavia_porcellus_core_91_4
## 1401                            cavia_porcellus_core_92_4
## 1402                            cavia_porcellus_core_93_4
## 1403                            cavia_porcellus_core_94_4
## 1404                            cavia_porcellus_core_95_4
## 1405                            cavia_porcellus_core_96_4
## 1406                            cavia_porcellus_core_97_4
## 1407                            cavia_porcellus_core_98_4
## 1408                            cavia_porcellus_core_99_4
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## 1410                         cavia_porcellus_funcgen_91_4
## 1411                         cavia_porcellus_funcgen_92_4
## 1412                         cavia_porcellus_funcgen_93_4
## 1413                         cavia_porcellus_funcgen_94_4
## 1414                         cavia_porcellus_funcgen_95_4
```

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## 1415                        cavia_porcellus_funcgen_96_4
## 1416                        cavia_porcellus_funcgen_97_4
## 1417                        cavia_porcellus_funcgen_98_4
## 1418                        cavia_porcellus_funcgen_99_4
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## 1420                cavia_porcellus_otherfeatures_52_3a
## 1421                cavia_porcellus_otherfeatures_53_3a
## 1422                cavia_porcellus_otherfeatures_54_3a
## 1423                cavia_porcellus_otherfeatures_55_3a
## 1424                cavia_porcellus_otherfeatures_56_3a
## 1425                cavia_porcellus_otherfeatures_57_3a
## 1426                cavia_porcellus_otherfeatures_58_3b
## 1427                cavia_porcellus_otherfeatures_59_3c
## 1428                cavia_porcellus_otherfeatures_60_3d
## 1429                cavia_porcellus_otherfeatures_61_3e
## 1430                cavia_porcellus_otherfeatures_62_3f
## 1431                 cavia_porcellus_otherfeatures_63_3
## 1432                 cavia_porcellus_otherfeatures_64_3
## 1433                 cavia_porcellus_otherfeatures_65_3
## 1434                 cavia_porcellus_otherfeatures_66_3
## 1435                 cavia_porcellus_otherfeatures_67_3
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## 1442                 cavia_porcellus_otherfeatures_74_3
## 1443                 cavia_porcellus_otherfeatures_75_3
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## 1448                 cavia_porcellus_otherfeatures_80_3
## 1449                 cavia_porcellus_otherfeatures_81_3
## 1450                 cavia_porcellus_otherfeatures_82_3
## 1451                 cavia_porcellus_otherfeatures_83_3
## 1452                 cavia_porcellus_otherfeatures_84_3
## 1453                 cavia_porcellus_otherfeatures_85_3
## 1454                 cavia_porcellus_otherfeatures_86_3
## 1455                 cavia_porcellus_otherfeatures_87_3
## 1456                 cavia_porcellus_otherfeatures_88_3
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## 1463                 cavia_porcellus_otherfeatures_95_4
## 1464                 cavia_porcellus_otherfeatures_96_4
## 1465                 cavia_porcellus_otherfeatures_97_4
## 1466                 cavia_porcellus_otherfeatures_98_4
## 1467                 cavia_porcellus_otherfeatures_99_4
## 1468                        cavia_porcellus_rnaseq_90_4
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## 1469                           cavia_porcellus_rnaseq_91_4
## 1470                           cavia_porcellus_rnaseq_92_4
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## 1472                           cavia_porcellus_rnaseq_94_4
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## 1476                           cavia_porcellus_rnaseq_98_4
## 1477                           cavia_porcellus_rnaseq_99_4
## 1478                            cebus_capucinus_core_91_1
## 1479                            cebus_capucinus_core_92_1
## 1480                            cebus_capucinus_core_93_1
## 1481                            cebus_capucinus_core_94_1
## 1482                            cebus_capucinus_core_95_1
## 1483                            cebus_capucinus_core_96_1
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## 1489                         cebus_capucinus_funcgen_93_1
## 1490                         cebus_capucinus_funcgen_94_1
## 1491                         cebus_capucinus_funcgen_95_1
## 1492                         cebus_capucinus_funcgen_96_1
## 1493                         cebus_capucinus_funcgen_97_1
## 1494                         cebus_capucinus_funcgen_98_1
## 1495                         cebus_capucinus_funcgen_99_1
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## 1497                   cebus_capucinus_otherfeatures_92_1
## 1498                   cebus_capucinus_otherfeatures_93_1
## 1499                   cebus_capucinus_otherfeatures_94_1
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## 1501                   cebus_capucinus_otherfeatures_96_1
## 1502                   cebus_capucinus_otherfeatures_97_1
## 1503                   cebus_capucinus_otherfeatures_98_1
## 1504                   cebus_capucinus_otherfeatures_99_1
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## 1506                          cebus_capucinus_rnaseq_92_1
## 1507                          cebus_capucinus_rnaseq_93_1
## 1508                          cebus_capucinus_rnaseq_94_1
## 1509                          cebus_capucinus_rnaseq_95_1
## 1510                          cebus_capucinus_rnaseq_96_1
## 1511                          cebus_capucinus_rnaseq_97_1
## 1512                          cebus_capucinus_rnaseq_98_1
## 1513                          cebus_capucinus_rnaseq_99_1
## 1514                            cercocebus_atys_core_91_1
## 1515                            cercocebus_atys_core_92_1
## 1516                            cercocebus_atys_core_93_1
## 1517                            cercocebus_atys_core_94_1
## 1518                            cercocebus_atys_core_95_1
## 1519                            cercocebus_atys_core_96_1
## 1520                            cercocebus_atys_core_97_1
## 1521                            cercocebus_atys_core_98_1
## 1522                            cercocebus_atys_core_99_1
```

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## 1523                         cercocebus_atys_funcgen_91_1
## 1524                         cercocebus_atys_funcgen_92_1
## 1525                         cercocebus_atys_funcgen_93_1
## 1526                         cercocebus_atys_funcgen_94_1
## 1527                         cercocebus_atys_funcgen_95_1
## 1528                         cercocebus_atys_funcgen_96_1
## 1529                         cercocebus_atys_funcgen_97_1
## 1530                         cercocebus_atys_funcgen_98_1
## 1531                         cercocebus_atys_funcgen_99_1
## 1532                  cercocebus_atys_otherfeatures_91_1
## 1533                  cercocebus_atys_otherfeatures_92_1
## 1534                  cercocebus_atys_otherfeatures_93_1
## 1535                  cercocebus_atys_otherfeatures_94_1
## 1536                  cercocebus_atys_otherfeatures_95_1
## 1537                  cercocebus_atys_otherfeatures_96_1
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## 1539                  cercocebus_atys_otherfeatures_98_1
## 1540                  cercocebus_atys_otherfeatures_99_1
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## 1542                          cercocebus_atys_rnaseq_92_1
## 1543                          cercocebus_atys_rnaseq_93_1
## 1544                          cercocebus_atys_rnaseq_94_1
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## 1548                          cercocebus_atys_rnaseq_98_1
## 1549                          cercocebus_atys_rnaseq_99_1
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## 1551                    chelonoidis_abingdonii_core_97_1
## 1552                    chelonoidis_abingdonii_core_98_1
## 1553                    chelonoidis_abingdonii_core_99_1
## 1554                  chelonoidis_abingdonii_rnaseq_96_1
## 1555                  chelonoidis_abingdonii_rnaseq_97_1
## 1556                  chelonoidis_abingdonii_rnaseq_98_1
## 1557                  chelonoidis_abingdonii_rnaseq_99_1
## 1558                      chinchilla_lanigera_core_90_1
## 1559                      chinchilla_lanigera_core_91_1
## 1560                      chinchilla_lanigera_core_92_1
## 1561                      chinchilla_lanigera_core_93_1
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## 1564                      chinchilla_lanigera_core_96_1
## 1565                      chinchilla_lanigera_core_97_1
## 1566                      chinchilla_lanigera_core_98_1
## 1567                      chinchilla_lanigera_core_99_1
## 1568            chinchilla_lanigera_otherfeatures_90_1
## 1569            chinchilla_lanigera_otherfeatures_91_1
## 1570            chinchilla_lanigera_otherfeatures_92_1
## 1571            chinchilla_lanigera_otherfeatures_93_1
## 1572            chinchilla_lanigera_otherfeatures_94_1
## 1573            chinchilla_lanigera_otherfeatures_95_1
## 1574            chinchilla_lanigera_otherfeatures_96_1
## 1575            chinchilla_lanigera_otherfeatures_97_1
## 1576            chinchilla_lanigera_otherfeatures_98_1
```

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## 1577                     chinchilla_lanigera_otherfeatures_99_1
## 1578                         chinchilla_lanigera_rnaseq_90_1
## 1579                         chinchilla_lanigera_rnaseq_91_1
## 1580                         chinchilla_lanigera_rnaseq_92_1
## 1581                         chinchilla_lanigera_rnaseq_93_1
## 1582                         chinchilla_lanigera_rnaseq_94_1
## 1583                         chinchilla_lanigera_rnaseq_95_1
## 1584                         chinchilla_lanigera_rnaseq_96_1
## 1585                         chinchilla_lanigera_rnaseq_97_1
## 1586                         chinchilla_lanigera_rnaseq_98_1
## 1587                         chinchilla_lanigera_rnaseq_99_1
## 1588                           chlorocebus_sabaeus_core_77_1
## 1589                           chlorocebus_sabaeus_core_78_1
## 1590                           chlorocebus_sabaeus_core_79_1
## 1591                           chlorocebus_sabaeus_core_80_1
## 1592                           chlorocebus_sabaeus_core_81_1
## 1593                           chlorocebus_sabaeus_core_82_1
## 1594                           chlorocebus_sabaeus_core_83_1
## 1595                           chlorocebus_sabaeus_core_84_1
## 1596                           chlorocebus_sabaeus_core_85_1
## 1597                           chlorocebus_sabaeus_core_86_1
## 1598                           chlorocebus_sabaeus_core_87_1
## 1599                           chlorocebus_sabaeus_core_88_1
## 1600                           chlorocebus_sabaeus_core_89_1
## 1601                           chlorocebus_sabaeus_core_90_1
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## 1604                           chlorocebus_sabaeus_core_93_1
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## 1609                           chlorocebus_sabaeus_core_98_1
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## 1620                 chlorocebus_sabaeus_otherfeatures_86_1
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## 1627                 chlorocebus_sabaeus_otherfeatures_93_1
## 1628                 chlorocebus_sabaeus_otherfeatures_94_1
## 1629                 chlorocebus_sabaeus_otherfeatures_95_1
## 1630                 chlorocebus_sabaeus_otherfeatures_96_1
```

```
## 1631             chlorocebus_sabaeus_otherfeatures_97_1
## 1632             chlorocebus_sabaeus_otherfeatures_98_1
## 1633             chlorocebus_sabaeus_otherfeatures_99_1
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## 1635                   chlorocebus_sabaeus_rnaseq_78_1
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## 1644                   chlorocebus_sabaeus_rnaseq_87_1
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## 1646                   chlorocebus_sabaeus_rnaseq_89_1
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## 1649                   chlorocebus_sabaeus_rnaseq_92_1
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## 1653                   chlorocebus_sabaeus_rnaseq_96_1
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## 1655                   chlorocebus_sabaeus_rnaseq_98_1
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## 1664                  choloepus_hoffmanni_core_56_1a
## 1665                  choloepus_hoffmanni_core_57_1a
## 1666                  choloepus_hoffmanni_core_58_1b
## 1667                  choloepus_hoffmanni_core_59_1c
## 1668                  choloepus_hoffmanni_core_60_1d
## 1669                  choloepus_hoffmanni_core_61_1e
## 1670                  choloepus_hoffmanni_core_62_1f
## 1671                   choloepus_hoffmanni_core_63_1
## 1672                   choloepus_hoffmanni_core_64_1
## 1673                   choloepus_hoffmanni_core_65_1
## 1674                   choloepus_hoffmanni_core_66_1
## 1675                   choloepus_hoffmanni_core_67_1
## 1676                   choloepus_hoffmanni_core_68_1
## 1677                   choloepus_hoffmanni_core_69_1
## 1678                   choloepus_hoffmanni_core_70_1
## 1679                   choloepus_hoffmanni_core_71_1
## 1680                   choloepus_hoffmanni_core_72_1
## 1681                   choloepus_hoffmanni_core_73_1
## 1682                   choloepus_hoffmanni_core_74_1
## 1683                   choloepus_hoffmanni_core_75_1
## 1684                   choloepus_hoffmanni_core_76_1
```

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## 1685                         choloepus_hoffmanni_core_77_1
## 1686                         choloepus_hoffmanni_core_78_1
## 1687                         choloepus_hoffmanni_core_79_1
## 1688                         choloepus_hoffmanni_core_80_1
## 1689                         choloepus_hoffmanni_core_81_1
## 1690                         choloepus_hoffmanni_core_82_1
## 1691                         choloepus_hoffmanni_core_83_1
## 1692                         choloepus_hoffmanni_core_84_1
## 1693                         choloepus_hoffmanni_core_85_1
## 1694                         choloepus_hoffmanni_core_86_1
## 1695                         choloepus_hoffmanni_core_87_1
## 1696                         choloepus_hoffmanni_core_88_1
## 1697                         choloepus_hoffmanni_core_89_1
## 1698                         choloepus_hoffmanni_core_90_1
## 1699                         choloepus_hoffmanni_core_91_1
## 1700                         choloepus_hoffmanni_core_92_1
## 1701                         choloepus_hoffmanni_core_93_1
## 1702                         choloepus_hoffmanni_core_94_1
## 1703                         choloepus_hoffmanni_core_95_1
## 1704                         choloepus_hoffmanni_core_96_1
## 1705                         choloepus_hoffmanni_core_97_1
## 1706                         choloepus_hoffmanni_core_98_1
## 1707                         choloepus_hoffmanni_core_99_1
## 1708              chrysemys_picta_bellii_core_95_303
## 1709              chrysemys_picta_bellii_core_96_303
## 1710              chrysemys_picta_bellii_core_97_303
## 1711              chrysemys_picta_bellii_core_98_303
## 1712              chrysemys_picta_bellii_core_99_303
## 1713      chrysemys_picta_bellii_otherfeatures_95_303
## 1714      chrysemys_picta_bellii_otherfeatures_96_303
## 1715      chrysemys_picta_bellii_otherfeatures_97_303
## 1716      chrysemys_picta_bellii_otherfeatures_98_303
## 1717      chrysemys_picta_bellii_otherfeatures_99_303
## 1718            chrysemys_picta_bellii_rnaseq_95_303
## 1719            chrysemys_picta_bellii_rnaseq_96_303
## 1720            chrysemys_picta_bellii_rnaseq_97_303
## 1721            chrysemys_picta_bellii_rnaseq_98_303
## 1722            chrysemys_picta_bellii_rnaseq_99_303
## 1723                    chrysolophus_pictus_core_99_1
## 1724                  chrysolophus_pictus_rnaseq_99_1
## 1725                      ciona_intestinalis_core_48_2h
## 1726                      ciona_intestinalis_core_49_2i
## 1727                      ciona_intestinalis_core_50_2j
## 1728                      ciona_intestinalis_core_51_2k
## 1729                      ciona_intestinalis_core_52_2l
## 1730                      ciona_intestinalis_core_53_2l
## 1731                      ciona_intestinalis_core_54_2l
## 1732                      ciona_intestinalis_core_55_2m
## 1733                      ciona_intestinalis_core_56_2m
## 1734                      ciona_intestinalis_core_57_2m
## 1735                      ciona_intestinalis_core_58_2n
## 1736                      ciona_intestinalis_core_59_2o
## 1737                      ciona_intestinalis_core_60_2p
## 1738                      ciona_intestinalis_core_61_2q
```

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## 1739                        ciona_intestinalis_core_62_2r
## 1740                         ciona_intestinalis_core_63_2
## 1741                         ciona_intestinalis_core_64_2
## 1742                         ciona_intestinalis_core_65_2
## 1743                         ciona_intestinalis_core_66_3
## 1744                         ciona_intestinalis_core_67_3
## 1745                         ciona_intestinalis_core_68_3
## 1746                         ciona_intestinalis_core_69_3
## 1747                         ciona_intestinalis_core_70_3
## 1748                         ciona_intestinalis_core_71_3
## 1749                         ciona_intestinalis_core_72_3
## 1750                         ciona_intestinalis_core_73_3
## 1751                         ciona_intestinalis_core_74_3
## 1752                         ciona_intestinalis_core_75_3
## 1753                         ciona_intestinalis_core_76_3
## 1754                         ciona_intestinalis_core_77_3
## 1755                         ciona_intestinalis_core_78_3
## 1756                         ciona_intestinalis_core_79_3
## 1757                         ciona_intestinalis_core_80_3
## 1758                         ciona_intestinalis_core_81_3
## 1759                         ciona_intestinalis_core_82_3
## 1760                         ciona_intestinalis_core_83_3
## 1761                         ciona_intestinalis_core_84_3
## 1762                         ciona_intestinalis_core_85_3
## 1763                         ciona_intestinalis_core_86_3
## 1764                         ciona_intestinalis_core_87_3
## 1765                         ciona_intestinalis_core_88_3
## 1766                         ciona_intestinalis_core_89_3
## 1767                         ciona_intestinalis_core_90_3
## 1768                         ciona_intestinalis_core_91_3
## 1769                         ciona_intestinalis_core_92_3
## 1770                         ciona_intestinalis_core_93_3
## 1771                         ciona_intestinalis_core_94_3
## 1772                         ciona_intestinalis_core_95_3
## 1773                         ciona_intestinalis_core_96_3
## 1774                         ciona_intestinalis_core_97_3
## 1775                         ciona_intestinalis_core_98_3
## 1776                         ciona_intestinalis_core_99_3
## 1777                    ciona_intestinalis_funcgen_55_2m
## 1778                    ciona_intestinalis_funcgen_56_2m
## 1779                    ciona_intestinalis_funcgen_57_2m
## 1780                    ciona_intestinalis_funcgen_58_2n
## 1781                    ciona_intestinalis_funcgen_59_2o
## 1782                    ciona_intestinalis_funcgen_60_2p
## 1783                    ciona_intestinalis_funcgen_61_2q
## 1784                    ciona_intestinalis_funcgen_62_2r
## 1785                     ciona_intestinalis_funcgen_63_2
## 1786                     ciona_intestinalis_funcgen_64_2
## 1787                     ciona_intestinalis_funcgen_65_2
## 1788                     ciona_intestinalis_funcgen_66_3
## 1789                     ciona_intestinalis_funcgen_67_3
## 1790                     ciona_intestinalis_funcgen_68_3
## 1791                     ciona_intestinalis_funcgen_69_3
## 1792                     ciona_intestinalis_funcgen_70_3
```

```
## 1793                        ciona_intestinalis_funcgen_71_3
## 1794                        ciona_intestinalis_funcgen_72_3
## 1795                        ciona_intestinalis_funcgen_73_3
## 1796                        ciona_intestinalis_funcgen_74_3
## 1797                        ciona_intestinalis_funcgen_75_3
## 1798                        ciona_intestinalis_funcgen_76_3
## 1799                        ciona_intestinalis_funcgen_77_3
## 1800                        ciona_intestinalis_funcgen_78_3
## 1801                        ciona_intestinalis_funcgen_79_3
## 1802                        ciona_intestinalis_funcgen_80_3
## 1803                        ciona_intestinalis_funcgen_81_3
## 1804                        ciona_intestinalis_funcgen_82_3
## 1805                        ciona_intestinalis_funcgen_83_3
## 1806                        ciona_intestinalis_funcgen_84_3
## 1807                        ciona_intestinalis_funcgen_85_3
## 1808                        ciona_intestinalis_funcgen_86_3
## 1809                        ciona_intestinalis_funcgen_87_3
## 1810                        ciona_intestinalis_funcgen_88_3
## 1811                        ciona_intestinalis_funcgen_89_3
## 1812                        ciona_intestinalis_funcgen_90_3
## 1813                        ciona_intestinalis_funcgen_91_3
## 1814                        ciona_intestinalis_funcgen_92_3
## 1815                        ciona_intestinalis_funcgen_93_3
## 1816                        ciona_intestinalis_funcgen_94_3
## 1817                        ciona_intestinalis_funcgen_95_3
## 1818                        ciona_intestinalis_funcgen_96_3
## 1819                        ciona_intestinalis_funcgen_97_3
## 1820                        ciona_intestinalis_funcgen_98_3
## 1821                        ciona_intestinalis_funcgen_99_3
## 1822         ciona_intestinalis_otherfeatures_48_2h
## 1823         ciona_intestinalis_otherfeatures_49_2i
## 1824         ciona_intestinalis_otherfeatures_50_2j
## 1825         ciona_intestinalis_otherfeatures_51_2k
## 1826         ciona_intestinalis_otherfeatures_52_2l
## 1827         ciona_intestinalis_otherfeatures_53_2l
## 1828         ciona_intestinalis_otherfeatures_54_2l
## 1829         ciona_intestinalis_otherfeatures_55_2m
## 1830         ciona_intestinalis_otherfeatures_56_2m
## 1831         ciona_intestinalis_otherfeatures_57_2m
## 1832         ciona_intestinalis_otherfeatures_58_2n
## 1833         ciona_intestinalis_otherfeatures_59_2o
## 1834         ciona_intestinalis_otherfeatures_60_2p
## 1835         ciona_intestinalis_otherfeatures_61_2q
## 1836         ciona_intestinalis_otherfeatures_62_2r
## 1837          ciona_intestinalis_otherfeatures_63_2
## 1838          ciona_intestinalis_otherfeatures_64_2
## 1839          ciona_intestinalis_otherfeatures_65_2
## 1840          ciona_intestinalis_otherfeatures_66_3
## 1841          ciona_intestinalis_otherfeatures_67_3
## 1842          ciona_intestinalis_otherfeatures_68_3
## 1843          ciona_intestinalis_otherfeatures_69_3
## 1844          ciona_intestinalis_otherfeatures_70_3
## 1845          ciona_intestinalis_otherfeatures_71_3
## 1846          ciona_intestinalis_otherfeatures_72_3
```

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## 1847                    ciona_intestinalis_otherfeatures_73_3
## 1848                    ciona_intestinalis_otherfeatures_74_3
## 1849                    ciona_intestinalis_otherfeatures_75_3
## 1850                    ciona_intestinalis_otherfeatures_76_3
## 1851                    ciona_intestinalis_otherfeatures_77_3
## 1852                    ciona_intestinalis_otherfeatures_78_3
## 1853                    ciona_intestinalis_otherfeatures_79_3
## 1854                    ciona_intestinalis_otherfeatures_80_3
## 1855                    ciona_intestinalis_otherfeatures_81_3
## 1856                    ciona_intestinalis_otherfeatures_82_3
## 1857                    ciona_intestinalis_otherfeatures_83_3
## 1858                    ciona_intestinalis_otherfeatures_84_3
## 1859                    ciona_intestinalis_otherfeatures_85_3
## 1860                    ciona_intestinalis_otherfeatures_86_3
## 1861                    ciona_intestinalis_otherfeatures_87_3
## 1862                    ciona_intestinalis_otherfeatures_88_3
## 1863                    ciona_intestinalis_otherfeatures_89_3
## 1864                    ciona_intestinalis_otherfeatures_90_3
## 1865                    ciona_intestinalis_otherfeatures_91_3
## 1866                    ciona_intestinalis_otherfeatures_92_3
## 1867                    ciona_intestinalis_otherfeatures_93_3
## 1868                    ciona_intestinalis_otherfeatures_94_3
## 1869                    ciona_intestinalis_otherfeatures_95_3
## 1870                    ciona_intestinalis_otherfeatures_96_3
## 1871                    ciona_intestinalis_otherfeatures_97_3
## 1872                    ciona_intestinalis_otherfeatures_98_3
## 1873                    ciona_intestinalis_otherfeatures_99_3
## 1874                            ciona_savignyi_core_48_2f
## 1875                            ciona_savignyi_core_49_2f
## 1876                            ciona_savignyi_core_50_2g
## 1877                            ciona_savignyi_core_51_2g
## 1878                            ciona_savignyi_core_52_2h
## 1879                            ciona_savignyi_core_53_2h
## 1880                            ciona_savignyi_core_54_2h
## 1881                            ciona_savignyi_core_55_2h
## 1882                            ciona_savignyi_core_56_2h
## 1883                            ciona_savignyi_core_57_2h
## 1884                            ciona_savignyi_core_58_2i
## 1885                            ciona_savignyi_core_59_2j
## 1886                            ciona_savignyi_core_60_2k
## 1887                            ciona_savignyi_core_61_2l
## 1888                            ciona_savignyi_core_62_2m
## 1889                             ciona_savignyi_core_63_2
## 1890                             ciona_savignyi_core_64_2
## 1891                             ciona_savignyi_core_65_2
## 1892                             ciona_savignyi_core_66_2
## 1893                             ciona_savignyi_core_67_2
## 1894                             ciona_savignyi_core_68_2
## 1895                             ciona_savignyi_core_69_2
## 1896                             ciona_savignyi_core_70_2
## 1897                             ciona_savignyi_core_71_2
## 1898                             ciona_savignyi_core_72_2
## 1899                             ciona_savignyi_core_73_2
## 1900                             ciona_savignyi_core_74_2
```

```
## 1901                        ciona_savignyi_core_75_2
## 1902                        ciona_savignyi_core_76_2
## 1903                        ciona_savignyi_core_77_2
## 1904                        ciona_savignyi_core_78_2
## 1905                        ciona_savignyi_core_79_2
## 1906                        ciona_savignyi_core_80_2
## 1907                        ciona_savignyi_core_81_2
## 1908                        ciona_savignyi_core_82_2
## 1909                        ciona_savignyi_core_83_2
## 1910                        ciona_savignyi_core_84_2
## 1911                        ciona_savignyi_core_85_2
## 1912                        ciona_savignyi_core_86_2
## 1913                        ciona_savignyi_core_87_2
## 1914                        ciona_savignyi_core_88_2
## 1915                        ciona_savignyi_core_89_2
## 1916                        ciona_savignyi_core_90_2
## 1917                        ciona_savignyi_core_91_2
## 1918                        ciona_savignyi_core_92_2
## 1919                        ciona_savignyi_core_93_2
## 1920                        ciona_savignyi_core_94_2
## 1921                        ciona_savignyi_core_95_2
## 1922                        ciona_savignyi_core_96_2
## 1923                        ciona_savignyi_core_97_2
## 1924                        ciona_savignyi_core_98_2
## 1925                        ciona_savignyi_core_99_2
## 1926         ciona_savignyi_otherfeatures_48_2f
## 1927         ciona_savignyi_otherfeatures_49_2f
## 1928         ciona_savignyi_otherfeatures_50_2g
## 1929         ciona_savignyi_otherfeatures_51_2g
## 1930         ciona_savignyi_otherfeatures_52_2h
## 1931         ciona_savignyi_otherfeatures_53_2h
## 1932         ciona_savignyi_otherfeatures_54_2h
## 1933         ciona_savignyi_otherfeatures_55_2h
## 1934         ciona_savignyi_otherfeatures_56_2h
## 1935         ciona_savignyi_otherfeatures_57_2h
## 1936         ciona_savignyi_otherfeatures_58_2i
## 1937         ciona_savignyi_otherfeatures_59_2j
## 1938         ciona_savignyi_otherfeatures_60_2k
## 1939         ciona_savignyi_otherfeatures_61_2l
## 1940         ciona_savignyi_otherfeatures_62_2m
## 1941          ciona_savignyi_otherfeatures_63_2
## 1942          ciona_savignyi_otherfeatures_64_2
## 1943          ciona_savignyi_otherfeatures_65_2
## 1944          ciona_savignyi_otherfeatures_66_2
## 1945          ciona_savignyi_otherfeatures_67_2
## 1946          ciona_savignyi_otherfeatures_68_2
## 1947          ciona_savignyi_otherfeatures_69_2
## 1948          ciona_savignyi_otherfeatures_70_2
## 1949          ciona_savignyi_otherfeatures_71_2
## 1950          ciona_savignyi_otherfeatures_72_2
## 1951          ciona_savignyi_otherfeatures_73_2
## 1952          ciona_savignyi_otherfeatures_74_2
## 1953          ciona_savignyi_otherfeatures_75_2
## 1954          ciona_savignyi_otherfeatures_76_2
```

```
## 1955                  ciona_savignyi_otherfeatures_77_2
## 1956                  ciona_savignyi_otherfeatures_78_2
## 1957                  ciona_savignyi_otherfeatures_79_2
## 1958                  ciona_savignyi_otherfeatures_80_2
## 1959                  ciona_savignyi_otherfeatures_81_2
## 1960                  ciona_savignyi_otherfeatures_82_2
## 1961                  ciona_savignyi_otherfeatures_83_2
## 1962                  ciona_savignyi_otherfeatures_84_2
## 1963                  ciona_savignyi_otherfeatures_85_2
## 1964                  ciona_savignyi_otherfeatures_86_2
## 1965                  ciona_savignyi_otherfeatures_87_2
## 1966                  ciona_savignyi_otherfeatures_88_2
## 1967                  ciona_savignyi_otherfeatures_89_2
## 1968                  ciona_savignyi_otherfeatures_90_2
## 1969                  ciona_savignyi_otherfeatures_91_2
## 1970                  ciona_savignyi_otherfeatures_92_2
## 1971                  ciona_savignyi_otherfeatures_93_2
## 1972                  ciona_savignyi_otherfeatures_94_2
## 1973                  ciona_savignyi_otherfeatures_95_2
## 1974                  ciona_savignyi_otherfeatures_96_2
## 1975                  ciona_savignyi_otherfeatures_97_2
## 1976                  ciona_savignyi_otherfeatures_98_2
## 1977                  ciona_savignyi_otherfeatures_99_2
## 1978                     clupea_harengus_core_98_202
## 1979                     clupea_harengus_core_99_202
## 1980                   clupea_harengus_rnaseq_98_202
## 1981                   clupea_harengus_rnaseq_99_202
## 1982         colobus_angolensis_palliatus_core_91_1
## 1983         colobus_angolensis_palliatus_core_92_1
## 1984         colobus_angolensis_palliatus_core_93_1
## 1985         colobus_angolensis_palliatus_core_94_1
## 1986         colobus_angolensis_palliatus_core_95_1
## 1987         colobus_angolensis_palliatus_core_96_1
## 1988         colobus_angolensis_palliatus_core_97_1
## 1989         colobus_angolensis_palliatus_core_98_1
## 1990         colobus_angolensis_palliatus_core_99_1
## 1991      colobus_angolensis_palliatus_funcgen_91_1
## 1992      colobus_angolensis_palliatus_funcgen_92_1
## 1993      colobus_angolensis_palliatus_funcgen_93_1
## 1994      colobus_angolensis_palliatus_funcgen_94_1
## 1995      colobus_angolensis_palliatus_funcgen_95_1
## 1996      colobus_angolensis_palliatus_funcgen_96_1
## 1997      colobus_angolensis_palliatus_funcgen_97_1
## 1998      colobus_angolensis_palliatus_funcgen_98_1
## 1999      colobus_angolensis_palliatus_funcgen_99_1
## 2000 colobus_angolensis_palliatus_otherfeatures_91_1
## 2001 colobus_angolensis_palliatus_otherfeatures_92_1
## 2002 colobus_angolensis_palliatus_otherfeatures_93_1
## 2003 colobus_angolensis_palliatus_otherfeatures_94_1
## 2004 colobus_angolensis_palliatus_otherfeatures_95_1
## 2005 colobus_angolensis_palliatus_otherfeatures_96_1
## 2006 colobus_angolensis_palliatus_otherfeatures_97_1
## 2007 colobus_angolensis_palliatus_otherfeatures_98_1
## 2008 colobus_angolensis_palliatus_otherfeatures_99_1
```

```
## 2009                          cottoperca_gobio_core_98_31
## 2010                          cottoperca_gobio_core_99_31
## 2011                  cottoperca_gobio_otherfeatures_98_31
## 2012                  cottoperca_gobio_otherfeatures_99_31
## 2013                        cottoperca_gobio_rnaseq_98_31
## 2014                        cottoperca_gobio_rnaseq_99_31
## 2015                       coturnix_japonica_core_96_2
## 2016                       coturnix_japonica_core_97_2
## 2017                       coturnix_japonica_core_98_2
## 2018                       coturnix_japonica_core_99_2
## 2019              coturnix_japonica_otherfeatures_96_2
## 2020              coturnix_japonica_otherfeatures_97_2
## 2021              coturnix_japonica_otherfeatures_98_2
## 2022              coturnix_japonica_otherfeatures_99_2
## 2023                     coturnix_japonica_rnaseq_96_2
## 2024                     coturnix_japonica_rnaseq_97_2
## 2025                     coturnix_japonica_rnaseq_98_2
## 2026                     coturnix_japonica_rnaseq_99_2
## 2027          cricetulus_griseus_chok1gshd_core_90_1
## 2028          cricetulus_griseus_chok1gshd_core_91_1
## 2029          cricetulus_griseus_chok1gshd_core_92_1
## 2030          cricetulus_griseus_chok1gshd_core_93_1
## 2031          cricetulus_griseus_chok1gshd_core_94_1
## 2032          cricetulus_griseus_chok1gshd_core_95_1
## 2033          cricetulus_griseus_chok1gshd_core_96_1
## 2034          cricetulus_griseus_chok1gshd_core_97_1
## 2035          cricetulus_griseus_chok1gshd_core_98_1
## 2036          cricetulus_griseus_chok1gshd_core_99_1
## 2037       cricetulus_griseus_chok1gshd_funcgen_90_1
## 2038       cricetulus_griseus_chok1gshd_funcgen_91_1
## 2039       cricetulus_griseus_chok1gshd_funcgen_92_1
## 2040       cricetulus_griseus_chok1gshd_funcgen_93_1
## 2041       cricetulus_griseus_chok1gshd_funcgen_94_1
## 2042       cricetulus_griseus_chok1gshd_funcgen_95_1
## 2043       cricetulus_griseus_chok1gshd_funcgen_96_1
## 2044       cricetulus_griseus_chok1gshd_funcgen_97_1
## 2045       cricetulus_griseus_chok1gshd_funcgen_98_1
## 2046       cricetulus_griseus_chok1gshd_funcgen_99_1
## 2047  cricetulus_griseus_chok1gshd_otherfeatures_91_1
## 2048  cricetulus_griseus_chok1gshd_otherfeatures_92_1
## 2049  cricetulus_griseus_chok1gshd_otherfeatures_93_1
## 2050  cricetulus_griseus_chok1gshd_otherfeatures_94_1
## 2051  cricetulus_griseus_chok1gshd_otherfeatures_95_1
## 2052  cricetulus_griseus_chok1gshd_otherfeatures_96_1
## 2053  cricetulus_griseus_chok1gshd_otherfeatures_97_1
## 2054  cricetulus_griseus_chok1gshd_otherfeatures_98_1
## 2055  cricetulus_griseus_chok1gshd_otherfeatures_99_1
## 2056          cricetulus_griseus_chok1gshd_rnaseq_90_1
## 2057          cricetulus_griseus_chok1gshd_rnaseq_91_1
## 2058          cricetulus_griseus_chok1gshd_rnaseq_92_1
## 2059          cricetulus_griseus_chok1gshd_rnaseq_93_1
## 2060          cricetulus_griseus_chok1gshd_rnaseq_94_1
## 2061          cricetulus_griseus_chok1gshd_rnaseq_95_1
## 2062          cricetulus_griseus_chok1gshd_rnaseq_96_1
```

```
## 2063            cricetulus_griseus_chok1gshd_rnaseq_97_1
## 2064            cricetulus_griseus_chok1gshd_rnaseq_98_1
## 2065            cricetulus_griseus_chok1gshd_rnaseq_99_1
## 2066                cricetulus_griseus_crigri_core_90_1
## 2067                cricetulus_griseus_crigri_core_91_1
## 2068                cricetulus_griseus_crigri_core_92_1
## 2069                cricetulus_griseus_crigri_core_93_1
## 2070                cricetulus_griseus_crigri_core_94_1
## 2071                cricetulus_griseus_crigri_core_95_1
## 2072                cricetulus_griseus_crigri_core_96_1
## 2073                cricetulus_griseus_crigri_core_97_1
## 2074                cricetulus_griseus_crigri_core_98_1
## 2075                cricetulus_griseus_crigri_core_99_1
## 2076             cricetulus_griseus_crigri_funcgen_90_1
## 2077             cricetulus_griseus_crigri_funcgen_91_1
## 2078             cricetulus_griseus_crigri_funcgen_92_1
## 2079             cricetulus_griseus_crigri_funcgen_93_1
## 2080             cricetulus_griseus_crigri_funcgen_94_1
## 2081             cricetulus_griseus_crigri_funcgen_95_1
## 2082             cricetulus_griseus_crigri_funcgen_96_1
## 2083             cricetulus_griseus_crigri_funcgen_97_1
## 2084             cricetulus_griseus_crigri_funcgen_98_1
## 2085             cricetulus_griseus_crigri_funcgen_99_1
## 2086       cricetulus_griseus_crigri_otherfeatures_90_1
## 2087       cricetulus_griseus_crigri_otherfeatures_91_1
## 2088       cricetulus_griseus_crigri_otherfeatures_92_1
## 2089       cricetulus_griseus_crigri_otherfeatures_93_1
## 2090       cricetulus_griseus_crigri_otherfeatures_94_1
## 2091       cricetulus_griseus_crigri_otherfeatures_95_1
## 2092       cricetulus_griseus_crigri_otherfeatures_96_1
## 2093       cricetulus_griseus_crigri_otherfeatures_97_1
## 2094       cricetulus_griseus_crigri_otherfeatures_98_1
## 2095       cricetulus_griseus_crigri_otherfeatures_99_1
## 2096              cricetulus_griseus_crigri_rnaseq_90_1
## 2097              cricetulus_griseus_crigri_rnaseq_91_1
## 2098              cricetulus_griseus_crigri_rnaseq_92_1
## 2099              cricetulus_griseus_crigri_rnaseq_93_1
## 2100              cricetulus_griseus_crigri_rnaseq_94_1
## 2101              cricetulus_griseus_crigri_rnaseq_95_1
## 2102              cricetulus_griseus_crigri_rnaseq_96_1
## 2103              cricetulus_griseus_crigri_rnaseq_97_1
## 2104              cricetulus_griseus_crigri_rnaseq_98_1
## 2105              cricetulus_griseus_crigri_rnaseq_99_1
## 2106                 cricetulus_griseus_picr_core_96_1
## 2107                 cricetulus_griseus_picr_core_97_1
## 2108                 cricetulus_griseus_picr_core_98_1
## 2109                 cricetulus_griseus_picr_core_99_1
## 2110              cricetulus_griseus_picr_funcgen_96_1
## 2111              cricetulus_griseus_picr_funcgen_97_1
## 2112              cricetulus_griseus_picr_funcgen_98_1
## 2113              cricetulus_griseus_picr_funcgen_99_1
## 2114               cricetulus_griseus_picr_rnaseq_96_1
## 2115               cricetulus_griseus_picr_rnaseq_97_1
## 2116               cricetulus_griseus_picr_rnaseq_98_1
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## 2117          cricetulus_griseus_picr_rnaseq_99_1
## 2118             crocodylus_porosus_core_96_1
## 2119             crocodylus_porosus_core_97_1
## 2120             crocodylus_porosus_core_98_1
## 2121             crocodylus_porosus_core_99_1
## 2122     crocodylus_porosus_otherfeatures_96_1
## 2123     crocodylus_porosus_otherfeatures_97_1
## 2124     crocodylus_porosus_otherfeatures_98_1
## 2125     crocodylus_porosus_otherfeatures_99_1
## 2126           crocodylus_porosus_rnaseq_96_1
## 2127           crocodylus_porosus_rnaseq_97_1
## 2128           crocodylus_porosus_rnaseq_98_1
## 2129           crocodylus_porosus_rnaseq_99_1
## 2130             cyanistes_caeruleus_core_96_2
## 2131             cyanistes_caeruleus_core_97_2
## 2132             cyanistes_caeruleus_core_98_2
## 2133             cyanistes_caeruleus_core_99_2
## 2134     cyanistes_caeruleus_otherfeatures_96_2
## 2135     cyanistes_caeruleus_otherfeatures_97_2
## 2136     cyanistes_caeruleus_otherfeatures_98_2
## 2137     cyanistes_caeruleus_otherfeatures_99_2
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## 2139           cyanistes_caeruleus_rnaseq_97_2
## 2140           cyanistes_caeruleus_rnaseq_98_2
## 2141           cyanistes_caeruleus_rnaseq_99_2
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## 2143           cynoglossus_semilaevis_core_95_1
## 2144           cynoglossus_semilaevis_core_96_1
## 2145           cynoglossus_semilaevis_core_97_1
## 2146           cynoglossus_semilaevis_core_98_1
## 2147           cynoglossus_semilaevis_core_99_1
## 2148   cynoglossus_semilaevis_otherfeatures_94_1
## 2149   cynoglossus_semilaevis_otherfeatures_95_1
## 2150   cynoglossus_semilaevis_otherfeatures_96_1
## 2151   cynoglossus_semilaevis_otherfeatures_97_1
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## 2153   cynoglossus_semilaevis_otherfeatures_99_1
## 2154         cynoglossus_semilaevis_rnaseq_94_1
## 2155         cynoglossus_semilaevis_rnaseq_95_1
## 2156         cynoglossus_semilaevis_rnaseq_96_1
## 2157         cynoglossus_semilaevis_rnaseq_97_1
## 2158         cynoglossus_semilaevis_rnaseq_98_1
## 2159         cynoglossus_semilaevis_rnaseq_99_1
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## 2161            cyprinodon_variegatus_core_95_1
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## 2164            cyprinodon_variegatus_core_98_1
## 2165            cyprinodon_variegatus_core_99_1
## 2166         cyprinodon_variegatus_funcgen_96_1
## 2167         cyprinodon_variegatus_funcgen_97_1
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## 2169         cyprinodon_variegatus_funcgen_99_1
## 2170     cyprinodon_variegatus_otherfeatures_94_1
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## 2172                 cyprinodon_variegatus_otherfeatures_96_1
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## 2183           cyprinus_carpio_germanmirror_rnaseq_99_10
## 2184                 cyprinus_carpio_hebaored_core_99_10
## 2185               cyprinus_carpio_hebaored_rnaseq_99_10
## 2186                 cyprinus_carpio_huanghe_core_99_20
## 2187               cyprinus_carpio_huanghe_rnaseq_99_20
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## 2189                               danio_rerio_core_49_7c
## 2190                               danio_rerio_core_50_7d
## 2191                               danio_rerio_core_51_7d
## 2192                               danio_rerio_core_52_7e
## 2193                               danio_rerio_core_53_7e
## 2194                                danio_rerio_core_54_8
## 2195                               danio_rerio_core_55_8a
## 2196                               danio_rerio_core_56_8b
## 2197                               danio_rerio_core_57_8c
## 2198                               danio_rerio_core_58_8d
## 2199                               danio_rerio_core_59_8e
## 2200                                danio_rerio_core_60_9
## 2201                               danio_rerio_core_61_9a
## 2202                               danio_rerio_core_62_9b
## 2203                                danio_rerio_core_63_9
## 2204                                danio_rerio_core_64_9
## 2205                                danio_rerio_core_65_9
## 2206                                danio_rerio_core_66_9
## 2207                                danio_rerio_core_67_9
## 2208                                danio_rerio_core_68_9
## 2209                                danio_rerio_core_69_9
## 2210                                danio_rerio_core_70_9
## 2211                                danio_rerio_core_71_9
## 2212                                danio_rerio_core_72_9
## 2213                                danio_rerio_core_73_9
## 2214                                danio_rerio_core_74_9
## 2215                                danio_rerio_core_75_9
## 2216                                danio_rerio_core_76_9
## 2217                                danio_rerio_core_77_9
## 2218                                danio_rerio_core_78_9
## 2219                                danio_rerio_core_79_9
## 2220                               danio_rerio_core_80_10
## 2221                               danio_rerio_core_81_10
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## 2223                               danio_rerio_core_83_10
## 2224                               danio_rerio_core_84_10
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## 2230                            danio_rerio_core_90_10
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## 2237                            danio_rerio_core_97_11
## 2238                            danio_rerio_core_98_11
## 2239                            danio_rerio_core_99_11
## 2240          danio_rerio_coreexpressionest_51_7d
## 2241          danio_rerio_coreexpressionest_52_7e
## 2242          danio_rerio_coreexpressionest_53_7e
## 2243           danio_rerio_coreexpressionest_54_8
## 2244          danio_rerio_coreexpressionest_55_8a
## 2245          danio_rerio_coreexpressionest_56_8b
## 2246          danio_rerio_coreexpressionest_57_8c
## 2247          danio_rerio_coreexpressionest_58_8d
## 2248          danio_rerio_coreexpressionest_59_8e
## 2249           danio_rerio_coreexpressionest_60_9
## 2250          danio_rerio_coreexpressionest_61_9a
## 2251          danio_rerio_coreexpressionest_62_9a
## 2252           danio_rerio_coreexpressionest_63_9
## 2253           danio_rerio_coreexpressionest_64_9
## 2254           danio_rerio_coreexpressionest_65_9
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## 2258           danio_rerio_coreexpressionest_69_9
## 2259           danio_rerio_coreexpressionest_70_9
## 2260           danio_rerio_coreexpressionest_71_9
## 2261           danio_rerio_coreexpressionest_72_9
## 2262           danio_rerio_coreexpressionest_73_9
## 2263           danio_rerio_coreexpressionest_74_9
## 2264                  danio_rerio_funcgen_55_8a
## 2265                  danio_rerio_funcgen_56_8b
## 2266                  danio_rerio_funcgen_57_8c
## 2267                  danio_rerio_funcgen_58_8d
## 2268                  danio_rerio_funcgen_59_8e
## 2269                   danio_rerio_funcgen_60_9
## 2270                  danio_rerio_funcgen_61_9a
## 2271                  danio_rerio_funcgen_62_9b
## 2272                   danio_rerio_funcgen_63_9
## 2273                   danio_rerio_funcgen_64_9
## 2274                   danio_rerio_funcgen_65_9
## 2275                   danio_rerio_funcgen_66_9
## 2276                   danio_rerio_funcgen_67_9
## 2277                   danio_rerio_funcgen_68_9
## 2278                   danio_rerio_funcgen_69_9
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## 2279                           danio_rerio_funcgen_70_9
## 2280                           danio_rerio_funcgen_71_9
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## 2282                           danio_rerio_funcgen_73_9
## 2283                           danio_rerio_funcgen_74_9
## 2284                           danio_rerio_funcgen_75_9
## 2285                           danio_rerio_funcgen_76_9
## 2286                           danio_rerio_funcgen_77_9
## 2287                           danio_rerio_funcgen_78_9
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## 2290                          danio_rerio_funcgen_81_10
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## 2294                          danio_rerio_funcgen_85_10
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## 2303                          danio_rerio_funcgen_94_11
## 2304                          danio_rerio_funcgen_95_11
## 2305                          danio_rerio_funcgen_96_11
## 2306                          danio_rerio_funcgen_97_11
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## 2308                          danio_rerio_funcgen_99_11
## 2309                  danio_rerio_otherfeatures_48_7b
## 2310                  danio_rerio_otherfeatures_49_7c
## 2311                  danio_rerio_otherfeatures_50_7d
## 2312                  danio_rerio_otherfeatures_51_7d
## 2313                  danio_rerio_otherfeatures_52_7e
## 2314                  danio_rerio_otherfeatures_53_7e
## 2315                   danio_rerio_otherfeatures_54_8
## 2316                  danio_rerio_otherfeatures_55_8a
## 2317                  danio_rerio_otherfeatures_56_8b
## 2318                  danio_rerio_otherfeatures_57_8c
## 2319                  danio_rerio_otherfeatures_58_8d
## 2320                  danio_rerio_otherfeatures_59_8e
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## 2322                  danio_rerio_otherfeatures_61_9a
## 2323                  danio_rerio_otherfeatures_62_9b
## 2324                   danio_rerio_otherfeatures_63_9
## 2325                   danio_rerio_otherfeatures_64_9
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## 2327                   danio_rerio_otherfeatures_66_9
## 2328                   danio_rerio_otherfeatures_67_9
## 2329                   danio_rerio_otherfeatures_68_9
## 2330                   danio_rerio_otherfeatures_69_9
## 2331                   danio_rerio_otherfeatures_70_9
## 2332                   danio_rerio_otherfeatures_71_9
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## 2333                        danio_rerio_otherfeatures_72_9
## 2334                        danio_rerio_otherfeatures_73_9
## 2335                        danio_rerio_otherfeatures_74_9
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## 2337                        danio_rerio_otherfeatures_76_9
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## 2339                        danio_rerio_otherfeatures_78_9
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## 2342                       danio_rerio_otherfeatures_81_10
## 2343                       danio_rerio_otherfeatures_82_10
## 2344                       danio_rerio_otherfeatures_83_10
## 2345                       danio_rerio_otherfeatures_84_10
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## 2347                       danio_rerio_otherfeatures_86_10
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## 2357                       danio_rerio_otherfeatures_96_11
## 2358                       danio_rerio_otherfeatures_97_11
## 2359                       danio_rerio_otherfeatures_98_11
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## 2367                            danio_rerio_rnaseq_86_10
## 2368                            danio_rerio_rnaseq_87_10
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## 2372                            danio_rerio_rnaseq_91_10
## 2373                            danio_rerio_rnaseq_92_11
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## 2378                            danio_rerio_rnaseq_97_11
## 2379                            danio_rerio_rnaseq_98_11
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## 2382                         danio_rerio_variation_49_7c
## 2383                         danio_rerio_variation_50_7d
## 2384                         danio_rerio_variation_51_7d
## 2385                         danio_rerio_variation_52_7e
## 2386                         danio_rerio_variation_53_7e
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## 2389                       danio_rerio_variation_56_8b
## 2390                       danio_rerio_variation_57_8c
## 2391                       danio_rerio_variation_58_8d
## 2392                       danio_rerio_variation_59_8e
## 2393                        danio_rerio_variation_60_9
## 2394                       danio_rerio_variation_61_9a
## 2395                       danio_rerio_variation_62_9b
## 2396                        danio_rerio_variation_63_9
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## 2400                        danio_rerio_variation_67_9
## 2401                        danio_rerio_variation_68_9
## 2402                        danio_rerio_variation_69_9
## 2403                        danio_rerio_variation_70_9
## 2404                        danio_rerio_variation_71_9
## 2405                        danio_rerio_variation_72_9
## 2406                        danio_rerio_variation_73_9
## 2407                        danio_rerio_variation_74_9
## 2408                        danio_rerio_variation_75_9
## 2409                        danio_rerio_variation_76_9
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## 2412                        danio_rerio_variation_79_9
## 2413                       danio_rerio_variation_80_10
## 2414                       danio_rerio_variation_81_10
## 2415                       danio_rerio_variation_82_10
## 2416                       danio_rerio_variation_83_10
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## 2440                           danio_rerio_vega_68_9
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## 2453                               danio_rerio_vega_81_10
## 2454                               danio_rerio_vega_82_10
## 2455                               danio_rerio_vega_83_10
## 2456                               danio_rerio_vega_84_10
## 2457                               danio_rerio_vega_85_10
## 2458                               danio_rerio_vega_86_10
## 2459                               danio_rerio_vega_87_10
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## 2462                      dasypus_novemcinctus_core_49_1f
## 2463                      dasypus_novemcinctus_core_50_1g
## 2464                      dasypus_novemcinctus_core_51_1g
## 2465                      dasypus_novemcinctus_core_52_1h
## 2466                       dasypus_novemcinctus_core_53_2
## 2467                      dasypus_novemcinctus_core_54_2a
## 2468                      dasypus_novemcinctus_core_55_2a
## 2469                      dasypus_novemcinctus_core_56_2a
## 2470                      dasypus_novemcinctus_core_57_2a
## 2471                      dasypus_novemcinctus_core_58_2b
## 2472                      dasypus_novemcinctus_core_59_2c
## 2473                      dasypus_novemcinctus_core_60_2d
## 2474                      dasypus_novemcinctus_core_61_2e
## 2475                      dasypus_novemcinctus_core_62_2f
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## 2480                       dasypus_novemcinctus_core_67_2
## 2481                       dasypus_novemcinctus_core_68_2
## 2482                       dasypus_novemcinctus_core_69_2
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## 2492                       dasypus_novemcinctus_core_79_3
## 2493                       dasypus_novemcinctus_core_80_3
## 2494                       dasypus_novemcinctus_core_81_3
```

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## 2495                         dasypus_novemcinctus_core_82_3
## 2496                         dasypus_novemcinctus_core_83_3
## 2497                         dasypus_novemcinctus_core_84_3
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## 2499                         dasypus_novemcinctus_core_86_3
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## 2512                         dasypus_novemcinctus_core_99_3
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## 2514            dasypus_novemcinctus_otherfeatures_75_3
## 2515            dasypus_novemcinctus_otherfeatures_76_3
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## 2543                       dasypus_novemcinctus_rnaseq_78_3
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## 2545                       dasypus_novemcinctus_rnaseq_80_3
## 2546                       dasypus_novemcinctus_rnaseq_81_3
## 2547                       dasypus_novemcinctus_rnaseq_82_3
## 2548                       dasypus_novemcinctus_rnaseq_83_3
```

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## 2563                      dasypus_novemcinctus_rnaseq_98_3
## 2564                      dasypus_novemcinctus_rnaseq_99_3
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## 2566                       denticeps_clupeoides_core_99_11
## 2567             denticeps_clupeoides_otherfeatures_98_11
## 2568             denticeps_clupeoides_otherfeatures_99_11
## 2569                     denticeps_clupeoides_rnaseq_98_11
## 2570                     denticeps_clupeoides_rnaseq_99_11
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## 2573                             dipodomys_ordii_core_53_1b
## 2574                             dipodomys_ordii_core_54_1c
## 2575                             dipodomys_ordii_core_55_1c
## 2576                             dipodomys_ordii_core_56_1c
## 2577                             dipodomys_ordii_core_57_1c
## 2578                             dipodomys_ordii_core_58_1d
## 2579                             dipodomys_ordii_core_59_1e
## 2580                             dipodomys_ordii_core_60_1f
## 2581                             dipodomys_ordii_core_61_1g
## 2582                             dipodomys_ordii_core_62_1h
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## 2588                              dipodomys_ordii_core_68_1
## 2589                              dipodomys_ordii_core_69_1
## 2590                              dipodomys_ordii_core_70_1
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## 2595                              dipodomys_ordii_core_75_1
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## 2598                              dipodomys_ordii_core_78_1
## 2599                              dipodomys_ordii_core_79_1
## 2600                              dipodomys_ordii_core_80_1
## 2601                              dipodomys_ordii_core_81_1
## 2602                              dipodomys_ordii_core_82_1
```

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## 2604                              dipodomys_ordii_core_84_1
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## 2606                              dipodomys_ordii_core_86_1
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## 2609                              dipodomys_ordii_core_89_1
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## 2611                              dipodomys_ordii_core_91_2
## 2612                              dipodomys_ordii_core_92_2
## 2613                              dipodomys_ordii_core_93_2
## 2614                              dipodomys_ordii_core_94_2
## 2615                              dipodomys_ordii_core_95_2
## 2616                              dipodomys_ordii_core_96_2
## 2617                              dipodomys_ordii_core_97_2
## 2618                              dipodomys_ordii_core_98_2
## 2619                              dipodomys_ordii_core_99_2
## 2620                     dipodomys_ordii_otherfeatures_90_2
## 2621                     dipodomys_ordii_otherfeatures_91_2
## 2622                     dipodomys_ordii_otherfeatures_92_2
## 2623                     dipodomys_ordii_otherfeatures_93_2
## 2624                     dipodomys_ordii_otherfeatures_94_2
## 2625                     dipodomys_ordii_otherfeatures_95_2
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## 2627                     dipodomys_ordii_otherfeatures_97_2
## 2628                     dipodomys_ordii_otherfeatures_98_2
## 2629                     dipodomys_ordii_otherfeatures_99_2
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## 2631                     dromaius_novaehollandiae_core_97_1
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## 2633                     dromaius_novaehollandiae_core_99_1
## 2634            dromaius_novaehollandiae_otherfeatures_96_1
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## 2636            dromaius_novaehollandiae_otherfeatures_98_1
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## 2638                   dromaius_novaehollandiae_rnaseq_96_1
## 2639                   dromaius_novaehollandiae_rnaseq_97_1
## 2640                   dromaius_novaehollandiae_rnaseq_98_1
## 2641                   dromaius_novaehollandiae_rnaseq_99_1
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## 2643                      drosophila_melanogaster_core_49_54
## 2644                     drosophila_melanogaster_core_50_54a
## 2645                     drosophila_melanogaster_core_51_54a
## 2646                     drosophila_melanogaster_core_52_54a
## 2647                     drosophila_melanogaster_core_53_54a
## 2648                     drosophila_melanogaster_core_54_54b
## 2649                     drosophila_melanogaster_core_55_54c
## 2650                    drosophila_melanogaster_core_56_513a
## 2651                    drosophila_melanogaster_core_57_513b
## 2652                    drosophila_melanogaster_core_58_513b
## 2653                    drosophila_melanogaster_core_59_525a
## 2654                    drosophila_melanogaster_core_60_525b
## 2655                    drosophila_melanogaster_core_61_525c
## 2656                    drosophila_melanogaster_core_62_525d
```

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## 2657                    drosophila_melanogaster_core_63_525
## 2658                    drosophila_melanogaster_core_64_525
## 2659                    drosophila_melanogaster_core_65_539
## 2660                    drosophila_melanogaster_core_66_539
## 2661                    drosophila_melanogaster_core_67_539
## 2662                    drosophila_melanogaster_core_68_539
## 2663                    drosophila_melanogaster_core_69_539
## 2664                    drosophila_melanogaster_core_70_546
## 2665                    drosophila_melanogaster_core_71_546
## 2666                    drosophila_melanogaster_core_72_546
## 2667                    drosophila_melanogaster_core_73_546
## 2668                    drosophila_melanogaster_core_74_546
## 2669                    drosophila_melanogaster_core_75_546
## 2670                    drosophila_melanogaster_core_76_546
## 2671                    drosophila_melanogaster_core_77_546
## 2672                    drosophila_melanogaster_core_78_546
## 2673                    drosophila_melanogaster_core_79_602
## 2674                    drosophila_melanogaster_core_80_602
## 2675                    drosophila_melanogaster_core_81_602
## 2676                    drosophila_melanogaster_core_82_602
## 2677                    drosophila_melanogaster_core_83_602
## 2678                    drosophila_melanogaster_core_84_602
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## 2681                    drosophila_melanogaster_core_87_602
## 2682                      drosophila_melanogaster_core_88_6
## 2683                      drosophila_melanogaster_core_89_6
## 2684                      drosophila_melanogaster_core_90_6
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## 2686                      drosophila_melanogaster_core_92_6
## 2687                      drosophila_melanogaster_core_93_6
## 2688                      drosophila_melanogaster_core_94_6
## 2689                      drosophila_melanogaster_core_95_6
## 2690                      drosophila_melanogaster_core_96_7
## 2691                      drosophila_melanogaster_core_97_7
## 2692                      drosophila_melanogaster_core_98_7
## 2693                      drosophila_melanogaster_core_99_8
## 2694               drosophila_melanogaster_funcgen_49_54
## 2695              drosophila_melanogaster_funcgen_50_54a
## 2696              drosophila_melanogaster_funcgen_51_54a
## 2697              drosophila_melanogaster_funcgen_52_54a
## 2698              drosophila_melanogaster_funcgen_53_54a
## 2699              drosophila_melanogaster_funcgen_54_54b
## 2700              drosophila_melanogaster_funcgen_55_54c
## 2701             drosophila_melanogaster_funcgen_56_513a
## 2702             drosophila_melanogaster_funcgen_57_513b
## 2703             drosophila_melanogaster_funcgen_58_513b
## 2704             drosophila_melanogaster_funcgen_59_525a
## 2705             drosophila_melanogaster_funcgen_60_525b
## 2706             drosophila_melanogaster_funcgen_61_525c
## 2707             drosophila_melanogaster_funcgen_62_525d
## 2708              drosophila_melanogaster_funcgen_63_525
## 2709              drosophila_melanogaster_funcgen_64_525
## 2710              drosophila_melanogaster_funcgen_65_539
```

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## 2711                drosophila_melanogaster_funcgen_66_539
## 2712                drosophila_melanogaster_funcgen_67_539
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## 2716                drosophila_melanogaster_funcgen_71_546
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## 2718                drosophila_melanogaster_funcgen_73_546
## 2719                drosophila_melanogaster_funcgen_74_546
## 2720                drosophila_melanogaster_funcgen_75_546
## 2721                drosophila_melanogaster_funcgen_76_546
## 2722                drosophila_melanogaster_funcgen_77_546
## 2723                drosophila_melanogaster_funcgen_78_546
## 2724                drosophila_melanogaster_funcgen_79_602
## 2725                drosophila_melanogaster_funcgen_80_602
## 2726                drosophila_melanogaster_funcgen_81_602
## 2727                drosophila_melanogaster_funcgen_82_602
## 2728                drosophila_melanogaster_funcgen_83_602
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## 2734                 drosophila_melanogaster_funcgen_89_6
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## 2742                 drosophila_melanogaster_funcgen_97_7
## 2743                 drosophila_melanogaster_funcgen_98_7
## 2744                 drosophila_melanogaster_funcgen_99_8
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## 2748      drosophila_melanogaster_otherfeatures_51_54a
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## 2751      drosophila_melanogaster_otherfeatures_54_54b
## 2752      drosophila_melanogaster_otherfeatures_55_54c
## 2753     drosophila_melanogaster_otherfeatures_56_513a
## 2754     drosophila_melanogaster_otherfeatures_57_513b
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## 2756     drosophila_melanogaster_otherfeatures_59_513b
## 2757     drosophila_melanogaster_otherfeatures_59_525a
## 2758     drosophila_melanogaster_otherfeatures_60_525b
## 2759     drosophila_melanogaster_otherfeatures_61_525c
## 2760     drosophila_melanogaster_otherfeatures_62_525d
## 2761      drosophila_melanogaster_otherfeatures_63_525
## 2762      drosophila_melanogaster_otherfeatures_64_525
## 2763      drosophila_melanogaster_otherfeatures_65_539
## 2764      drosophila_melanogaster_otherfeatures_66_539
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## 2769          drosophila_melanogaster_otherfeatures_71_546
## 2770          drosophila_melanogaster_otherfeatures_72_546
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## 2772          drosophila_melanogaster_otherfeatures_74_546
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## 2798            drosophila_melanogaster_variation_63_525
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## 2801            drosophila_melanogaster_variation_66_539
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## 2813            drosophila_melanogaster_variation_78_546
## 2814            drosophila_melanogaster_variation_79_602
## 2815            drosophila_melanogaster_variation_80_602
## 2816            drosophila_melanogaster_variation_81_602
## 2817            drosophila_melanogaster_variation_82_602
## 2818            drosophila_melanogaster_variation_83_602
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## 2825                drosophila_melanogaster_variation_90_6
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## 2833                      echeneis_naucrates_rnaseq_99_11
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## 2835                         echinops_telfairi_core_49_1e
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## 2837                         echinops_telfairi_core_51_1f
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## 2839                         echinops_telfairi_core_53_1g
## 2840                         echinops_telfairi_core_54_1g
## 2841                         echinops_telfairi_core_55_1g
## 2842                         echinops_telfairi_core_56_1g
## 2843                         echinops_telfairi_core_57_1g
## 2844                         echinops_telfairi_core_58_1h
## 2845                         echinops_telfairi_core_59_1i
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## 2847                         echinops_telfairi_core_61_1k
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## 2852                          echinops_telfairi_core_66_1
## 2853                          echinops_telfairi_core_67_1
## 2854                          echinops_telfairi_core_68_1
## 2855                          echinops_telfairi_core_69_1
## 2856                          echinops_telfairi_core_70_1
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## 2858                          echinops_telfairi_core_72_1
## 2859                          echinops_telfairi_core_73_1
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## 2862                          echinops_telfairi_core_76_1
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## 2867                          echinops_telfairi_core_81_1
## 2868                          echinops_telfairi_core_82_1
## 2869                          echinops_telfairi_core_83_1
## 2870                          echinops_telfairi_core_84_1
## 2871                          echinops_telfairi_core_85_1
## 2872                          echinops_telfairi_core_86_1
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## 2879                              echinops_telfairi_core_93_1
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## 2882                              echinops_telfairi_core_96_1
## 2883                              echinops_telfairi_core_97_1
## 2884                              echinops_telfairi_core_98_1
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## 2887                       electrophorus_electricus_core_98_2
## 2888                       electrophorus_electricus_core_99_2
## 2889             electrophorus_electricus_otherfeatures_97_2
## 2890             electrophorus_electricus_otherfeatures_98_2
## 2891             electrophorus_electricus_otherfeatures_99_2
## 2892                     electrophorus_electricus_rnaseq_97_2
## 2893                     electrophorus_electricus_rnaseq_98_2
## 2894                     electrophorus_electricus_rnaseq_99_2
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## 2896                                      ensembl_ancestral_50
## 2897                                      ensembl_ancestral_51
## 2898                                      ensembl_ancestral_52
## 2899                                      ensembl_ancestral_53
## 2900                                      ensembl_ancestral_54
## 2901                                      ensembl_ancestral_55
## 2902                                      ensembl_ancestral_56
## 2903                                      ensembl_ancestral_57
## 2904                                      ensembl_ancestral_58
## 2905                                      ensembl_ancestral_59
## 2906                                      ensembl_ancestral_60
## 2907                                      ensembl_ancestral_61
## 2908                                      ensembl_ancestral_62
## 2909                                      ensembl_ancestral_63
## 2910                                      ensembl_ancestral_64
## 2911                                      ensembl_ancestral_65
## 2912                                      ensembl_ancestral_66
## 2913                                      ensembl_ancestral_67
## 2914                                      ensembl_ancestral_68
## 2915                                      ensembl_ancestral_69
## 2916                                      ensembl_ancestral_70
## 2917                                      ensembl_ancestral_71
## 2918                                      ensembl_ancestral_72
## 2919                                      ensembl_ancestral_73
## 2920                                      ensembl_ancestral_74
## 2921                                      ensembl_ancestral_75
## 2922                                      ensembl_ancestral_76
## 2923                                      ensembl_ancestral_77
## 2924                                      ensembl_ancestral_78
## 2925                                      ensembl_ancestral_79
## 2926                                      ensembl_ancestral_80
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## 2928                            ensembl_ancestral_82
## 2929                            ensembl_ancestral_83
## 2930                            ensembl_ancestral_84
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## 2932                            ensembl_ancestral_86
## 2933                            ensembl_ancestral_87
## 2934                            ensembl_ancestral_88
## 2935                            ensembl_ancestral_89
## 2936                            ensembl_ancestral_90
## 2937                            ensembl_ancestral_91
## 2938                            ensembl_ancestral_92
## 2939                            ensembl_ancestral_93
## 2940                            ensembl_ancestral_94
## 2941                            ensembl_ancestral_95
## 2942                            ensembl_ancestral_96
## 2943                            ensembl_ancestral_97
## 2944                            ensembl_ancestral_98
## 2945                            ensembl_ancestral_99
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## 2947                             ensembl_archive_74
## 2948                             ensembl_archive_75
## 2949                             ensembl_archive_76
## 2950                             ensembl_archive_77
## 2951                             ensembl_archive_78
## 2952                             ensembl_archive_79
## 2953                             ensembl_archive_80
## 2954                             ensembl_archive_81
## 2955                             ensembl_archive_82
## 2956                             ensembl_archive_83
## 2957                             ensembl_archive_84
## 2958                             ensembl_archive_85
## 2959                             ensembl_archive_86
## 2960                             ensembl_archive_87
## 2961                             ensembl_archive_88
## 2962                             ensembl_archive_89
## 2963                             ensembl_archive_90
## 2964                             ensembl_archive_91
## 2965                             ensembl_archive_92
## 2966                             ensembl_archive_93
## 2967                             ensembl_archive_94
## 2968                             ensembl_archive_95
## 2969                             ensembl_archive_96
## 2970                             ensembl_archive_97
## 2971                             ensembl_archive_98
## 2972                             ensembl_archive_99
## 2973                             ensembl_compara_48
## 2974                             ensembl_compara_49
## 2975                             ensembl_compara_50
## 2976                             ensembl_compara_51
## 2977                             ensembl_compara_52
## 2978                             ensembl_compara_53
## 2979                             ensembl_compara_54
## 2980                             ensembl_compara_55
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## 2984                               ensembl_compara_59
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## 2986                               ensembl_compara_61
## 2987                               ensembl_compara_62
## 2988                               ensembl_compara_63
## 2989                               ensembl_compara_64
## 2990                               ensembl_compara_65
## 2991                               ensembl_compara_66
## 2992                               ensembl_compara_67
## 2993                               ensembl_compara_68
## 2994                               ensembl_compara_69
## 2995                               ensembl_compara_70
## 2996                               ensembl_compara_71
## 2997                               ensembl_compara_72
## 2998                               ensembl_compara_73
## 2999                               ensembl_compara_74
## 3000                               ensembl_compara_75
## 3001                               ensembl_compara_76
## 3002                               ensembl_compara_77
## 3003                               ensembl_compara_78
## 3004                               ensembl_compara_79
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## 3006                               ensembl_compara_81
## 3007                               ensembl_compara_82
## 3008                               ensembl_compara_83
## 3009                               ensembl_compara_84
## 3010                               ensembl_compara_85
## 3011                               ensembl_compara_86
## 3012                               ensembl_compara_87
## 3013                               ensembl_compara_88
## 3014                               ensembl_compara_89
## 3015                               ensembl_compara_90
## 3016                               ensembl_compara_91
## 3017                               ensembl_compara_92
## 3018                               ensembl_compara_93
## 3019                               ensembl_compara_94
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## 3022                               ensembl_compara_97
## 3023                               ensembl_compara_98
## 3024                               ensembl_compara_99
## 3025                                   ensembl_go_48
## 3026                                   ensembl_go_49
## 3027                                   ensembl_go_50
## 3028                                   ensembl_go_51
## 3029                                   ensembl_go_52
## 3030                                   ensembl_go_53
## 3031                                   ensembl_go_54
## 3032                             ensembl_metadata_96
## 3033                             ensembl_metadata_97
## 3034                             ensembl_metadata_98
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## 3048                          ensembl_ontology_67
## 3049                          ensembl_ontology_68
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## 3061                          ensembl_ontology_80
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## 3063                          ensembl_ontology_82
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## 3079                          ensembl_ontology_98
## 3080                          ensembl_ontology_99
## 3081                        ensembl_production_58
## 3082                        ensembl_production_59
## 3083                        ensembl_production_60
## 3084                        ensembl_production_62
## 3085                        ensembl_production_63
## 3086                        ensembl_production_64
## 3087                        ensembl_production_65
## 3088                        ensembl_production_66
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## 3099                              ensembl_production_77
## 3100                              ensembl_production_78
## 3101                              ensembl_production_79
## 3102                              ensembl_production_80
## 3103                              ensembl_production_81
## 3104                              ensembl_production_82
## 3105                              ensembl_production_83
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## 3118                              ensembl_production_96
## 3119                              ensembl_production_97
## 3120                              ensembl_production_98
## 3121                              ensembl_production_99
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## 3123                              ensembl_stable_ids_74
## 3124                              ensembl_stable_ids_75
## 3125                              ensembl_stable_ids_76
## 3126                              ensembl_stable_ids_77
## 3127                              ensembl_stable_ids_78
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## 3137                              ensembl_stable_ids_88
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## 3139                              ensembl_stable_ids_90
## 3140                              ensembl_stable_ids_91
## 3141                              ensembl_stable_ids_92
## 3142                              ensembl_stable_ids_93
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## 3145                              ensembl_stable_ids_96
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## 3147                              ensembl_stable_ids_98
## 3148                              ensembl_stable_ids_99
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## 3150                                 ensembl_website_49
## 3151                                 ensembl_website_50
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## 3153                                 ensembl_website_56
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## 3155                                 ensembl_website_60
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## 3172                                 ensembl_website_77
## 3173                                 ensembl_website_78
## 3174                                 ensembl_website_79
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## 3176                                 ensembl_website_81
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## 3178                                 ensembl_website_83
## 3179                                 ensembl_website_84
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## 3187                                 ensembl_website_92
## 3188                                 ensembl_website_93
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## 3190                                 ensembl_website_95
## 3191                                 ensembl_website_96
## 3192                                 ensembl_website_97
## 3193                                 ensembl_website_98
## 3194                                 ensembl_website_99
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## 3196                          eptatretus_burgeri_core_94_32
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## 3201                    eptatretus_burgeri_core_99_32
## 3202                  eptatretus_burgeri_rnaseq_93_32
## 3203                  eptatretus_burgeri_rnaseq_94_32
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## 3205                  eptatretus_burgeri_rnaseq_96_32
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## 3207                  eptatretus_burgeri_rnaseq_98_32
## 3208                  eptatretus_burgeri_rnaseq_99_32
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## 3211                   equus_asinus_asinus_core_97_1
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## 3213                   equus_asinus_asinus_core_99_1
## 3214                 equus_asinus_asinus_rnaseq_95_1
## 3215                 equus_asinus_asinus_rnaseq_96_1
## 3216                 equus_asinus_asinus_rnaseq_97_1
## 3217                 equus_asinus_asinus_rnaseq_98_1
## 3218                 equus_asinus_asinus_rnaseq_99_1
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## 3220                       equus_caballus_core_50_2a
## 3221                       equus_caballus_core_51_2a
## 3222                       equus_caballus_core_52_2b
## 3223                       equus_caballus_core_53_2c
## 3224                       equus_caballus_core_54_2d
## 3225                       equus_caballus_core_55_2d
## 3226                       equus_caballus_core_56_2d
## 3227                       equus_caballus_core_57_2d
## 3228                       equus_caballus_core_58_2e
## 3229                       equus_caballus_core_59_2f
## 3230                       equus_caballus_core_60_2g
## 3231                       equus_caballus_core_61_2h
## 3232                       equus_caballus_core_62_2i
## 3233                        equus_caballus_core_63_2
## 3234                        equus_caballus_core_64_2
## 3235                        equus_caballus_core_65_2
## 3236                        equus_caballus_core_66_2
## 3237                        equus_caballus_core_67_2
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## 3239                        equus_caballus_core_69_2
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## 3241                        equus_caballus_core_71_2
## 3242                        equus_caballus_core_72_2
## 3243                        equus_caballus_core_73_2
## 3244                        equus_caballus_core_74_2
## 3245                        equus_caballus_core_75_2
## 3246                        equus_caballus_core_76_2
## 3247                        equus_caballus_core_77_2
## 3248                        equus_caballus_core_78_2
## 3249                        equus_caballus_core_79_2
## 3250                        equus_caballus_core_80_2
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## 3255                            equus_caballus_core_85_2
## 3256                            equus_caballus_core_86_2
## 3257                            equus_caballus_core_87_2
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## 3259                            equus_caballus_core_89_2
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## 3261                            equus_caballus_core_91_2
## 3262                            equus_caballus_core_92_2
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## 3266                            equus_caballus_core_96_3
## 3267                            equus_caballus_core_97_3
## 3268                            equus_caballus_core_98_3
## 3269                            equus_caballus_core_99_3
## 3270                         equus_caballus_funcgen_96_3
## 3271                         equus_caballus_funcgen_97_3
## 3272                         equus_caballus_funcgen_98_3
## 3273                         equus_caballus_funcgen_99_3
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## 3275                 equus_caballus_otherfeatures_50_2a
## 3276                 equus_caballus_otherfeatures_51_2a
## 3277                 equus_caballus_otherfeatures_52_2b
## 3278                 equus_caballus_otherfeatures_53_2c
## 3279                 equus_caballus_otherfeatures_54_2d
## 3280                 equus_caballus_otherfeatures_55_2d
## 3281                 equus_caballus_otherfeatures_56_2d
## 3282                 equus_caballus_otherfeatures_57_2d
## 3283                 equus_caballus_otherfeatures_58_2e
## 3284                 equus_caballus_otherfeatures_59_2f
## 3285                 equus_caballus_otherfeatures_60_2g
## 3286                 equus_caballus_otherfeatures_61_2h
## 3287                 equus_caballus_otherfeatures_62_2i
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## 3293                  equus_caballus_otherfeatures_68_2
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## 3297                  equus_caballus_otherfeatures_72_2
## 3298                  equus_caballus_otherfeatures_73_2
## 3299                  equus_caballus_otherfeatures_74_2
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## 3301                  equus_caballus_otherfeatures_76_2
## 3302                  equus_caballus_otherfeatures_77_2
## 3303                  equus_caballus_otherfeatures_78_2
## 3304                  equus_caballus_otherfeatures_79_2
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## 3306                    equus_caballus_otherfeatures_81_2
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## 3308                    equus_caballus_otherfeatures_83_2
## 3309                    equus_caballus_otherfeatures_84_2
## 3310                    equus_caballus_otherfeatures_85_2
## 3311                    equus_caballus_otherfeatures_86_2
## 3312                    equus_caballus_otherfeatures_87_2
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## 3331                    equus_caballus_variation_58_2e
## 3332                    equus_caballus_variation_59_2f
## 3333                    equus_caballus_variation_60_2g
## 3334                    equus_caballus_variation_61_2h
## 3335                    equus_caballus_variation_62_2i
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## 3337                     equus_caballus_variation_64_2
## 3338                     equus_caballus_variation_65_2
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## 3343                     equus_caballus_variation_70_2
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## 3355                     equus_caballus_variation_82_2
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## 3358                     equus_caballus_variation_85_2
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## 3366                    equus_caballus_variation_93_2
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## 3372                    equus_caballus_variation_99_3
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## 3374                    erinaceus_europaeus_core_49_1c
## 3375                    erinaceus_europaeus_core_50_1d
## 3376                    erinaceus_europaeus_core_51_1d
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## 3378                    erinaceus_europaeus_core_53_1e
## 3379                    erinaceus_europaeus_core_54_1e
## 3380                    erinaceus_europaeus_core_55_1e
## 3381                    erinaceus_europaeus_core_56_1e
## 3382                    erinaceus_europaeus_core_57_1e
## 3383                    erinaceus_europaeus_core_58_1f
## 3384                    erinaceus_europaeus_core_59_1g
## 3385                    erinaceus_europaeus_core_60_1h
## 3386                    erinaceus_europaeus_core_61_1i
## 3387                    erinaceus_europaeus_core_62_1j
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## 3412                     erinaceus_europaeus_core_87_1
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## 3452                                   felis_catus_core_49_1c
## 3453                                   felis_catus_core_50_1d
## 3454                                   felis_catus_core_51_1e
## 3455                                   felis_catus_core_52_1f
## 3456                                   felis_catus_core_53_1f
## 3457                                   felis_catus_core_54_1f
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## 3461                                   felis_catus_core_58_1g
## 3462                                   felis_catus_core_59_1h
## 3463                                   felis_catus_core_60_1i
## 3464                                   felis_catus_core_61_1j
## 3465                                   felis_catus_core_62_1k
## 3466                                    felis_catus_core_63_1
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## 3574                        felis_catus_variation_64_1
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## 3736           fundulus_heteroclitus_otherfeatures_99_302
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## 3779                            gallus_gallus_core_49_2g
## 3780                            gallus_gallus_core_50_2h
## 3781                            gallus_gallus_core_51_2i
## 3782                            gallus_gallus_core_52_2j
## 3783                            gallus_gallus_core_53_2k
## 3784                            gallus_gallus_core_54_2l
## 3785                            gallus_gallus_core_55_2m
## 3786                            gallus_gallus_core_56_2m
## 3787                            gallus_gallus_core_57_2m
## 3788                            gallus_gallus_core_58_2n
## 3789                            gallus_gallus_core_59_2o
## 3790                            gallus_gallus_core_60_2p
```

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## 3791                         gallus_gallus_core_61_2q
## 3792                         gallus_gallus_core_62_2r
## 3793                          gallus_gallus_core_63_2
## 3794                          gallus_gallus_core_64_2
## 3795                          gallus_gallus_core_65_2
## 3796                          gallus_gallus_core_66_2
## 3797                          gallus_gallus_core_67_2
## 3798                          gallus_gallus_core_68_2
## 3799                          gallus_gallus_core_69_2
## 3800                          gallus_gallus_core_70_2
## 3801                          gallus_gallus_core_71_4
## 3802                          gallus_gallus_core_72_4
## 3803                          gallus_gallus_core_73_4
## 3804                          gallus_gallus_core_74_4
## 3805                          gallus_gallus_core_75_4
## 3806                          gallus_gallus_core_76_4
## 3807                          gallus_gallus_core_77_4
## 3808                          gallus_gallus_core_78_4
## 3809                          gallus_gallus_core_79_4
## 3810                          gallus_gallus_core_80_4
## 3811                          gallus_gallus_core_81_4
## 3812                          gallus_gallus_core_82_4
## 3813                          gallus_gallus_core_83_4
## 3814                          gallus_gallus_core_84_4
## 3815                          gallus_gallus_core_85_4
## 3816                          gallus_gallus_core_86_5
## 3817                          gallus_gallus_core_87_5
## 3818                          gallus_gallus_core_88_5
## 3819                          gallus_gallus_core_89_5
## 3820                          gallus_gallus_core_90_5
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## 3822                          gallus_gallus_core_92_5
## 3823                          gallus_gallus_core_93_5
## 3824                          gallus_gallus_core_94_5
## 3825                          gallus_gallus_core_95_6
## 3826                          gallus_gallus_core_96_6
## 3827                          gallus_gallus_core_97_6
## 3828                          gallus_gallus_core_98_6
## 3829                          gallus_gallus_core_99_6
## 3830                       gallus_gallus_funcgen_55_2m
## 3831                       gallus_gallus_funcgen_56_2m
## 3832                       gallus_gallus_funcgen_57_2m
## 3833                       gallus_gallus_funcgen_58_2n
## 3834                       gallus_gallus_funcgen_59_2o
## 3835                       gallus_gallus_funcgen_60_2p
## 3836                       gallus_gallus_funcgen_61_2q
## 3837                       gallus_gallus_funcgen_62_2r
## 3838                        gallus_gallus_funcgen_63_2
## 3839                        gallus_gallus_funcgen_64_2
## 3840                        gallus_gallus_funcgen_65_2
## 3841                        gallus_gallus_funcgen_66_2
## 3842                        gallus_gallus_funcgen_67_2
## 3843                        gallus_gallus_funcgen_68_2
## 3844                        gallus_gallus_funcgen_69_2
```

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## 3845                          gallus_gallus_funcgen_70_2
## 3846                          gallus_gallus_funcgen_71_4
## 3847                          gallus_gallus_funcgen_72_4
## 3848                          gallus_gallus_funcgen_73_4
## 3849                          gallus_gallus_funcgen_74_4
## 3850                          gallus_gallus_funcgen_75_4
## 3851                          gallus_gallus_funcgen_76_4
## 3852                          gallus_gallus_funcgen_77_4
## 3853                          gallus_gallus_funcgen_78_4
## 3854                          gallus_gallus_funcgen_79_4
## 3855                          gallus_gallus_funcgen_80_4
## 3856                          gallus_gallus_funcgen_81_4
## 3857                          gallus_gallus_funcgen_82_4
## 3858                          gallus_gallus_funcgen_83_4
## 3859                          gallus_gallus_funcgen_84_4
## 3860                          gallus_gallus_funcgen_85_4
## 3861                          gallus_gallus_funcgen_86_5
## 3862                          gallus_gallus_funcgen_87_5
## 3863                          gallus_gallus_funcgen_88_5
## 3864                          gallus_gallus_funcgen_89_5
## 3865                          gallus_gallus_funcgen_90_5
## 3866                          gallus_gallus_funcgen_91_5
## 3867                          gallus_gallus_funcgen_92_5
## 3868                          gallus_gallus_funcgen_93_5
## 3869                          gallus_gallus_funcgen_94_5
## 3870                          gallus_gallus_funcgen_95_6
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## 3872                          gallus_gallus_funcgen_97_6
## 3873                          gallus_gallus_funcgen_98_6
## 3874                          gallus_gallus_funcgen_99_6
## 3875            gallus_gallus_otherfeatures_48_2f
## 3876            gallus_gallus_otherfeatures_49_2g
## 3877            gallus_gallus_otherfeatures_50_2h
## 3878            gallus_gallus_otherfeatures_51_2i
## 3879            gallus_gallus_otherfeatures_52_2j
## 3880            gallus_gallus_otherfeatures_53_2k
## 3881            gallus_gallus_otherfeatures_54_2l
## 3882            gallus_gallus_otherfeatures_55_2m
## 3883            gallus_gallus_otherfeatures_56_2m
## 3884            gallus_gallus_otherfeatures_57_2m
## 3885            gallus_gallus_otherfeatures_58_2n
## 3886            gallus_gallus_otherfeatures_59_2o
## 3887            gallus_gallus_otherfeatures_60_2p
## 3888            gallus_gallus_otherfeatures_61_2q
## 3889            gallus_gallus_otherfeatures_62_2r
## 3890             gallus_gallus_otherfeatures_63_2
## 3891             gallus_gallus_otherfeatures_64_2
## 3892             gallus_gallus_otherfeatures_65_2
## 3893             gallus_gallus_otherfeatures_66_2
## 3894             gallus_gallus_otherfeatures_67_2
## 3895             gallus_gallus_otherfeatures_68_2
## 3896             gallus_gallus_otherfeatures_69_2
## 3897             gallus_gallus_otherfeatures_70_2
## 3898             gallus_gallus_otherfeatures_71_4
```

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## 3899                    gallus_gallus_otherfeatures_72_4
## 3900                    gallus_gallus_otherfeatures_73_4
## 3901                    gallus_gallus_otherfeatures_74_4
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## 3903                    gallus_gallus_otherfeatures_76_4
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## 3905                    gallus_gallus_otherfeatures_78_4
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## 3907                    gallus_gallus_otherfeatures_80_4
## 3908                    gallus_gallus_otherfeatures_81_4
## 3909                    gallus_gallus_otherfeatures_82_4
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## 3914                    gallus_gallus_otherfeatures_87_5
## 3915                    gallus_gallus_otherfeatures_88_5
## 3916                    gallus_gallus_otherfeatures_89_5
## 3917                    gallus_gallus_otherfeatures_90_5
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## 3919                    gallus_gallus_otherfeatures_92_5
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## 3923                    gallus_gallus_otherfeatures_96_6
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## 3925                    gallus_gallus_otherfeatures_98_6
## 3926                    gallus_gallus_otherfeatures_99_6
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## 3928                         gallus_gallus_rnaseq_72_4
## 3929                         gallus_gallus_rnaseq_73_4
## 3930                         gallus_gallus_rnaseq_74_4
## 3931                         gallus_gallus_rnaseq_75_4
## 3932                         gallus_gallus_rnaseq_76_4
## 3933                         gallus_gallus_rnaseq_77_4
## 3934                         gallus_gallus_rnaseq_78_4
## 3935                         gallus_gallus_rnaseq_79_4
## 3936                         gallus_gallus_rnaseq_80_4
## 3937                         gallus_gallus_rnaseq_81_4
## 3938                         gallus_gallus_rnaseq_82_4
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## 3943                         gallus_gallus_rnaseq_87_5
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## 3947                         gallus_gallus_rnaseq_91_5
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## 3949                         gallus_gallus_rnaseq_93_5
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## 3951                         gallus_gallus_rnaseq_95_6
## 3952                         gallus_gallus_rnaseq_96_6
```

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## 3953                           gallus_gallus_rnaseq_97_6
## 3954                           gallus_gallus_rnaseq_98_6
## 3955                           gallus_gallus_rnaseq_99_6
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## 3957                        gallus_gallus_variation_49_2g
## 3958                        gallus_gallus_variation_50_2h
## 3959                        gallus_gallus_variation_51_2i
## 3960                        gallus_gallus_variation_52_2j
## 3961                        gallus_gallus_variation_53_2k
## 3962                        gallus_gallus_variation_54_2l
## 3963                        gallus_gallus_variation_55_2m
## 3964                        gallus_gallus_variation_56_2m
## 3965                        gallus_gallus_variation_57_2m
## 3966                        gallus_gallus_variation_58_2n
## 3967                        gallus_gallus_variation_59_2o
## 3968                        gallus_gallus_variation_60_2p
## 3969                        gallus_gallus_variation_61_2q
## 3970                        gallus_gallus_variation_62_2r
## 3971                         gallus_gallus_variation_63_2
## 3972                         gallus_gallus_variation_64_2
## 3973                         gallus_gallus_variation_65_2
## 3974                         gallus_gallus_variation_66_2
## 3975                         gallus_gallus_variation_67_2
## 3976                         gallus_gallus_variation_68_2
## 3977                         gallus_gallus_variation_69_2
## 3978                         gallus_gallus_variation_70_2
## 3979                         gallus_gallus_variation_71_4
## 3980                         gallus_gallus_variation_72_4
## 3981                         gallus_gallus_variation_73_4
## 3982                         gallus_gallus_variation_74_4
## 3983                         gallus_gallus_variation_75_4
## 3984                         gallus_gallus_variation_76_4
## 3985                         gallus_gallus_variation_77_4
## 3986                         gallus_gallus_variation_78_4
## 3987                         gallus_gallus_variation_79_4
## 3988                         gallus_gallus_variation_80_4
## 3989                         gallus_gallus_variation_81_4
## 3990                         gallus_gallus_variation_82_4
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## 3992                         gallus_gallus_variation_84_4
## 3993                         gallus_gallus_variation_85_4
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## 3995                         gallus_gallus_variation_87_5
## 3996                         gallus_gallus_variation_88_5
## 3997                         gallus_gallus_variation_89_5
## 3998                         gallus_gallus_variation_90_5
## 3999                         gallus_gallus_variation_91_5
## 4000                         gallus_gallus_variation_92_5
## 4001                         gallus_gallus_variation_93_5
## 4002                         gallus_gallus_variation_94_5
## 4003                         gallus_gallus_variation_95_6
## 4004                         gallus_gallus_variation_96_6
## 4005                         gallus_gallus_variation_97_6
## 4006                         gallus_gallus_variation_98_6
```

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## 4007                       gallus_gallus_variation_99_6
## 4008                          gambusia_affinis_core_94_1
## 4009                          gambusia_affinis_core_95_1
## 4010                          gambusia_affinis_core_96_1
## 4011                          gambusia_affinis_core_97_1
## 4012                          gambusia_affinis_core_98_1
## 4013                          gambusia_affinis_core_99_1
## 4014                       gambusia_affinis_rnaseq_94_1
## 4015                       gambusia_affinis_rnaseq_95_1
## 4016                       gambusia_affinis_rnaseq_96_1
## 4017                       gambusia_affinis_rnaseq_97_1
## 4018                       gambusia_affinis_rnaseq_98_1
## 4019                       gambusia_affinis_rnaseq_99_1
## 4020               gasterosteus_aculeatus_core_48_1e
## 4021               gasterosteus_aculeatus_core_49_1f
## 4022               gasterosteus_aculeatus_core_50_1g
## 4023               gasterosteus_aculeatus_core_51_1h
## 4024               gasterosteus_aculeatus_core_52_1i
## 4025               gasterosteus_aculeatus_core_53_1j
## 4026               gasterosteus_aculeatus_core_54_1j
## 4027               gasterosteus_aculeatus_core_55_1j
## 4028               gasterosteus_aculeatus_core_56_1j
## 4029               gasterosteus_aculeatus_core_57_1j
## 4030               gasterosteus_aculeatus_core_58_1k
## 4031               gasterosteus_aculeatus_core_59_1l
## 4032               gasterosteus_aculeatus_core_60_1m
## 4033               gasterosteus_aculeatus_core_61_1n
## 4034               gasterosteus_aculeatus_core_62_1o
## 4035                gasterosteus_aculeatus_core_63_1
## 4036                gasterosteus_aculeatus_core_64_1
## 4037                gasterosteus_aculeatus_core_65_1
## 4038                gasterosteus_aculeatus_core_66_1
## 4039                gasterosteus_aculeatus_core_67_1
## 4040                gasterosteus_aculeatus_core_68_1
## 4041                gasterosteus_aculeatus_core_69_1
## 4042                gasterosteus_aculeatus_core_70_1
## 4043                gasterosteus_aculeatus_core_71_1
## 4044                gasterosteus_aculeatus_core_72_1
## 4045                gasterosteus_aculeatus_core_73_1
## 4046                gasterosteus_aculeatus_core_74_1
## 4047                gasterosteus_aculeatus_core_75_1
## 4048                gasterosteus_aculeatus_core_76_1
## 4049                gasterosteus_aculeatus_core_77_1
## 4050                gasterosteus_aculeatus_core_78_1
## 4051                gasterosteus_aculeatus_core_79_1
## 4052                gasterosteus_aculeatus_core_80_1
## 4053                gasterosteus_aculeatus_core_81_1
## 4054                gasterosteus_aculeatus_core_82_1
## 4055                gasterosteus_aculeatus_core_83_1
## 4056                gasterosteus_aculeatus_core_84_1
## 4057                gasterosteus_aculeatus_core_85_1
## 4058                gasterosteus_aculeatus_core_86_1
## 4059                gasterosteus_aculeatus_core_87_1
## 4060                gasterosteus_aculeatus_core_88_1
```

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## 4061                      gasterosteus_aculeatus_core_89_1
## 4062                      gasterosteus_aculeatus_core_90_1
## 4063                      gasterosteus_aculeatus_core_91_1
## 4064                      gasterosteus_aculeatus_core_92_1
## 4065                      gasterosteus_aculeatus_core_93_1
## 4066                      gasterosteus_aculeatus_core_94_1
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## 4069                      gasterosteus_aculeatus_core_97_1
## 4070                      gasterosteus_aculeatus_core_98_1
## 4071                      gasterosteus_aculeatus_core_99_1
## 4072          gasterosteus_aculeatus_otherfeatures_48_1e
## 4073          gasterosteus_aculeatus_otherfeatures_49_1f
## 4074          gasterosteus_aculeatus_otherfeatures_50_1g
## 4075          gasterosteus_aculeatus_otherfeatures_51_1h
## 4076          gasterosteus_aculeatus_otherfeatures_52_1i
## 4077          gasterosteus_aculeatus_otherfeatures_53_1j
## 4078          gasterosteus_aculeatus_otherfeatures_54_1j
## 4079          gasterosteus_aculeatus_otherfeatures_55_1j
## 4080          gasterosteus_aculeatus_otherfeatures_56_1j
## 4081          gasterosteus_aculeatus_otherfeatures_57_1j
## 4082          gasterosteus_aculeatus_otherfeatures_58_1k
## 4083          gasterosteus_aculeatus_otherfeatures_59_1l
## 4084          gasterosteus_aculeatus_otherfeatures_60_1m
## 4085          gasterosteus_aculeatus_otherfeatures_61_1n
## 4086          gasterosteus_aculeatus_otherfeatures_62_1o
## 4087           gasterosteus_aculeatus_otherfeatures_63_1
## 4088           gasterosteus_aculeatus_otherfeatures_64_1
## 4089           gasterosteus_aculeatus_otherfeatures_65_1
## 4090           gasterosteus_aculeatus_otherfeatures_66_1
## 4091           gasterosteus_aculeatus_otherfeatures_67_1
## 4092           gasterosteus_aculeatus_otherfeatures_68_1
## 4093           gasterosteus_aculeatus_otherfeatures_69_1
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## 4095           gasterosteus_aculeatus_otherfeatures_71_1
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## 4097           gasterosteus_aculeatus_otherfeatures_73_1
## 4098           gasterosteus_aculeatus_otherfeatures_74_1
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## 4100           gasterosteus_aculeatus_otherfeatures_76_1
## 4101           gasterosteus_aculeatus_otherfeatures_77_1
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## 4107           gasterosteus_aculeatus_otherfeatures_83_1
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## 4111           gasterosteus_aculeatus_otherfeatures_87_1
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## 4114           gasterosteus_aculeatus_otherfeatures_90_1
```

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## 4117            gasterosteus_aculeatus_otherfeatures_93_1
## 4118            gasterosteus_aculeatus_otherfeatures_94_1
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## 4123            gasterosteus_aculeatus_otherfeatures_99_1
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## 4125                       gopherus_agassizii_core_96_1
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## 4127                       gopherus_agassizii_core_98_1
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## 4137                         gorilla_gorilla_core_55_1
## 4138                         gorilla_gorilla_core_56_1
## 4139                         gorilla_gorilla_core_57_3
## 4140                        gorilla_gorilla_core_58_3a
## 4141                        gorilla_gorilla_core_59_3b
## 4142                        gorilla_gorilla_core_60_3c
## 4143                        gorilla_gorilla_core_61_3d
## 4144                        gorilla_gorilla_core_62_3e
## 4145                         gorilla_gorilla_core_63_3
## 4146                        gorilla_gorilla_core_64_31
## 4147                        gorilla_gorilla_core_65_31
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## 4168                        gorilla_gorilla_core_86_31
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## 4183                    gorilla_gorilla_funcgen_92_4
## 4184                    gorilla_gorilla_funcgen_93_4
## 4185                    gorilla_gorilla_funcgen_94_4
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## 4188                    gorilla_gorilla_funcgen_97_4
## 4189                    gorilla_gorilla_funcgen_98_4
## 4190                    gorilla_gorilla_funcgen_99_4
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## 4192            gorilla_gorilla_otherfeatures_58_3a
## 4193            gorilla_gorilla_otherfeatures_59_3b
## 4194            gorilla_gorilla_otherfeatures_60_3c
## 4195            gorilla_gorilla_otherfeatures_61_3d
## 4196            gorilla_gorilla_otherfeatures_62_3e
## 4197             gorilla_gorilla_otherfeatures_63_3
## 4198            gorilla_gorilla_otherfeatures_64_31
## 4199            gorilla_gorilla_otherfeatures_65_31
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## 4205            gorilla_gorilla_otherfeatures_71_31
## 4206            gorilla_gorilla_otherfeatures_72_31
## 4207            gorilla_gorilla_otherfeatures_73_31
## 4208            gorilla_gorilla_otherfeatures_74_31
## 4209            gorilla_gorilla_otherfeatures_75_31
## 4210            gorilla_gorilla_otherfeatures_76_31
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## 4212            gorilla_gorilla_otherfeatures_78_31
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## 4216            gorilla_gorilla_otherfeatures_82_31
## 4217            gorilla_gorilla_otherfeatures_83_31
## 4218            gorilla_gorilla_otherfeatures_84_31
## 4219            gorilla_gorilla_otherfeatures_85_31
## 4220            gorilla_gorilla_otherfeatures_86_31
## 4221            gorilla_gorilla_otherfeatures_87_31
## 4222            gorilla_gorilla_otherfeatures_88_31
```

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## 4224                       gorilla_gorilla_otherfeatures_90_31
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## 4226                        gorilla_gorilla_otherfeatures_92_4
## 4227                        gorilla_gorilla_otherfeatures_93_4
## 4228                        gorilla_gorilla_otherfeatures_94_4
## 4229                        gorilla_gorilla_otherfeatures_95_4
## 4230                        gorilla_gorilla_otherfeatures_96_4
## 4231                        gorilla_gorilla_otherfeatures_97_4
## 4232                        gorilla_gorilla_otherfeatures_98_4
## 4233                        gorilla_gorilla_otherfeatures_99_4
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## 4235                               gorilla_gorilla_rnaseq_92_4
## 4236                               gorilla_gorilla_rnaseq_93_4
## 4237                               gorilla_gorilla_rnaseq_94_4
## 4238                               gorilla_gorilla_rnaseq_95_4
## 4239                               gorilla_gorilla_rnaseq_96_4
## 4240                               gorilla_gorilla_rnaseq_97_4
## 4241                               gorilla_gorilla_rnaseq_98_4
## 4242                               gorilla_gorilla_rnaseq_99_4
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## 4244                          gouania_willdenowi_core_99_21
## 4245                  gouania_willdenowi_otherfeatures_98_21
## 4246                  gouania_willdenowi_otherfeatures_99_21
## 4247                        gouania_willdenowi_rnaseq_98_21
## 4248                        gouania_willdenowi_rnaseq_99_21
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## 4250                         haplochromis_burtoni_core_95_1
## 4251                         haplochromis_burtoni_core_96_1
## 4252                         haplochromis_burtoni_core_97_1
## 4253                         haplochromis_burtoni_core_98_1
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## 4266                       haplochromis_burtoni_rnaseq_99_1
## 4267               heterocephalus_glaber_female_core_90_1
## 4268               heterocephalus_glaber_female_core_91_1
## 4269               heterocephalus_glaber_female_core_92_1
## 4270               heterocephalus_glaber_female_core_93_1
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## 4275               heterocephalus_glaber_female_core_98_1
## 4276               heterocephalus_glaber_female_core_99_1
```

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## 4278        heterocephalus_glaber_female_otherfeatures_91_1
## 4279        heterocephalus_glaber_female_otherfeatures_92_1
## 4280        heterocephalus_glaber_female_otherfeatures_93_1
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## 4283        heterocephalus_glaber_female_otherfeatures_96_1
## 4284        heterocephalus_glaber_female_otherfeatures_97_1
## 4285        heterocephalus_glaber_female_otherfeatures_98_1
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## 4288            heterocephalus_glaber_female_rnaseq_91_1
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## 4296            heterocephalus_glaber_female_rnaseq_99_1
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## 4298              heterocephalus_glaber_male_core_91_1
## 4299              heterocephalus_glaber_male_core_92_1
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## 4306              heterocephalus_glaber_male_core_99_1
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## 4309        heterocephalus_glaber_male_otherfeatures_92_1
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## 4314        heterocephalus_glaber_male_otherfeatures_97_1
## 4315        heterocephalus_glaber_male_otherfeatures_98_1
## 4316        heterocephalus_glaber_male_otherfeatures_99_1
## 4317            heterocephalus_glaber_male_rnaseq_90_1
## 4318            heterocephalus_glaber_male_rnaseq_91_1
## 4319            heterocephalus_glaber_male_rnaseq_92_1
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## 4329                    hippocampus_comes_core_96_1
## 4330                    hippocampus_comes_core_97_1
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## 4331                           hippocampus_comes_core_98_1
## 4332                           hippocampus_comes_core_99_1
## 4333                  hippocampus_comes_otherfeatures_94_1
## 4334                  hippocampus_comes_otherfeatures_95_1
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## 4339                         hippocampus_comes_rnaseq_94_1
## 4340                         hippocampus_comes_rnaseq_95_1
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## 4343                         hippocampus_comes_rnaseq_98_1
## 4344                         hippocampus_comes_rnaseq_99_1
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## 4346                              homo_sapiens_cdna_49_36k
## 4347                              homo_sapiens_cdna_50_36l
## 4348                              homo_sapiens_cdna_51_36m
## 4349                              homo_sapiens_cdna_52_36n
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## 4355                              homo_sapiens_cdna_58_37c
## 4356                              homo_sapiens_cdna_59_37d
## 4357                              homo_sapiens_cdna_60_37e
## 4358                              homo_sapiens_cdna_61_37f
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## 4382                               homo_sapiens_cdna_85_38
## 4383                               homo_sapiens_cdna_86_38
## 4384                               homo_sapiens_cdna_87_38
```

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## 4398                         homo_sapiens_core_49_36k
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## 4400                         homo_sapiens_core_51_36m
## 4401                         homo_sapiens_core_52_36n
## 4402                         homo_sapiens_core_53_36o
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## 4406                         homo_sapiens_core_57_37b
## 4407                         homo_sapiens_core_58_37c
## 4408                         homo_sapiens_core_59_37d
## 4409                         homo_sapiens_core_60_37e
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## 4411                         homo_sapiens_core_62_37g
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## 4434                          homo_sapiens_core_85_38
## 4435                          homo_sapiens_core_86_38
## 4436                          homo_sapiens_core_87_38
## 4437                          homo_sapiens_core_88_38
## 4438                          homo_sapiens_core_89_38
```

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## 4448                            homo_sapiens_core_99_38
## 4449          homo_sapiens_coreexpressionatlas_60_37e
## 4450          homo_sapiens_coreexpressionatlas_61_37f
## 4451          homo_sapiens_coreexpressionatlas_62_37f
## 4452           homo_sapiens_coreexpressionatlas_63_37
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## 4455           homo_sapiens_coreexpressionatlas_66_37
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## 4461           homo_sapiens_coreexpressionatlas_72_37
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## 4463           homo_sapiens_coreexpressionatlas_74_37
## 4464          homo_sapiens_coreexpressionatlast_65_37
## 4465            homo_sapiens_coreexpressionest_51_36m
## 4466            homo_sapiens_coreexpressionest_52_36n
## 4467            homo_sapiens_coreexpressionest_53_36o
## 4468            homo_sapiens_coreexpressionest_54_36p
## 4469             homo_sapiens_coreexpressionest_55_37
## 4470            homo_sapiens_coreexpressionest_56_37b
## 4471            homo_sapiens_coreexpressionest_57_37b
## 4472            homo_sapiens_coreexpressionest_58_37c
## 4473            homo_sapiens_coreexpressionest_59_37d
## 4474            homo_sapiens_coreexpressionest_60_37e
## 4475            homo_sapiens_coreexpressionest_61_37f
## 4476            homo_sapiens_coreexpressionest_62_37f
## 4477             homo_sapiens_coreexpressionest_63_37
## 4478             homo_sapiens_coreexpressionest_64_37
## 4479             homo_sapiens_coreexpressionest_65_37
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## 4482             homo_sapiens_coreexpressionest_68_37
## 4483             homo_sapiens_coreexpressionest_69_37
## 4484             homo_sapiens_coreexpressionest_70_37
## 4485             homo_sapiens_coreexpressionest_71_37
## 4486             homo_sapiens_coreexpressionest_72_37
## 4487             homo_sapiens_coreexpressionest_73_37
## 4488             homo_sapiens_coreexpressionest_74_37
## 4489            homo_sapiens_coreexpressiongnf_51_36m
## 4490            homo_sapiens_coreexpressiongnf_52_36n
## 4491            homo_sapiens_coreexpressiongnf_53_36o
## 4492            homo_sapiens_coreexpressiongnf_54_36p
```

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## 4493             homo_sapiens_coreexpressiongnf_55_37
## 4494            homo_sapiens_coreexpressiongnf_56_37b
## 4495            homo_sapiens_coreexpressiongnf_57_37b
## 4496            homo_sapiens_coreexpressiongnf_58_37c
## 4497            homo_sapiens_coreexpressiongnf_59_37d
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## 4499                   homo_sapiens_funcgen_49_36k
## 4500                   homo_sapiens_funcgen_50_36l
## 4501                   homo_sapiens_funcgen_51_36m
## 4502                   homo_sapiens_funcgen_52_36n
## 4503                   homo_sapiens_funcgen_53_36o
## 4504                   homo_sapiens_funcgen_54_36p
## 4505                    homo_sapiens_funcgen_55_37
## 4506                   homo_sapiens_funcgen_56_37a
## 4507                   homo_sapiens_funcgen_57_37b
## 4508                   homo_sapiens_funcgen_58_37c
## 4509                   homo_sapiens_funcgen_59_37d
## 4510                   homo_sapiens_funcgen_60_37e
## 4511                   homo_sapiens_funcgen_61_37f
## 4512                   homo_sapiens_funcgen_62_37g
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## 4529                    homo_sapiens_funcgen_79_38
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## 4533                    homo_sapiens_funcgen_83_38
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## 4535                    homo_sapiens_funcgen_85_38
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## 4546                    homo_sapiens_funcgen_96_38
```

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## 4551                    homo_sapiens_otherfeatures_49_36k
## 4552                    homo_sapiens_otherfeatures_50_36l
## 4553                    homo_sapiens_otherfeatures_51_36m
## 4554                    homo_sapiens_otherfeatures_52_36n
## 4555                    homo_sapiens_otherfeatures_53_36o
## 4556                    homo_sapiens_otherfeatures_54_36p
## 4557                     homo_sapiens_otherfeatures_55_37
## 4558                    homo_sapiens_otherfeatures_56_37a
## 4559                    homo_sapiens_otherfeatures_57_37b
## 4560                    homo_sapiens_otherfeatures_58_37c
## 4561                    homo_sapiens_otherfeatures_59_37d
## 4562                    homo_sapiens_otherfeatures_60_37e
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## 4564                    homo_sapiens_otherfeatures_62_37g
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## 4592                     homo_sapiens_otherfeatures_90_38
## 4593                     homo_sapiens_otherfeatures_91_38
## 4594                     homo_sapiens_otherfeatures_92_38
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## 4596                     homo_sapiens_otherfeatures_94_38
## 4597                     homo_sapiens_otherfeatures_95_38
## 4598                     homo_sapiens_otherfeatures_96_38
## 4599                     homo_sapiens_otherfeatures_97_38
## 4600                     homo_sapiens_otherfeatures_98_38
```

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## 4605                       homo_sapiens_rnaseq_64_37
## 4606                       homo_sapiens_rnaseq_65_37
## 4607                       homo_sapiens_rnaseq_66_37
## 4608                       homo_sapiens_rnaseq_67_37
## 4609                       homo_sapiens_rnaseq_68_37
## 4610                       homo_sapiens_rnaseq_69_37
## 4611                       homo_sapiens_rnaseq_70_37
## 4612                       homo_sapiens_rnaseq_71_37
## 4613                       homo_sapiens_rnaseq_72_37
## 4614                       homo_sapiens_rnaseq_73_37
## 4615                       homo_sapiens_rnaseq_74_37
## 4616                       homo_sapiens_rnaseq_75_37
## 4617                       homo_sapiens_rnaseq_76_38
## 4618                       homo_sapiens_rnaseq_77_38
## 4619                       homo_sapiens_rnaseq_78_38
## 4620                       homo_sapiens_rnaseq_79_38
## 4621                       homo_sapiens_rnaseq_80_38
## 4622                       homo_sapiens_rnaseq_81_38
## 4623                       homo_sapiens_rnaseq_82_38
## 4624                       homo_sapiens_rnaseq_83_38
## 4625                       homo_sapiens_rnaseq_84_38
## 4626                       homo_sapiens_rnaseq_85_38
## 4627                       homo_sapiens_rnaseq_86_38
## 4628                       homo_sapiens_rnaseq_87_38
## 4629                       homo_sapiens_rnaseq_88_38
## 4630                       homo_sapiens_rnaseq_89_38
## 4631                       homo_sapiens_rnaseq_90_38
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## 4635                       homo_sapiens_rnaseq_94_38
## 4636                       homo_sapiens_rnaseq_95_38
## 4637                       homo_sapiens_rnaseq_96_38
## 4638                       homo_sapiens_rnaseq_97_38
## 4639                       homo_sapiens_rnaseq_98_38
## 4640                       homo_sapiens_rnaseq_99_38
## 4641                    homo_sapiens_variation_48_36j
## 4642                    homo_sapiens_variation_49_36k
## 4643                    homo_sapiens_variation_50_36l
## 4644                    homo_sapiens_variation_51_36m
## 4645                    homo_sapiens_variation_52_36n
## 4646                    homo_sapiens_variation_53_36o
## 4647                    homo_sapiens_variation_54_36p
## 4648                     homo_sapiens_variation_55_37
## 4649                    homo_sapiens_variation_56_37a
## 4650                    homo_sapiens_variation_57_37b
## 4651                    homo_sapiens_variation_58_37c
## 4652                    homo_sapiens_variation_59_37d
## 4653                    homo_sapiens_variation_60_37e
## 4654                    homo_sapiens_variation_61_37f
```

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## 4655                       homo_sapiens_variation_62_37g
## 4656                        homo_sapiens_variation_63_37
## 4657                        homo_sapiens_variation_64_37
## 4658                        homo_sapiens_variation_65_37
## 4659                        homo_sapiens_variation_66_37
## 4660                        homo_sapiens_variation_67_37
## 4661                        homo_sapiens_variation_68_37
## 4662                        homo_sapiens_variation_69_37
## 4663                        homo_sapiens_variation_70_37
## 4664                        homo_sapiens_variation_71_37
## 4665                        homo_sapiens_variation_72_37
## 4666                        homo_sapiens_variation_73_37
## 4667                        homo_sapiens_variation_74_37
## 4668                        homo_sapiens_variation_75_37
## 4669                        homo_sapiens_variation_76_38
## 4670                        homo_sapiens_variation_77_38
## 4671                        homo_sapiens_variation_78_38
## 4672                        homo_sapiens_variation_79_38
## 4673                        homo_sapiens_variation_80_38
## 4674                        homo_sapiens_variation_81_38
## 4675                        homo_sapiens_variation_82_38
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## 4678                        homo_sapiens_variation_85_38
## 4679                        homo_sapiens_variation_86_38
## 4680                        homo_sapiens_variation_87_38
## 4681                        homo_sapiens_variation_88_38
## 4682                        homo_sapiens_variation_89_38
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## 4692                        homo_sapiens_variation_99_38
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## 4694                           homo_sapiens_vega_49_36k
## 4695                           homo_sapiens_vega_50_36l
## 4696                           homo_sapiens_vega_51_36m
## 4697                           homo_sapiens_vega_52_36n
## 4698                           homo_sapiens_vega_53_36o
## 4699                           homo_sapiens_vega_54_36p
## 4700                            homo_sapiens_vega_55_37
## 4701                           homo_sapiens_vega_56_37a
## 4702                           homo_sapiens_vega_57_37b
## 4703                           homo_sapiens_vega_58_37c
## 4704                           homo_sapiens_vega_59_37d
## 4705                           homo_sapiens_vega_60_37e
## 4706                           homo_sapiens_vega_61_37f
## 4707                           homo_sapiens_vega_62_37g
## 4708                            homo_sapiens_vega_63_37
```

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## 4709                           homo_sapiens_vega_64_37
## 4710                           homo_sapiens_vega_65_37
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## 4712                           homo_sapiens_vega_67_37
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## 4714                           homo_sapiens_vega_69_37
## 4715                           homo_sapiens_vega_70_37
## 4716                           homo_sapiens_vega_71_37
## 4717                           homo_sapiens_vega_72_37
## 4718                           homo_sapiens_vega_73_37
## 4719                           homo_sapiens_vega_74_37
## 4720                           homo_sapiens_vega_75_37
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## 4723                           homo_sapiens_vega_78_38
## 4724                           homo_sapiens_vega_79_38
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## 4732                           homo_sapiens_vega_87_38
## 4733                           homo_sapiens_vega_88_38
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## 4735                             hucho_hucho_core_98_1
## 4736                             hucho_hucho_core_99_1
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## 4738                           hucho_hucho_rnaseq_98_1
## 4739                           hucho_hucho_rnaseq_99_1
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## 4741                   ictalurus_punctatus_core_95_12
## 4742                   ictalurus_punctatus_core_96_12
## 4743                   ictalurus_punctatus_core_97_12
## 4744                   ictalurus_punctatus_core_98_12
## 4745                   ictalurus_punctatus_core_99_12
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## 4747                ictalurus_punctatus_funcgen_97_12
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## 4751          ictalurus_punctatus_otherfeatures_95_12
## 4752          ictalurus_punctatus_otherfeatures_96_12
## 4753          ictalurus_punctatus_otherfeatures_97_12
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## 4755          ictalurus_punctatus_otherfeatures_99_12
## 4756                 ictalurus_punctatus_rnaseq_94_12
## 4757                 ictalurus_punctatus_rnaseq_95_12
## 4758                 ictalurus_punctatus_rnaseq_96_12
## 4759                 ictalurus_punctatus_rnaseq_97_12
## 4760                 ictalurus_punctatus_rnaseq_98_12
## 4761                 ictalurus_punctatus_rnaseq_99_12
## 4762              ictidomys_tridecemlineatus_core_68_2
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## 4763                    ictidomys_tridecemlineatus_core_69_2
## 4764                    ictidomys_tridecemlineatus_core_70_2
## 4765                    ictidomys_tridecemlineatus_core_71_2
## 4766                    ictidomys_tridecemlineatus_core_72_2
## 4767                    ictidomys_tridecemlineatus_core_73_2
## 4768                    ictidomys_tridecemlineatus_core_74_2
## 4769                    ictidomys_tridecemlineatus_core_75_2
## 4770                    ictidomys_tridecemlineatus_core_76_2
## 4771                    ictidomys_tridecemlineatus_core_77_2
## 4772                    ictidomys_tridecemlineatus_core_78_2
## 4773                    ictidomys_tridecemlineatus_core_79_2
## 4774                    ictidomys_tridecemlineatus_core_80_2
## 4775                    ictidomys_tridecemlineatus_core_81_2
## 4776                    ictidomys_tridecemlineatus_core_82_2
## 4777                    ictidomys_tridecemlineatus_core_83_2
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## 4780                    ictidomys_tridecemlineatus_core_86_2
## 4781                    ictidomys_tridecemlineatus_core_87_2
## 4782                    ictidomys_tridecemlineatus_core_88_2
## 4783                    ictidomys_tridecemlineatus_core_89_2
## 4784                    ictidomys_tridecemlineatus_core_90_3
## 4785                    ictidomys_tridecemlineatus_core_91_3
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## 4791                    ictidomys_tridecemlineatus_core_97_3
## 4792                    ictidomys_tridecemlineatus_core_98_3
## 4793                    ictidomys_tridecemlineatus_core_99_3
## 4794          ictidomys_tridecemlineatus_otherfeatures_68_2
## 4795          ictidomys_tridecemlineatus_otherfeatures_69_2
## 4796          ictidomys_tridecemlineatus_otherfeatures_70_2
## 4797          ictidomys_tridecemlineatus_otherfeatures_71_2
## 4798          ictidomys_tridecemlineatus_otherfeatures_72_2
## 4799          ictidomys_tridecemlineatus_otherfeatures_73_2
## 4800          ictidomys_tridecemlineatus_otherfeatures_74_2
## 4801          ictidomys_tridecemlineatus_otherfeatures_75_2
## 4802          ictidomys_tridecemlineatus_otherfeatures_76_2
## 4803          ictidomys_tridecemlineatus_otherfeatures_77_2
## 4804          ictidomys_tridecemlineatus_otherfeatures_78_2
## 4805          ictidomys_tridecemlineatus_otherfeatures_79_2
## 4806          ictidomys_tridecemlineatus_otherfeatures_80_2
## 4807          ictidomys_tridecemlineatus_otherfeatures_81_2
## 4808          ictidomys_tridecemlineatus_otherfeatures_82_2
## 4809          ictidomys_tridecemlineatus_otherfeatures_83_2
## 4810          ictidomys_tridecemlineatus_otherfeatures_84_2
## 4811          ictidomys_tridecemlineatus_otherfeatures_85_2
## 4812          ictidomys_tridecemlineatus_otherfeatures_86_2
## 4813          ictidomys_tridecemlineatus_otherfeatures_87_2
## 4814          ictidomys_tridecemlineatus_otherfeatures_88_2
## 4815          ictidomys_tridecemlineatus_otherfeatures_89_2
## 4816          ictidomys_tridecemlineatus_otherfeatures_90_3
```

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## 4817          ictidomys_tridecemlineatus_otherfeatures_91_3
## 4818          ictidomys_tridecemlineatus_otherfeatures_92_3
## 4819          ictidomys_tridecemlineatus_otherfeatures_93_3
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## 4824          ictidomys_tridecemlineatus_otherfeatures_98_3
## 4825          ictidomys_tridecemlineatus_otherfeatures_99_3
## 4826                ictidomys_tridecemlineatus_rnaseq_90_3
## 4827                ictidomys_tridecemlineatus_rnaseq_91_3
## 4828                ictidomys_tridecemlineatus_rnaseq_92_3
## 4829                ictidomys_tridecemlineatus_rnaseq_93_3
## 4830                ictidomys_tridecemlineatus_rnaseq_94_3
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## 4833                ictidomys_tridecemlineatus_rnaseq_97_3
## 4834                ictidomys_tridecemlineatus_rnaseq_98_3
## 4835                ictidomys_tridecemlineatus_rnaseq_99_3
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## 4837                          jaculus_jaculus_core_91_10
## 4838                          jaculus_jaculus_core_92_10
## 4839                          jaculus_jaculus_core_93_10
## 4840                          jaculus_jaculus_core_94_10
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## 4843                          jaculus_jaculus_core_97_10
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## 4845                          jaculus_jaculus_core_99_10
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## 4847                 jaculus_jaculus_otherfeatures_91_10
## 4848                 jaculus_jaculus_otherfeatures_92_10
## 4849                 jaculus_jaculus_otherfeatures_93_10
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## 4857                            junco_hyemalis_core_97_1
## 4858                            junco_hyemalis_core_98_1
## 4859                            junco_hyemalis_core_99_1
## 4860                          junco_hyemalis_rnaseq_96_1
## 4861                          junco_hyemalis_rnaseq_97_1
## 4862                          junco_hyemalis_rnaseq_98_1
## 4863                          junco_hyemalis_rnaseq_99_1
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## 4865                   kryptolebias_marmoratus_core_95_1
## 4866                   kryptolebias_marmoratus_core_96_1
## 4867                   kryptolebias_marmoratus_core_97_1
## 4868                   kryptolebias_marmoratus_core_98_1
## 4869                   kryptolebias_marmoratus_core_99_1
## 4870          kryptolebias_marmoratus_otherfeatures_94_1
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## 4872                 kryptolebias_marmoratus_otherfeatures_96_1
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## 4874                 kryptolebias_marmoratus_otherfeatures_98_1
## 4875                 kryptolebias_marmoratus_otherfeatures_99_1
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## 4877                     kryptolebias_marmoratus_rnaseq_95_1
## 4878                     kryptolebias_marmoratus_rnaseq_96_1
## 4879                     kryptolebias_marmoratus_rnaseq_97_1
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## 4881                     kryptolebias_marmoratus_rnaseq_99_1
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## 4883                             labrus_bergylta_core_95_1
## 4884                             labrus_bergylta_core_96_1
## 4885                             labrus_bergylta_core_97_1
## 4886                             labrus_bergylta_core_98_1
## 4887                             labrus_bergylta_core_99_1
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## 4889                     labrus_bergylta_otherfeatures_95_1
## 4890                     labrus_bergylta_otherfeatures_96_1
## 4891                     labrus_bergylta_otherfeatures_97_1
## 4892                     labrus_bergylta_otherfeatures_98_1
## 4893                     labrus_bergylta_otherfeatures_99_1
## 4894                         labrus_bergylta_rnaseq_94_1
## 4895                         labrus_bergylta_rnaseq_95_1
## 4896                         labrus_bergylta_rnaseq_96_1
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## 4898                         labrus_bergylta_rnaseq_98_1
## 4899                         labrus_bergylta_rnaseq_99_1
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## 4901                     larimichthys_crocea_core_99_20
## 4902             larimichthys_crocea_otherfeatures_98_20
## 4903             larimichthys_crocea_otherfeatures_99_20
## 4904                   larimichthys_crocea_rnaseq_98_20
## 4905                   larimichthys_crocea_rnaseq_99_20
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## 4907                         lates_calcarifer_core_98_1
## 4908                         lates_calcarifer_core_99_1
## 4909                       lates_calcarifer_rnaseq_97_1
## 4910                       lates_calcarifer_rnaseq_98_1
## 4911                       lates_calcarifer_rnaseq_99_1
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## 4913                       latimeria_chalumnae_core_67_1
## 4914                       latimeria_chalumnae_core_68_1
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## 4916                       latimeria_chalumnae_core_70_1
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## 4918                       latimeria_chalumnae_core_72_1
## 4919                       latimeria_chalumnae_core_73_1
## 4920                       latimeria_chalumnae_core_74_1
## 4921                       latimeria_chalumnae_core_75_1
## 4922                       latimeria_chalumnae_core_76_1
## 4923                       latimeria_chalumnae_core_77_1
## 4924                       latimeria_chalumnae_core_78_1
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## 4932                         latimeria_chalumnae_core_86_1
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## 4935                         latimeria_chalumnae_core_89_1
## 4936                         latimeria_chalumnae_core_90_1
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## 4947         latimeria_chalumnae_otherfeatures_67_1
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## 4957         latimeria_chalumnae_otherfeatures_77_1
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## 4965         latimeria_chalumnae_otherfeatures_85_1
## 4966         latimeria_chalumnae_otherfeatures_86_1
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## 4973         latimeria_chalumnae_otherfeatures_93_1
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## 4975         latimeria_chalumnae_otherfeatures_95_1
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## 4977         latimeria_chalumnae_otherfeatures_97_1
## 4978         latimeria_chalumnae_otherfeatures_98_1
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## 4983                    lepidothrix_coronata_core_99_1
## 4984          lepidothrix_coronata_otherfeatures_96_1
## 4985          lepidothrix_coronata_otherfeatures_97_1
## 4986          lepidothrix_coronata_otherfeatures_98_1
## 4987          lepidothrix_coronata_otherfeatures_99_1
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## 4989                  lepidothrix_coronata_rnaseq_97_1
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## 4993                   lepisosteus_oculatus_core_75_1
## 4994                   lepisosteus_oculatus_core_76_1
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## 4996                   lepisosteus_oculatus_core_78_1
## 4997                   lepisosteus_oculatus_core_79_1
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## 4999                   lepisosteus_oculatus_core_81_1
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## 5004                   lepisosteus_oculatus_core_86_1
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## 5083                        loxodonta_africana_core_49_1d
## 5084                        loxodonta_africana_core_50_1e
## 5085                        loxodonta_africana_core_51_1f
## 5086                        loxodonta_africana_core_52_1g
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## 5135               lynx_canadensis_otherfeatures_99_41
## 5136                        lynx_canadensis_rnaseq_99_41
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## 5138                        macaca_fascicularis_core_92_5
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## 5176                           macaca_mulatta_core_51_10i
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## 5178                           macaca_mulatta_core_53_10k
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## 5184                           macaca_mulatta_core_59_10n
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## 5186                           macaca_mulatta_core_61_10p
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## 5229                       macaca_mulatta_funcgen_59_10n
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## 5243                        macaca_mulatta_funcgen_73_10
## 5244                        macaca_mulatta_funcgen_74_10
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## 5248                        macaca_mulatta_funcgen_78_10
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## 5279            macaca_mulatta_otherfeatures_58_10m
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## 5282            macaca_mulatta_otherfeatures_61_10p
## 5283            macaca_mulatta_otherfeatures_62_10q
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## 5418                           macropus_eugenii_core_69_1
## 5419                           macropus_eugenii_core_70_1
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## 5423                           macropus_eugenii_core_74_1
## 5424                           macropus_eugenii_core_75_1
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## 5426                           macropus_eugenii_core_77_1
## 5427                           macropus_eugenii_core_78_1
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## 5433                           macropus_eugenii_core_84_1
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## 5437                           macropus_eugenii_core_88_1
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## 5439                         manacus_vitellinus_core_97_2
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## 5444               manacus_vitellinus_otherfeatures_98_2
## 5445               manacus_vitellinus_otherfeatures_99_2
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## 5447                       manacus_vitellinus_rnaseq_97_2
## 5448                       manacus_vitellinus_rnaseq_98_2
## 5449                       manacus_vitellinus_rnaseq_99_2
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## 5451                    mandrillus_leucophaeus_core_92_1
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## 5461                 mandrillus_leucophaeus_funcgen_93_1
## 5462                 mandrillus_leucophaeus_funcgen_94_1
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## 5466                mandrillus_leucophaeus_funcgen_98_1
## 5467                mandrillus_leucophaeus_funcgen_99_1
## 5468          mandrillus_leucophaeus_otherfeatures_91_1
## 5469          mandrillus_leucophaeus_otherfeatures_92_1
## 5470          mandrillus_leucophaeus_otherfeatures_93_1
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## 5490                mastacembelus_armatus_core_95_11
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## 5502                              master_schema_83
## 5503                              master_schema_84
## 5504                              master_schema_87
## 5505                              master_schema_88
## 5506                              master_schema_89
## 5507                              master_schema_90
## 5508                              master_schema_91
## 5509                              master_schema_92
## 5510                              master_schema_93
## 5511                              master_schema_94
## 5512                              master_schema_95
## 5513                              master_schema_96
## 5514                              master_schema_97
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## 5517                      master_schema_funcgen_82
## 5518                      master_schema_funcgen_83
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## 5520                      master_schema_funcgen_87
## 5521                      master_schema_funcgen_88
## 5522                      master_schema_funcgen_89
## 5523                      master_schema_funcgen_90
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## 5526                      master_schema_funcgen_93
## 5527                      master_schema_funcgen_94
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## 5529                      master_schema_funcgen_96
## 5530                      master_schema_funcgen_97
## 5531                      master_schema_funcgen_98
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## 5533                    master_schema_variation_83
## 5534                    master_schema_variation_84
## 5535                    master_schema_variation_87
## 5536                    master_schema_variation_88
## 5537                    master_schema_variation_89
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## 5544                    master_schema_variation_96
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## 5546                    master_schema_variation_98
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## 5728                   microcebus_murinus_core_51_1a
## 5729                   microcebus_murinus_core_52_1b
## 5730                   microcebus_murinus_core_53_1b
## 5731                   microcebus_murinus_core_54_1b
## 5732                   microcebus_murinus_core_55_1b
## 5733                   microcebus_murinus_core_56_1b
## 5734                   microcebus_murinus_core_57_1b
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## 5736                         microcebus_murinus_core_59_1d
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## 5738                         microcebus_murinus_core_61_1f
## 5739                         microcebus_murinus_core_62_1g
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## 5832      microtus_ochrogaster_otherfeatures_98_10
## 5833      microtus_ochrogaster_otherfeatures_99_10
## 5834                            mola_mola_core_94_1
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## 5837                            mola_mola_core_97_1
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## 5839                            mola_mola_core_99_1
## 5840               monodelphis_domestica_core_48_5c
## 5841               monodelphis_domestica_core_49_5d
## 5842               monodelphis_domestica_core_50_5e
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## 5843                        monodelphis_domestica_core_51_5f
## 5844                        monodelphis_domestica_core_52_5g
## 5845                        monodelphis_domestica_core_53_5h
## 5846                        monodelphis_domestica_core_54_5h
## 5847                        monodelphis_domestica_core_55_5i
## 5848                        monodelphis_domestica_core_56_5i
## 5849                        monodelphis_domestica_core_57_5i
## 5850                        monodelphis_domestica_core_58_5j
## 5851                        monodelphis_domestica_core_59_5k
## 5852                        monodelphis_domestica_core_60_5l
## 5853                        monodelphis_domestica_core_61_5m
## 5854                        monodelphis_domestica_core_62_5n
## 5855                         monodelphis_domestica_core_63_5
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## 5862                         monodelphis_domestica_core_70_5
## 5863                         monodelphis_domestica_core_71_5
## 5864                         monodelphis_domestica_core_72_5
## 5865                         monodelphis_domestica_core_73_5
## 5866                         monodelphis_domestica_core_74_5
## 5867                         monodelphis_domestica_core_75_5
## 5868                         monodelphis_domestica_core_76_5
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## 5878                         monodelphis_domestica_core_86_5
## 5879                         monodelphis_domestica_core_87_5
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## 5891                         monodelphis_domestica_core_99_1
## 5892                       monodelphis_domestica_rnaseq_69_5
## 5893                       monodelphis_domestica_rnaseq_70_5
## 5894                       monodelphis_domestica_rnaseq_71_5
## 5895                       monodelphis_domestica_rnaseq_72_5
## 5896                       monodelphis_domestica_rnaseq_73_5
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## 5897                     monodelphis_domestica_rnaseq_74_5
## 5898                     monodelphis_domestica_rnaseq_75_5
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## 5924              monodelphis_domestica_variation_62_5n
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## 5949               monodelphis_domestica_variation_87_5
## 5950               monodelphis_domestica_variation_88_5
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## 5981                 moschus_moschiferus_rnaseq_99_2
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## 5983                             mus_caroli_core_91_11
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## 5991                             mus_caroli_core_99_11
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## 6004               mus_musculus_129s1svimj_core_98_1
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## 6009              mus_musculus_129s1svimj_funcgen_92_1
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## 6039                    mus_musculus_aj_funcgen_97_1
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## 6053                     mus_musculus_akrj_core_97_1
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## 6056                  mus_musculus_akrj_funcgen_89_1
## 6057                  mus_musculus_akrj_funcgen_90_1
## 6058                  mus_musculus_akrj_funcgen_91_1
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## 6060                           mus_musculus_akrj_funcgen_93_1
## 6061                           mus_musculus_akrj_funcgen_94_1
## 6062                           mus_musculus_akrj_funcgen_95_1
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## 6087                         mus_musculus_balbcj_funcgen_95_1
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## 6105                            mus_musculus_c3hhej_core_99_1
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## 6109                         mus_musculus_c3hhej_funcgen_92_1
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## 6111                         mus_musculus_c3hhej_funcgen_94_1
## 6112                         mus_musculus_c3hhej_funcgen_95_1
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## 6195                         mus_musculus_cdna_51_37d
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## 6197                         mus_musculus_cdna_53_37f
## 6198                         mus_musculus_cdna_54_37g
## 6199                         mus_musculus_cdna_55_37h
## 6200                         mus_musculus_cdna_56_37i
## 6201                         mus_musculus_cdna_57_37j
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## 6203                         mus_musculus_cdna_59_37l
## 6204                         mus_musculus_cdna_60_37m
## 6205                         mus_musculus_cdna_61_37n
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## 6220                          mus_musculus_cdna_76_38
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## 6664                           mus_musculus_vega_85_38
## 6665                           mus_musculus_vega_86_38
## 6666                           mus_musculus_vega_87_38
## 6667                           mus_musculus_vega_88_38
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## 6669                     mus_musculus_wsbeij_core_87_1
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## 6681                     mus_musculus_wsbeij_core_99_1
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## 6683                  mus_musculus_wsbeij_funcgen_90_1
## 6684                  mus_musculus_wsbeij_funcgen_91_1
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## 6697                             mus_pahari_core_94_11
## 6698                             mus_pahari_core_95_11
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## 6700                             mus_pahari_core_97_11
## 6701                             mus_pahari_core_98_11
## 6702                             mus_pahari_core_99_11
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## 6704                         mus_spicilegus_core_97_714
## 6705                         mus_spicilegus_core_98_714
## 6706                         mus_spicilegus_core_99_714
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## 6708                       mus_spicilegus_rnaseq_97_714
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## 6839                         myotis_lucifugus_core_58_1h
## 6840                         myotis_lucifugus_core_59_1i
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## 6842                         myotis_lucifugus_core_61_1k
## 6843                         myotis_lucifugus_core_62_1l
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## 7054            nomascus_leucogenys_otherfeatures_80_1
## 7055            nomascus_leucogenys_otherfeatures_81_1
## 7056            nomascus_leucogenys_otherfeatures_82_1
## 7057            nomascus_leucogenys_otherfeatures_83_1
## 7058            nomascus_leucogenys_otherfeatures_84_1
## 7059            nomascus_leucogenys_otherfeatures_85_1
## 7060            nomascus_leucogenys_otherfeatures_86_1
## 7061            nomascus_leucogenys_otherfeatures_87_1
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## 7063            nomascus_leucogenys_otherfeatures_89_1
## 7064            nomascus_leucogenys_otherfeatures_90_1
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## 7066            nomascus_leucogenys_otherfeatures_92_3
## 7067            nomascus_leucogenys_otherfeatures_93_3
## 7068            nomascus_leucogenys_otherfeatures_94_3
## 7069            nomascus_leucogenys_otherfeatures_95_3
## 7070            nomascus_leucogenys_otherfeatures_96_3
## 7071            nomascus_leucogenys_otherfeatures_97_3
## 7072            nomascus_leucogenys_otherfeatures_98_3
## 7073            nomascus_leucogenys_otherfeatures_99_3
## 7074                    nomascus_leucogenys_rnaseq_70_1
## 7075                    nomascus_leucogenys_rnaseq_71_1
## 7076                    nomascus_leucogenys_rnaseq_72_1
## 7077                    nomascus_leucogenys_rnaseq_73_1
## 7078                    nomascus_leucogenys_rnaseq_74_1
## 7079                    nomascus_leucogenys_rnaseq_75_1
## 7080                    nomascus_leucogenys_rnaseq_76_1
## 7081                    nomascus_leucogenys_rnaseq_77_1
## 7082                    nomascus_leucogenys_rnaseq_78_1
## 7083                    nomascus_leucogenys_rnaseq_79_1
## 7084                    nomascus_leucogenys_rnaseq_80_1
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## 7085                           nomascus_leucogenys_rnaseq_81_1
## 7086                           nomascus_leucogenys_rnaseq_82_1
## 7087                           nomascus_leucogenys_rnaseq_83_1
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## 7089                           nomascus_leucogenys_rnaseq_85_1
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## 7097                        nomascus_leucogenys_variation_74_1
## 7098                        nomascus_leucogenys_variation_75_1
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## 7115                        nomascus_leucogenys_variation_92_3
## 7116                        nomascus_leucogenys_variation_93_3
## 7117                        nomascus_leucogenys_variation_94_3
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## 7121                        nomascus_leucogenys_variation_98_3
## 7122                        nomascus_leucogenys_variation_99_3
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## 7124                          notamacropus_eugenii_core_90_1
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## 7126                          notamacropus_eugenii_core_92_1
## 7127                          notamacropus_eugenii_core_93_1
## 7128                          notamacropus_eugenii_core_94_1
## 7129                          notamacropus_eugenii_core_95_1
## 7130                          notamacropus_eugenii_core_96_1
## 7131                          notamacropus_eugenii_core_97_1
## 7132                          notamacropus_eugenii_core_98_1
## 7133                          notamacropus_eugenii_core_99_1
## 7134                            notechis_scutatus_core_96_2
## 7135                            notechis_scutatus_core_97_2
## 7136                            notechis_scutatus_core_98_2
## 7137                            notechis_scutatus_core_99_2
## 7138                  notechis_scutatus_otherfeatures_96_2
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## 7139                notechis_scutatus_otherfeatures_97_2
## 7140                notechis_scutatus_otherfeatures_98_2
## 7141                notechis_scutatus_otherfeatures_99_2
## 7142                     notechis_scutatus_rnaseq_96_2
## 7143                     notechis_scutatus_rnaseq_97_2
## 7144                     notechis_scutatus_rnaseq_98_2
## 7145                     notechis_scutatus_rnaseq_99_2
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## 7147                  nothoprocta_perdicaria_core_97_1
## 7148                  nothoprocta_perdicaria_core_98_1
## 7149                  nothoprocta_perdicaria_core_99_1
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## 7152         nothoprocta_perdicaria_otherfeatures_98_1
## 7153         nothoprocta_perdicaria_otherfeatures_99_1
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## 7155                        numida_meleagris_core_97_1
## 7156                        numida_meleagris_core_98_1
## 7157                        numida_meleagris_core_99_1
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## 7160               numida_meleagris_otherfeatures_98_1
## 7161               numida_meleagris_otherfeatures_99_1
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## 7163                      numida_meleagris_rnaseq_97_1
## 7164                      numida_meleagris_rnaseq_98_1
## 7165                      numida_meleagris_rnaseq_99_1
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## 7167                        ochotona_princeps_core_49_1
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## 7169                       ochotona_princeps_core_51_1b
## 7170                       ochotona_princeps_core_52_1c
## 7171                       ochotona_princeps_core_53_1c
## 7172                       ochotona_princeps_core_54_1c
## 7173                       ochotona_princeps_core_55_1c
## 7174                       ochotona_princeps_core_56_1c
## 7175                       ochotona_princeps_core_57_1c
## 7176                       ochotona_princeps_core_58_1d
## 7177                       ochotona_princeps_core_59_1e
## 7178                       ochotona_princeps_core_60_1f
## 7179                       ochotona_princeps_core_61_1g
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## 7190                        ochotona_princeps_core_72_1
## 7191                        ochotona_princeps_core_73_1
## 7192                        ochotona_princeps_core_74_1
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## 7193                         ochotona_princeps_core_75_1
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## 7237                 octodon_degus_otherfeatures_99_1
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## 7239                     oreochromis_aureus_rnaseq_99_1
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## 7241                    oreochromis_niloticus_core_68_1
## 7242                    oreochromis_niloticus_core_69_1
## 7243                    oreochromis_niloticus_core_70_1
## 7244                    oreochromis_niloticus_core_71_1
## 7245                    oreochromis_niloticus_core_72_1
## 7246                    oreochromis_niloticus_core_73_1
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## 7248                       oreochromis_niloticus_core_75_1
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## 7272                       oreochromis_niloticus_core_99_3
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## 7274             oreochromis_niloticus_otherfeatures_68_1
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## 7300             oreochromis_niloticus_otherfeatures_94_1
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## 7307                          oreochromis_niloticus_rnaseq_68_1
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## 7342                        ornithorhynchus_anatinus_core_51_1h
## 7343                        ornithorhynchus_anatinus_core_52_1i
## 7344                        ornithorhynchus_anatinus_core_53_1j
## 7345                        ornithorhynchus_anatinus_core_54_1j
## 7346                        ornithorhynchus_anatinus_core_55_1k
## 7347                        ornithorhynchus_anatinus_core_56_1k
## 7348                        ornithorhynchus_anatinus_core_57_1k
## 7349                        ornithorhynchus_anatinus_core_58_1l
## 7350                        ornithorhynchus_anatinus_core_59_1m
## 7351                        ornithorhynchus_anatinus_core_60_1n
## 7352                        ornithorhynchus_anatinus_core_61_1o
## 7353                        ornithorhynchus_anatinus_core_62_1p
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## 7394             ornithorhynchus_anatinus_funcgen_58_1l
## 7395             ornithorhynchus_anatinus_funcgen_59_1m
## 7396             ornithorhynchus_anatinus_funcgen_60_1n
## 7397             ornithorhynchus_anatinus_funcgen_61_1o
## 7398             ornithorhynchus_anatinus_funcgen_62_1p
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## 7404              ornithorhynchus_anatinus_funcgen_68_1
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## 7408              ornithorhynchus_anatinus_funcgen_72_1
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## 7437          ornithorhynchus_anatinus_otherfeatures_49_1f
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## 7439          ornithorhynchus_anatinus_otherfeatures_51_1h
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## 7441          ornithorhynchus_anatinus_otherfeatures_53_1j
## 7442          ornithorhynchus_anatinus_otherfeatures_54_1j
## 7443          ornithorhynchus_anatinus_otherfeatures_55_1k
## 7444          ornithorhynchus_anatinus_otherfeatures_56_1k
## 7445          ornithorhynchus_anatinus_otherfeatures_57_1k
## 7446          ornithorhynchus_anatinus_otherfeatures_58_1l
## 7447          ornithorhynchus_anatinus_otherfeatures_59_1m
## 7448          ornithorhynchus_anatinus_otherfeatures_60_1n
## 7449          ornithorhynchus_anatinus_otherfeatures_61_1o
## 7450          ornithorhynchus_anatinus_otherfeatures_62_1p
## 7451           ornithorhynchus_anatinus_otherfeatures_63_1
## 7452           ornithorhynchus_anatinus_otherfeatures_64_1
## 7453           ornithorhynchus_anatinus_otherfeatures_65_1
## 7454           ornithorhynchus_anatinus_otherfeatures_66_1
## 7455           ornithorhynchus_anatinus_otherfeatures_67_1
## 7456           ornithorhynchus_anatinus_otherfeatures_68_1
## 7457           ornithorhynchus_anatinus_otherfeatures_69_1
## 7458           ornithorhynchus_anatinus_otherfeatures_70_1
## 7459           ornithorhynchus_anatinus_otherfeatures_71_1
## 7460           ornithorhynchus_anatinus_otherfeatures_72_1
## 7461           ornithorhynchus_anatinus_otherfeatures_73_1
## 7462           ornithorhynchus_anatinus_otherfeatures_74_1
```

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## 7463        ornithorhynchus_anatinus_otherfeatures_75_1
## 7464        ornithorhynchus_anatinus_otherfeatures_76_1
## 7465        ornithorhynchus_anatinus_otherfeatures_77_1
## 7466        ornithorhynchus_anatinus_otherfeatures_78_1
## 7467        ornithorhynchus_anatinus_otherfeatures_79_1
## 7468        ornithorhynchus_anatinus_otherfeatures_80_1
## 7469        ornithorhynchus_anatinus_otherfeatures_81_1
## 7470        ornithorhynchus_anatinus_otherfeatures_82_1
## 7471        ornithorhynchus_anatinus_otherfeatures_83_1
## 7472        ornithorhynchus_anatinus_otherfeatures_84_1
## 7473        ornithorhynchus_anatinus_otherfeatures_85_1
## 7474        ornithorhynchus_anatinus_otherfeatures_86_1
## 7475        ornithorhynchus_anatinus_otherfeatures_87_1
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## 7479        ornithorhynchus_anatinus_otherfeatures_91_1
## 7480        ornithorhynchus_anatinus_otherfeatures_92_1
## 7481        ornithorhynchus_anatinus_otherfeatures_93_1
## 7482        ornithorhynchus_anatinus_otherfeatures_94_1
## 7483        ornithorhynchus_anatinus_otherfeatures_95_1
## 7484        ornithorhynchus_anatinus_otherfeatures_96_1
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## 7487        ornithorhynchus_anatinus_otherfeatures_99_1
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## 7491            ornithorhynchus_anatinus_rnaseq_72_1
## 7492            ornithorhynchus_anatinus_rnaseq_73_1
## 7493            ornithorhynchus_anatinus_rnaseq_74_1
## 7494            ornithorhynchus_anatinus_rnaseq_75_1
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## 7500            ornithorhynchus_anatinus_rnaseq_81_1
## 7501            ornithorhynchus_anatinus_rnaseq_82_1
## 7502            ornithorhynchus_anatinus_rnaseq_83_1
## 7503            ornithorhynchus_anatinus_rnaseq_84_1
## 7504            ornithorhynchus_anatinus_rnaseq_85_1
## 7505            ornithorhynchus_anatinus_rnaseq_86_1
## 7506            ornithorhynchus_anatinus_rnaseq_87_1
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## 7512            ornithorhynchus_anatinus_rnaseq_93_1
## 7513            ornithorhynchus_anatinus_rnaseq_94_1
## 7514            ornithorhynchus_anatinus_rnaseq_95_1
## 7515            ornithorhynchus_anatinus_rnaseq_96_1
## 7516            ornithorhynchus_anatinus_rnaseq_97_1
```

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## 7517           ornithorhynchus_anatinus_rnaseq_98_1
## 7518           ornithorhynchus_anatinus_rnaseq_99_1
## 7519        ornithorhynchus_anatinus_variation_48_1e
## 7520        ornithorhynchus_anatinus_variation_49_1f
## 7521        ornithorhynchus_anatinus_variation_50_1g
## 7522        ornithorhynchus_anatinus_variation_51_1h
## 7523        ornithorhynchus_anatinus_variation_52_1i
## 7524        ornithorhynchus_anatinus_variation_53_1j
## 7525        ornithorhynchus_anatinus_variation_54_1j
## 7526        ornithorhynchus_anatinus_variation_55_1k
## 7527        ornithorhynchus_anatinus_variation_56_1k
## 7528        ornithorhynchus_anatinus_variation_57_1k
## 7529        ornithorhynchus_anatinus_variation_58_1l
## 7530        ornithorhynchus_anatinus_variation_59_1m
## 7531        ornithorhynchus_anatinus_variation_60_1n
## 7532        ornithorhynchus_anatinus_variation_61_1o
## 7533        ornithorhynchus_anatinus_variation_62_1p
## 7534         ornithorhynchus_anatinus_variation_63_1
## 7535         ornithorhynchus_anatinus_variation_64_1
## 7536         ornithorhynchus_anatinus_variation_65_1
## 7537         ornithorhynchus_anatinus_variation_66_1
## 7538         ornithorhynchus_anatinus_variation_67_1
## 7539         ornithorhynchus_anatinus_variation_68_1
## 7540         ornithorhynchus_anatinus_variation_69_1
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## 7543         ornithorhynchus_anatinus_variation_72_1
## 7544         ornithorhynchus_anatinus_variation_73_1
## 7545         ornithorhynchus_anatinus_variation_74_1
## 7546         ornithorhynchus_anatinus_variation_75_1
## 7547         ornithorhynchus_anatinus_variation_76_1
## 7548         ornithorhynchus_anatinus_variation_77_1
## 7549         ornithorhynchus_anatinus_variation_78_1
## 7550         ornithorhynchus_anatinus_variation_79_1
## 7551         ornithorhynchus_anatinus_variation_80_1
## 7552         ornithorhynchus_anatinus_variation_81_1
## 7553         ornithorhynchus_anatinus_variation_82_1
## 7554         ornithorhynchus_anatinus_variation_83_1
## 7555         ornithorhynchus_anatinus_variation_84_1
## 7556         ornithorhynchus_anatinus_variation_85_1
## 7557         ornithorhynchus_anatinus_variation_86_1
## 7558         ornithorhynchus_anatinus_variation_87_1
## 7559         ornithorhynchus_anatinus_variation_88_1
## 7560         ornithorhynchus_anatinus_variation_89_1
## 7561         ornithorhynchus_anatinus_variation_90_1
## 7562         ornithorhynchus_anatinus_variation_91_1
## 7563         ornithorhynchus_anatinus_variation_92_1
## 7564         ornithorhynchus_anatinus_variation_93_1
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## 7566         ornithorhynchus_anatinus_variation_95_1
## 7567         ornithorhynchus_anatinus_variation_96_1
## 7568         ornithorhynchus_anatinus_variation_97_1
## 7569         ornithorhynchus_anatinus_variation_98_1
## 7570         ornithorhynchus_anatinus_variation_99_1
```

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## 7571                    oryctolagus_cuniculus_core_48_1e
## 7572                    oryctolagus_cuniculus_core_49_1f
## 7573                    oryctolagus_cuniculus_core_50_1g
## 7574                    oryctolagus_cuniculus_core_51_1g
## 7575                    oryctolagus_cuniculus_core_52_1h
## 7576                    oryctolagus_cuniculus_core_53_1h
## 7577                    oryctolagus_cuniculus_core_54_1h
## 7578                    oryctolagus_cuniculus_core_55_1h
## 7579                    oryctolagus_cuniculus_core_56_1h
## 7580                     oryctolagus_cuniculus_core_57_2
## 7581                    oryctolagus_cuniculus_core_58_2a
## 7582                    oryctolagus_cuniculus_core_59_2b
## 7583                     oryctolagus_cuniculus_core_60_3
## 7584                    oryctolagus_cuniculus_core_61_3a
## 7585                    oryctolagus_cuniculus_core_62_3b
## 7586                     oryctolagus_cuniculus_core_63_3
## 7587                     oryctolagus_cuniculus_core_64_3
## 7588                     oryctolagus_cuniculus_core_65_3
## 7589                     oryctolagus_cuniculus_core_66_3
## 7590                     oryctolagus_cuniculus_core_67_3
## 7591                     oryctolagus_cuniculus_core_68_3
## 7592                     oryctolagus_cuniculus_core_69_3
## 7593                     oryctolagus_cuniculus_core_70_3
## 7594                     oryctolagus_cuniculus_core_71_3
## 7595                     oryctolagus_cuniculus_core_72_3
## 7596                     oryctolagus_cuniculus_core_73_2
## 7597                     oryctolagus_cuniculus_core_74_2
## 7598                     oryctolagus_cuniculus_core_75_2
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## 7603                     oryctolagus_cuniculus_core_80_2
## 7604                     oryctolagus_cuniculus_core_81_2
## 7605                     oryctolagus_cuniculus_core_82_2
## 7606                     oryctolagus_cuniculus_core_83_2
## 7607                     oryctolagus_cuniculus_core_84_2
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## 7609                     oryctolagus_cuniculus_core_86_2
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## 7614                     oryctolagus_cuniculus_core_91_2
## 7615                     oryctolagus_cuniculus_core_92_2
## 7616                     oryctolagus_cuniculus_core_93_2
## 7617                     oryctolagus_cuniculus_core_94_2
## 7618                     oryctolagus_cuniculus_core_95_2
## 7619                     oryctolagus_cuniculus_core_96_2
## 7620                     oryctolagus_cuniculus_core_97_2
## 7621                     oryctolagus_cuniculus_core_98_2
## 7622                     oryctolagus_cuniculus_core_99_2
## 7623                 oryctolagus_cuniculus_funcgen_70_3
## 7624                 oryctolagus_cuniculus_funcgen_71_3
```

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## 7625                      oryctolagus_cuniculus_funcgen_72_3
## 7626                      oryctolagus_cuniculus_funcgen_73_2
## 7627                      oryctolagus_cuniculus_funcgen_74_2
## 7628                      oryctolagus_cuniculus_funcgen_75_2
## 7629                      oryctolagus_cuniculus_funcgen_76_2
## 7630                      oryctolagus_cuniculus_funcgen_77_2
## 7631                      oryctolagus_cuniculus_funcgen_78_2
## 7632                      oryctolagus_cuniculus_funcgen_79_2
## 7633                      oryctolagus_cuniculus_funcgen_80_2
## 7634                      oryctolagus_cuniculus_funcgen_81_2
## 7635                      oryctolagus_cuniculus_funcgen_82_2
## 7636                      oryctolagus_cuniculus_funcgen_83_2
## 7637                      oryctolagus_cuniculus_funcgen_84_2
## 7638                      oryctolagus_cuniculus_funcgen_85_2
## 7639                      oryctolagus_cuniculus_funcgen_86_2
## 7640                      oryctolagus_cuniculus_funcgen_87_2
## 7641                      oryctolagus_cuniculus_funcgen_88_2
## 7642                      oryctolagus_cuniculus_funcgen_89_2
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## 7644                      oryctolagus_cuniculus_funcgen_91_2
## 7645                      oryctolagus_cuniculus_funcgen_92_2
## 7646                      oryctolagus_cuniculus_funcgen_93_2
## 7647                      oryctolagus_cuniculus_funcgen_94_2
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## 7649                      oryctolagus_cuniculus_funcgen_96_2
## 7650                      oryctolagus_cuniculus_funcgen_97_2
## 7651                      oryctolagus_cuniculus_funcgen_98_2
## 7652                      oryctolagus_cuniculus_funcgen_99_2
## 7653         oryctolagus_cuniculus_otherfeatures_57_2
## 7654        oryctolagus_cuniculus_otherfeatures_58_2a
## 7655        oryctolagus_cuniculus_otherfeatures_59_2b
## 7656         oryctolagus_cuniculus_otherfeatures_60_3
## 7657        oryctolagus_cuniculus_otherfeatures_61_3a
## 7658        oryctolagus_cuniculus_otherfeatures_62_3b
## 7659         oryctolagus_cuniculus_otherfeatures_63_3
## 7660         oryctolagus_cuniculus_otherfeatures_64_3
## 7661         oryctolagus_cuniculus_otherfeatures_65_3
## 7662         oryctolagus_cuniculus_otherfeatures_66_3
## 7663         oryctolagus_cuniculus_otherfeatures_67_3
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## 7665         oryctolagus_cuniculus_otherfeatures_69_3
## 7666         oryctolagus_cuniculus_otherfeatures_70_3
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## 7668         oryctolagus_cuniculus_otherfeatures_72_3
## 7669         oryctolagus_cuniculus_otherfeatures_73_2
## 7670         oryctolagus_cuniculus_otherfeatures_74_2
## 7671         oryctolagus_cuniculus_otherfeatures_75_2
## 7672         oryctolagus_cuniculus_otherfeatures_76_2
## 7673         oryctolagus_cuniculus_otherfeatures_77_2
## 7674         oryctolagus_cuniculus_otherfeatures_78_2
## 7675         oryctolagus_cuniculus_otherfeatures_79_2
## 7676         oryctolagus_cuniculus_otherfeatures_80_2
## 7677         oryctolagus_cuniculus_otherfeatures_81_2
## 7678         oryctolagus_cuniculus_otherfeatures_82_2
```

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## 7679                  oryctolagus_cuniculus_otherfeatures_83_2
## 7680                  oryctolagus_cuniculus_otherfeatures_84_2
## 7681                  oryctolagus_cuniculus_otherfeatures_85_2
## 7682                  oryctolagus_cuniculus_otherfeatures_86_2
## 7683                  oryctolagus_cuniculus_otherfeatures_87_2
## 7684                  oryctolagus_cuniculus_otherfeatures_88_2
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## 7695                  oryctolagus_cuniculus_otherfeatures_99_2
## 7696                       oryctolagus_cuniculus_rnaseq_73_2
## 7697                       oryctolagus_cuniculus_rnaseq_74_2
## 7698                       oryctolagus_cuniculus_rnaseq_75_2
## 7699                       oryctolagus_cuniculus_rnaseq_76_2
## 7700                       oryctolagus_cuniculus_rnaseq_77_2
## 7701                       oryctolagus_cuniculus_rnaseq_78_2
## 7702                       oryctolagus_cuniculus_rnaseq_79_2
## 7703                       oryctolagus_cuniculus_rnaseq_80_2
## 7704                       oryctolagus_cuniculus_rnaseq_81_2
## 7705                       oryctolagus_cuniculus_rnaseq_82_2
## 7706                       oryctolagus_cuniculus_rnaseq_83_2
## 7707                       oryctolagus_cuniculus_rnaseq_84_2
## 7708                       oryctolagus_cuniculus_rnaseq_85_2
## 7709                       oryctolagus_cuniculus_rnaseq_86_2
## 7710                       oryctolagus_cuniculus_rnaseq_87_2
## 7711                       oryctolagus_cuniculus_rnaseq_88_2
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## 7714                       oryctolagus_cuniculus_rnaseq_91_2
## 7715                       oryctolagus_cuniculus_rnaseq_92_2
## 7716                       oryctolagus_cuniculus_rnaseq_93_2
## 7717                       oryctolagus_cuniculus_rnaseq_94_2
## 7718                       oryctolagus_cuniculus_rnaseq_95_2
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## 7721                       oryctolagus_cuniculus_rnaseq_98_2
## 7722                       oryctolagus_cuniculus_rnaseq_99_2
## 7723                            oryzias_latipes_core_48_1d
## 7724                            oryzias_latipes_core_49_1e
## 7725                            oryzias_latipes_core_50_1f
## 7726                            oryzias_latipes_core_51_1g
## 7727                            oryzias_latipes_core_52_1h
## 7728                            oryzias_latipes_core_53_1i
## 7729                            oryzias_latipes_core_54_1i
## 7730                            oryzias_latipes_core_55_1i
## 7731                            oryzias_latipes_core_56_1i
## 7732                            oryzias_latipes_core_57_1i
```

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## 7733                       oryzias_latipes_core_58_1j
## 7734                       oryzias_latipes_core_59_1k
## 7735                       oryzias_latipes_core_60_1l
## 7736                       oryzias_latipes_core_61_1m
## 7737                       oryzias_latipes_core_62_1n
## 7738                        oryzias_latipes_core_63_1
## 7739                        oryzias_latipes_core_64_1
## 7740                        oryzias_latipes_core_65_1
## 7741                        oryzias_latipes_core_66_1
## 7742                        oryzias_latipes_core_67_1
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## 7749                        oryzias_latipes_core_74_1
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## 7751                        oryzias_latipes_core_76_1
## 7752                        oryzias_latipes_core_77_1
## 7753                        oryzias_latipes_core_78_1
## 7754                        oryzias_latipes_core_79_1
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## 7756                        oryzias_latipes_core_81_1
## 7757                        oryzias_latipes_core_82_1
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## 7774                        oryzias_latipes_core_99_1
## 7775                    oryzias_latipes_hni_core_94_1
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## 7778                    oryzias_latipes_hni_core_97_1
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## 7780                    oryzias_latipes_hni_core_99_1
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## 7782                  oryzias_latipes_hni_rnaseq_95_1
## 7783                  oryzias_latipes_hni_rnaseq_96_1
## 7784                  oryzias_latipes_hni_rnaseq_97_1
## 7785                  oryzias_latipes_hni_rnaseq_98_1
## 7786                  oryzias_latipes_hni_rnaseq_99_1
```

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## 7787                   oryzias_latipes_hsok_core_94_1
## 7788                   oryzias_latipes_hsok_core_95_1
## 7789                   oryzias_latipes_hsok_core_96_1
## 7790                   oryzias_latipes_hsok_core_97_1
## 7791                   oryzias_latipes_hsok_core_98_1
## 7792                   oryzias_latipes_hsok_core_99_1
## 7793                 oryzias_latipes_hsok_rnaseq_94_1
## 7794                 oryzias_latipes_hsok_rnaseq_95_1
## 7795                 oryzias_latipes_hsok_rnaseq_96_1
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## 7800            oryzias_latipes_otherfeatures_49_1e
## 7801            oryzias_latipes_otherfeatures_50_1f
## 7802            oryzias_latipes_otherfeatures_51_1g
## 7803            oryzias_latipes_otherfeatures_52_1h
## 7804            oryzias_latipes_otherfeatures_53_1i
## 7805            oryzias_latipes_otherfeatures_54_1i
## 7806            oryzias_latipes_otherfeatures_55_1i
## 7807            oryzias_latipes_otherfeatures_56_1i
## 7808            oryzias_latipes_otherfeatures_57_1i
## 7809            oryzias_latipes_otherfeatures_58_1j
## 7810            oryzias_latipes_otherfeatures_59_1k
## 7811            oryzias_latipes_otherfeatures_60_1l
## 7812            oryzias_latipes_otherfeatures_61_1m
## 7813            oryzias_latipes_otherfeatures_62_1n
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## 7815             oryzias_latipes_otherfeatures_64_1
## 7816             oryzias_latipes_otherfeatures_65_1
## 7817             oryzias_latipes_otherfeatures_66_1
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## 7824             oryzias_latipes_otherfeatures_73_1
## 7825             oryzias_latipes_otherfeatures_74_1
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## 7835             oryzias_latipes_otherfeatures_84_1
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## 7837             oryzias_latipes_otherfeatures_86_1
## 7838             oryzias_latipes_otherfeatures_87_1
## 7839             oryzias_latipes_otherfeatures_88_1
## 7840             oryzias_latipes_otherfeatures_89_1
```

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## 7842                    oryzias_latipes_otherfeatures_91_1
## 7843                    oryzias_latipes_otherfeatures_92_1
## 7844                    oryzias_latipes_otherfeatures_93_1
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## 7849                    oryzias_latipes_otherfeatures_98_1
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## 7852                         oryzias_latipes_rnaseq_95_1
## 7853                         oryzias_latipes_rnaseq_96_1
## 7854                         oryzias_latipes_rnaseq_97_1
## 7855                         oryzias_latipes_rnaseq_98_1
## 7856                         oryzias_latipes_rnaseq_99_1
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## 7858                      oryzias_melastigma_core_95_07
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## 7862                      oryzias_melastigma_core_99_07
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## 7868                    oryzias_melastigma_rnaseq_99_07
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## 7870                       otolemur_garnettii_core_49_1c
## 7871                       otolemur_garnettii_core_50_1d
## 7872                       otolemur_garnettii_core_51_1d
## 7873                       otolemur_garnettii_core_52_1e
## 7874                       otolemur_garnettii_core_53_1e
## 7875                       otolemur_garnettii_core_54_1e
## 7876                       otolemur_garnettii_core_55_1e
## 7877                       otolemur_garnettii_core_56_1e
## 7878                       otolemur_garnettii_core_57_1e
## 7879                       otolemur_garnettii_core_58_1f
## 7880                       otolemur_garnettii_core_59_1g
## 7881                       otolemur_garnettii_core_60_1h
## 7882                       otolemur_garnettii_core_61_1i
## 7883                       otolemur_garnettii_core_62_1j
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## 7885                        otolemur_garnettii_core_64_1
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## 7894                        otolemur_garnettii_core_73_3
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## 8002                   ovis_aries_otherfeatures_94_31
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## 8042                     ovis_aries_variation_82_31
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## 8053                     ovis_aries_variation_93_31
## 8054                     ovis_aries_variation_94_31
## 8055                     ovis_aries_variation_95_31
## 8056                     ovis_aries_variation_96_31
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## 8058                     ovis_aries_variation_98_31
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## 8062                         pan_paniscus_core_93_1
## 8063                         pan_paniscus_core_94_1
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## 8097                     pan_troglodytes_core_49_21h
## 8098                     pan_troglodytes_core_50_21i
## 8099                     pan_troglodytes_core_51_21i
## 8100                     pan_troglodytes_core_52_21j
## 8101                     pan_troglodytes_core_53_21j
## 8102                     pan_troglodytes_core_54_21k
## 8103                     pan_troglodytes_core_55_21l
## 8104                     pan_troglodytes_core_56_21l
## 8105                     pan_troglodytes_core_57_21l
## 8106                     pan_troglodytes_core_58_21m
## 8107                     pan_troglodytes_core_59_21n
## 8108                     pan_troglodytes_core_60_21o
## 8109                     pan_troglodytes_core_61_21p
## 8110                     pan_troglodytes_core_62_21q
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## 8117                       pan_troglodytes_core_69_214
## 8118                       pan_troglodytes_core_70_214
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## 8122                       pan_troglodytes_core_74_214
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## 8154                     pan_troglodytes_funcgen_61_21p
## 8155                     pan_troglodytes_funcgen_62_21q
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## 8163                     pan_troglodytes_funcgen_70_214
## 8164                     pan_troglodytes_funcgen_71_214
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## 8217           pan_troglodytes_otherfeatures_72_214
## 8218           pan_troglodytes_otherfeatures_73_214
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## 8246                        pan_troglodytes_rnaseq_67_214
## 8247                        pan_troglodytes_rnaseq_68_214
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## 8249                        pan_troglodytes_rnaseq_70_214
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## 8252                        pan_troglodytes_rnaseq_73_214
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## 8257                        pan_troglodytes_rnaseq_78_214
## 8258                        pan_troglodytes_rnaseq_79_214
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## 8272                          pan_troglodytes_rnaseq_93_3
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## 8280            pan_troglodytes_variation_49_21h
## 8281            pan_troglodytes_variation_50_21i
## 8282            pan_troglodytes_variation_51_21i
## 8283            pan_troglodytes_variation_52_21j
## 8284            pan_troglodytes_variation_53_21j
## 8285            pan_troglodytes_variation_54_21k
## 8286            pan_troglodytes_variation_55_21l
## 8287            pan_troglodytes_variation_56_21l
## 8288            pan_troglodytes_variation_57_21l
## 8289            pan_troglodytes_variation_58_21m
## 8290            pan_troglodytes_variation_59_21n
## 8291            pan_troglodytes_variation_60_21o
## 8292            pan_troglodytes_variation_61_21p
## 8293            pan_troglodytes_variation_62_21q
## 8294             pan_troglodytes_variation_63_21
## 8295             pan_troglodytes_variation_64_21
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## 8324             pan_troglodytes_variation_93_3
## 8325             pan_troglodytes_variation_94_3
## 8326             pan_troglodytes_variation_95_3
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## 8334                         panthera_pardus_core_96_1
## 8335                         panthera_pardus_core_97_1
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## 8339                panthera_pardus_otherfeatures_94_1
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## 8379                             papio_anubis_core_89_2
## 8380                             papio_anubis_core_90_2
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## 8387                       papio_anubis_core_97_3
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## 8389                       papio_anubis_core_99_3
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## 8433                     papio_anubis_rnaseq_86_2
## 8434                     papio_anubis_rnaseq_87_2
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## 8488                     pelodiscus_sinensis_core_77_1
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## 8587          peromyscus_maniculatus_bairdii_core_95_10
## 8588          peromyscus_maniculatus_bairdii_core_96_21
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## 9072                     prolemur_simus_funcgen_99_1
## 9073               propithecus_coquereli_core_91_1
## 9074               propithecus_coquereli_core_92_1
## 9075               propithecus_coquereli_core_93_1
## 9076               propithecus_coquereli_core_94_1
## 9077               propithecus_coquereli_core_95_1
## 9078               propithecus_coquereli_core_96_1
## 9079               propithecus_coquereli_core_97_1
## 9080               propithecus_coquereli_core_98_1
## 9081               propithecus_coquereli_core_99_1
## 9082            propithecus_coquereli_funcgen_91_1
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## 9083                           propithecus_coquereli_funcgen_92_1
## 9084                           propithecus_coquereli_funcgen_93_1
## 9085                           propithecus_coquereli_funcgen_94_1
## 9086                           propithecus_coquereli_funcgen_95_1
## 9087                           propithecus_coquereli_funcgen_96_1
## 9088                           propithecus_coquereli_funcgen_97_1
## 9089                           propithecus_coquereli_funcgen_98_1
## 9090                           propithecus_coquereli_funcgen_99_1
## 9091                     propithecus_coquereli_otherfeatures_91_1
## 9092                     propithecus_coquereli_otherfeatures_92_1
## 9093                     propithecus_coquereli_otherfeatures_93_1
## 9094                     propithecus_coquereli_otherfeatures_94_1
## 9095                     propithecus_coquereli_otherfeatures_95_1
## 9096                     propithecus_coquereli_otherfeatures_96_1
## 9097                     propithecus_coquereli_otherfeatures_97_1
## 9098                     propithecus_coquereli_otherfeatures_98_1
## 9099                     propithecus_coquereli_otherfeatures_99_1
## 9100                            pseudonaja_textilis_core_99_2
## 9101                    pseudonaja_textilis_otherfeatures_99_2
## 9102                          pseudonaja_textilis_rnaseq_99_2
## 9103                              pteropus_vampyrus_core_51_1
## 9104                             pteropus_vampyrus_core_52_1a
## 9105                             pteropus_vampyrus_core_53_1b
## 9106                             pteropus_vampyrus_core_54_1c
## 9107                             pteropus_vampyrus_core_55_1c
## 9108                             pteropus_vampyrus_core_56_1c
## 9109                             pteropus_vampyrus_core_57_1c
## 9110                             pteropus_vampyrus_core_58_1d
## 9111                             pteropus_vampyrus_core_59_1e
## 9112                             pteropus_vampyrus_core_60_1f
## 9113                             pteropus_vampyrus_core_61_1g
## 9114                             pteropus_vampyrus_core_62_1h
## 9115                              pteropus_vampyrus_core_63_1
## 9116                              pteropus_vampyrus_core_64_1
## 9117                              pteropus_vampyrus_core_65_1
## 9118                              pteropus_vampyrus_core_66_1
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## 9121                              pteropus_vampyrus_core_69_1
## 9122                              pteropus_vampyrus_core_70_1
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## 9124                              pteropus_vampyrus_core_72_1
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## 9133                              pteropus_vampyrus_core_81_1
## 9134                              pteropus_vampyrus_core_82_1
## 9135                              pteropus_vampyrus_core_83_1
## 9136                              pteropus_vampyrus_core_84_1
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## 9138                            pteropus_vampyrus_core_86_1
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## 9152                          pundamilia_nyererei_core_94_1
## 9153                          pundamilia_nyererei_core_95_1
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## 9156                          pundamilia_nyererei_core_98_1
## 9157                          pundamilia_nyererei_core_99_1
## 9158                 pundamilia_nyererei_otherfeatures_94_1
## 9159                 pundamilia_nyererei_otherfeatures_95_1
## 9160                 pundamilia_nyererei_otherfeatures_96_1
## 9161                 pundamilia_nyererei_otherfeatures_97_1
## 9162                 pundamilia_nyererei_otherfeatures_98_1
## 9163                 pundamilia_nyererei_otherfeatures_99_1
## 9164                        pundamilia_nyererei_rnaseq_94_1
## 9165                        pundamilia_nyererei_rnaseq_95_1
## 9166                        pundamilia_nyererei_rnaseq_96_1
## 9167                        pundamilia_nyererei_rnaseq_97_1
## 9168                        pundamilia_nyererei_rnaseq_98_1
## 9169                        pundamilia_nyererei_rnaseq_99_1
## 9170                     pygocentrus_nattereri_core_94_102
## 9171                     pygocentrus_nattereri_core_95_102
## 9172                     pygocentrus_nattereri_core_96_102
## 9173                     pygocentrus_nattereri_core_97_102
## 9174                     pygocentrus_nattereri_core_98_102
## 9175                     pygocentrus_nattereri_core_99_102
## 9176            pygocentrus_nattereri_otherfeatures_94_102
## 9177            pygocentrus_nattereri_otherfeatures_95_102
## 9178            pygocentrus_nattereri_otherfeatures_96_102
## 9179            pygocentrus_nattereri_otherfeatures_97_102
## 9180            pygocentrus_nattereri_otherfeatures_98_102
## 9181            pygocentrus_nattereri_otherfeatures_99_102
## 9182                   pygocentrus_nattereri_rnaseq_94_102
## 9183                   pygocentrus_nattereri_rnaseq_95_102
## 9184                   pygocentrus_nattereri_rnaseq_96_102
## 9185                   pygocentrus_nattereri_rnaseq_97_102
## 9186                   pygocentrus_nattereri_rnaseq_98_102
## 9187                   pygocentrus_nattereri_rnaseq_99_102
## 9188                          rattus_norvegicus_core_48_34r
## 9189                          rattus_norvegicus_core_49_34s
## 9190                          rattus_norvegicus_core_50_34t
```

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## 9191                        rattus_norvegicus_core_51_34t
## 9192                        rattus_norvegicus_core_52_34u
## 9193                        rattus_norvegicus_core_53_34u
## 9194                        rattus_norvegicus_core_54_34v
## 9195                        rattus_norvegicus_core_55_34w
## 9196                        rattus_norvegicus_core_56_34x
## 9197                        rattus_norvegicus_core_57_34y
## 9198                        rattus_norvegicus_core_58_34z
## 9199                        rattus_norvegicus_core_59_34a
## 9200                        rattus_norvegicus_core_60_34b
## 9201                        rattus_norvegicus_core_61_34c
## 9202                        rattus_norvegicus_core_62_34d
## 9203                         rattus_norvegicus_core_63_34
## 9204                         rattus_norvegicus_core_64_34
## 9205                         rattus_norvegicus_core_65_34
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## 9240                     rattus_norvegicus_funcgen_55_34w
## 9241                     rattus_norvegicus_funcgen_56_34x
## 9242                     rattus_norvegicus_funcgen_57_34y
## 9243                     rattus_norvegicus_funcgen_58_34z
## 9244                     rattus_norvegicus_funcgen_59_34a
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## 9245                      rattus_norvegicus_funcgen_60_34b
## 9246                      rattus_norvegicus_funcgen_61_34c
## 9247                      rattus_norvegicus_funcgen_62_34d
## 9248                       rattus_norvegicus_funcgen_63_34
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## 9253                       rattus_norvegicus_funcgen_68_34
## 9254                       rattus_norvegicus_funcgen_69_34
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## 9284                        rattus_norvegicus_funcgen_99_6
## 9285             rattus_norvegicus_otherfeatures_48_34r
## 9286             rattus_norvegicus_otherfeatures_49_34s
## 9287             rattus_norvegicus_otherfeatures_50_34t
## 9288             rattus_norvegicus_otherfeatures_51_34t
## 9289             rattus_norvegicus_otherfeatures_52_34u
## 9290             rattus_norvegicus_otherfeatures_53_34u
## 9291             rattus_norvegicus_otherfeatures_54_34v
## 9292             rattus_norvegicus_otherfeatures_55_34w
## 9293             rattus_norvegicus_otherfeatures_56_34x
## 9294             rattus_norvegicus_otherfeatures_57_34y
## 9295             rattus_norvegicus_otherfeatures_58_34z
## 9296             rattus_norvegicus_otherfeatures_59_34a
## 9297             rattus_norvegicus_otherfeatures_60_34b
## 9298             rattus_norvegicus_otherfeatures_61_34c
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## 9299                 rattus_norvegicus_otherfeatures_62_34d
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## 9358               rattus_norvegicus_variation_49_34s
## 9359               rattus_norvegicus_variation_50_34t
## 9360               rattus_norvegicus_variation_51_34t
## 9361               rattus_norvegicus_variation_52_34u
## 9362               rattus_norvegicus_variation_53_34u
## 9363               rattus_norvegicus_variation_54_34v
## 9364               rattus_norvegicus_variation_55_34w
## 9365               rattus_norvegicus_variation_56_34x
## 9366               rattus_norvegicus_variation_57_34y
## 9367               rattus_norvegicus_variation_58_34z
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## 9369               rattus_norvegicus_variation_60_34b
## 9370               rattus_norvegicus_variation_61_34c
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## 9406                 rattus_norvegicus_variation_97_6
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## 9414                         rattus_norvegicus_vega_82_6
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## 9422            rhinolophus_ferrumequinum_rnaseq_99_1
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## 9424                   rhinopithecus_bieti_core_92_1
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## 9433                rhinopithecus_bieti_funcgen_92_1
## 9434                rhinopithecus_bieti_funcgen_93_1
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## 9455                 rhinopithecus_bieti_rnaseq_96_1
## 9456                 rhinopithecus_bieti_rnaseq_97_1
## 9457                 rhinopithecus_bieti_rnaseq_98_1
## 9458                 rhinopithecus_bieti_rnaseq_99_1
## 9459              rhinopithecus_roxellana_core_91_1
## 9460              rhinopithecus_roxellana_core_92_1
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## 9461                        rhinopithecus_roxellana_core_93_1
## 9462                        rhinopithecus_roxellana_core_94_1
## 9463                        rhinopithecus_roxellana_core_95_1
## 9464                        rhinopithecus_roxellana_core_96_1
## 9465                        rhinopithecus_roxellana_core_97_1
## 9466                        rhinopithecus_roxellana_core_98_1
## 9467                        rhinopithecus_roxellana_core_99_1
## 9468                     rhinopithecus_roxellana_funcgen_91_1
## 9469                     rhinopithecus_roxellana_funcgen_92_1
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## 9475                     rhinopithecus_roxellana_funcgen_98_1
## 9476                     rhinopithecus_roxellana_funcgen_99_1
## 9477               rhinopithecus_roxellana_otherfeatures_91_1
## 9478               rhinopithecus_roxellana_otherfeatures_92_1
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## 9493                      rhinopithecus_roxellana_rnaseq_98_1
## 9494                      rhinopithecus_roxellana_rnaseq_99_1
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## 9496                      saccharomyces_cerevisiae_core_49_1h
## 9497                      saccharomyces_cerevisiae_core_50_1i
## 9498                      saccharomyces_cerevisiae_core_51_1i
## 9499                      saccharomyces_cerevisiae_core_52_1i
## 9500                      saccharomyces_cerevisiae_core_53_1i
## 9501                      saccharomyces_cerevisiae_core_54_1i
## 9502                      saccharomyces_cerevisiae_core_55_1j
## 9503                      saccharomyces_cerevisiae_core_56_1j
## 9504                      saccharomyces_cerevisiae_core_57_1j
## 9505                      saccharomyces_cerevisiae_core_58_1j
## 9506                      saccharomyces_cerevisiae_core_59_2a
## 9507                      saccharomyces_cerevisiae_core_60_2b
## 9508                      saccharomyces_cerevisiae_core_61_2c
## 9509                      saccharomyces_cerevisiae_core_62_2d
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## 9511                       saccharomyces_cerevisiae_core_64_3
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## 9513                       saccharomyces_cerevisiae_core_66_4
## 9514                       saccharomyces_cerevisiae_core_67_4
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## 9533                     saccharomyces_cerevisiae_core_86_4
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## 9538                     saccharomyces_cerevisiae_core_91_4
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## 9543                     saccharomyces_cerevisiae_core_96_4
## 9544                     saccharomyces_cerevisiae_core_97_4
## 9545                     saccharomyces_cerevisiae_core_98_4
## 9546                     saccharomyces_cerevisiae_core_99_4
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## 9548              saccharomyces_cerevisiae_funcgen_56_1j
## 9549              saccharomyces_cerevisiae_funcgen_57_1j
## 9550              saccharomyces_cerevisiae_funcgen_58_1j
## 9551              saccharomyces_cerevisiae_funcgen_59_2a
## 9552              saccharomyces_cerevisiae_funcgen_60_2b
## 9553              saccharomyces_cerevisiae_funcgen_61_2c
## 9554              saccharomyces_cerevisiae_funcgen_62_2d
## 9555               saccharomyces_cerevisiae_funcgen_63_3
## 9556               saccharomyces_cerevisiae_funcgen_64_3
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## 9558               saccharomyces_cerevisiae_funcgen_66_4
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## 9567               saccharomyces_cerevisiae_funcgen_75_4
## 9568               saccharomyces_cerevisiae_funcgen_76_4
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## 9596        saccharomyces_cerevisiae_otherfeatures_52_1i
## 9597        saccharomyces_cerevisiae_otherfeatures_53_1i
## 9598        saccharomyces_cerevisiae_otherfeatures_54_1i
## 9599        saccharomyces_cerevisiae_otherfeatures_55_1j
## 9600        saccharomyces_cerevisiae_otherfeatures_56_1j
## 9601        saccharomyces_cerevisiae_otherfeatures_57_1j
## 9602        saccharomyces_cerevisiae_otherfeatures_58_1j
## 9603        saccharomyces_cerevisiae_otherfeatures_59_2a
## 9604        saccharomyces_cerevisiae_otherfeatures_60_2b
## 9605        saccharomyces_cerevisiae_otherfeatures_61_2c
## 9606        saccharomyces_cerevisiae_otherfeatures_62_2d
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## 9613         saccharomyces_cerevisiae_otherfeatures_69_4
## 9614         saccharomyces_cerevisiae_otherfeatures_70_4
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## 9616         saccharomyces_cerevisiae_otherfeatures_72_4
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## 9622         saccharomyces_cerevisiae_otherfeatures_78_4
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## 9630      saccharomyces_cerevisiae_otherfeatures_86_4
## 9631      saccharomyces_cerevisiae_otherfeatures_87_4
## 9632      saccharomyces_cerevisiae_otherfeatures_88_4
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## 9645          saccharomyces_cerevisiae_variation_60_2b
## 9646          saccharomyces_cerevisiae_variation_61_2c
## 9647          saccharomyces_cerevisiae_variation_62_2d
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## 9676           saccharomyces_cerevisiae_variation_91_4
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## 9725                     salmo_salar_otherfeatures_99_2
## 9726                            salmo_salar_rnaseq_99_2
## 9727                         salmo_salar_variation_99_2
## 9728                             salmo_trutta_core_99_11
## 9729                    salmo_trutta_otherfeatures_99_11
## 9730                           salmo_trutta_rnaseq_99_11
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## 9734                       salvator_merianae_core_99_3
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## 9850                  serinus_canaria_otherfeatures_97_12
## 9851                  serinus_canaria_otherfeatures_98_12
## 9852                  serinus_canaria_otherfeatures_99_12
## 9853                        serinus_canaria_rnaseq_96_12
## 9854                        serinus_canaria_rnaseq_97_12
## 9855                        serinus_canaria_rnaseq_98_12
## 9856                        serinus_canaria_rnaseq_99_12
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## 9858                          seriola_dumerili_core_95_1
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## 9872                        seriola_dumerili_rnaseq_97_1
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## 9874                        seriola_dumerili_rnaseq_99_1
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## 9876                   seriola_lalandi_dorsalis_core_95_1
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## 9888                 seriola_lalandi_dorsalis_rnaseq_95_1
## 9889                 seriola_lalandi_dorsalis_rnaseq_96_1
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## 9892                 seriola_lalandi_dorsalis_rnaseq_99_1
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## 9897        sinocyclocheilus_grahami_otherfeatures_99_11
## 9898             sinocyclocheilus_grahami_rnaseq_99_11
## 9899             sinocyclocheilus_rhinocerous_core_99_11
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## 9901          sinocyclocheilus_rhinocerous_rnaseq_99_11
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## 9904                            sorex_araneus_core_49_1c
## 9905                            sorex_araneus_core_50_1d
## 9906                            sorex_araneus_core_51_1d
## 9907                            sorex_araneus_core_52_1e
## 9908                            sorex_araneus_core_53_1e
## 9909                            sorex_araneus_core_54_1e
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## 9913                            sorex_araneus_core_58_1f
## 9914                            sorex_araneus_core_59_1g
## 9915                            sorex_araneus_core_60_1h
## 9916                            sorex_araneus_core_61_1i
## 9917                            sorex_araneus_core_62_1j
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## 9946                             sorex_araneus_core_91_1
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## 9964            spermophilus_tridecemlineatus_core_50_1f
## 9965            spermophilus_tridecemlineatus_core_51_1f
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## 9973            spermophilus_tridecemlineatus_core_59_1i
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## 9975            spermophilus_tridecemlineatus_core_61_1k
## 9976            spermophilus_tridecemlineatus_core_62_1l
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## 10252                      sus_scrofa_usmarc_core_97_1
## 10253                      sus_scrofa_usmarc_core_98_1
## 10254                      sus_scrofa_usmarc_core_99_1
## 10255             sus_scrofa_usmarc_otherfeatures_97_1
## 10256             sus_scrofa_usmarc_otherfeatures_98_1
## 10257             sus_scrofa_usmarc_otherfeatures_99_1
## 10258                    sus_scrofa_usmarc_rnaseq_97_1
## 10259                    sus_scrofa_usmarc_rnaseq_98_1
## 10260                    sus_scrofa_usmarc_rnaseq_99_1
## 10261                     sus_scrofa_variation_57_9a
## 10262                     sus_scrofa_variation_58_9b
## 10263                     sus_scrofa_variation_59_9c
## 10264                     sus_scrofa_variation_60_9d
## 10265                     sus_scrofa_variation_61_9e
## 10266                     sus_scrofa_variation_62_9f
## 10267                      sus_scrofa_variation_63_9
## 10268                      sus_scrofa_variation_64_9
## 10269                      sus_scrofa_variation_65_9
## 10270                      sus_scrofa_variation_66_9
```

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## 10271                        sus_scrofa_variation_67_102
## 10272                        sus_scrofa_variation_68_102
## 10273                        sus_scrofa_variation_69_102
## 10274                        sus_scrofa_variation_70_102
## 10275                        sus_scrofa_variation_71_102
## 10276                        sus_scrofa_variation_72_102
## 10277                        sus_scrofa_variation_73_102
## 10278                        sus_scrofa_variation_74_102
## 10279                        sus_scrofa_variation_75_102
## 10280                        sus_scrofa_variation_76_102
## 10281                        sus_scrofa_variation_77_102
## 10282                        sus_scrofa_variation_78_102
## 10283                        sus_scrofa_variation_79_102
## 10284                        sus_scrofa_variation_80_102
## 10285                        sus_scrofa_variation_81_102
## 10286                        sus_scrofa_variation_82_102
## 10287                        sus_scrofa_variation_83_102
## 10288                        sus_scrofa_variation_84_102
## 10289                        sus_scrofa_variation_85_102
## 10290                        sus_scrofa_variation_86_102
## 10291                        sus_scrofa_variation_87_102
## 10292                        sus_scrofa_variation_88_102
## 10293                        sus_scrofa_variation_89_102
## 10294                        sus_scrofa_variation_90_111
## 10295                        sus_scrofa_variation_91_111
## 10296                        sus_scrofa_variation_92_111
## 10297                        sus_scrofa_variation_93_111
## 10298                        sus_scrofa_variation_94_111
## 10299                        sus_scrofa_variation_95_111
## 10300                        sus_scrofa_variation_96_111
## 10301                        sus_scrofa_variation_97_111
## 10302                        sus_scrofa_variation_98_111
## 10303                        sus_scrofa_variation_99_111
## 10304                            sus_scrofa_vega_69_102
## 10305                            sus_scrofa_vega_70_102
## 10306                            sus_scrofa_vega_71_102
## 10307                            sus_scrofa_vega_72_102
## 10308                            sus_scrofa_vega_73_102
## 10309                            sus_scrofa_vega_74_102
## 10310                            sus_scrofa_vega_75_102
## 10311                            sus_scrofa_vega_76_102
## 10312                            sus_scrofa_vega_77_102
## 10313                            sus_scrofa_vega_78_102
## 10314                            sus_scrofa_vega_79_102
## 10315                            sus_scrofa_vega_80_102
## 10316                            sus_scrofa_vega_81_102
## 10317                            sus_scrofa_vega_82_102
## 10318                            sus_scrofa_vega_83_102
## 10319                            sus_scrofa_vega_84_102
## 10320                            sus_scrofa_vega_85_102
## 10321                            sus_scrofa_vega_86_102
## 10322                            sus_scrofa_vega_87_102
## 10323                            sus_scrofa_vega_88_102
## 10324            sus_scrofa_wuzhishan_core_98_10
```

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## 10325                   sus_scrofa_wuzhishan_core_99_10
## 10326           sus_scrofa_wuzhishan_otherfeatures_98_10
## 10327           sus_scrofa_wuzhishan_otherfeatures_99_10
## 10328                sus_scrofa_wuzhishan_rnaseq_98_10
## 10329                sus_scrofa_wuzhishan_rnaseq_99_10
## 10330                  taeniopygia_guttata_core_53_1
## 10331                  taeniopygia_guttata_core_54_1a
## 10332                  taeniopygia_guttata_core_55_1b
## 10333                  taeniopygia_guttata_core_56_1c
## 10334                  taeniopygia_guttata_core_57_1c
## 10335                  taeniopygia_guttata_core_58_1d
## 10336                  taeniopygia_guttata_core_59_1e
## 10337                  taeniopygia_guttata_core_60_1f
## 10338                  taeniopygia_guttata_core_61_1g
## 10339                  taeniopygia_guttata_core_62_1h
## 10340                   taeniopygia_guttata_core_63_1
## 10341                   taeniopygia_guttata_core_64_1
## 10342                   taeniopygia_guttata_core_65_1
## 10343                   taeniopygia_guttata_core_66_1
## 10344                   taeniopygia_guttata_core_67_1
## 10345                   taeniopygia_guttata_core_68_1
## 10346                   taeniopygia_guttata_core_69_1
## 10347                   taeniopygia_guttata_core_70_1
## 10348                   taeniopygia_guttata_core_71_1
## 10349                   taeniopygia_guttata_core_72_1
## 10350                   taeniopygia_guttata_core_73_1
## 10351                   taeniopygia_guttata_core_74_1
## 10352                   taeniopygia_guttata_core_75_1
## 10353                   taeniopygia_guttata_core_76_1
## 10354                   taeniopygia_guttata_core_77_1
## 10355                   taeniopygia_guttata_core_78_1
## 10356                   taeniopygia_guttata_core_79_1
## 10357                   taeniopygia_guttata_core_80_1
## 10358                   taeniopygia_guttata_core_81_1
## 10359                   taeniopygia_guttata_core_82_1
## 10360                   taeniopygia_guttata_core_83_1
## 10361                   taeniopygia_guttata_core_84_1
## 10362                   taeniopygia_guttata_core_85_1
## 10363                   taeniopygia_guttata_core_86_1
## 10364                   taeniopygia_guttata_core_87_1
## 10365                   taeniopygia_guttata_core_88_1
## 10366                   taeniopygia_guttata_core_89_1
## 10367                   taeniopygia_guttata_core_90_1
## 10368                   taeniopygia_guttata_core_91_1
## 10369                   taeniopygia_guttata_core_92_1
## 10370                   taeniopygia_guttata_core_93_1
## 10371                   taeniopygia_guttata_core_94_1
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## 10373                   taeniopygia_guttata_core_96_1
## 10374                   taeniopygia_guttata_core_97_1
## 10375                   taeniopygia_guttata_core_98_1
## 10376                  taeniopygia_guttata_core_99_12
## 10377           taeniopygia_guttata_otherfeatures_53_1
## 10378           taeniopygia_guttata_otherfeatures_54_1a
```

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## 10379          taeniopygia_guttata_otherfeatures_55_1b
## 10380          taeniopygia_guttata_otherfeatures_56_1c
## 10381          taeniopygia_guttata_otherfeatures_57_1c
## 10382          taeniopygia_guttata_otherfeatures_58_1d
## 10383          taeniopygia_guttata_otherfeatures_59_1e
## 10384          taeniopygia_guttata_otherfeatures_60_1f
## 10385          taeniopygia_guttata_otherfeatures_61_1g
## 10386          taeniopygia_guttata_otherfeatures_62_1h
## 10387           taeniopygia_guttata_otherfeatures_63_1
## 10388           taeniopygia_guttata_otherfeatures_64_1
## 10389           taeniopygia_guttata_otherfeatures_65_1
## 10390           taeniopygia_guttata_otherfeatures_66_1
## 10391           taeniopygia_guttata_otherfeatures_67_1
## 10392           taeniopygia_guttata_otherfeatures_68_1
## 10393           taeniopygia_guttata_otherfeatures_69_1
## 10394           taeniopygia_guttata_otherfeatures_70_1
## 10395           taeniopygia_guttata_otherfeatures_71_1
## 10396           taeniopygia_guttata_otherfeatures_72_1
## 10397           taeniopygia_guttata_otherfeatures_73_1
## 10398           taeniopygia_guttata_otherfeatures_74_1
## 10399           taeniopygia_guttata_otherfeatures_75_1
## 10400           taeniopygia_guttata_otherfeatures_76_1
## 10401           taeniopygia_guttata_otherfeatures_77_1
## 10402           taeniopygia_guttata_otherfeatures_78_1
## 10403           taeniopygia_guttata_otherfeatures_79_1
## 10404           taeniopygia_guttata_otherfeatures_80_1
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## 10406           taeniopygia_guttata_otherfeatures_82_1
## 10407           taeniopygia_guttata_otherfeatures_83_1
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## 10409           taeniopygia_guttata_otherfeatures_85_1
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## 10411           taeniopygia_guttata_otherfeatures_87_1
## 10412           taeniopygia_guttata_otherfeatures_88_1
## 10413           taeniopygia_guttata_otherfeatures_89_1
## 10414           taeniopygia_guttata_otherfeatures_90_1
## 10415           taeniopygia_guttata_otherfeatures_91_1
## 10416           taeniopygia_guttata_otherfeatures_92_1
## 10417           taeniopygia_guttata_otherfeatures_93_1
## 10418           taeniopygia_guttata_otherfeatures_94_1
## 10419           taeniopygia_guttata_otherfeatures_95_1
## 10420           taeniopygia_guttata_otherfeatures_96_1
## 10421           taeniopygia_guttata_otherfeatures_97_1
## 10422           taeniopygia_guttata_otherfeatures_98_1
## 10423          taeniopygia_guttata_otherfeatures_99_12
## 10424                 taeniopygia_guttata_rnaseq_99_12
## 10425              taeniopygia_guttata_variation_54_1a
## 10426              taeniopygia_guttata_variation_55_1b
## 10427              taeniopygia_guttata_variation_56_1c
## 10428              taeniopygia_guttata_variation_57_1c
## 10429              taeniopygia_guttata_variation_58_1d
## 10430              taeniopygia_guttata_variation_59_1e
## 10431              taeniopygia_guttata_variation_60_1f
## 10432              taeniopygia_guttata_variation_61_1g
```

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## 10433                  taeniopygia_guttata_variation_62_1h
## 10434                   taeniopygia_guttata_variation_63_1
## 10435                   taeniopygia_guttata_variation_64_1
## 10436                   taeniopygia_guttata_variation_65_1
## 10437                   taeniopygia_guttata_variation_66_1
## 10438                   taeniopygia_guttata_variation_67_1
## 10439                   taeniopygia_guttata_variation_68_1
## 10440                   taeniopygia_guttata_variation_69_1
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## 10443                   taeniopygia_guttata_variation_72_1
## 10444                   taeniopygia_guttata_variation_73_1
## 10445                   taeniopygia_guttata_variation_74_1
## 10446                   taeniopygia_guttata_variation_75_1
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## 10452                   taeniopygia_guttata_variation_81_1
## 10453                   taeniopygia_guttata_variation_82_1
## 10454                   taeniopygia_guttata_variation_83_1
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## 10456                   taeniopygia_guttata_variation_85_1
## 10457                   taeniopygia_guttata_variation_86_1
## 10458                   taeniopygia_guttata_variation_87_1
## 10459                   taeniopygia_guttata_variation_88_1
## 10460                   taeniopygia_guttata_variation_89_1
## 10461                   taeniopygia_guttata_variation_90_1
## 10462                   taeniopygia_guttata_variation_91_1
## 10463                   taeniopygia_guttata_variation_92_1
## 10464                   taeniopygia_guttata_variation_93_1
## 10465                   taeniopygia_guttata_variation_94_1
## 10466                   taeniopygia_guttata_variation_95_1
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## 10468                   taeniopygia_guttata_variation_97_1
## 10469                   taeniopygia_guttata_variation_98_1
## 10470                  taeniopygia_guttata_variation_99_12
## 10471                       takifugu_rubripes_core_48_4h
## 10472                       takifugu_rubripes_core_49_4i
## 10473                       takifugu_rubripes_core_50_4j
## 10474                       takifugu_rubripes_core_51_4j
## 10475                       takifugu_rubripes_core_52_4k
## 10476                       takifugu_rubripes_core_53_4k
## 10477                       takifugu_rubripes_core_54_4k
## 10478                       takifugu_rubripes_core_55_4k
## 10479                       takifugu_rubripes_core_56_4k
## 10480                       takifugu_rubripes_core_57_4k
## 10481                       takifugu_rubripes_core_58_4l
## 10482                       takifugu_rubripes_core_59_4m
## 10483                       takifugu_rubripes_core_60_4n
## 10484                       takifugu_rubripes_core_61_4o
## 10485                       takifugu_rubripes_core_62_4p
## 10486                        takifugu_rubripes_core_63_4
```

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## 10487                        takifugu_rubripes_core_64_4
## 10488                        takifugu_rubripes_core_65_4
## 10489                        takifugu_rubripes_core_66_4
## 10490                        takifugu_rubripes_core_67_4
## 10491                        takifugu_rubripes_core_68_4
## 10492                        takifugu_rubripes_core_69_4
## 10493                        takifugu_rubripes_core_70_4
## 10494                        takifugu_rubripes_core_71_4
## 10495                        takifugu_rubripes_core_72_4
## 10496                        takifugu_rubripes_core_73_4
## 10497                        takifugu_rubripes_core_74_4
## 10498                        takifugu_rubripes_core_75_4
## 10499                        takifugu_rubripes_core_76_4
## 10500                        takifugu_rubripes_core_77_4
## 10501                        takifugu_rubripes_core_78_4
## 10502                        takifugu_rubripes_core_79_4
## 10503                        takifugu_rubripes_core_80_4
## 10504                        takifugu_rubripes_core_81_4
## 10505                        takifugu_rubripes_core_82_4
## 10506                        takifugu_rubripes_core_83_4
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## 10508                        takifugu_rubripes_core_85_4
## 10509                        takifugu_rubripes_core_86_4
## 10510                        takifugu_rubripes_core_87_4
## 10511                        takifugu_rubripes_core_88_4
## 10512                        takifugu_rubripes_core_89_4
## 10513                        takifugu_rubripes_core_90_4
## 10514                        takifugu_rubripes_core_91_4
## 10515                        takifugu_rubripes_core_92_4
## 10516                        takifugu_rubripes_core_93_4
## 10517                        takifugu_rubripes_core_94_5
## 10518                        takifugu_rubripes_core_95_5
## 10519                        takifugu_rubripes_core_96_5
## 10520                        takifugu_rubripes_core_97_5
## 10521                        takifugu_rubripes_core_98_5
## 10522                       takifugu_rubripes_core_99_12
## 10523          takifugu_rubripes_otherfeatures_48_4h
## 10524          takifugu_rubripes_otherfeatures_49_4i
## 10525          takifugu_rubripes_otherfeatures_50_4j
## 10526          takifugu_rubripes_otherfeatures_51_4j
## 10527          takifugu_rubripes_otherfeatures_52_4k
## 10528          takifugu_rubripes_otherfeatures_53_4k
## 10529          takifugu_rubripes_otherfeatures_54_4k
## 10530          takifugu_rubripes_otherfeatures_55_4k
## 10531          takifugu_rubripes_otherfeatures_56_4k
## 10532          takifugu_rubripes_otherfeatures_57_4k
## 10533          takifugu_rubripes_otherfeatures_58_4l
## 10534          takifugu_rubripes_otherfeatures_59_4m
## 10535          takifugu_rubripes_otherfeatures_60_4n
## 10536          takifugu_rubripes_otherfeatures_61_4o
## 10537          takifugu_rubripes_otherfeatures_62_4p
## 10538           takifugu_rubripes_otherfeatures_63_4
## 10539           takifugu_rubripes_otherfeatures_64_4
## 10540           takifugu_rubripes_otherfeatures_65_4
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## 10541                takifugu_rubripes_otherfeatures_66_4
## 10542                takifugu_rubripes_otherfeatures_67_4
## 10543                takifugu_rubripes_otherfeatures_68_4
## 10544                takifugu_rubripes_otherfeatures_69_4
## 10545                takifugu_rubripes_otherfeatures_70_4
## 10546                takifugu_rubripes_otherfeatures_71_4
## 10547                takifugu_rubripes_otherfeatures_72_4
## 10548                takifugu_rubripes_otherfeatures_73_4
## 10549                takifugu_rubripes_otherfeatures_74_4
## 10550                takifugu_rubripes_otherfeatures_75_4
## 10551                takifugu_rubripes_otherfeatures_76_4
## 10552                takifugu_rubripes_otherfeatures_77_4
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## 10554                takifugu_rubripes_otherfeatures_79_4
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## 10556                takifugu_rubripes_otherfeatures_81_4
## 10557                takifugu_rubripes_otherfeatures_82_4
## 10558                takifugu_rubripes_otherfeatures_83_4
## 10559                takifugu_rubripes_otherfeatures_84_4
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## 10564                takifugu_rubripes_otherfeatures_89_4
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## 10573                takifugu_rubripes_otherfeatures_97_5
## 10574                takifugu_rubripes_otherfeatures_98_5
## 10575                takifugu_rubripes_otherfeatures_99_12
## 10576                   takifugu_rubripes_rnaseq_94_5
## 10577                   takifugu_rubripes_rnaseq_95_5
## 10578                   takifugu_rubripes_rnaseq_96_5
## 10579                   takifugu_rubripes_rnaseq_97_5
## 10580                   takifugu_rubripes_rnaseq_98_5
## 10581                   takifugu_rubripes_rnaseq_99_12
## 10582                     tarsius_syrichta_core_51_1
## 10583                     tarsius_syrichta_core_52_1a
## 10584                     tarsius_syrichta_core_53_1b
## 10585                     tarsius_syrichta_core_54_1c
## 10586                     tarsius_syrichta_core_55_1c
## 10587                     tarsius_syrichta_core_56_1c
## 10588                     tarsius_syrichta_core_57_1c
## 10589                     tarsius_syrichta_core_58_1d
## 10590                     tarsius_syrichta_core_59_1e
## 10591                     tarsius_syrichta_core_60_1f
## 10592                     tarsius_syrichta_core_61_1g
## 10593                     tarsius_syrichta_core_62_1h
## 10594                     tarsius_syrichta_core_63_1
```

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## 10595                              tarsius_syrichta_core_64_1
## 10596                              tarsius_syrichta_core_65_1
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## 10599                              tarsius_syrichta_core_68_1
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## 10604                              tarsius_syrichta_core_73_1
## 10605                              tarsius_syrichta_core_74_1
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## 10617                              tarsius_syrichta_core_86_1
## 10618                              tarsius_syrichta_core_87_1
## 10619                              tarsius_syrichta_core_88_1
## 10620                 terrapene_carolina_triunguis_core_99_2
## 10621         terrapene_carolina_triunguis_otherfeatures_99_2
## 10622               terrapene_carolina_triunguis_rnaseq_99_2
## 10623                     tetraodon_nigroviridis_core_48_1j
## 10624                     tetraodon_nigroviridis_core_49_1k
## 10625                      tetraodon_nigroviridis_core_50_8
## 10626                     tetraodon_nigroviridis_core_51_8a
## 10627                     tetraodon_nigroviridis_core_52_8b
## 10628                     tetraodon_nigroviridis_core_53_8b
## 10629                     tetraodon_nigroviridis_core_54_8b
## 10630                     tetraodon_nigroviridis_core_55_8b
## 10631                     tetraodon_nigroviridis_core_56_8b
## 10632                     tetraodon_nigroviridis_core_57_8b
## 10633                     tetraodon_nigroviridis_core_58_8c
## 10634                     tetraodon_nigroviridis_core_59_8d
## 10635                     tetraodon_nigroviridis_core_60_8e
## 10636                     tetraodon_nigroviridis_core_61_8f
## 10637                     tetraodon_nigroviridis_core_62_8g
## 10638                      tetraodon_nigroviridis_core_63_8
## 10639                      tetraodon_nigroviridis_core_64_8
## 10640                      tetraodon_nigroviridis_core_65_8
## 10641                      tetraodon_nigroviridis_core_66_8
## 10642                      tetraodon_nigroviridis_core_67_8
## 10643                      tetraodon_nigroviridis_core_68_8
## 10644                      tetraodon_nigroviridis_core_69_8
## 10645                      tetraodon_nigroviridis_core_70_8
## 10646                      tetraodon_nigroviridis_core_71_8
## 10647                      tetraodon_nigroviridis_core_72_8
## 10648                      tetraodon_nigroviridis_core_73_8
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## 11053                 xenopus_tropicalis_funcgen_58_41o
## 11054                 xenopus_tropicalis_funcgen_59_41p
## 11055                 xenopus_tropicalis_funcgen_60_41q
## 11056                 xenopus_tropicalis_funcgen_61_41r
## 11057                  xenopus_tropicalis_funcgen_62_42
## 11058                  xenopus_tropicalis_funcgen_63_42
## 11059                  xenopus_tropicalis_funcgen_64_42
## 11060                  xenopus_tropicalis_funcgen_65_42
## 11061                  xenopus_tropicalis_funcgen_66_42
## 11062                  xenopus_tropicalis_funcgen_67_42
## 11063                  xenopus_tropicalis_funcgen_68_42
## 11064                  xenopus_tropicalis_funcgen_69_42
## 11065                  xenopus_tropicalis_funcgen_70_42
## 11066                  xenopus_tropicalis_funcgen_71_42
## 11067                  xenopus_tropicalis_funcgen_72_42
## 11068                  xenopus_tropicalis_funcgen_73_42
## 11069                  xenopus_tropicalis_funcgen_74_42
## 11070                  xenopus_tropicalis_funcgen_75_42
## 11071                  xenopus_tropicalis_funcgen_76_42
## 11072                  xenopus_tropicalis_funcgen_77_42
## 11073                  xenopus_tropicalis_funcgen_78_42
## 11074                  xenopus_tropicalis_funcgen_79_42
## 11075                  xenopus_tropicalis_funcgen_80_42
## 11076                  xenopus_tropicalis_funcgen_81_42
## 11077                  xenopus_tropicalis_funcgen_82_42
## 11078                  xenopus_tropicalis_funcgen_83_42
## 11079                  xenopus_tropicalis_funcgen_84_42
## 11080                  xenopus_tropicalis_funcgen_85_42
```

```
## 11081                          xenopus_tropicalis_funcgen_86_42
## 11082                          xenopus_tropicalis_funcgen_87_42
## 11083                          xenopus_tropicalis_funcgen_88_42
## 11084                          xenopus_tropicalis_funcgen_89_42
## 11085                          xenopus_tropicalis_funcgen_90_42
## 11086                          xenopus_tropicalis_funcgen_91_42
## 11087                          xenopus_tropicalis_funcgen_92_42
## 11088                          xenopus_tropicalis_funcgen_93_42
## 11089                          xenopus_tropicalis_funcgen_94_42
## 11090                          xenopus_tropicalis_funcgen_95_42
## 11091                          xenopus_tropicalis_funcgen_96_42
## 11092                          xenopus_tropicalis_funcgen_97_42
## 11093            xenopus_tropicalis_otherfeatures_48_41h
## 11094            xenopus_tropicalis_otherfeatures_49_41i
## 11095            xenopus_tropicalis_otherfeatures_50_41j
## 11096            xenopus_tropicalis_otherfeatures_51_41k
## 11097            xenopus_tropicalis_otherfeatures_52_41l
## 11098            xenopus_tropicalis_otherfeatures_53_41m
## 11099            xenopus_tropicalis_otherfeatures_54_41m
## 11100            xenopus_tropicalis_otherfeatures_55_41n
## 11101            xenopus_tropicalis_otherfeatures_56_41n
## 11102            xenopus_tropicalis_otherfeatures_57_41n
## 11103            xenopus_tropicalis_otherfeatures_58_41o
## 11104            xenopus_tropicalis_otherfeatures_59_41p
## 11105            xenopus_tropicalis_otherfeatures_60_41q
## 11106            xenopus_tropicalis_otherfeatures_61_41r
## 11107             xenopus_tropicalis_otherfeatures_62_42
## 11108             xenopus_tropicalis_otherfeatures_63_42
## 11109             xenopus_tropicalis_otherfeatures_64_42
## 11110             xenopus_tropicalis_otherfeatures_65_42
## 11111             xenopus_tropicalis_otherfeatures_66_42
## 11112             xenopus_tropicalis_otherfeatures_67_42
## 11113             xenopus_tropicalis_otherfeatures_68_42
## 11114             xenopus_tropicalis_otherfeatures_69_42
## 11115             xenopus_tropicalis_otherfeatures_70_42
## 11116             xenopus_tropicalis_otherfeatures_71_42
## 11117             xenopus_tropicalis_otherfeatures_72_42
## 11118             xenopus_tropicalis_otherfeatures_73_42
## 11119             xenopus_tropicalis_otherfeatures_74_42
## 11120             xenopus_tropicalis_otherfeatures_75_42
## 11121             xenopus_tropicalis_otherfeatures_76_42
## 11122             xenopus_tropicalis_otherfeatures_77_42
## 11123             xenopus_tropicalis_otherfeatures_78_42
## 11124             xenopus_tropicalis_otherfeatures_79_42
## 11125             xenopus_tropicalis_otherfeatures_80_42
## 11126             xenopus_tropicalis_otherfeatures_81_42
## 11127             xenopus_tropicalis_otherfeatures_82_42
## 11128             xenopus_tropicalis_otherfeatures_83_42
## 11129             xenopus_tropicalis_otherfeatures_84_42
## 11130             xenopus_tropicalis_otherfeatures_85_42
## 11131             xenopus_tropicalis_otherfeatures_86_42
## 11132             xenopus_tropicalis_otherfeatures_87_42
## 11133             xenopus_tropicalis_otherfeatures_88_42
## 11134             xenopus_tropicalis_otherfeatures_89_42
```

```
## 11135              xenopus_tropicalis_otherfeatures_90_42
## 11136              xenopus_tropicalis_otherfeatures_91_42
## 11137              xenopus_tropicalis_otherfeatures_92_42
## 11138              xenopus_tropicalis_otherfeatures_93_42
## 11139              xenopus_tropicalis_otherfeatures_94_42
## 11140              xenopus_tropicalis_otherfeatures_95_42
## 11141              xenopus_tropicalis_otherfeatures_96_42
## 11142              xenopus_tropicalis_otherfeatures_97_42
## 11143              xenopus_tropicalis_otherfeatures_98_91
## 11144              xenopus_tropicalis_otherfeatures_99_91
## 11145                   xenopus_tropicalis_rnaseq_98_91
## 11146                   xenopus_tropicalis_rnaseq_99_91
## 11147              xiphophorus_couchianus_core_94_401
## 11148              xiphophorus_couchianus_core_95_401
## 11149              xiphophorus_couchianus_core_96_401
## 11150              xiphophorus_couchianus_core_97_401
## 11151              xiphophorus_couchianus_core_98_401
## 11152              xiphophorus_couchianus_core_99_401
## 11153                xiphophorus_maculatus_core_69_1
## 11154                xiphophorus_maculatus_core_70_1
## 11155                xiphophorus_maculatus_core_71_1
## 11156                xiphophorus_maculatus_core_72_1
## 11157                xiphophorus_maculatus_core_73_1
## 11158                xiphophorus_maculatus_core_74_1
## 11159                xiphophorus_maculatus_core_75_1
## 11160                xiphophorus_maculatus_core_76_1
## 11161                xiphophorus_maculatus_core_77_1
## 11162                xiphophorus_maculatus_core_78_1
## 11163                xiphophorus_maculatus_core_79_1
## 11164                xiphophorus_maculatus_core_80_1
## 11165                xiphophorus_maculatus_core_81_1
## 11166                xiphophorus_maculatus_core_82_1
## 11167                xiphophorus_maculatus_core_83_1
## 11168                xiphophorus_maculatus_core_84_1
## 11169                xiphophorus_maculatus_core_85_1
## 11170                xiphophorus_maculatus_core_86_1
## 11171                xiphophorus_maculatus_core_87_1
## 11172                xiphophorus_maculatus_core_88_1
## 11173                xiphophorus_maculatus_core_89_1
## 11174                xiphophorus_maculatus_core_90_1
## 11175                xiphophorus_maculatus_core_91_1
## 11176                xiphophorus_maculatus_core_92_1
## 11177                xiphophorus_maculatus_core_93_1
## 11178                xiphophorus_maculatus_core_94_5
## 11179                xiphophorus_maculatus_core_95_5
## 11180                xiphophorus_maculatus_core_96_5
## 11181                xiphophorus_maculatus_core_97_5
## 11182                xiphophorus_maculatus_core_98_5
## 11183                xiphophorus_maculatus_core_99_5
## 11184      xiphophorus_maculatus_otherfeatures_69_1
## 11185      xiphophorus_maculatus_otherfeatures_70_1
## 11186      xiphophorus_maculatus_otherfeatures_71_1
## 11187      xiphophorus_maculatus_otherfeatures_72_1
## 11188      xiphophorus_maculatus_otherfeatures_73_1
```

```
## 11189                    xiphophorus_maculatus_otherfeatures_74_1
## 11190                    xiphophorus_maculatus_otherfeatures_75_1
## 11191                    xiphophorus_maculatus_otherfeatures_76_1
## 11192                    xiphophorus_maculatus_otherfeatures_77_1
## 11193                    xiphophorus_maculatus_otherfeatures_78_1
## 11194                    xiphophorus_maculatus_otherfeatures_79_1
## 11195                    xiphophorus_maculatus_otherfeatures_80_1
## 11196                    xiphophorus_maculatus_otherfeatures_81_1
## 11197                    xiphophorus_maculatus_otherfeatures_82_1
## 11198                    xiphophorus_maculatus_otherfeatures_83_1
## 11199                    xiphophorus_maculatus_otherfeatures_84_1
## 11200                    xiphophorus_maculatus_otherfeatures_85_1
## 11201                    xiphophorus_maculatus_otherfeatures_86_1
## 11202                    xiphophorus_maculatus_otherfeatures_87_1
## 11203                    xiphophorus_maculatus_otherfeatures_88_1
## 11204                    xiphophorus_maculatus_otherfeatures_89_1
## 11205                    xiphophorus_maculatus_otherfeatures_90_1
## 11206                    xiphophorus_maculatus_otherfeatures_91_1
## 11207                    xiphophorus_maculatus_otherfeatures_92_1
## 11208                    xiphophorus_maculatus_otherfeatures_93_1
## 11209                    xiphophorus_maculatus_otherfeatures_94_5
## 11210                    xiphophorus_maculatus_otherfeatures_95_5
## 11211                    xiphophorus_maculatus_otherfeatures_96_5
## 11212                    xiphophorus_maculatus_otherfeatures_97_5
## 11213                    xiphophorus_maculatus_otherfeatures_98_5
## 11214                    xiphophorus_maculatus_otherfeatures_99_5
## 11215                        xiphophorus_maculatus_rnaseq_69_1
## 11216                        xiphophorus_maculatus_rnaseq_70_1
## 11217                        xiphophorus_maculatus_rnaseq_71_1
## 11218                        xiphophorus_maculatus_rnaseq_72_1
## 11219                        xiphophorus_maculatus_rnaseq_73_1
## 11220                        xiphophorus_maculatus_rnaseq_74_1
## 11221                        xiphophorus_maculatus_rnaseq_75_1
## 11222                        xiphophorus_maculatus_rnaseq_76_1
## 11223                        xiphophorus_maculatus_rnaseq_77_1
## 11224                        xiphophorus_maculatus_rnaseq_78_1
## 11225                        xiphophorus_maculatus_rnaseq_79_1
## 11226                        xiphophorus_maculatus_rnaseq_80_1
## 11227                        xiphophorus_maculatus_rnaseq_81_1
## 11228                        xiphophorus_maculatus_rnaseq_82_1
## 11229                        xiphophorus_maculatus_rnaseq_83_1
## 11230                        xiphophorus_maculatus_rnaseq_84_1
## 11231                        xiphophorus_maculatus_rnaseq_85_1
## 11232                        xiphophorus_maculatus_rnaseq_86_1
## 11233                        xiphophorus_maculatus_rnaseq_87_1
## 11234                        xiphophorus_maculatus_rnaseq_88_1
## 11235                        xiphophorus_maculatus_rnaseq_89_1
## 11236                        xiphophorus_maculatus_rnaseq_90_1
## 11237                        xiphophorus_maculatus_rnaseq_91_1
## 11238                        xiphophorus_maculatus_rnaseq_92_1
## 11239                        xiphophorus_maculatus_rnaseq_93_1
## 11240                        xiphophorus_maculatus_rnaseq_94_5
## 11241                        xiphophorus_maculatus_rnaseq_95_5
## 11242                        xiphophorus_maculatus_rnaseq_96_5
```

```
## 11243                   xiphophorus_maculatus_rnaseq_97_5
## 11244                   xiphophorus_maculatus_rnaseq_98_5
## 11245                   xiphophorus_maculatus_rnaseq_99_5
## 11246              zonotrichia_albicollis_core_96_101
## 11247              zonotrichia_albicollis_core_97_101
## 11248              zonotrichia_albicollis_core_98_101
## 11249              zonotrichia_albicollis_core_99_101
## 11250     zonotrichia_albicollis_otherfeatures_96_101
## 11251     zonotrichia_albicollis_otherfeatures_97_101
## 11252     zonotrichia_albicollis_otherfeatures_98_101
## 11253     zonotrichia_albicollis_otherfeatures_99_101
## 11254            zonotrichia_albicollis_rnaseq_96_101
## 11255            zonotrichia_albicollis_rnaseq_97_101
## 11256            zonotrichia_albicollis_rnaseq_98_101
## 11257            zonotrichia_albicollis_rnaseq_99_101
```

Podemos ahora trabajar para encontrar las tablas que contengan el string "compara"

```
dbGetQuery(ensembl_con, "SHOW DATABASES") %>%
  # filter the table for cases where the the string "compara" is present
  filter(str_detect(Database, "compara")) %>%
  tail()
```

```
##           Database
## 47 ensembl_compara_94
## 48 ensembl_compara_95
## 49 ensembl_compara_96
## 50 ensembl_compara_97
## 51 ensembl_compara_98
## 52 ensembl_compara_99
```

Nos quedamos con la mas reciente:

```
compara_con <- dbConnect(MariaDB(),
                         dbname = "ensembl_compara_99",
                         host = "ensembldb.ensembl.org",
                         user = "anonymous",
                         port = 5306,
                         password = "")
```

Para ver las tablas que hay en la base de datos que hemos elegido:

```
library(dbplyr)
```

```
## Warning: package 'dbplyr' was built under R version 3.6.2
```

```
##
## Attaching package: 'dbplyr'
```

```
## The following objects are masked from 'package:dplyr':
##
##     ident, sql
```

```
src_dbi(compara_con)
```

```
## src:  mysql  [anonymous@ensembldb.ensembl.org:NA/ensembl_compara_99]
## tbls: CAFE_gene_family, CAFE_species_gene, conservation_score,
##   constrained_element, dnafrag, dnafrag_region, exon_boundaries,
##   external_db, family, family_member, gene_align, gene_align_member,
```

```
##    gene_member, gene_member_hom_stats, gene_member_qc, gene_tree_node,
##    gene_tree_node_attr, gene_tree_node_tag, gene_tree_object_store,
##    gene_tree_root, gene_tree_root_attr, gene_tree_root_tag, genome_db,
##    genomic_align, genomic_align_block, genomic_align_tree, hmm_annot,
##    hmm_curated_annot, hmm_profile, homology, homology_member,
##    mapping_session, member_xref, meta, method_link,
##    method_link_species_set, method_link_species_set_attr,
##    method_link_species_set_tag, ncbi_taxa_name, ncbi_taxa_node,
##    other_member_sequence, peptide_align_feature, seq_member,
##    seq_member_projection, seq_member_projection_stable_id, sequence,
##    species_set, species_set_header, species_set_tag, species_tree_node,
##    species_tree_node_attr, species_tree_node_tag, species_tree_root,
##    stable_id_history, synteny_region
```

Accedemos a la tabla "homology

```
compara_homology <- tbl(compara_con, "homology")
head(compara_homology)
```

```
## # Source:    lazy query [?? x 15]
## # Database: mysql [anonymous@ensembldb.ensembl.org:NA/ensembl_compara_99]
##    homology_id method_link_spe~ description is_tree_complia~    dn    ds
##          <int>            <int> <chr>                  <int> <dbl> <dbl>
## 1            1           132551 other_para~                1 1.02  16.6
## 2            2           132551 other_para~                1 1.07   7.82
## 3            3           132551 other_para~                1 1.07  66.7
## 4            4           132551 other_para~                1 1.20  70.1
## 5            5           132551 other_para~                1 1.04  71.9
## 6            6           132551 other_para~                1 0.914 77.6
## # ... with 9 more variables: n <dbl>, s <dbl>, lnl <dbl>,
## #   species_tree_node_id <int>, gene_tree_node_id <int>,
## #   gene_tree_root_id <int>, goc_score <int>, wga_coverage <dbl>,
## #   is_high_confidence <int>
```

```
compara_linksp <- tbl(compara_con, "method_link_species_set")
head(compara_linksp)
```

```
## # Source:    lazy query [?? x 8]
## # Database: mysql [anonymous@ensembldb.ensembl.org:NA/ensembl_compara_99]
##   method_link_spe~ method_link_id species_set_id name  source url
##              <int>          <int>          <int> <chr> <chr>  <chr>
## 1              555             16          34144 G.ac~ ensem~ ""
## 2              569             16          34350 C.in~ ensem~ ""
## 3              587             16          34701 M.mu~ ensem~ ""
## 4              592             16          34706 M.mu~ ensem~ ""
## 5              594             16          34708 C.fa~ ensem~ ""
## 6              596             16          34710 A.ca~ ensem~ ""
## # ... with 2 more variables: first_release <int>, last_release <int>
```

```
sapiens_ortho <- compara_linksp %>%
  filter(name == "H.sap-P.tro orthologues" | name == "H.sap-M.mus orthologues")
```

```
sapiens_ortho
```

```
## # Source:    lazy query [?? x 8]
## # Database: mysql [anonymous@ensembldb.ensembl.org:NA/ensembl_compara_99]
##   method_link_spe~ method_link_id species_set_id name  source url
```

```
##              <int>             <int>            <int> <chr> <chr>  <chr>
## 1            50976               201            35673 H.sa~ ensem~ ""
## 2           103890               201            39100 H.sa~ ensem~ ""
## # ... with 2 more variables: first_release <int>, last_release <int>
```

```
compara_result <- sapiens_ortho %>%
  left_join(compara_homology, by = "method_link_species_set_id") %>%
  collect()

head(compara_result)
```

```
## # A tibble: 6 x 22
##   method_link_spe~ method_link_id species_set_id name  source url
##              <int>          <int>          <int> <chr> <chr>  <chr>
## 1            50976            201          35673 H.sa~ ensem~ ""
## 2            50976            201          35673 H.sa~ ensem~ ""
## 3            50976            201          35673 H.sa~ ensem~ ""
## 4            50976            201          35673 H.sa~ ensem~ ""
## 5            50976            201          35673 H.sa~ ensem~ ""
## 6            50976            201          35673 H.sa~ ensem~ ""
## # ... with 16 more variables: first_release <int>, last_release <int>,
## #   homology_id <int>, description <chr>, is_tree_compliant <int>,
## #   dn <dbl>, ds <dbl>, n <dbl>, s <dbl>, lnl <dbl>,
## #   species_tree_node_id <int>, gene_tree_node_id <int>,
## #   gene_tree_root_id <int>, goc_score <int>, wga_coverage <dbl>,
## #   is_high_confidence <int>
```

```
compara_result %>%
  count(name, description)
```

```
## # A tibble: 6 x 3
##   name                     description                n
##   <chr>                    <chr>                  <int>
## 1 H.sap-M.mus orthologues  ortholog_many2many      5773
## 2 H.sap-M.mus orthologues  ortholog_one2many       3450
## 3 H.sap-M.mus orthologues  ortholog_one2one       16534
## 4 H.sap-P.tro orthologues  ortholog_many2many       556
## 5 H.sap-P.tro orthologues  ortholog_one2many       3214
## 6 H.sap-P.tro orthologues  ortholog_one2one       19410
```

```
compara_result %>%
  ggplot(aes(name, ds/dn, fill = description)) +
  geom_boxplot() + scale_y_log10()
```

```
## Warning: Transformation introduced infinite values in continuous y-axis
```

```
## Warning: Removed 10524 rows containing non-finite values (stat_boxplot).
```
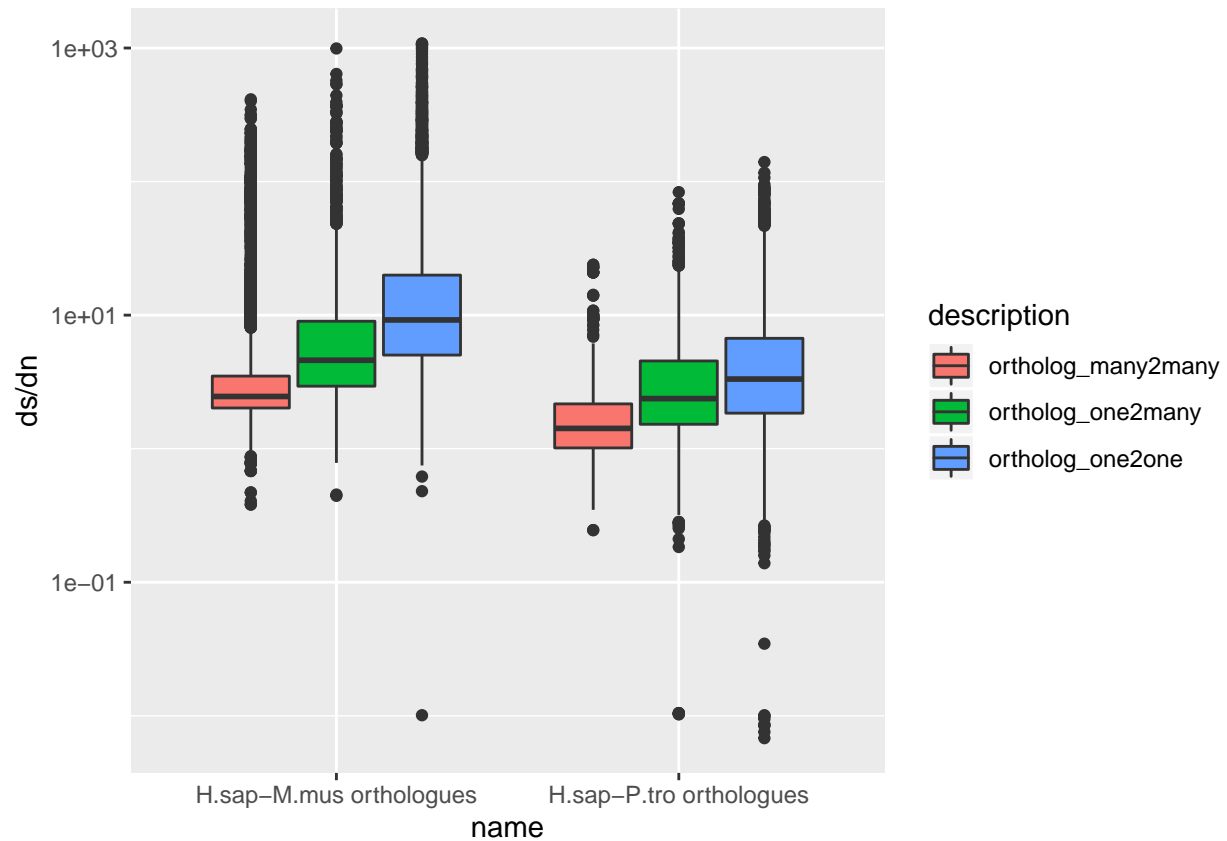
Datos estructurados: APIs y paquetes dedicados

La base de datos del Worl Bank contiene una API desde la que podemos acceder a los World Data Indicators (http://datatopics.worldbank.org/world-development-indicators/). El paquete de R "WDI" baja los datos que le pidamos de esa base de datos, parsea el XML correspondiente y formatea el objeto resultante. Ademas contiene funciones para hacer busquedas en las bases de datos:

```
library(WDI)

WDIsearch(string = "life.*expectancy", field = "name", cache = NULL)
```

```
##       indicator
##  [1,] "UIS.SLE.12"
##  [2,] "UIS.SLE.1.M"
##  [3,] "UIS.SLE.1.GPI"
##  [4,] "UIS.SLE.1.F"
##  [5,] "UIS.SLE.1"
##  [6,] "UIS.SLE.0.M"
##  [7,] "UIS.SLE.0.GPI"
##  [8,] "UIS.SLE.0.F"
##  [9,] "UIS.SLE.0"
## [10,] "UIS.SLEN.12.T"
## [11,] "UIS.SLEN.12.M"
## [12,] "UIS.SLEN.12.GPI"
## [13,] "UIS.SLEN.12.F"
## [14,] "UIS.SLE.56.M"
## [15,] "UIS.SLE.56.GPI"
```

```
## [16,] "UIS.SLE.56.F"
## [17,] "UIS.SLE.56"
## [18,] "UIS.SLE.4.M"
## [19,] "UIS.SLE.4.GPI"
## [20,] "UIS.SLE.4.F"
## [21,] "UIS.SLE.4"
## [22,] "UIS.SLE.23.M"
## [23,] "UIS.SLE.23.GPI"
## [24,] "UIS.SLE.23.F"
## [25,] "UIS.SLE.23"
## [26,] "UIS.SLE.1t6.GPI"
## [27,] "UIS.SLE.123.M"
## [28,] "UIS.SLE.123.GPI"
## [29,] "UIS.SLE.123.F"
## [30,] "UIS.SLE.123"
## [31,] "UIS.SLE.12.M"
## [32,] "UIS.SLE.12.F"
## [33,] "SP.DYN.LE60.MA.IN"
## [34,] "SP.DYN.LE60.FE.IN"
## [35,] "SP.DYN.LE00.MA.IN"
## [36,] "SP.DYN.LE00.IN"
## [37,] "SP.DYN.LE00.FE.IN"
## [38,] "SE.SCH.LIFE.MA"
## [39,] "SE.SCH.LIFE.FE"
## [40,] "SE.SCH.LIFE"
##        name
##  [1,] "School life expectancy, primary and lower secondary, both sexes (years)"
##  [2,] "School life expectancy, primary, male (years)"
##  [3,] "School life expectancy, primary, gender parity index (GPI)"
##  [4,] "School life expectancy, primary, female (years)"
##  [5,] "School life expectancy, primary, both sexes (years)"
##  [6,] "School life expectancy, pre-primary, male (years)"
##  [7,] "School life expectancy, pre-primary, gender parity index (GPI)"
##  [8,] "School life expectancy, pre-primary, female (years)"
##  [9,] "School life expectancy, pre-primary, both sexes (years)"
## [10,] "School life expectancy, primary and lower secondary (excluding repetition), both sexes (years)
## [11,] "School life expectancy, primary and lower secondary (excluding repetition), male (years)"
## [12,] "School life expectancy, primary and lower secondary (excluding repetition), gender parity inde
## [13,] "School life expectancy, primary and lower secondary (excluding repetition), female (years)"
## [14,] "School life expectancy, tertiary, male (years)"
## [15,] "School life expectancy, tertiary, gender parity index (GPI)"
## [16,] "School life expectancy, tertiary, female (years)"
## [17,] "School life expectancy, tertiary, both sexes (years)"
## [18,] "School life expectancy, post-secondary non-tertiary, male (years)"
## [19,] "School life expectancy, post-secondary non-tertiary, gender parity index (GPI)"
## [20,] "School life expectancy, post-secondary non-tertiary, female (years)"
## [21,] "School life expectancy, post-secondary non-tertiary, both sexes (years)"
## [22,] "School life expectancy, secondary, male (years)"
## [23,] "School life expectancy, secondary, gender parity index (GPI)"
## [24,] "School life expectancy, secondary, female (years)"
## [25,] "School life expectancy, secondary, both sexes (years)"
## [26,] "School life expectancy, primary to tertiary, gender parity index (GPI)"
## [27,] "School life expectancy, primary and secondary, male (years)"
## [28,] "School life expectancy, primary and secondary, gender parity index (GPI)"
```

```
## [29,] "School life expectancy, primary and secondary, female (years)"
## [30,] "School life expectancy, primary and secondary, both sexes (years)"
## [31,] "School life expectancy, primary and lower secondary, male (years)"
## [32,] "School life expectancy, primary and lower secondary, female (years)"
## [33,] "Life expectancy at age 60, male (years)"
## [34,] "Life expectancy at age 60, female (years)"
## [35,] "Life expectancy at birth, male (years)"
## [36,] "Life expectancy at birth, total (years)"
## [37,] "Life expectancy at birth, female (years)"
## [38,] "School life expectancy, primary to tertiary, male (years)"
## [39,] "School life expectancy, primary to tertiary, female (years)"
## [40,] "School life expectancy, primary to tertiary, both sexes (years)"
```

```r
df.le = WDI(country = "all", indicator = c("SP.DYN.LE00.IN"), start = 1900,
            end = 2012)
head(df.le)
```

```
##   iso2c     country SP.DYN.LE00.IN year
## 1    1A Arab World       70.70383 2012
## 2    1A Arab World       70.52877 2011
## 3    1A Arab World       70.34992 2010
## 4    1A Arab World       70.15756 2009
## 5    1A Arab World       69.94217 2008
## 6    1A Arab World       69.70155 2007
```

```r
is.data.frame(df.le)
```

```
## [1] TRUE
```

```r
levels(factor(df.le$country))
```

```
##  [1] "Afghanistan"
##  [2] "Albania"
##  [3] "Algeria"
##  [4] "American Samoa"
##  [5] "Andorra"
##  [6] "Angola"
##  [7] "Antigua and Barbuda"
##  [8] "Arab World"
##  [9] "Argentina"
## [10] "Armenia"
## [11] "Aruba"
## [12] "Australia"
## [13] "Austria"
## [14] "Azerbaijan"
## [15] "Bahamas, The"
## [16] "Bahrain"
## [17] "Bangladesh"
## [18] "Barbados"
## [19] "Belarus"
## [20] "Belgium"
## [21] "Belize"
## [22] "Benin"
## [23] "Bermuda"
## [24] "Bhutan"
## [25] "Bolivia"
```

```
##  [26] "Bosnia and Herzegovina"
##  [27] "Botswana"
##  [28] "Brazil"
##  [29] "British Virgin Islands"
##  [30] "Brunei Darussalam"
##  [31] "Bulgaria"
##  [32] "Burkina Faso"
##  [33] "Burundi"
##  [34] "Cabo Verde"
##  [35] "Cambodia"
##  [36] "Cameroon"
##  [37] "Canada"
##  [38] "Caribbean small states"
##  [39] "Cayman Islands"
##  [40] "Central African Republic"
##  [41] "Central Europe and the Baltics"
##  [42] "Chad"
##  [43] "Channel Islands"
##  [44] "Chile"
##  [45] "China"
##  [46] "Colombia"
##  [47] "Comoros"
##  [48] "Congo, Dem. Rep."
##  [49] "Congo, Rep."
##  [50] "Costa Rica"
##  [51] "Cote d'Ivoire"
##  [52] "Croatia"
##  [53] "Cuba"
##  [54] "Curacao"
##  [55] "Cyprus"
##  [56] "Czech Republic"
##  [57] "Denmark"
##  [58] "Djibouti"
##  [59] "Dominica"
##  [60] "Dominican Republic"
##  [61] "Early-demographic dividend"
##  [62] "East Asia & Pacific"
##  [63] "East Asia & Pacific (excluding high income)"
##  [64] "East Asia & Pacific (IDA & IBRD countries)"
##  [65] "Ecuador"
##  [66] "Egypt, Arab Rep."
##  [67] "El Salvador"
##  [68] "Equatorial Guinea"
##  [69] "Eritrea"
##  [70] "Estonia"
##  [71] "Eswatini"
##  [72] "Ethiopia"
##  [73] "Euro area"
##  [74] "Europe & Central Asia"
##  [75] "Europe & Central Asia (excluding high income)"
##  [76] "Europe & Central Asia (IDA & IBRD countries)"
##  [77] "European Union"
##  [78] "Faroe Islands"
##  [79] "Fiji"
```

```
##  [80] "Finland"
##  [81] "Fragile and conflict affected situations"
##  [82] "France"
##  [83] "French Polynesia"
##  [84] "Gabon"
##  [85] "Gambia, The"
##  [86] "Georgia"
##  [87] "Germany"
##  [88] "Ghana"
##  [89] "Gibraltar"
##  [90] "Greece"
##  [91] "Greenland"
##  [92] "Grenada"
##  [93] "Guam"
##  [94] "Guatemala"
##  [95] "Guinea"
##  [96] "Guinea-Bissau"
##  [97] "Guyana"
##  [98] "Haiti"
##  [99] "Heavily indebted poor countries (HIPC)"
## [100] "High income"
## [101] "Honduras"
## [102] "Hong Kong SAR, China"
## [103] "Hungary"
## [104] "IBRD only"
## [105] "Iceland"
## [106] "IDA & IBRD total"
## [107] "IDA blend"
## [108] "IDA only"
## [109] "IDA total"
## [110] "India"
## [111] "Indonesia"
## [112] "Iran, Islamic Rep."
## [113] "Iraq"
## [114] "Ireland"
## [115] "Isle of Man"
## [116] "Israel"
## [117] "Italy"
## [118] "Jamaica"
## [119] "Japan"
## [120] "Jordan"
## [121] "Kazakhstan"
## [122] "Kenya"
## [123] "Kiribati"
## [124] "Korea, Dem. Peopleâ\200\231s Rep."
## [125] "Korea, Rep."
## [126] "Kosovo"
## [127] "Kuwait"
## [128] "Kyrgyz Republic"
## [129] "Lao PDR"
## [130] "Late-demographic dividend"
## [131] "Latin America & Caribbean"
## [132] "Latin America & Caribbean (excluding high income)"
## [133] "Latin America & the Caribbean (IDA & IBRD countries)"
```

```
## [134] "Latvia"
## [135] "Least developed countries: UN classification"
## [136] "Lebanon"
## [137] "Lesotho"
## [138] "Liberia"
## [139] "Libya"
## [140] "Liechtenstein"
## [141] "Lithuania"
## [142] "Low & middle income"
## [143] "Low income"
## [144] "Lower middle income"
## [145] "Luxembourg"
## [146] "Macao SAR, China"
## [147] "Madagascar"
## [148] "Malawi"
## [149] "Malaysia"
## [150] "Maldives"
## [151] "Mali"
## [152] "Malta"
## [153] "Marshall Islands"
## [154] "Mauritania"
## [155] "Mauritius"
## [156] "Mexico"
## [157] "Micronesia, Fed. Sts."
## [158] "Middle East & North Africa"
## [159] "Middle East & North Africa (excluding high income)"
## [160] "Middle East & North Africa (IDA & IBRD countries)"
## [161] "Middle income"
## [162] "Moldova"
## [163] "Monaco"
## [164] "Mongolia"
## [165] "Montenegro"
## [166] "Morocco"
## [167] "Mozambique"
## [168] "Myanmar"
## [169] "Namibia"
## [170] "Nauru"
## [171] "Nepal"
## [172] "Netherlands"
## [173] "New Caledonia"
## [174] "New Zealand"
## [175] "Nicaragua"
## [176] "Niger"
## [177] "Nigeria"
## [178] "North America"
## [179] "North Macedonia"
## [180] "Northern Mariana Islands"
## [181] "Norway"
## [182] "Not classified"
## [183] "OECD members"
## [184] "Oman"
## [185] "Other small states"
## [186] "Pacific island small states"
## [187] "Pakistan"
```

```
## [188] "Palau"
## [189] "Panama"
## [190] "Papua New Guinea"
## [191] "Paraguay"
## [192] "Peru"
## [193] "Philippines"
## [194] "Poland"
## [195] "Portugal"
## [196] "Post-demographic dividend"
## [197] "Pre-demographic dividend"
## [198] "Puerto Rico"
## [199] "Qatar"
## [200] "Romania"
## [201] "Russian Federation"
## [202] "Rwanda"
## [203] "Samoa"
## [204] "San Marino"
## [205] "Sao Tome and Principe"
## [206] "Saudi Arabia"
## [207] "Senegal"
## [208] "Serbia"
## [209] "Seychelles"
## [210] "Sierra Leone"
## [211] "Singapore"
## [212] "Sint Maarten (Dutch part)"
## [213] "Slovak Republic"
## [214] "Slovenia"
## [215] "Small states"
## [216] "Solomon Islands"
## [217] "Somalia"
## [218] "South Africa"
## [219] "South Asia"
## [220] "South Asia (IDA & IBRD)"
## [221] "South Sudan"
## [222] "Spain"
## [223] "Sri Lanka"
## [224] "St. Kitts and Nevis"
## [225] "St. Lucia"
## [226] "St. Martin (French part)"
## [227] "St. Vincent and the Grenadines"
## [228] "Sub-Saharan Africa"
## [229] "Sub-Saharan Africa (excluding high income)"
## [230] "Sub-Saharan Africa (IDA & IBRD countries)"
## [231] "Sudan"
## [232] "Suriname"
## [233] "Sweden"
## [234] "Switzerland"
## [235] "Syrian Arab Republic"
## [236] "Tajikistan"
## [237] "Tanzania"
## [238] "Thailand"
## [239] "Timor-Leste"
## [240] "Togo"
## [241] "Tonga"
```

```
## [242] "Trinidad and Tobago"
## [243] "Tunisia"
## [244] "Turkey"
## [245] "Turkmenistan"
## [246] "Turks and Caicos Islands"
## [247] "Tuvalu"
## [248] "Uganda"
## [249] "Ukraine"
## [250] "United Arab Emirates"
## [251] "United Kingdom"
## [252] "United States"
## [253] "Upper middle income"
## [254] "Uruguay"
## [255] "Uzbekistan"
## [256] "Vanuatu"
## [257] "Venezuela, RB"
## [258] "Vietnam"
## [259] "Virgin Islands (U.S.)"
## [260] "West Bank and Gaza"
## [261] "World"
## [262] "Yemen, Rep."
## [263] "Zambia"
## [264] "Zimbabwe"
```

```r
levels(factor(df.le$year))
```

```
##  [1] "1960" "1961" "1962" "1963" "1964" "1965" "1966" "1967" "1968" "1969"
## [11] "1970" "1971" "1972" "1973" "1974" "1975" "1976" "1977" "1978" "1979"
## [21] "1980" "1981" "1982" "1983" "1984" "1985" "1986" "1987" "1988" "1989"
## [31] "1990" "1991" "1992" "1993" "1994" "1995" "1996" "1997" "1998" "1999"
## [41] "2000" "2001" "2002" "2003" "2004" "2005" "2006" "2007" "2008" "2009"
## [51] "2010" "2011" "2012"
```

Datos no estructurados:

Datos de un link de internet

El paquete dslab está en github, por lo que podriamos descargarnos los datos del fichero "murders.csv" directamente de alli.

```r
url <- "https://raw.githubusercontent.com/rafalab/dslabs/master/inst/extdata/murders.csv"
```

Y, aún mejor, read_csv puede leerlo directamente

```r
dat <- read_csv(url)
```

Podemos no solo leer los datos en R sino bajarnos el fichero a una unidad de disco o de red utilizando R:

```r
download.file(url, "murders.csv")
```

Web scratching

Queremos comparar las estadisticas de asesinato en EEUU con las estadisticas de europa, pero el dato de eurostat no esta desglosado y ese número no es comparable. En wikipedia buscamos las estadisticas de muertes no casuales a nivel mundial (CTRL+U para ver el código de la web)

```r
url="https://en.wikipedia.org/wiki/List_of_countries_by_intentional_homicide_rate"
h <- read_html(url)
```

```r
class(h)
```

```
## [1] "xml_document" "xml_node"
```

```r
h
```

```
## {html_document}
## <html class="client-nojs" lang="en" dir="ltr">
## [1] <head>\n<meta http-equiv="Content-Type" content="text/html; charset= ...
## [2] <body class="mediawiki ltr sitedir-ltr mw-hide-empty-elt ns-0 ns-sub ...
```

Hay una seccion del codigo html que comienza con

. Ahi estan los datos de la tabla que queremos leer en R.

```r
tab <- h %>% html_nodes("table")
tab <- tab[[4]] %>% html_table
head(tab)
```

```
##    Country (or dependent territory,subnational area, etc.) Region
## 1                                                  Burundi Africa
## 2                                                  Comoros Africa
## 3                                                 Djibouti Africa
## 4                                                  Eritrea Africa
## 5                                                 Ethiopia Africa
## 6                                                    Kenya Africa
##         Subregion Rate Count Yearlisted        Source
## 1 Eastern Africa 6.02   635       2016       CTS/SDG
## 2 Eastern Africa 7.70    60       2015 WHO Estimate
## 3 Eastern Africa 6.48    60       2015 WHO Estimate
## 4 Eastern Africa 8.04   390       2015 WHO Estimate
## 5 Eastern Africa 7.56 7,552       2015 WHO Estimate
## 6 Eastern Africa 5.00 2,466       2017           CTS
```

```r
class(tab)
```

```
## [1] "data.frame"
```

```r
tab <- tab %>%
  select(starts_with("Country"),
         Region,Count,Rate,starts_with("Year")) %>%
  setNames(c("country", "continent", "total", "murder_rate","year"))

head(tab)
```

```
##     country continent total murder_rate year
## 1  Burundi    Africa   635        6.02 2016
## 2  Comoros    Africa    60        7.70 2015
## 3 Djibouti    Africa    60        6.48 2015
## 4  Eritrea    Africa   390        8.04 2015
## 5 Ethiopia    Africa 7,552        7.56 2015
## 6    Kenya    Africa 2,466        5.00 2017
```

Import from JSON

```r
library(jsonlite)
```

```
##
## Attaching package: 'jsonlite'
```

```
## The following object is masked from 'package:purrr':
##
##     flatten
```

```
citi_bike <- fromJSON("http://citibikenyc.com/stations/json")
citi_bike$executionTime
```

```
## [1] "2020-01-24 05:34:46 AM"
```

```
head(citi_bike$stationBeanList)
```

```
##     id              stationName availableDocks totalDocks latitude
## 1  304        Broadway & Battery Pl             18         33 40.70463
## 2 3255            8 Ave & W 31 St             16         19 40.75059
## 3   72           W 52 St & 11 Ave             33         55 40.76727
## 4   79    Franklin St & W Broadway             32         33 40.71912
## 5   82        St James Pl & Pearl St            7         27 40.71117
## 6   83 Atlantic Ave & Fort Greene Pl          25         62 40.68383
##   longitude statusValue statusKey availableBikes
## 1 -74.01362  In Service         1             15
## 2 -73.99468  In Service         1              3
## 3 -73.99393  In Service         1             21
## 4 -74.00667  In Service         1              1
## 5 -74.00017  In Service         1             20
## 6 -73.97632  In Service         1             37
##                    stAddress1 stAddress2 city postalCode location
## 1        Broadway & Battery Pl
## 2            8 Ave & W 31 St
## 3           W 52 St & 11 Ave
## 4    Franklin St & W Broadway
## 5       St James Pl & Pearl St
## 6 Atlantic Ave & Fort Greene Pl
##   altitude testStation  lastCommunicationTime landMark
## 1             FALSE 2020-01-24 05:32:48 AM
## 2             FALSE 2020-01-24 05:34:16 AM
## 3             FALSE 2020-01-24 05:33:40 AM
## 4             FALSE 2020-01-24 05:32:51 AM
## 5             FALSE 2020-01-24 05:32:43 AM
## 6             FALSE 2020-01-24 05:32:08 AM
```