PEC1_SummarizedExperiment

Celia Martínez Saz

2025-04-01

Lo primero de todo cargamos nuestro dataset que estudia la caquexia humana y lo exploramos.

```
library(readxl)
## Warning: package 'readxl' was built under R version 4.4.3
human_cachexia <- read_excel("C:/Users/celch/OneDrive/Desktop/UOC/Datos omicos/Bloque 1 - las omicas/PE
head (human_cachexia)
## # A tibble: 6 x 65
     'Patient ID' 'Muscle loss' '1,6-Anhydro-beta-D-glucose' '1-Methylnicotinamide'
##
##
     <chr>
                  <chr>
                                 <chr>
                                                                <chr>
                cachexic
## 1 PIF_178
                                40.85
                                                                65.37
## 2 PIF_087 cachexic
## 3 PIF_090 cachexic
                               62.18
                                                                340.36
                                 270.43
                                                                64.72
## 4 NETL_005_V1 cachexic
                                 154.47
                                                                52.98
## 5 PIF_115
                                 22.2
                                                                73.7
                  cachexic
## 6 PIF_110
                  cachexic
                                 212.72
                                                                31.82
## # i 61 more variables: '2-Aminobutyrate' <chr>, '2-Hydroxyisobutyrate' <chr>,
       '2-Oxoglutarate' <chr>, '3-Aminoisobutyrate' <chr>,
       '3-Hydroxybutyrate' <chr>, '3-Hydroxyisovalerate' <chr>,
       \hbox{`3-Indoxylsulfate'} < \hbox{chr>, `4-Hydroxyphenylacetate'} < \hbox{chr>, Acetate } < \hbox{chr>,}
       Acetone <chr>, Adipate <chr>, Alanine <chr>, Asparagine <chr>,
## #
       Betaine <chr>, Carnitine <chr>, Citrate <chr>, Creatine <chr>,
## #
       Creatinine <chr>, Dimethylamine <chr>, Ethanolamine <chr>, ...
```

Estudiamos el dataset seleccionado, comprobando aunque ya nos lo han indicado que no hay missing values.

```
## [11] "3-Indoxylsulfate"
                                      "4-Hydroxyphenylacetate"
## [13] "Acetate"
                                      "Acetone"
## [15] "Adipate"
                                      "Alanine"
## [17] "Asparagine"
                                      "Betaine"
## [19] "Carnitine"
                                      "Citrate"
## [21] "Creatine"
                                      "Creatinine"
## [23] "Dimethylamine"
                                      "Ethanolamine"
## [25] "Formate"
                                      "Fucose"
## [27] "Fumarate"
                                      "Glucose"
## [29] "Glutamine"
                                      "Glycine"
## [31] "Glycolate"
                                      "Guanidoacetate"
## [33] "Hippurate"
                                      "Histidine"
## [35] "Hypoxanthine"
                                      "Isoleucine"
                                      "Leucine"
## [37] "Lactate"
## [39] "Lysine"
                                      "Methylamine"
## [41] "Methylguanidine"
                                      "N, N-Dimethylglycine"
## [43] "O-Acetylcarnitine"
                                      "Pantothenate"
## [45] "Pyroglutamate"
                                      "Pyruvate"
## [47] "Quinolinate"
                                      "Serine"
## [49] "Succinate"
                                      "Sucrose"
## [51] "Tartrate"
                                      "Taurine"
## [53] "Threonine"
                                      "Trigonelline"
## [55] "Trimethylamine N-oxide"
                                      "Tryptophan"
## [57] "Tyrosine"
                                      "Uracil"
## [59] "Valine"
                                      "Xylose"
## [61] "cis-Aconitate"
                                      "myo-Inositol"
                                      "pi-Methylhistidine"
## [63] "trans-Aconitate"
## [65] "tau-Methylhistidine"
```

dim(human_cachexia)

[1] 77 65

is.na(human_cachexia)

##		Patient ID	Muscle loss	1,6-Anhydro-beta-D-glucose	1-Methylnicotinamide
##	[1,]	FALSE	FALSE	FALSE	FALSE
##	[2,]	FALSE	FALSE	FALSE	FALSE
##	[3,]	FALSE	FALSE	FALSE	FALSE
##	[4,]	FALSE	FALSE	FALSE	FALSE
##	[5,]	FALSE	FALSE	FALSE	FALSE
##	[6,]	FALSE	FALSE	FALSE	FALSE
##	[7,]	FALSE	FALSE	FALSE	FALSE
##	[8,]	FALSE	FALSE	FALSE	FALSE
##	[9,]	FALSE	FALSE	FALSE	FALSE
##	[10,]	FALSE	FALSE	FALSE	FALSE
##	[11,]	FALSE	FALSE	FALSE	FALSE
##	[12,]	FALSE	FALSE	FALSE	FALSE
##	[13,]	FALSE	FALSE	FALSE	FALSE
##	[14,]	FALSE	FALSE	FALSE	FALSE
##	[15,]	FALSE	FALSE	FALSE	FALSE
##	[16,]	FALSE	FALSE	FALSE	FALSE
##	[17,]	FALSE	FALSE	FALSE	FALSE

	[18,]	FALSE	FALSE	FALSE	FALSE
	[19,]		FALSE	FALSE	FALSE
	[20,]		FALSE	FALSE	FALSE
	[21,]	FALSE	FALSE	FALSE	FALSE
	[22,]	FALSE	FALSE	FALSE	FALSE
	[23,]	FALSE	FALSE	FALSE	FALSE
	[24,]	FALSE	FALSE	FALSE	FALSE
	[25,]	FALSE	FALSE	FALSE	FALSE
##	[26,]	FALSE	FALSE	FALSE	FALSE
##	[27,]	FALSE	FALSE	FALSE	FALSE
##	[28,]	FALSE	FALSE	FALSE	FALSE
	[29,]	FALSE	FALSE	FALSE	FALSE
	[30,]	FALSE	FALSE	FALSE	FALSE
	[31,]	FALSE	FALSE	FALSE	FALSE
	[32,]	FALSE	FALSE	FALSE	FALSE
	[33,]	FALSE	FALSE	FALSE	FALSE
	[34,]	FALSE	FALSE	FALSE	FALSE
	[35,]	FALSE	FALSE	FALSE	FALSE
	[36,]	FALSE	FALSE	FALSE	FALSE
	[37,]	FALSE	FALSE	FALSE	FALSE
	[38,]	FALSE	FALSE	FALSE	FALSE
	[39,]	FALSE	FALSE	FALSE	FALSE
	[40,]	FALSE	FALSE	FALSE	FALSE
	[41,]	FALSE	FALSE	FALSE	FALSE
	[42,]	FALSE	FALSE	FALSE	FALSE
	[43,]	FALSE	FALSE	FALSE	FALSE
	[44,]	FALSE	FALSE	FALSE	FALSE
	[45,]	FALSE	FALSE	FALSE	FALSE
	[46,]	FALSE	FALSE	FALSE	FALSE
	[47,]	FALSE	FALSE	FALSE	FALSE
	[48,]	FALSE	FALSE	FALSE	FALSE
	[49,]	FALSE	FALSE	FALSE	FALSE
	[50,]	FALSE	FALSE	FALSE	FALSE
	[51,]	FALSE	FALSE	FALSE	FALSE
	[52,]	FALSE	FALSE	FALSE	FALSE
##	[53,]	FALSE	FALSE	FALSE	FALSE
	[54,]	FALSE	FALSE	FALSE	FALSE
	[55,]	FALSE	FALSE	FALSE	FALSE
	[56,]	FALSE	FALSE	FALSE	FALSE
	[57,]	FALSE	FALSE	FALSE	FALSE
	[58,]	FALSE	FALSE	FALSE	FALSE
	[59,]	FALSE	FALSE	FALSE	FALSE
	[60,]	FALSE	FALSE	FALSE	FALSE
	[61,]	FALSE	FALSE	FALSE	FALSE
	[62,]	FALSE	FALSE	FALSE	FALSE
	[63,]	FALSE	FALSE	FALSE	FALSE
	[64,]	FALSE	FALSE	FALSE	FALSE
	[65,]	FALSE	FALSE	FALSE	FALSE
	[66,]	FALSE	FALSE	FALSE	FALSE
	[67,]	FALSE	FALSE	FALSE	FALSE
	[68,]	FALSE	FALSE	FALSE	FALSE
	[69,]	FALSE	FALSE	FALSE	FALSE
	[70,]	FALSE	FALSE	FALSE	FALSE
##	[71,]	FALSE	FALSE	FALSE	FALSE

##	[72,]	FALSE	FALSE	FALSE	FALSE
##	[73,]	FALSE	FALSE	FALSE	FALSE
##	[74,]	FALSE	FALSE	FALSE	FALSE
##	[75,]	FALSE	FALSE	FALSE	FALSE
##	[76,]	FALSE	FALSE	FALSE	FALSE
##	[77,]	FALSE	FALSE	FALSE	FALSE
##		2-Aminobutyrate	2-Hydroxyisobutyrate	2-Oxoglutarate	3-Aminoisobutyrate
##	[1,]	FALSE	FALSE	FALSE	FALSE
##	[2,]	FALSE	FALSE	FALSE	FALSE
##	[3,]	FALSE	FALSE	FALSE	FALSE
##	[4,]	FALSE	FALSE	FALSE	FALSE
##	[5,]	FALSE	FALSE	FALSE	FALSE
##	[6,]	FALSE	FALSE	FALSE	FALSE
##	[7,]	FALSE	FALSE	FALSE	FALSE
##	[8,]	FALSE	FALSE	FALSE	FALSE
##	[9,]	FALSE	FALSE	FALSE	FALSE
##	[10,]	FALSE	FALSE	FALSE	FALSE
##	[11,]	FALSE	FALSE	FALSE	FALSE
##	[12,]	FALSE	FALSE	FALSE	FALSE
##	[13,]	FALSE	FALSE	FALSE	FALSE
##	[14,]	FALSE	FALSE	FALSE	FALSE
##	[15,]	FALSE	FALSE	FALSE	FALSE
##	[16,]	FALSE	FALSE	FALSE	FALSE
##	[17,]	FALSE	FALSE	FALSE	FALSE
##	[18,]	FALSE	FALSE	FALSE	FALSE
##	[19,]	FALSE	FALSE	FALSE	FALSE
##	[20,]	FALSE	FALSE	FALSE	FALSE
##	[21,]	FALSE	FALSE	FALSE	FALSE
##	[22,]	FALSE	FALSE	FALSE	FALSE
##	[23,]	FALSE	FALSE	FALSE	FALSE
##	[24,]	FALSE	FALSE	FALSE	FALSE
##	[25,]	FALSE	FALSE FALSE	FALSE	FALSE
##	[26,]	FALSE		FALSE	FALSE
##	[27,]	FALSE	FALSE	FALSE	FALSE
## ##	[28,] [29,]	FALSE FALSE	FALSE FALSE	FALSE FALSE	FALSE FALSE
	[30,]	FALSE	FALSE	FALSE	FALSE
	[31,]	FALSE	FALSE	FALSE	FALSE
	[32,]	FALSE	FALSE	FALSE	FALSE
	[33,]	FALSE	FALSE	FALSE	FALSE
	[34,]	FALSE	FALSE	FALSE	FALSE
	[35,]	FALSE	FALSE	FALSE	FALSE
	[36,]	FALSE	FALSE	FALSE	FALSE
	[37,]	FALSE	FALSE	FALSE	FALSE
##	[38,]	FALSE	FALSE	FALSE	FALSE
	[39,]	FALSE	FALSE	FALSE	FALSE
	[40,]	FALSE	FALSE	FALSE	FALSE
	[41,]	FALSE	FALSE	FALSE	FALSE
	[42,]	FALSE	FALSE	FALSE	FALSE
	[43,]	FALSE	FALSE	FALSE	FALSE
	[44,]	FALSE	FALSE	FALSE	FALSE
	[45,]	FALSE	FALSE	FALSE	FALSE
##	[46,]	FALSE	FALSE	FALSE	FALSE
##	[47,]	FALSE	FALSE	FALSE	FALSE

##	[48,]	FALSE	FALSE	FALSE	FALSE
##	[49,]	FALSE	FALSE	FALSE	FALSE
##	[50,]	FALSE	FALSE	FALSE	FALSE
##	[51,]	FALSE	FALSE	FALSE	FALSE
##	[52,]	FALSE	FALSE	FALSE	FALSE
##	[53,]	FALSE	FALSE	FALSE	FALSE
##	[54,]	FALSE	FALSE	FALSE	FALSE
##	[55,]	FALSE	FALSE	FALSE	FALSE
##	[56,]	FALSE	FALSE	FALSE	FALSE
##	[57,]	FALSE	FALSE	FALSE	FALSE
##	[58,]	FALSE	FALSE	FALSE	FALSE
##	[59,]	FALSE	FALSE	FALSE	FALSE
##	[60,]	FALSE	FALSE	FALSE	FALSE
##	[61,]	FALSE	FALSE	FALSE	FALSE
##	[62,]	FALSE	FALSE	FALSE	FALSE
##	[63,]	FALSE	FALSE	FALSE	FALSE
##	[64,]	FALSE	FALSE	FALSE	FALSE
##	[65,]	FALSE	FALSE	FALSE	FALSE
##	[66,]	FALSE	FALSE	FALSE	FALSE
##	[67,]	FALSE	FALSE	FALSE	FALSE
##	[68,]	FALSE	FALSE	FALSE	FALSE
##	[69,]	FALSE	FALSE	FALSE	FALSE
##	[70,]	FALSE	FALSE	FALSE	FALSE
##	[71,]	FALSE	FALSE	FALSE	FALSE
##	[72,]	FALSE	FALSE	FALSE	FALSE
##	[73,]	FALSE	FALSE	FALSE	FALSE
##	[74,]	FALSE	FALSE	FALSE	FALSE
##	[75,]	FALSE	FALSE	FALSE	FALSE
,			DAT 00		FALSE
##	[76,]	FALSE	FALSE	FALSE	LUTOT
## ##	[76,] [77,]	FALSE FALSE	FALSE FALSE	FALSE FALSE	FALSE
		FALSE		FALSE	
##		FALSE	FALSE	FALSE	
## ##	[77,]	FALSE 3-Hydroxybutyrate	FALSE 3-Hydroxyisovalerate	FALSE 3-Indoxylsulfate	
## ## ##	[77,] [1,]	FALSE 3-Hydroxybutyrate FALSE	FALSE 3-Hydroxyisovalerate FALSE	FALSE 3-Indoxylsulfate FALSE	
## ## ## ##	[77,] [1,] [2,] [3,] [4,]	FALSE 3-Hydroxybutyrate FALSE FALSE	FALSE 3-Hydroxyisovalerate FALSE FALSE	FALSE 3-Indoxylsulfate FALSE FALSE	
## ## ## ##	[77,] [1,] [2,] [3,] [4,] [5,]	FALSE 3-Hydroxybutyrate FALSE FALSE FALSE	FALSE 3-Hydroxyisovalerate FALSE FALSE FALSE	FALSE 3-Indoxylsulfate FALSE FALSE FALSE	
## ## ## ## ##	[77,] [1,] [2,] [3,] [4,] [5,] [6,]	FALSE 3-Hydroxybutyrate FALSE FALSE FALSE FALSE FALSE	FALSE 3-Hydroxyisovalerate FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE	FALSE 3-Indoxylsulfate FALSE FALSE FALSE FALSE	
## ## ## ## ## ##	[77,] [1,] [2,] [3,] [4,] [5,] [6,] [7,]	FALSE 3-Hydroxybutyrate FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE	FALSE 3-Hydroxyisovalerate FALSE FALSE FALSE FALSE FALSE FALSE	FALSE 3-Indoxylsulfate FALSE FALSE FALSE FALSE FALSE	
## ## ## ## ## ## ##	[77,] [1,] [2,] [3,] [4,] [5,] [6,] [7,] [8,]	FALSE 3-Hydroxybutyrate FALSE	FALSE 3-Hydroxyisovalerate FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE	FALSE 3-Indoxylsulfate FALSE FALSE FALSE FALSE FALSE FALSE FALSE	
## ## ## ## ## ## ##	[77,] [1,] [2,] [3,] [4,] [5,] [6,] [7,] [8,] [9,]	FALSE 3-Hydroxybutyrate FALSE	FALSE 3-Hydroxyisovalerate FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE	FALSE 3-Indoxylsulfate FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE	
## ## ## ## ## ## ##	[77,] [1,] [2,] [3,] [4,] [5,] [6,] [7,] [8,] [9,] [10,]	FALSE 3-Hydroxybutyrate FALSE	FALSE 3-Hydroxyisovalerate FALSE	FALSE 3-Indoxylsulfate FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE	
## ## ## ## ## ## ## ##	[77,] [1,] [2,] [3,] [4,] [5,] [6,] [7,] [8,] [9,] [10,] [11,]	FALSE 3-Hydroxybutyrate FALSE	FALSE 3-Hydroxyisovalerate FALSE	FALSE 3-Indoxylsulfate FALSE	
## ## ## ## ## ## ## ##	[77,] [1,] [2,] [3,] [4,] [5,] [6,] [7,] [8,] [9,] [10,] [11,] [12,]	FALSE 3-Hydroxybutyrate FALSE	FALSE 3-Hydroxyisovalerate FALSE	FALSE 3-Indoxylsulfate FALSE	
## ## ## ## ## ## ## ##	[77,] [1,] [2,] [3,] [4,] [5,] [6,] [7,] [8,] [9,] [10,] [11,] [12,] [13,]	FALSE 3-Hydroxybutyrate FALSE	FALSE 3-Hydroxyisovalerate FALSE	FALSE 3-Indoxylsulfate FALSE	
## ## ## ## ## ## ## ## ##	[77,] [1,] [2,] [3,] [4,] [5,] [6,] [7,] [8,] [9,] [10,] [11,] [12,] [13,] [14,]	FALSE 3-Hydroxybutyrate FALSE	FALSE 3-Hydroxyisovalerate FALSE	FALSE 3-Indoxylsulfate FALSE	
## ## ## ## ## ## ## ## ##	[77,] [1,] [2,] [3,] [4,] [5,] [6,] [7,] [8,] [9,] [10,] [11,] [12,] [13,] [14,] [15,]	FALSE 3-Hydroxybutyrate FALSE	FALSE 3-Hydroxyisovalerate FALSE	FALSE 3-Indoxylsulfate FALSE	
######################################	[77,] [1,] [2,] [3,] [4,] [5,] [6,] [7,] [8,] [9,] [10,] [11,] [12,] [14,] [15,] [16,]	FALSE 3-Hydroxybutyrate FALSE	FALSE 3-Hydroxyisovalerate FALSE	FALSE 3-Indoxylsulfate FALSE	
######################################	[77,] [1,] [2,] [3,] [4,] [5,] [6,] [7,] [8,] [9,] [10,] [11,] [12,] [13,] [14,] [15,] [16,] [17,]	FALSE 3-Hydroxybutyrate FALSE	FALSE 3-Hydroxyisovalerate FALSE	FALSE 3-Indoxylsulfate FALSE	
######################################	[77,] [1,] [2,] [3,] [4,] [5,] [6,] [7,] [8,] [9,] [10,] [11,] [12,] [13,] [14,] [15,] [16,] [17,] [18,]	FALSE 3-Hydroxybutyrate FALSE	FALSE 3-Hydroxyisovalerate FALSE	FALSE 3-Indoxylsulfate FALSE	
######################################	[77,] [1,] [2,] [3,] [4,] [5,] [6,] [7,] [8,] [9,] [10,] [11,] [12,] [13,] [14,] [15,] [16,] [17,] [18,] [19,]	FALSE 3-Hydroxybutyrate FALSE	FALSE 3-Hydroxyisovalerate FALSE	FALSE 3-Indoxylsulfate FALSE	
######################################	[77,] [1,] [2,] [3,] [4,] [5,] [6,] [7,] [8,] [10,] [11,] [12,] [13,] [14,] [15,] [16,] [17,] [18,] [19,] [20,]	FALSE 3-Hydroxybutyrate FALSE	FALSE 3-Hydroxyisovalerate FALSE	FALSE 3-Indoxylsulfate FALSE	
######################################	[77,] [1,] [2,] [3,] [4,] [5,] [6,] [7,] [8,] [10,] [11,] [12,] [14,] [15,] [16,] [17,] [18,] [19,] [20,] [21,]	FALSE 3-Hydroxybutyrate FALSE	FALSE 3-Hydroxyisovalerate FALSE	FALSE 3-Indoxylsulfate FALSE	
#######################################	[77,] [1,] [2,] [3,] [4,] [5,] [6,] [7,] [8,] [9,] [10,] [11,] [12,] [14,] [15,] [16,] [17,] [18,] [19,] [20,] [21,] [22,]	FALSE 3-Hydroxybutyrate FALSE	FALSE 3-Hydroxyisovalerate FALSE	FALSE 3-Indoxylsulfate FALSE	
#######################################	[77,] [1,] [2,] [3,] [4,] [5,] [6,] [7,] [8,] [10,] [11,] [12,] [14,] [15,] [16,] [17,] [18,] [19,] [20,] [21,]	FALSE 3-Hydroxybutyrate FALSE	FALSE 3-Hydroxyisovalerate FALSE	FALSE 3-Indoxylsulfate FALSE	

шш	FO4 3	EALGE	EALGE	EATOR
	[24,]	FALSE	FALSE	FALSE
##	[25,]	FALSE	FALSE	FALSE
##	[26,]	FALSE	FALSE	FALSE
##	[27,]	FALSE	FALSE	FALSE
##	[28,]	FALSE	FALSE	FALSE
##	[29,]	FALSE	FALSE	FALSE
##	[30,]	FALSE	FALSE	FALSE
##	[31,]	FALSE	FALSE	FALSE
##	[32,]	FALSE	FALSE	FALSE
##	[33,]	FALSE	FALSE	FALSE
##	[34,]	FALSE	FALSE	FALSE
##	[35,]	FALSE	FALSE	FALSE
##	[36,]	FALSE	FALSE	FALSE
##	[37,]	FALSE	FALSE	FALSE
##		FALSE	FALSE	FALSE
	[38,]			
##	[39,]	FALSE	FALSE	FALSE
##	[40,]	FALSE	FALSE	FALSE
##	[41,]	FALSE	FALSE	FALSE
##	[42,]	FALSE	FALSE	FALSE
##	[43,]	FALSE	FALSE	FALSE
##	[44,]	FALSE	FALSE	FALSE
##	[45,]	FALSE	FALSE	FALSE
##	[46,]	FALSE	FALSE	FALSE
##	[47,]	FALSE	FALSE	FALSE
##	[48,]	FALSE	FALSE	FALSE
##	[49,]	FALSE	FALSE	FALSE
##	[50,]	FALSE	FALSE	FALSE
##	[51,]	FALSE	FALSE	FALSE
##	[52,]	FALSE	FALSE	FALSE
##	[53,]	FALSE	FALSE	FALSE
##	[54,]	FALSE	FALSE	FALSE
##	[55,]	FALSE	FALSE	FALSE
##	[56,]	FALSE	FALSE	FALSE
##	[57,]	FALSE	FALSE	FALSE
##	[58,]	FALSE	FALSE	FALSE
##	[59,]	FALSE	FALSE	FALSE
	[60,]	FALSE	FALSE	FALSE
	[61,]	FALSE	FALSE	FALSE
##			FALSE	FALSE
##	[62,]	FALSE		
##	[63,]	FALSE	FALSE	FALSE
##	[64,]	FALSE	FALSE	FALSE
##	[65,]	FALSE	FALSE	FALSE
##	[66,]	FALSE	FALSE	FALSE
##	[67,]	FALSE	FALSE	FALSE
##	[68,]	FALSE	FALSE	FALSE
##	[69,]	FALSE	FALSE	FALSE
##	[70,]	FALSE	FALSE	FALSE
##	[71,]	FALSE	FALSE	FALSE
##	[72,]	FALSE	FALSE	FALSE
##	[73,]	FALSE	FALSE	FALSE
##	[74,]	FALSE	FALSE	FALSE
##	[75,]	FALSE	FALSE	FALSE
##	[76,]	FALSE	FALSE	FALSE
##	[77,]	FALSE	FALSE	FALSE

## [1,]	##		4-Hydroxyphenylacetate	Acetate	Acetone	Adipate	Alanine	Asparagine	Betaine
## [4,]	##	[1,]							
## [4,]	##	[2,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
## [6,]	##	[3,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
## [6,]	##	[4,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
## [7,]	##	[5,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
## [8,]	##	[6,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
## [9,]	##	[7,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
## [10,]	##	[8,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
## [11,]	##	[9,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
## [12,]	##	[10,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
## [13,]	##	[11,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
## [14,]	##	[12,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
## [15,]	##	[13,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
## [16,]	##	[14,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
## [17,]	##	[15,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
## [18,]	##	[16,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
## [19,]	##	[17,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
## [20,]	##	[18,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
## [21,]	##	[19,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
## [22,]	##	[20,]	FALSE		FALSE	FALSE	FALSE	FALSE	FALSE
## [23,]	##								
## [24,]	##								
## [25,]									
## [26,]									
## [27,]									
## [28,]									
## [29,]									
## [30,]									
## [31,]									
## [32,]									
## [33,]									
## [34,]									
## [35,]									
## [36,]									
## [37,] FALSE FALSE FALSE FALSE FALSE FALSE FALSE ## [38,] FALSE FALSE FALSE FALSE FALSE FALSE ## [39,] FALSE FALSE FALSE FALSE FALSE FALSE ## [40,] FALSE FALSE FALSE FALSE FALSE FALSE FALSE ## [41,] FALSE FALSE FALSE FALSE FALSE FALSE FALSE ## [42,] FALSE FALSE FALSE FALSE FALSE FALSE FALSE ## [43,] FALSE FALSE FALSE FALSE FALSE FALSE FALSE ## [44,] FALSE FALSE FALSE FALSE FALSE FALSE FALSE ## [46,] FALSE FALSE FALSE FALSE FALSE FALSE FALSE ## [46,] FALSE FALSE FALSE FALSE FALSE FALSE FALSE ## [47,] FALSE FALSE FALSE FALSE FALSE FALSE FALSE ## [48,] FALSE FALSE FALSE FALSE FALSE FALSE FALSE ## [49,] FALSE FALSE FALSE FALSE FALSE FALSE FALSE ## [50,] FALSE FALSE FALSE FALSE FALSE FALSE FALSE ## [51,] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE ## [52,] FALSE									
## [38,] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE ## [40,] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE ## [41,] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE ## [42,] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE ## [43,] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE ## [44,] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE ## [45,] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE ## [46,] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE ## [47,] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE ## [48,] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE ## [49,] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE ## [50,] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE ## [51,] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE ## [52,]									
## [39,] ## [40,] ## [40,] ## [41,] ## [41,] ## [42,] ## [42,] ## [43,] ## [44,] ## [44,] ## [45,] ## [45,] ## [46,] ## [47,] ## [47,] ## [47,] ## [48,] ##									
## [40,] ## [41,] ## [41,] ## [42,] ## [43,] ## [43,] ## [44,] ## [44,] ## [45,] ## [45,] ## [45,] ## [46,] ## [46,] ## [47,] ## [47,] ## [47,] ## [48,] ## [48,] ## [48,] ## [48,] ## [48,] ## [48,] ## [48,] ## [48,] ## [48,] ## [49,] ## [49,] ## [49,] ## [49,] ## [50,] ## [50,] ## [51,] ## [52,] ## [52,] ## [51,] ## [52,] ## [51,] ## [51,] ## [51,] ## [52,] ## [51,] ## [51,] ## [51,] ## [51,] ## [51,] ## [51,] ## [51,] ## [51,] ## [51,] ## [51,] ## [51,] ## [51,] ## [52,] ## [51,] ## [51,] ## [52,] ## [51,] ## [51,] ## [52,] ## [51,] ## [51,] ## [52,] ## [51,] ## [51,] ## [52,] ## [51,] ## [51,] ## [51,] ## [52,] ## [51,] ## [51,] ## [52,] ## [51,] ## [51,] ## [51,] ## [52,]									
## [41,] ## [42,] ## [42,] ## [43,] ## [43,] ## [44,] ## [44,] ## [44,] ## [45,] ## [45,] ## [46,] ## [47,] ## [48,] ## [48,] ## [48,] ## [48,] ## [48,] ## [48,] ## [48,] ## [49,] ## [49,] ## [49,] ## [45,] ## [45,] ## [45,] ## [48,] ## [48,] ## [48,] ## [48,] ## [48,] ## [49,] ## [49,] ## [49,] ## [49,] ## [49,] ## [50,] ## [51,] ## [52,] ## [52,] ## [51,] ## [52,] ## [51,] ## [52,] ## [51,] ## [52,] ## [51,] ## [51,] ## [52,] ## [51,] ## [52,] ## [51,] ## [52,] ## [51,] ## [51,] ## [52,] ## [51,] ## [52,] ## [51,] ## [52,] ## [51,] ## [51,] ## [52,] ## [51,] ## [52,] ## [51,] ## [51,] ## [52,] ## [51,] ## [51,] ## [51,] ## [52,] ## [51,] ## [51,] ## [51,] ## [51,] ## [51,] ## [52,]									
## [42,] ## [43,] ## [43,] ## [44,] ## [44,] ## [44,] ## [44,] ## [45,] ## [45,] ## [46,] ## [46,] ## [47,] ## [48,] ## [48,] ## [48,] ## [48,] ## [48,] ## [48,] ## [49,] ## [49,] ## [49,] ## [49,] ## [50,] ## [51,] ## [52,] ## [52,] ## [51,] ## [52,] ## [51,] ## [51,] ## [51,] ## [51,] ## [51,] ## [51,] ## [51,] ## [51,] ## [51,] ## [51,] ## [51,] ## [51,] ## [51,] ## [51,] ## [51,] ## [51,] ## [51,] ## [52,] ## [51,] ## [51,] ## [51,] ## [52,] ## [51,] ## [51,] ## [51,] ## [52,] ## [51,] ## [51,] ## [52,] ## [51,] ## [51,] ## [52,] ## [51,] ## [51,] ## [52,] ## [51,] ## [52,] ## [51,] ## [51,] ## [52,] ## [51,] ## [51,] ## [52,] ## [51,] ## [52,] ## [51,] ## [52,] ## [51,] ## [51,] ## [51,] ## [52,]									
## [43,] ## [44,] ## [44,] ## [44,] ## [44,] ## [44,] ## [45,] ## [45,] ## [46,] ## [46,] ## [47,] ## [48,] ## [48,] ## [48,] ## [48,] ## [48,] ## [49,] ## [49,] ## [49,] ## [49,] ## [50,] ## [51,] ## [52,] ## [52,] ## [51,] ## [52,] ## [51,] ## [51,] ## [51,] ## [51,] ## [51,] ## [51,] ## [51,] ## [51,] ## [51,] ## [52,] ## [51,] ## [51,] ## [51,] ## [52,] ## [51,] ## [51,] ## [52,] ## [51,] ## [51,] ## [52,] ## [51,] ## [51,] ## [52,] ## [51,] ## [51,] ## [52,] ## [51,] ## [52,] ## [51,] ## [52,] ## [51,] ## [52,] ## [51,] ## [52,] ## [51,] ## [52,] ## [51,] ## [52,] ## [51,] ## [52,] ## [51,] ## [52,] ## [51,] ## [52,]									
## [44,] FALSE FALSE FALSE FALSE FALSE FALSE FALSE ## [45,] FALSE FALSE FALSE FALSE FALSE FALSE ## [46,] FALSE FALSE FALSE FALSE FALSE FALSE ## [47,] FALSE FALSE FALSE FALSE FALSE FALSE ## [48,] FALSE FALSE FALSE FALSE FALSE FALSE ## [49,] FALSE FALSE FALSE FALSE FALSE FALSE ## [50,] FALSE FALSE FALSE FALSE FALSE FALSE ## [51,] FALSE FALSE FALSE FALSE FALSE FALSE ## [52,]									
## [45,] FALSE FALSE FALSE FALSE FALSE FALSE FALSE ## [46,] FALSE FALSE FALSE FALSE FALSE FALSE ## [47,] FALSE FALSE FALSE FALSE FALSE FALSE ## [48,] FALSE FALSE FALSE FALSE FALSE FALSE ## [49,] FALSE FALSE FALSE FALSE FALSE FALSE ## [50,] FALSE FALSE FALSE FALSE FALSE FALSE ## [51,] FALSE FALSE FALSE FALSE FALSE FALSE ## [52,]									
## [46,] FALSE FALSE FALSE FALSE FALSE FALSE FALSE ## [47,] FALSE FALSE FALSE FALSE FALSE FALSE ## [48,] FALSE FALSE FALSE FALSE FALSE FALSE ## [49,] FALSE FALSE FALSE FALSE FALSE FALSE ## [50,] FALSE FALSE FALSE FALSE FALSE FALSE ## [51,] FALSE FALSE FALSE FALSE FALSE FALSE ## [52,] FALSE FALSE FALSE FALSE FALSE FALSE ## [52,]									
## [47,] FALSE FALSE FALSE FALSE FALSE FALSE FALSE ## [48,] FALSE FALSE FALSE FALSE FALSE FALSE ## [49,] FALSE FALSE FALSE FALSE FALSE FALSE ## [50,] FALSE FALSE FALSE FALSE FALSE FALSE ## [51,] FALSE FALSE FALSE FALSE FALSE FALSE ## [52,] FALSE FALSE FALSE FALSE FALSE FALSE ## [52]									
## [48,] FALSE FALSE FALSE FALSE FALSE FALSE ## [49,] FALSE FALSE FALSE FALSE FALSE FALSE ## [50,] FALSE FALSE FALSE FALSE FALSE ## [51,] FALSE FALSE FALSE FALSE FALSE FALSE ## [52,] FALSE FALSE FALSE FALSE FALSE FALSE ## [52,]									
## [49,] FALSE FALSE FALSE FALSE FALSE FALSE ## [50,] FALSE FALSE FALSE FALSE FALSE ## [51,] FALSE FALSE FALSE FALSE FALSE ## [52,] FALSE FALSE FALSE FALSE FALSE FALSE ## [52,]									
## [50,] FALSE FALSE FALSE FALSE FALSE FALSE ## [51,] FALSE FALSE FALSE FALSE FALSE FALSE ## [52,] FALSE FALSE FALSE FALSE FALSE FALSE									
## [51,] FALSE FAL									
## [52,] FALSE FALSE FALSE FALSE FALSE FALSE								FALSE	
## [53,] FALSE FALSE FALSE FALSE FALSE	##	[52,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
	##	[53,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE

	[54,]		FAI	LSE	FALSE	FALSE	FALSI	E FALSE	FALSE	FALSE
##	[55,]		FAI	LSE	FALSE	FALSE	FALSI	E FALSE	FALSE	FALSE
##	[56,]		FAI	LSE	FALSE	FALSE	FALSI	E FALSE	FALSE	FALSE
##	[57,]		FAI	LSE	FALSE	FALSE	FALSI	E FALSE	FALSE	FALSE
##	[58,]		FAI	LSE	FALSE	FALSE	FALSI	E FALSE	FALSE	FALSE
##	[59,]		FAI	LSE	FALSE	FALSE	FALSI	E FALSE	FALSE	FALSE
##	[60,]		FAI	LSE	FALSE	FALSE	FALSI	E FALSE	FALSE	FALSE
##	[61,]		FAI	LSE	FALSE	FALSE	FALSI	E FALSE	FALSE	FALSE
##	[62,]		FAI	LSE	FALSE	FALSE	FALSI	E FALSE	FALSE	FALSE
##	[63,]		FAI	LSE	FALSE	FALSE	FALSI	E FALSE	FALSE	FALSE
##	[64,]		FAI	LSE	FALSE	FALSE	FALSI	E FALSE	FALSE	FALSE
##	[65,]		FAI	LSE	FALSE	FALSE	FALSI	E FALSE	FALSE	FALSE
##	[66,]		FAI	LSE	FALSE	FALSE	FALSI	E FALSE	FALSE	FALSE
	[67,]		FAI	LSE	FALSE	FALSE	FALSI	E FALSE	FALSE	FALSE
	[68,]		FAI	LSE	FALSE	FALSE	FALSI	E FALSE	FALSE	FALSE
	[69,]		FAI	LSE	FALSE	FALSE	FALSI	E FALSE	FALSE	FALSE
	[70,]		FAI		FALSE	FALSE				
	[71,]			LSE	FALSE	FALSE				
	[72,]			LSE	FALSE	FALSE				
	[73,]		FAI		FALSE	FALSE				
	[74,]		FAI		FALSE	FALSE			FALSE	
	[75,]		FAI		FALSE	FALSE			FALSE	
	[76,]			LSE	FALSE		FALSI		FALSE	
	[77,]				FALSE	FALSE	FALSI			
##	L , J	Carnitine							hanolamine	
##	[1,]	FALSE	FALSE	FAL		FALSE		FALSE	FALSE	FALSE
##	[2,]	FALSE	FALSE			FALSE		FALSE		FALSE
##	[3,]	FALSE	FALSE	FAL		FALSE		FALSE	FALSE	FALSE
##	[4,]	FALSE	FALSE	FAL		FALSE		FALSE	FALSE	FALSE
##	[5,]	FALSE	FALSE	FAL		FALSE		FALSE	FALSE	FALSE
##	[6,]	FALSE	FALSE	FAL		FALSE		FALSE	FALSE	FALSE
##	[7,]	FALSE	FALSE	FAL		FALSE		FALSE	FALSE	FALSE
##	[8,]	FALSE	FALSE	FAL		FALSE		FALSE	FALSE	FALSE
##	[9,]	FALSE	FALSE	FAL		FALSE		FALSE	FALSE	FALSE
	[10,]	FALSE	FALSE	FAL		FALSE		FALSE	FALSE	FALSE
	[11,]	FALSE	FALSE	FAL		FALSE		FALSE	FALSE	FALSE
	[12,]	FALSE	FALSE	FAL		FALSE		FALSE	FALSE	FALSE
	[13,]	FALSE	FALSE	FAL		FALSE		FALSE	FALSE	FALSE
	[14,]	FALSE	FALSE	FAL		FALSE		FALSE	FALSE	FALSE
	[15,]	FALSE	FALSE	FAL		FALSE		FALSE	FALSE	FALSE
	[16,]	FALSE	FALSE	FAL		FALSE		FALSE	FALSE	FALSE
	[17,]	FALSE	FALSE	FAL		FALSE		FALSE	FALSE	FALSE
	[18,]	FALSE	FALSE	FAL		FALSE		FALSE	FALSE	FALSE
	[19,]	FALSE	FALSE	FAL		FALSE		FALSE	FALSE	FALSE
	[20,]	FALSE	FALSE	FAL		FALSE		FALSE	FALSE	FALSE
	[21,]	FALSE	FALSE	FAL		FALSE		FALSE	FALSE	FALSE
	[22,]	FALSE	FALSE	FAL		FALSE		FALSE	FALSE	FALSE
	[23,]	FALSE	FALSE	FAL		FALSE		FALSE	FALSE	FALSE
	[24,]									
	[24,]	FALSE	FALSE	FAL		FALSE		FALSE	FALSE	FALSE
		FALSE	FALSE	FAL		FALSE		FALSE	FALSE	FALSE
	[26,]	FALSE	FALSE	FAL		FALSE		FALSE	FALSE	FALSE
	[27,]	FALSE	FALSE	FAL		FALSE		FALSE	FALSE	FALSE
	[28,]	FALSE	FALSE	FAL		FALSE		FALSE	FALSE	FALSE
##	[29,]	FALSE	FALSE	FAL	9F	FALSE		FALSE	FALSE	FALSE

##	[30,]	FALSE	FALSE	FALSE	FΔ	LSE	FALSE	FALSE	FALSE
	[31,]	FALSE				LSE	FALSE	FALSE	FALSE
	[32,]	FALSE				LSE	FALSE	FALSE	FALSE
	[33,]	FALSE				LSE	FALSE	FALSE	FALSE
	[34,]	FALSE				LSE	FALSE	FALSE	FALSE
	[35,]	FALSE				LSE	FALSE	FALSE	FALSE
	[36,]	FALSE				LSE	FALSE	FALSE	FALSE
	[37,]	FALSE				LSE	FALSE	FALSE	FALSE
	[38,]	FALSE				LSE	FALSE	FALSE	FALSE
	[39,]	FALSE				LSE	FALSE	FALSE	FALSE
	[40,]	FALSE				LSE	FALSE	FALSE	FALSE
	[41,]	FALSE				LSE	FALSE	FALSE	FALSE
	[42,]	FALSE				LSE	FALSE	FALSE	FALSE
	[43,]	FALSE				LSE			
							FALSE	FALSE	FALSE
	[44,]	FALSE				LSE	FALSE	FALSE	FALSE
	[45,]	FALSE				LSE	FALSE	FALSE	FALSE
	[46,]	FALSE				LSE	FALSE	FALSE	FALSE
	[47,]	FALSE				LSE	FALSE	FALSE	FALSE
	[48,]	FALSE				LSE	FALSE	FALSE	FALSE
	[49,]	FALSE				LSE	FALSE	FALSE	FALSE
	[50,]	FALSE	FALSE			LSE	FALSE	FALSE	FALSE
	[51,]	FALSE	FALSE			LSE	FALSE	FALSE	FALSE
	[52,]	FALSE	FALSE			LSE	FALSE	FALSE	FALSE
	[53,]	FALSE	FALSE			LSE	FALSE	FALSE	FALSE
	[54,]	FALSE	FALSE			LSE	FALSE	FALSE	FALSE
	[55,]	FALSE	FALSE			LSE	FALSE	FALSE	FALSE
	[56,]	FALSE	FALSE	FALSE		LSE	FALSE	FALSE	FALSE
	[57,]	FALSE	FALSE	FALSE		LSE	FALSE	FALSE	FALSE
	[58,]	FALSE	FALSE	FALSE		LSE	FALSE	FALSE	FALSE
	[59,]	FALSE	FALSE	FALSE		LSE	FALSE	FALSE	FALSE
	[60,]	FALSE	FALSE	FALSE		LSE	FALSE	FALSE	FALSE
	[61,]	FALSE	FALSE	FALSE		LSE	FALSE	FALSE	FALSE
	[62,]	FALSE	FALSE	FALSE		LSE	FALSE	FALSE	FALSE
	[63,]	FALSE	FALSE	FALSE		LSE	FALSE	FALSE	FALSE
	[64,]	FALSE	FALSE	FALSE		LSE	FALSE	FALSE	FALSE
	[65,]	FALSE	FALSE	FALSE		LSE	FALSE	FALSE	FALSE
	[66,]	FALSE	FALSE	FALSE		LSE	FALSE	FALSE	FALSE
	[67,]	FALSE	FALSE	FALSE		LSE	FALSE	FALSE	FALSE
	[68,]	FALSE		FALSE		LSE	FALSE	FALSE	FALSE
	[69,]	FALSE		FALSE		LSE	FALSE	FALSE	FALSE
	[70,]	FALSE		FALSE		LSE	FALSE	FALSE	FALSE
	[71,]	FALSE	FALSE	FALSE		LSE	FALSE	FALSE	FALSE
	[72,]	FALSE	FALSE	FALSE		LSE	FALSE	FALSE	FALSE
	[73,]	FALSE	FALSE	FALSE		LSE	FALSE	FALSE	FALSE
	[74,]	FALSE	FALSE	FALSE		LSE	FALSE	FALSE	FALSE
	[75,]	FALSE				LSE	FALSE	FALSE	FALSE
	[76,]	FALSE				LSE	FALSE	FALSE	FALSE
##	[77,]	FALSE	FALSE	FALSE		LSE	FALSE	FALSE	FALSE
##		Fucose Fur	marate Gl	lucose Glu	tamine			${\tt Guanidoacetate}$	
##	[1,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	
##		FALSE		FALSE	FALSE	FALSE		FALSE	
##		FALSE		FALSE	FALSE	FALSE		FALSE	
##		FALSE		FALSE	FALSE	FALSE		FALSE	
##	[5,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	

шш	ΓC]	PALGE	PATOR	PALOD	EALGE	PALOD	EALGE	PALOD
##	[6,]	FALSE						
##	[7,]	FALSE						
##	[8,]	FALSE						
##	[9,]	FALSE						
##	[10,]	FALSE						
##	[11,]	FALSE						
##	[12,]	FALSE						
##	[13,]	FALSE						
##	[14,]	FALSE						
	[15,]	FALSE						
	[16,]	FALSE						
	[17,]	FALSE						
	[18,]	FALSE						
	[19,]	FALSE						
	[20,]	FALSE						
	[21,]	FALSE						
	[22,]	FALSE						
	[23,]	FALSE						
	[24,]	FALSE						
##	[25,]	FALSE						
##	[26,]	FALSE						
##	[27,]	FALSE						
##	[28,]	FALSE						
##	[29,]	FALSE						
	[30,]	FALSE						
	[31,]	FALSE						
	[32,]	FALSE						
	[33,]	FALSE						
	[34,]	FALSE						
	[35,]	FALSE						
	[36,]	FALSE						
	[37,]	FALSE						
	[38,]	FALSE						
##	- ,-	FALSE						
##	[40,]	FALSE						
##	[41,]	FALSE						
	[42,]	FALSE						
##	[43,]	FALSE						
##	[44,]	FALSE						
##	[45,]	FALSE						
##	[46,]	FALSE						
##	[47,]	FALSE						
##	[48,]	FALSE						
##	[49,]	FALSE						
##	[50,]	FALSE						
##	[51,]	FALSE						
##	[52,]	FALSE						
##	[53,]	FALSE						
	-							
##	[54,]	FALSE						
##	[55,]	FALSE						
##	[56,]	FALSE						
##	[57,]	FALSE						
##	[58,]	FALSE						
##	[59,]	FALSE						

	F00 7			~-					
	[60,]	FALSE		FALSE	FALSE		FALSE		FALSE
##	- ,-	FALSE		FALSE	FALSE		FALSE		FALSE
##	[62,]	FALSE	FALSE I	FALSE	FALSE	FALSE	FALSE		FALSE
##	[63,]	FALSE	FALSE I	FALSE	FALSE	FALSE	FALSE		FALSE
##	[64,]	FALSE	FALSE I	FALSE	FALSE	FALSE	FALSE		FALSE
##	[65,]	FALSE	FALSE I	FALSE	FALSE	FALSE	FALSE		FALSE
##	_ `_	FALSE		FALSE	FALSE		FALSE		FALSE
##	_ `_	FALSE		FALSE	FALSE		FALSE		FALSE
##	[68,]	FALSE		FALSE	FALSE		FALSE		FALSE
##	[69,]	FALSE		FALSE	FALSE		FALSE		FALSE
##	[70,]	FALSE		FALSE	FALSE		FALSE		FALSE
##	[71,]	FALSE		FALSE	FALSE		FALSE		FALSE
##	[72,]	FALSE		FALSE	FALSE		FALSE		FALSE
##	[73,]	FALSE	FALSE I	FALSE	FALSE	FALSE	FALSE		FALSE
##	[74,]	FALSE	FALSE I	FALSE	FALSE	FALSE	FALSE		FALSE
##	[75,]	FALSE	FALSE I	FALSE	FALSE	FALSE	FALSE		FALSE
##	[76,]	FALSE	FALSE I	FALSE	FALSE	FALSE	FALSE		FALSE
##	[77,]	FALSE	FALSE I	FALSE	FALSE	FALSE	FALSE		FALSE
##		Hippurate	Histidine	Нурс	xanthine	Isoleucine	Lactate	Leucine	Lysine
##	[1,]	FALSE			FALSE	FALSE		FALSE	
##	[2,]	FALSE			FALSE	FALSE	FALSE		FALSE
##	[3,]	FALSE			FALSE	FALSE	FALSE		FALSE
##	[4,]	FALSE			FALSE	FALSE	FALSE		FALSE
##	[5,]	FALSE			FALSE	FALSE	FALSE		FALSE
	-								
##	[6,]	FALSE			FALSE	FALSE	FALSE		FALSE
##	[7,]	FALSE			FALSE	FALSE	FALSE		FALSE
##	[8,]	FALSE	FALSI		FALSE	FALSE	FALSE	FALSE	FALSE
##	[9,]	FALSE	FALSI		FALSE	FALSE	FALSE	FALSE	FALSE
##	[10,]	FALSE	FALSI	Ξ	FALSE	FALSE	FALSE	FALSE	FALSE
##	[11,]	FALSE	FALSI	2	FALSE	FALSE	FALSE	FALSE	FALSE
##	[12,]	FALSE	FALSI	Ē	FALSE	FALSE	FALSE	FALSE	FALSE
##	[13,]	FALSE	FALSI	Ξ	FALSE	FALSE	FALSE	FALSE	FALSE
##	[14,]	FALSE	FALSI	Ē	FALSE	FALSE	FALSE	FALSE	FALSE
##	[15,]	FALSE	FALSI	Ξ	FALSE	FALSE	FALSE	FALSE	FALSE
##	[16,]	FALSE	FALSI		FALSE	FALSE	FALSE	FALSE	FALSE
##	[17,]	FALSE	FALSI		FALSE	FALSE	FALSE	FALSE	FALSE
	[18,]	FALSE	FALSI		FALSE	FALSE	FALSE	FALSE	FALSE
	[19,]	FALSE	FALSI		FALSE	FALSE	FALSE	FALSE	FALSE
	[20,]		FALSI						
		FALSE			FALSE	FALSE	FALSE	FALSE	FALSE
	[21,]	FALSE	FALSI		FALSE	FALSE	FALSE	FALSE	FALSE
	[22,]	FALSE	FALSI		FALSE	FALSE	FALSE	FALSE	FALSE
##	[23,]	FALSE	FALSI		FALSE	FALSE	FALSE	FALSE	FALSE
##	[24,]	FALSE	FALSE		FALSE	FALSE	FALSE	FALSE	FALSE
##	[25,]	FALSE	FALSI	3	FALSE	FALSE	FALSE	FALSE	FALSE
##	[26,]	FALSE	FALSI	Ξ	FALSE	FALSE	FALSE	FALSE	FALSE
##	[27,]	FALSE	FALSI	Ē	FALSE	FALSE	FALSE	FALSE	FALSE
##	[28,]	FALSE	FALSI	Ξ	FALSE	FALSE	FALSE	FALSE	FALSE
##	[29,]	FALSE	FALSI	Ξ	FALSE	FALSE	FALSE	FALSE	FALSE
##	[30,]	FALSE	FALSE		FALSE	FALSE	FALSE	FALSE	FALSE
##	[31,]	FALSE	FALSI		FALSE	FALSE	FALSE	FALSE	FALSE
##	[32,]	FALSE	FALSI		FALSE	FALSE	FALSE	FALSE	FALSE
##	[33,]	FALSE	FALSI		FALSE	FALSE	FALSE	FALSE	FALSE
##	[34,]	FALSE	FALSI		FALSE	FALSE	FALSE	FALSE	FALSE
##	[35,]	FALSE	FALSI	5	FALSE	FALSE	FALSE	FALSE	FALSE

##	[36,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[37,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[38,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[39,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[40,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
	[41,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
	[42,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
	[43,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
	[44,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
	[45,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
	[46,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
	[47,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
	[48,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
	[49,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
	[50,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
	[51,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[52,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[53,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[54,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[55,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[56,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[57,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[58,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[59,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[60,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[61,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[62,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[63,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[64,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[65,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[66,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[67,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[68,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[69,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[70,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[71,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[72,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
	[73,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[74,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[75,]	FALSE	FALSE	FALSE	FALSE	FALSE		FALSE
##	[76,]	FALSE	FALSE	FALSE	FALSE	FALSE		FALSE
##	[77,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	F4 7	•	Methylgua	anidine N,N-D			•	
##	[1,]	FALSE		FALSE		LSE		FALSE
##	[2,]	FALSE		FALSE		LSE		FALSE
##	[3,]	FALSE		FALSE		LSE		FALSE
##	[4,]	FALSE		FALSE		LSE		FALSE
##	[5,]	FALSE		FALSE		LSE		FALSE
##	[6,]	FALSE		FALSE		LSE		FALSE
##	[7,]	FALSE		FALSE		LSE		FALSE
##	[8,]	FALSE		FALSE		LSE		FALSE
##	[9,]	FALSE		FALSE		LSE		FALSE
##	[10,]	FALSE		FALSE		LSE		FALSE
##	[11,]	FALSE		FALSE	F A.	LSE		FALSE

##	[12,]	FALSE	FALSE	FALSE	FALSE
##	[13,]	FALSE	FALSE	FALSE	FALSE
##	[14,]	FALSE	FALSE	FALSE	FALSE
##	[15,]	FALSE	FALSE	FALSE	FALSE
##	[16,]	FALSE	FALSE	FALSE	FALSE
	[17,]	FALSE	FALSE	FALSE	FALSE
	[18,]	FALSE	FALSE	FALSE	FALSE
	[19,]	FALSE	FALSE	FALSE	FALSE
	[20,]	FALSE	FALSE	FALSE	FALSE
	[21,]	FALSE	FALSE	FALSE	FALSE
	[22,]	FALSE	FALSE	FALSE	FALSE
	[23,]	FALSE	FALSE	FALSE	FALSE
	[24,]	FALSE	FALSE	FALSE	FALSE
	[25,]	FALSE	FALSE	FALSE	FALSE
	[26,]	FALSE	FALSE	FALSE	FALSE
	[27,]	FALSE	FALSE	FALSE	FALSE
	[28,]	FALSE	FALSE	FALSE	FALSE
##	[29,]	FALSE	FALSE	FALSE	FALSE
##	[30,]	FALSE	FALSE	FALSE	FALSE
##	[31,]	FALSE	FALSE	FALSE	FALSE
	[32,]	FALSE	FALSE	FALSE	FALSE
	[33,]	FALSE	FALSE	FALSE	FALSE
	[34,]	FALSE	FALSE	FALSE	FALSE
##	[35,]	FALSE	FALSE	FALSE	FALSE
##	[36,]	FALSE	FALSE	FALSE	FALSE
##	[37,]	FALSE	FALSE	FALSE	FALSE
##	[38,]	FALSE	FALSE	FALSE	FALSE
##	[39,]	FALSE	FALSE	FALSE	FALSE
##	[40,]	FALSE	FALSE	FALSE	FALSE
##	[41,]	FALSE	FALSE	FALSE	FALSE
##	[42,]	FALSE	FALSE	FALSE	FALSE
##	[43,]	FALSE	FALSE	FALSE	FALSE
##	[44,]	FALSE	FALSE	FALSE	FALSE
##	[45,]	FALSE	FALSE	FALSE	FALSE
	[46,]	FALSE	FALSE	FALSE	FALSE
##	[47,]	FALSE	FALSE	FALSE	FALSE
##	[48,]	FALSE	FALSE	FALSE	FALSE
	[49,]	FALSE	FALSE	FALSE	FALSE
##	[50,]	FALSE	FALSE	FALSE	FALSE
##	[51,]	FALSE	FALSE	FALSE	FALSE
##	[52,]	FALSE	FALSE	FALSE	FALSE
##	[53,]	FALSE	FALSE	FALSE	FALSE
##	[54,]	FALSE	FALSE	FALSE	FALSE
##	[55,]	FALSE	FALSE	FALSE	FALSE
##	[56,]	FALSE	FALSE	FALSE	FALSE
##	[57,]	FALSE	FALSE	FALSE	FALSE
##	[58,]	FALSE	FALSE	FALSE	FALSE
##	[59,]	FALSE	FALSE	FALSE	FALSE
##	[60,]	FALSE	FALSE	FALSE	FALSE
##					
	[61,]	FALSE	FALSE	FALSE	FALSE
##	[62,]	FALSE	FALSE	FALSE	FALSE
##	[63,]	FALSE	FALSE	FALSE	FALSE
##	[64,]	FALSE	FALSE	FALSE	FALSE
##	[65,]	FALSE	FALSE	FALSE	FALSE

##	[66,]	FALSE	FALSI	Ξ	FALSE		FALSI	Ξ
##	[67,]	FALSE	FALSE		FALSE		FALSE	
##	[68,]	FALSE	FALSE		FALSE		FALSE	
##	[69,]	FALSE	FALSI	FALSE		FALSE		
##	[70,]	FALSE	FALSI	Ξ	FALSE		FALSE	
##	[71,]	FALSE	FALSI	Ξ	FALSE			
##	[72,]	FALSE	FALSI	Ξ	FALSE		Ξ	
##	[73,]	FALSE	FALSI	Ξ	FALSE		FALSI	Ξ
##	[74,]	FALSE	FALSI	Ξ	FALSE		Ξ	
##	[75,]	FALSE	FALSI	Ξ	FALSE		Ξ	
##	[76,]	FALSE	FALSI	Ξ	FALSE		Ξ	
##	[77,]	FALSE	FALSI	Ξ	FALSE		FALSI	Ξ
##		Pantothenate	Pyroglutamate	Pyruvate	Quinolinate	Serine	Succinate	Sucrose
##	[1,]	FALSE	FALSE			FALSE	FALSE	FALSE
##	[2,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[3,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[4,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[5,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[6,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[7,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[8,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[9,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[10,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[11,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[12,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[13,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[14,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[15,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[16,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[17,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[18,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[19,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[20,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[21,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[22,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[23,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[24,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[25,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[26,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[27,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[28,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[29,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[30,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
	[31,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[32,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[33,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[34,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[35,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[36,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
	[37,]	FALSE	FALSE		FALSE	FALSE	FALSE	FALSE
	[38,]	FALSE			FALSE			FALSE
	[39,]	FALSE		FALSE	FALSE			FALSE
	[40,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[41,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE

	[42,]		ALSE	FALSE	FALSE		FALSE	FALS	
	[43,]	FALSE		FALSE	FALSE	FALSE	FALSE	FALS	
	[44,]	FALSE		FALSE	FALSE	FALSE	FALSE	FALS	
	[45,]	FALSE		FALSE	FALSE	FALSE	FALSE	FALS	
	[46,]		ALSE	FALSE	FALSE	FALSE	FALSE	FALS	
	[47,]		ALSE	FALSE	FALSE	FALSE	FALSE	FALS	
	[48,]		ALSE	FALSE	FALSE	FALSE	FALSE	FALS	
	[49,]	F <i>I</i>	ALSE	FALSE	FALSE	FALSE	FALSE	FALS	E FALSE
	[50,]	FA	ALSE	FALSE	FALSE	FALSE	FALSE	FALS	
	[51,]	FI	ALSE	FALSE	FALSE	FALSE	FALSE	FALS	E FALSE
	[52,]	FA	ALSE	FALSE	FALSE	FALSE	FALSE	FALS	E FALSE
##	[53,]	FI	ALSE	FALSE	FALSE	FALSE	FALSE	FALS	E FALSE
##	[54,]	FI	ALSE	FALSE	FALSE	FALSE	FALSE	FALS	E FALSE
##	[55,]	FA	ALSE	FALSE	FALSE	FALSE	FALSE	FALS	E FALSE
##	[56,]	FA.	ALSE	FALSE	FALSE	FALSE	FALSE	FALS	E FALSE
##	[57,]	FA	ALSE	FALSE	FALSE	FALSE	FALSE	FALS	E FALSE
##	[58,]	FA	ALSE	FALSE	FALSE	FALSE	FALSE	FALS	E FALSE
##	[59,]	FA	ALSE	FALSE	FALSE	FALSE	FALSE	FALS	E FALSE
	[60,]	FA	ALSE	FALSE	FALSE	FALSE	FALSE	FALS	
##			ALSE	FALSE	FALSE	FALSE	FALSE	FALS	
##			ALSE	FALSE	FALSE	FALSE	FALSE	FALS	
##	[63,]		ALSE	FALSE	FALSE	FALSE	FALSE	FALS	
	[64,]		ALSE	FALSE	FALSE	FALSE	FALSE	FALS	
##			ALSE	FALSE	FALSE	FALSE	FALSE	FALS	
##			LSE	FALSE	FALSE	FALSE	FALSE	FALS	
##			LSE	FALSE	FALSE	FALSE	FALSE	FALS	
##			LSE	FALSE	FALSE	FALSE	FALSE	FALS	
	[69,]		LSE	FALSE	FALSE	FALSE	FALSE	FALS	
	[70,]		LSE	FALSE	FALSE	FALSE	FALSE	FALS	
	[71,]		LSE	FALSE	FALSE	FALSE	FALSE	FALS	
	[72,]		LSE	FALSE	FALSE	FALSE	FALSE	FALS	
	[73,]		LSE	FALSE	FALSE	FALSE	FALSE	FALS	
	[74,]		LSE	FALSE	FALSE	FALSE	FALSE	FALS	
	[75,]		ALSE	FALSE	FALSE	FALSE	FALSE	FALS	
	[76,]		ALSE	FALSE	FALSE	FALSE	FALSE	FALS:	
##			ALSE	FALSE	FALSE	FALSE	FALSE	FALS:	
##	L//,J				Trigonelline				
##	[1,]	FALSE	FALSE	FALSE	FALSE	11 1me ony	Tamilie	FALSE	FALSE
##	[2,]	FALSE	FALSE	FALSE				FALSE	FALSE
##	[3,]	FALSE	FALSE	FALSE				FALSE	FALSE
##	[4,]	FALSE	FALSE	FALSE				FALSE	FALSE
	[5,]			FALSE				FALSE	FALSE
##	[6,]	FALSE FALSE	FALSE	FALSE				FALSE	FALSE
##	[7,]		FALSE						
##		FALSE	FALSE	FALSE	FALSE			FALSE	FALSE
##	[8,]	FALSE	FALSE	FALSE	FALSE			FALSE	FALSE
##	[9,]	FALSE	FALSE	FALSE	FALSE			FALSE	FALSE
	[10,]	FALSE	FALSE	FALSE	FALSE			FALSE	FALSE
	[11,]	FALSE	FALSE	FALSE	FALSE			FALSE	FALSE
	[12,]	FALSE	FALSE	FALSE	FALSE			FALSE	FALSE
	[13,]	FALSE	FALSE	FALSE	FALSE			FALSE	FALSE
	[14,]	FALSE	FALSE	FALSE	FALSE			FALSE	FALSE
	[15,]	FALSE	FALSE	FALSE	FALSE			FALSE	FALSE
	[16,]	FALSE	FALSE	FALSE	FALSE			FALSE	FALSE
##	[17,]	FALSE	FALSE	FALSE	FALSE			FALSE	FALSE

		FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
		FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
	-	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
	-	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[22,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[23,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[24,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[25,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[26,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[27,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[28,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[29,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[30,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[31,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[32,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[33,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[34,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[35,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[36,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[37,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[38,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[39,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[40,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[41,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[42,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[43,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[44,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[45,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[46,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[47,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[48,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[49,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
		FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[51,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[52,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[53,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[54,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
	[55,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[56,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[57,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[58,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[59,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[60,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[61,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[62,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[63,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
##	[64,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
	[65,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
	[66,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
	[67,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
	[68,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
	[69,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
	[70,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
	[71,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
	- / -					-	

##	[72,]	FALSE	FALSE	F <i>I</i>	LSE	FALSE		FALSE	FALSE
##	[73,]	FALSE	FALSE	F.	LSE	FALSE		FALSE	FALSE
##	[74,]	FALSE	FALSE	F.	LSE	FALSE		FALSE	FALSE
##	[75,]	FALSE	FALSE	F.	LSE	FALSE		FALSE	FALSE
##	[76,]	FALSE	FALSE	F.	LSE	FALSE		FALSE	FALSE
##	[77,]	FALSE	FALSE	F.	LSE	FALSE		FALSE	FALSE
##		Tyrosine	Uracil	Valine	Xylose	cis-Aconitate	<pre>myo-Inositol</pre>	trans-	Aconitate
##	[1,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE		FALSE
##	[2,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE		FALSE
##	[3,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE		FALSE
##	[4,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE		FALSE
##	[5,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE		FALSE
##	[6,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE		FALSE
##	[7,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE		FALSE
##	[8,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE		FALSE
##	[9,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE		FALSE
##	[10,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE		FALSE
##	[11,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE		FALSE
	[12,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE		FALSE
	[13,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE		FALSE
	[14,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE		FALSE
##	[15,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE		FALSE
##	[16,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE		FALSE
	[17,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE		FALSE
	[18,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE		FALSE
	[19,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE		FALSE
	[20,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE		FALSE
	[21,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE		FALSE
	[22,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE		FALSE
	[23,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE		FALSE
	[24,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE		FALSE
	[25,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE		FALSE
##	[26,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE		FALSE
##	[27,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE		FALSE
##	[28,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE		FALSE
##	[29,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE		FALSE
##	[30,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE		FALSE
	[31,]	FALSE		FALSE	FALSE	FALSE	FALSE		FALSE
	[32,]	FALSE		FALSE	FALSE	FALSE	FALSE		FALSE
	[33,]	FALSE		FALSE	FALSE	FALSE	FALSE		FALSE
	[34,]	FALSE		FALSE	FALSE	FALSE	FALSE		FALSE
	[35,]	FALSE		FALSE	FALSE	FALSE	FALSE		FALSE
	[36,]	FALSE		FALSE	FALSE	FALSE	FALSE		FALSE
	[37,]	FALSE		FALSE	FALSE	FALSE	FALSE		FALSE
	[38,]	FALSE		FALSE	FALSE	FALSE	FALSE		FALSE
	[39,]	FALSE		FALSE	FALSE	FALSE	FALSE		FALSE
	[40,]	FALSE		FALSE	FALSE	FALSE	FALSE		FALSE
	[41,]	FALSE		FALSE	FALSE	FALSE	FALSE		FALSE
	[42,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE		FALSE
	[43,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE		FALSE
	[44,]	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE		FALSE
	[45,] [46,]	FALSE FALSE	FALSE FALSE	FALSE FALSE	FALSE FALSE	FALSE FALSE	FALSE FALSE		FALSE FALSE
	[47,]	FALSE	FALSE FALSE	FALSE	FALSE	FALSE	FALSE FALSE		FALSE FALSE
##	L41,]	LALDE	LWTOU	LHLOU	LALOU	LALDE	LALDE		LALDE

```
## [48,]
            FALSE FALSE FALSE
                                                  FALSE
                                                                FALSE
                                                                                 FALSE
  [49,]
            FALSE
                   FALSE
                           FALSE
                                   FALSE
                                                  FALSE
                                                                FALSE
                                                                                 FALSE
## [50,]
                                                                FALSE
            FALSE
                    FALSE
                           FALSE
                                   FALSE
                                                  FALSE
                                                                                 FALSE
  [51,]
            FALSE
                   FALSE
                           FALSE
                                   FALSE
                                                  FALSE
                                                                                 FALSE
##
                                                                FALSE
##
  [52,]
            FALSE
                    FALSE
                           FALSE
                                   FALSE
                                                  FALSE
                                                                FALSE
                                                                                 FALSE
## [53,]
            FALSE
                   FALSE
                           FALSE
                                   FALSE
                                                  FALSE
                                                                FALSE
                                                                                 FALSE
## [54,]
            FALSE
                    FALSE
                           FALSE
                                   FALSE
                                                  FALSE
                                                                FALSE
                                                                                 FALSE
## [55,]
            FALSE
                   FALSE
                           FALSE
                                   FALSE
                                                  FALSE
                                                                FALSE
                                                                                 FALSE
## [56,]
            FALSE
                    FALSE
                           FALSE
                                   FALSE
                                                  FALSE
                                                                FALSE
                                                                                 FALSE
  [57,]
            FALSE
                           FALSE
##
                    FALSE
                                   FALSE
                                                  FALSE
                                                                FALSE
                                                                                 FALSE
  [58,]
            FALSE
                   FALSE
                           FALSE
                                   FALSE
                                                  FALSE
                                                                FALSE
                                                                                 FALSE
                    FALSE
## [59,]
            FALSE
                           FALSE
                                   FALSE
                                                  FALSE
                                                                FALSE
                                                                                 FALSE
## [60,]
            FALSE
                    FALSE
                           FALSE
                                   FALSE
                                                  FALSE
                                                                FALSE
                                                                                 FALSE
## [61,]
            FALSE
                    FALSE
                           FALSE
                                   FALSE
                                                  FALSE
                                                                FALSE
                                                                                 FALSE
## [62,]
            FALSE
                    FALSE
                           FALSE
                                   FALSE
                                                  FALSE
                                                                FALSE
                                                                                 FALSE
## [63,]
            FALSE
                    FALSE
                           FALSE
                                   FALSE
                                                  FALSE
                                                                FALSE
                                                                                 FALSE
## [64,]
            FALSE
                   FALSE
                           FALSE
                                   FALSE
                                                  FALSE
                                                                FALSE
                                                                                 FALSE
  [65,]
            FALSE
                   FALSE
                           FALSE
                                   FALSE
                                                  FALSE
                                                                FALSE
                                                                                 FALSE
## [66,]
            FALSE
                   FALSE
                          FALSE
                                   FALSE
                                                  FALSE
                                                                FALSE
                                                                                 FALSE
## [67,]
            FALSE
                    FALSE
                           FALSE
                                   FALSE
                                                  FALSE
                                                                FALSE
                                                                                 FALSE
## [68,]
            FALSE
                   FALSE
                           FALSE
                                   FALSE
                                                  FALSE
                                                                FALSE
                                                                                 FALSE
## [69,]
            FALSE
                    FALSE
                           FALSE
                                   FALSE
                                                  FALSE
                                                                FALSE
                                                                                 FALSE
## [70,]
                   FALSE
            FALSE
                           FALSE
                                   FALSE
                                                  FALSE
                                                                FALSE
                                                                                 FALSE
## [71,]
            FALSE
                    FALSE
                           FALSE
                                   FALSE
                                                  FALSE
                                                                FALSE
                                                                                 FALSE
  [72,]
            FALSE
                   FALSE
##
                          FALSE
                                   FALSE
                                                  FALSE
                                                                FALSE
                                                                                 FALSE
   [73,]
            FALSE
                   FALSE
                           FALSE
                                   FALSE
                                                  FALSE
                                                                FALSE
                                                                                 FALSE
##
   [74,]
            FALSE
                   FALSE
                           FALSE
                                   FALSE
                                                  FALSE
                                                                FALSE
                                                                                 FALSE
  [75,]
            FALSE
                   FALSE
                           FALSE
                                   FALSE
                                                  FALSE
                                                                FALSE
                                                                                 FALSE
##
                          FALSE
                                  FALSE
##
  [76,]
            FALSE
                   FALSE
                                                  FALSE
                                                                FALSE
                                                                                 FALSE
                                  FALSE
##
   [77,]
            FALSE FALSE FALSE
                                                  FALSE
                                                                FALSE
                                                                                 FALSE
##
         pi-Methylhistidine tau-Methylhistidine
##
    [1,]
                       FALSE
                                             FALSE
    [2,]
                       FALSE
##
                                             FALSE
##
   [3,]
                       FALSE
                                             FALSE
##
    [4,]
                       FALSE
                                             FALSE
##
    [5,]
                       FALSE
                                            FALSE
##
   [6,]
                       FALSE
                                            FALSE
##
   [7,]
                       FALSE
                                            FALSE
##
    [8,]
                       FALSE
                                            FALSE
   [9,]
##
                       FALSE
                                            FALSE
## [10,]
                       FALSE
                                             FALSE
## [11,]
                       FALSE
                                            FALSE
## [12,]
                       FALSE
                                             FALSE
## [13,]
                       FALSE
                                             FALSE
## [14,]
                       FALSE
                                             FALSE
## [15,]
                       FALSE
                                             FALSE
## [16,]
                       FALSE
                                             FALSE
## [17,]
                       FALSE
                                             FALSE
## [18,]
                       FALSE
                                             FALSE
## [19,]
                       FALSE
                                            FALSE
## [20,]
                       FALSE
                                            FALSE
## [21,]
                       FALSE
                                            FALSE
## [22,]
                       FALSE
                                            FALSE
## [23,]
                       FALSE
                                            FALSE
```

##	[24,]	FALSE	FALSE
##	[25,]	FALSE	FALSE
##	[26,]	FALSE	FALSE
##	[27,]	FALSE	FALSE
##	[28,]	FALSE	FALSE
##	[29,]	FALSE	FALSE
##	[30,]	FALSE	FALSE
##	[31,]	FALSE	FALSE
##	[32,]	FALSE	FALSE
##	[33,]	FALSE	FALSE
##	[34,]	FALSE	FALSE
##	[35,]	FALSE	FALSE
##	[36,]	FALSE	FALSE
##	[37,]	FALSE	FALSE
##	[38,]	FALSE	FALSE
##	[39,]	FALSE	FALSE
##	[40,]	FALSE	FALSE
##	[41,]	FALSE	FALSE
##	[42,]	FALSE	FALSE
##	[43,]	FALSE	FALSE
##	[44,]	FALSE	FALSE
##	[45,]	FALSE	FALSE
##	[46,]	FALSE	FALSE
##	[47,]	FALSE	FALSE
##	[48,]	FALSE	FALSE
##	[49,]	FALSE	FALSE
##	[50,]	FALSE	FALSE
##	[51,]	FALSE	FALSE
##	[52,]	FALSE	FALSE
##	[53,]	FALSE	FALSE
##	[54,]	FALSE	FALSE
##	[55,]	FALSE	FALSE
##	[56,]	FALSE	FALSE
##	[57,]	FALSE	FALSE
##	[58,]	FALSE	FALSE
##	[59,]	FALSE	FALSE
##	[60,]	FALSE	FALSE
##	[61,]	FALSE	FALSE
##	[62,]	FALSE	FALSE
##	[63,]	FALSE	FALSE
##	[64,]	FALSE	FALSE
##	[65,]	FALSE	FALSE
##	[66,]	FALSE	FALSE
##	[67,]	FALSE	FALSE
##	[68,]	FALSE	FALSE
##	[69,]	FALSE	FALSE
##	[70,]	FALSE	FALSE
##	[71,]	FALSE	FALSE
##	[72,]	FALSE	FALSE
##	[73,]	FALSE	FALSE
##	[74,]	FALSE	FALSE
##	[75,]	FALSE	FALSE
##	[76,]	FALSE	FALSE
##	[77,]	FALSE	FALSE
##	L11,J	LUTOR	LALDE

Encontramos que nuestro dataset es un dataframe con 77 muestras y presenta 65 columnas siendo la primera columna el ID de la muestra del paciente y la segunda si ha habido pérdida de masa muscular y grasa (caquexia) o no (control), el resto de columna se corresponden con diversos metabolitos.

Para tener más información acerca de nuestro estudio determinamos el número de pacientes que presenta caquexia y los pacientes control.

```
human_cachexia$ Muscle loss \ -as.factor(human_cachexia$ \ Muscle loss \)
summary(human_cachexia$`Muscle loss`)
## cachexic control
##
         47
                  30
De los 77 pacientes tenemos 30 control y 47 con caquexia.
A continuación, procedemos a crear el SummarizedExperiment
if (!require("BiocManager", quietly = TRUE))
  install.packages("BiocManager")
BiocManager::install(version = "3.20")
## Bioconductor version 3.20 (BiocManager 1.30.25), R 4.4.2 (2024-10-31 ucrt)
## Installation paths not writeable, unable to update packages
     path: C:/Program Files/R/R-4.4.2/library
##
##
     packages:
##
       class, cluster, foreign, KernSmooth, MASS, Matrix, nlme, nnet, rpart,
##
       spatial, survival
## Old packages: 'readxl'
library(SummarizedExperiment)
## Cargando paquete requerido: MatrixGenerics
## Cargando paquete requerido: matrixStats
##
## Adjuntando el paquete: 'MatrixGenerics'
## The following objects are masked from 'package:matrixStats':
##
##
       colAlls, colAnyNAs, colAnys, colAvgsPerRowSet, colCollapse,
##
       colCounts, colCummaxs, colCummins, colCumprods, colCumsums,
       colDiffs, colIQRDiffs, colIQRs, colLogSumExps, colMadDiffs,
##
##
       colMads, colMaxs, colMeans2, colMedians, colMins, colOrderStats,
       colProds, colQuantiles, colRanges, colRanks, colSdDiffs, colSds,
##
##
       colSums2, colTabulates, colVarDiffs, colVars, colWeightedMads,
       colWeightedMeans, colWeightedMedians, colWeightedSds,
##
##
       colWeightedVars, rowAlls, rowAnyNAs, rowAnys, rowAvgsPerColSet,
```

rowCollapse, rowCounts, rowCummaxs, rowCummins, rowCumprods,

##

```
rowCumsums, rowDiffs, rowIQRDiffs, rowIQRs, rowLogSumExps,
##
##
       rowMadDiffs, rowMads, rowMaxs, rowMeans2, rowMedians, rowMins,
       rowOrderStats, rowProds, rowQuantiles, rowRanges, rowRanks,
##
##
       rowSdDiffs, rowSds, rowSums2, rowTabulates, rowVarDiffs, rowVars,
       rowWeightedMads, rowWeightedMeans, rowWeightedMedians,
##
##
       rowWeightedSds, rowWeightedVars
## Cargando paquete requerido: GenomicRanges
## Cargando paquete requerido: stats4
## Cargando paquete requerido: BiocGenerics
##
## Adjuntando el paquete: 'BiocGenerics'
## The following objects are masked from 'package:stats':
##
##
       IQR, mad, sd, var, xtabs
## The following objects are masked from 'package:base':
##
##
       anyDuplicated, aperm, append, as.data.frame, basename, cbind,
##
       colnames, dirname, do.call, duplicated, eval, evalq, Filter, Find,
##
       get, grep, grepl, intersect, is.unsorted, lapply, Map, mapply,
       match, mget, order, paste, pmax, pmax.int, pmin, pmin.int,
##
       Position, rank, rbind, Reduce, rownames, sapply, saveRDS, setdiff,
##
       table, tapply, union, unique, unsplit, which.max, which.min
##
## Cargando paquete requerido: S4Vectors
##
## Adjuntando el paquete: 'S4Vectors'
## The following object is masked from 'package:utils':
##
##
       findMatches
## The following objects are masked from 'package:base':
##
##
       expand.grid, I, unname
## Cargando paquete requerido: IRanges
## Adjuntando el paquete: 'IRanges'
## The following object is masked from 'package:grDevices':
##
##
       windows
```

```
## Cargando paquete requerido: GenomeInfoDb
## Cargando paquete requerido: Biobase
## Welcome to Bioconductor
##
##
       Vignettes contain introductory material; view with
       'browseVignettes()'. To cite Bioconductor, see
##
       'citation("Biobase")', and for packages 'citation("pkgname")'.
##
## Adjuntando el paquete: 'Biobase'
## The following object is masked from 'package:MatrixGenerics':
##
##
       rowMedians
## The following objects are masked from 'package:matrixStats':
##
##
       anyMissing, rowMedians
A continuación tenemos que crear dos matrices, la de datos y la de metadatos.
```

```
# Para crear la matriz de datos solo incluimos los datos de las concentraciones de metabolitos
matriz_caquexia<-as.matrix(human_cachexia[, 3:ncol(human_cachexia)])

# ID de los sujetos como nombre de fila
rownames(matriz_caquexia)<-human_cachexia$`Patient ID`
# Nombre de los metabolitos
metabolitos<-colnames(matriz_caquexia)

# Ahora creamos los metadatos de columnas y filas,
metadatos_columnas <-DataFrame(
metabolitos = metabolitos,
Dataset = rep ("Human_cachexia.csv", ncol(matriz_caquexia)),
row.names = metabolitos)

metadatos_filas <-DataFrame(
    Perdida_muscular = human_cachexia.csv", nrow(human_cachexia)),
    row.names = human_cachexia.csv", nrow(human_cachexia)),
    row.names = human_cachexia.s`Patient ID`)</pre>
```

Una vez ya hemos creado las matrices me dispongo a crear el objeto SummarizedExperiment, al que luego agregaremos información acerca de los experimentos en los metadatos.

```
## class: SummarizedExperiment
## dim: 77 63
## metadata(0):
## assays(1): counts
## rownames(77): PIF_178 PIF_087 ... NETL_003_V1 NETL_003_V2
## rowData names(2): Perdida_muscular Dataset
## colnames(63): 1,6-Anhydro-beta-D-glucose 1-Methylnicotinamide ...
    pi-Methylhistidine tau-Methylhistidine
## colData names(2): metabolitos Dataset
# Anadimos la información obtenida de GitHub en los metadatos
# Como se trata de una lista podemos añadir toda la información que queramos, alquna de ella me la inve
metadata(SE) <- list(</pre>
 Descripción = "Cachexia is a complex metabolic syndrome associated with an underlying illness (such
 Dataset= "Human_cachexia.csv",
 Informacion_muestras ="77 muestras urinarias de 47 pacientes con caquexia y 30 controles",
 Tecnica = "RMN unidimensional",
  Projecto= "Estudio de la metabolomica urinaria para mejorar la detección de caquexia",
  IP = "Celia Martinez Saz")
## class: SummarizedExperiment
## dim: 77 63
## metadata(6): Descripción Dataset ... Projecto IP
## assays(1): counts
## rownames(77): PIF_178 PIF_087 ... NETL_003_V1 NETL_003_V2
## rowData names(2): Perdida_muscular Dataset
## colnames(63): 1,6-Anhydro-beta-D-glucose 1-Methylnicotinamide ...
## pi-Methylhistidine tau-Methylhistidine
## colData names(2): metabolitos Dataset
Ahora podríamos probar algunas operzaciones comunes en esta clase de objetos como por ejemplo subcon-
juntos:
SE[1:5,1:3] #Mostramos las 5 primeras muestras de los 3 primeros metabolitos
## class: SummarizedExperiment
## dim: 5 3
## metadata(6): Descripción Dataset ... Projecto IP
## assays(1): counts
## rownames(5): PIF_178 PIF_087 PIF_090 NETL_005_V1 PIF_115
## rowData names(2): Perdida_muscular Dataset
## colnames(3): 1,6-Anhydro-beta-D-glucose 1-Methylnicotinamide
   2-Aminobutyrate
##
## colData names(2): metabolitos Dataset
control <-SE[rowData(SE)$Perdida_muscular == "control,"] # Solo mostramos los individuos control
assay(SE)[1:5,1:3]
```

1,6-Anhydro-beta-D-glucose 1-Methylnicotinamide 2-Aminobutyrate

##

```
## PIF_178
               "40.85"
                                           "65.37"
                                                                 "18.73"
## PIF_087
               "62.18"
                                           "340.36"
                                                                 "24.29"
## PIF_090
                                           "64.72"
                                                                 "12.18"
               "270.43"
## NETL_005_V1 "154.47"
                                           "52.98"
                                                                 "172.43"
## PIF_115
               "22.2"
                                           "73.7"
                                                                 "15.64"
```

Finalmente guardamos nuestro objeto SummarizedExperiment para poder subirlo a GitHub.

```
save(SE, file = "SummarizedExperiment_PEC1.Rda")
```