

# main

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## 1 Prepare covariates from Matrix eQTL analysis

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```
[1]: library(tidyverse)
```

```
Attaching packages          tidyverse
1.3.1
```

```
ggplot2 3.3.5    purrr  0.3.4
tibble  3.1.2    dplyr  1.0.7
tidyr   1.1.3    stringr 1.4.0
readr   1.4.0    forcats 0.5.1
```

### Conflicts

```
tidyverse_conflicts()
dplyr::filter() masks stats::filter()
dplyr::lag()    masks stats::lag()
```

### 1.1 Load data

```
[2]: sample_df = data.table::fread("../_m/sample_id_to_brnum.tsv")
sample_df %>% head()
```

```
      RNum BrNum
   <chr> <chr>
1 R5527 Br822
2 R2725 Br823
3 R4805 Br836
4 R5528 Br845
5 R4817 Br846
6 R4793 Br848
```

A data.table: 6 × 2

```
[3]: load("/ceph/users/jbenja13/projects/sex_sz_ria/input/genotypes/covariates/_m/
      ↪hippocampus/covariates.rda")
ls()
```

1. 'covsExon0' 2. 'covsGene0' 3. 'covsJxn0' 4. 'covsTx0' 5. 'sample\_df'

```
[4]: covs = covsExon0 %>% as.data.frame %>% select(sample_df$RNum) %>%
      t %>% as.data.frame %>% rownames_to_column("RNum") %>%
      inner_join(sample_df, by=c("RNum")) %>% select(-"RNum") %>%
      rename("ID"="BrNum") %>% column_to_rownames("ID") %>% t %>%
      as.data.frame %>% rownames_to_column("ID")

covs[1:10, 1:5]
```

A data.frame: 10 × 5

	ID	Br822	Br823	Br836	Br845
	<chr>	<dbl>	<dbl>	<dbl>	<dbl>
1	DxSchizo	0.00000000	0.000000e+00	0.000000e+00	0.0000000000
2	snpPC1	-0.03381080	8.703800e-02	1.014550e-01	0.093891100
3	snpPC2	-0.00312935	-1.717740e-03	-6.424960e-04	-0.002248600
4	snpPC3	-0.00154150	4.134530e-04	-9.232110e-04	0.000546358
5	PC1	-126.54353402	-1.471084e+02	3.154261e+01	-8.147637814
6	PC2	122.05963173	-3.176844e+02	3.567800e+01	-28.123430652
7	PC3	51.67309566	-1.398318e+02	-1.050221e+02	90.510427513
8	PC4	74.50202952	1.013678e+01	3.539543e+01	-96.958863869
9	PC5	-37.23926740	-4.175390e+01	4.529752e+01	5.131147559
10	PC6	-63.46437315	8.865381e+00	4.798659e+01	65.152210702

```
[5]: covs %>% data.table::fwrite("exons.combined_covariates.txt", sep='\t')
```

## 1.2 Reproducibility Information

```
[6]: Sys.time()
proc.time()
options(width = 120)
sessioninfo::session_info()
```

```
[1] "2021-07-14 22:30:32 EDT"
```

```
user system elapsed
2.368 0.213 2.867
```

```
Session info
```

```
setting value
```

```
version R version 4.0.3 (2020-10-10)
```

```
os Arch Linux
```

```
system x86_64, linux-gnu
```

```
ui X11
```

```
language (EN)
```

```
collate en_US.UTF-8
```

```
ctype en_US.UTF-8
```

```
tz America/New_York
```

```
date 2021-07-14
```

```
Packages
```

```
package * version date lib source
```

assertthat	0.2.1	2019-03-21	[1]	CRAN	(R 4.0.2)
backports	1.2.1	2020-12-09	[1]	CRAN	(R 4.0.2)
base64enc	0.1-3	2015-07-28	[1]	CRAN	(R 4.0.2)
broom	0.7.8	2021-06-24	[1]	CRAN	(R 4.0.3)
cellranger	1.1.0	2016-07-27	[1]	CRAN	(R 4.0.2)
cli	3.0.0	2021-06-30	[1]	CRAN	(R 4.0.3)
colorspace	2.0-2	2021-06-24	[1]	CRAN	(R 4.0.3)
crayon	1.4.1	2021-02-08	[1]	CRAN	(R 4.0.3)
data.table	1.14.0	2021-02-21	[1]	CRAN	(R 4.0.3)
DBI	1.1.1	2021-01-15	[1]	CRAN	(R 4.0.2)
dbplyr	2.1.1	2021-04-06	[1]	CRAN	(R 4.0.3)
digest	0.6.27	2020-10-24	[1]	CRAN	(R 4.0.2)
dplyr	* 1.0.7	2021-06-18	[1]	CRAN	(R 4.0.3)
ellipsis	0.3.2	2021-04-29	[1]	CRAN	(R 4.0.3)
evaluate	0.14	2019-05-28	[1]	CRAN	(R 4.0.2)
fansi	0.5.0	2021-05-25	[1]	CRAN	(R 4.0.3)
forcats	* 0.5.1	2021-01-27	[1]	CRAN	(R 4.0.2)
fs	1.5.0	2020-07-31	[1]	CRAN	(R 4.0.2)
generics	0.1.0	2020-10-31	[1]	CRAN	(R 4.0.2)
ggplot2	* 3.3.5	2021-06-25	[1]	CRAN	(R 4.0.3)
glue	1.4.2	2020-08-27	[1]	CRAN	(R 4.0.2)
gtable	0.3.0	2019-03-25	[1]	CRAN	(R 4.0.2)
haven	2.4.1	2021-04-23	[1]	CRAN	(R 4.0.3)
hms	1.1.0	2021-05-17	[1]	CRAN	(R 4.0.3)
htmltools	0.5.1.1	2021-01-22	[1]	CRAN	(R 4.0.2)
httr	1.4.2	2020-07-20	[1]	CRAN	(R 4.0.2)
IRdisplay	1.0	2021-01-20	[1]	CRAN	(R 4.0.2)
IRkernel	1.2	2021-05-11	[1]	CRAN	(R 4.0.3)
jsonlite	1.7.2	2020-12-09	[1]	CRAN	(R 4.0.2)
lifecycle	1.0.0	2021-02-15	[1]	CRAN	(R 4.0.3)
lubridate	1.7.10	2021-02-26	[1]	CRAN	(R 4.0.3)
magrittr	2.0.1	2020-11-17	[1]	CRAN	(R 4.0.2)
modelr	0.1.8	2020-05-19	[1]	CRAN	(R 4.0.2)
munsell	0.5.0	2018-06-12	[1]	CRAN	(R 4.0.2)
pbdZMQ	0.3-5	2021-02-10	[1]	CRAN	(R 4.0.3)
pillar	1.6.1	2021-05-16	[1]	CRAN	(R 4.0.3)
pkgconfig	2.0.3	2019-09-22	[1]	CRAN	(R 4.0.2)
purrr	* 0.3.4	2020-04-17	[1]	CRAN	(R 4.0.2)
R6	2.5.0	2020-10-28	[1]	CRAN	(R 4.0.2)
Rcpp	1.0.7	2021-07-07	[1]	CRAN	(R 4.0.3)
readr	* 1.4.0	2020-10-05	[1]	CRAN	(R 4.0.2)
readxl	1.3.1	2019-03-13	[1]	CRAN	(R 4.0.2)
repr	1.1.3	2021-01-21	[1]	CRAN	(R 4.0.2)
reprex	2.0.0	2021-04-02	[1]	CRAN	(R 4.0.3)
rlang	0.4.11	2021-04-30	[1]	CRAN	(R 4.0.3)
rstudioapi	0.13	2020-11-12	[1]	CRAN	(R 4.0.2)
rvest	1.0.0	2021-03-09	[1]	CRAN	(R 4.0.3)
scales	1.1.1	2020-05-11	[1]	CRAN	(R 4.0.2)

sessioninfo	1.1.1	2018-11-05	[1]	CRAN	(R 4.0.2)
stringi	1.6.2	2021-05-17	[1]	CRAN	(R 4.0.3)
stringr	* 1.4.0	2019-02-10	[1]	CRAN	(R 4.0.2)
tibble	* 3.1.2	2021-05-16	[1]	CRAN	(R 4.0.3)
tidyr	* 1.1.3	2021-03-03	[1]	CRAN	(R 4.0.3)
tidyselect	1.1.1	2021-04-30	[1]	CRAN	(R 4.0.3)
tidyverse	* 1.3.1	2021-04-15	[1]	CRAN	(R 4.0.3)
utf8	1.2.1	2021-03-12	[1]	CRAN	(R 4.0.3)
uuid	0.1-4	2020-02-26	[1]	CRAN	(R 4.0.2)
vctrs	0.3.8	2021-04-29	[1]	CRAN	(R 4.0.3)
withr	2.4.2	2021-04-18	[1]	CRAN	(R 4.0.3)
xml2	1.3.2	2020-04-23	[1]	CRAN	(R 4.0.2)

[1] /home/jbenja13/R/x86\_64-pc-linux-gnu-library/4.0

[2] /usr/lib/R/library