

main

August 23, 2021

1 Examine discordant plots with mashr

```
[1]: library(dplyr)
     library(mashr)
```

Attaching package: ‘dplyr’

The following objects are masked from ‘package:stats’:

filter, lag

The following objects are masked from ‘package:base’:

intersect, setdiff, setequal, union

Loading required package: ashR

```
[2]: load("../_m/genes/mashr_meta_results.RData")
     labs = c("Caudate", "Dentate Gyrus", "DLPFC", "Hippocampus")
```

1.1 Generate metaplots

1.1.1 Interaction model

```
[3]: print(m$result$PosteriorMean["ENSG00000154237.12",])
     R.devices::devEval(c("png", "pdf"), name="metaplot_LRRK1", {
       mash_plot_meta(m, get_significant_results(m)["ENSG00000154237.12"],
         ylab="", xlim=c(-1.5, 1.5), labels=labs)
     })
```

Caudate	Dentate Gyrus	DLPFC	Hippocampus
-0.001690241	-0.847451830	-0.139797758	-0.114973805

\$png 'figures/metaplot_LRRK1.png'

\$pdf 'figures/metaplot_LRRK1.pdf'

```
[4]: print(m$result$PosteriorMean["ENSG00000156076.9",])
R.devices::devEval(c("png", "pdf"), name="metaplot_WIF1", {
  mash_plot_meta(m, get_significant_results(m)["ENSG00000156076.9"],
    ylab="", xlim=c(-1.5, 1.5), labels=labs)
})
```

Caudate	Dentate Gyrus	DLPFC	Hippocampus
0.3406456	-0.6868438	0.4267937	0.3528242

\$png 'figures/metaplot_WIF1.png'

\$pdf 'figures/metaplot_WIF1.pdf'

```
[5]: print(m$result$PosteriorMean["ENSG00000198785.4",])
R.devices::devEval(c("png", "pdf"), name="metaplot_GRIN3A", {
  mash_plot_meta(m, get_significant_results(m)["ENSG00000198785.4"],
    ylab="", xlim=c(-1.5, 1.5), labels=labs)
})
```

Caudate	Dentate Gyrus	DLPFC	Hippocampus
-0.16576285	0.88211766	-0.02449369	0.09022575

\$png 'figures/metaplot_GRIN3A.png'

\$pdf 'figures/metaplot_GRIN3A.pdf'

```
[6]: print(m$result$PosteriorMean["ENSG00000084628.9",])
R.devices::devEval(c("png", "pdf"), name="metaplot_NKAIN1", {
  mash_plot_meta(m, get_significant_results(m)["ENSG00000084628.9"],
    ylab="", xlim=c(-1.5, 1.5), labels=labs)
})
```

Caudate	Dentate Gyrus	DLPFC	Hippocampus
1.8142698	-0.0430491	0.7540760	0.8479841

\$png 'figures/metaplot_NKAIN1.png'

\$pdf 'figures/metaplot_NKAIN1.pdf'

1.1.2 Tissue specific

```
[7]: print(m$result$PosteriorMean["ENSG00000115252.18",])
R.devices::devEval(c("png", "pdf"), name="metaplot_PDE1A_caudate", {
  mash_plot_meta(m, get_significant_results(m)["ENSG00000115252.18"],
    ylab="", xlim=c(-1.5, 1.5), labels=labs)
})
```

Caudate	Dentate Gyrus	DLPFC	Hippocampus
-0.91581948	-0.08091849	-0.10940589	-0.19317280

\$png 'figures/metaplot_PDE1A_caudate.png'

```
$pdf 'figures/metaplot_PDE1A_caudate.pdf'
```

```
[8]: print(m$result$PosteriorMean["ENSG00000229847.8",])
R.devices::devEval(c("png", "pdf"), name="metaplot_EMX2OS_dg", {
  mash_plot_meta(m, get_significant_results(m)["ENSG00000229847.8"],
    ylab="", xlim=c(-1.5, 1.5), labels=labs)
})
```

Caudate	Dentate Gyrus	DLPFC	Hippocampus
-0.2336895	-0.6044583	-0.1567356	-0.1979330

```
$png 'figures/metaplot_EMX2OS_dg.png'
```

```
$pdf 'figures/metaplot_EMX2OS_dg.pdf'
```

```
[9]: print(m$result$PosteriorMean["ENSG00000146733.13",])
R.devices::devEval(c("png", "pdf"), name="metaplot_PSPH_dlpfc", {
  mash_plot_meta(m, get_significant_results(m)["ENSG00000146733.13"],
    ylab="", xlim=c(-0.6, 0.6), labels=labs)
})
```

Caudate	Dentate Gyrus	DLPFC	Hippocampus
-0.09317784	-0.03110818	-0.15314163	-0.08099345

```
$png 'figures/metaplot_PSPH_dlpfc.png'
```

```
$pdf 'figures/metaplot_PSPH_dlpfc.pdf'
```

```
[10]: print(m$result$PosteriorMean["ENSG00000171566.11",])
R.devices::devEval(c("png", "pdf"), name="metaplot_PLRG1_hippocampus", {
  mash_plot_meta(m, get_significant_results(m)["ENSG00000171566.11"],
    ylab="", xlim=c(-0.6, 0.6), labels=labs)
})
```

Caudate	Dentate Gyrus	DLPFC	Hippocampus
-0.06596027	-0.01336499	-0.05620551	-0.05845180

```
$png 'figures/metaplot_PLRG1_hippocampus.png'
```

```
$pdf 'figures/metaplot_PLRG1_hippocampus.pdf'
```

1.2 Reproducibility

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

```
[1] "2021-08-23 21:22:52 EDT"
```

user	system	elapsed
4.258	0.253	4.776

```

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     2021-08-23

```

Packages

package	* version	date	lib	source
abind	1.4-5	2016-07-21	[1]	CRAN (R 4.0.2)
ashr	* 2.2-51	2021-07-22	[1]	Github (stephens999/ashr@23ba36a)
assertthat	0.2.1	2019-03-21	[1]	CRAN (R 4.0.2)
base64enc	0.1-3	2015-07-28	[1]	CRAN (R 4.0.2)
Cairo	1.5-12.2	2020-07-07	[1]	CRAN (R 4.0.2)
cli	3.0.0	2021-06-30	[1]	CRAN (R 4.0.3)
crayon	1.4.1	2021-02-08	[1]	CRAN (R 4.0.3)
DBI	1.1.1	2021-01-15	[1]	CRAN (R 4.0.2)
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)
generics	0.1.0	2020-10-31	[1]	CRAN (R 4.0.2)
glue	1.4.2	2020-08-27	[1]	CRAN (R 4.0.2)
htmltools	0.5.1.1	2021-01-22	[1]	CRAN (R 4.0.2)
invgamma	1.1	2017-05-07	[1]	CRAN (R 4.0.3)
IRdisplay	1.0	2021-01-20	[1]	CRAN (R 4.0.2)
IRkernel	1.2	2021-05-11	[1]	CRAN (R 4.0.3)
irlba	2.3.3	2019-02-05	[1]	CRAN (R 4.0.2)
jsonlite	1.7.2	2020-12-09	[1]	CRAN (R 4.0.2)
lattice	0.20-41	2020-04-02	[2]	CRAN (R 4.0.3)
lifecycle	1.0.0	2021-02-15	[1]	CRAN (R 4.0.3)
magrittr	2.0.1	2020-11-17	[1]	CRAN (R 4.0.2)
mashr	* 0.2.50	2021-07-22	[1]	Github (stephenslab/mashr@a54162b)
Matrix	1.3-4	2021-06-01	[1]	CRAN (R 4.0.3)
mixsqp	0.3-43	2020-05-14	[1]	CRAN (R 4.0.3)
mvtnorm	1.1-2	2021-06-07	[1]	CRAN (R 4.0.3)
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)
plyr	1.8.6	2020-03-03	[1]	CRAN (R 4.0.2)
purrr	0.3.4	2020-04-17	[1]	CRAN (R 4.0.2)
R.devices	2.17.0	2021-01-19	[1]	CRAN (R 4.0.3)

R.methodsS3	1.8.1	2020-08-26	[1]	CRAN	(R 4.0.3)
R.oo	1.24.0	2020-08-26	[1]	CRAN	(R 4.0.3)
R.utils	2.10.1	2020-08-26	[1]	CRAN	(R 4.0.3)
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)
repr	1.1.3	2021-01-21	[1]	CRAN	(R 4.0.2)
rlang	0.4.11	2021-04-30	[1]	CRAN	(R 4.0.3)
rmeta	3.0	2018-03-20	[1]	CRAN	(R 4.0.3)
sessioninfo	1.1.1	2018-11-05	[1]	CRAN	(R 4.0.2)
softImpute	1.4-1	2021-05-09	[1]	CRAN	(R 4.0.3)
SQUAREM	2021.1	2021-01-13	[1]	CRAN	(R 4.0.3)
tibble	3.1.2	2021-05-16	[1]	CRAN	(R 4.0.3)
tidyselect	1.1.1	2021-04-30	[1]	CRAN	(R 4.0.3)
truncnorm	1.0-8	2018-02-27	[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)

[1] /home/jbenja13/R/x86_64-pc-linux-gnu-library/4.0

[2] /usr/lib/R/library