

## Appendix 1

```
exposure<-extract_instruments("ukb-b-14203",p1 = 5e-08, clump = TRUE, p2 = 5e-08, r2 = 0.001, kb = 10000, access_token
= ieugwasr::check_access_token(), force_server = FALSE)
```

```
outcome<-extract_outcome_data( snps, "ieu-b-4960", proxies = TRUE,rsq = 0.8, align_alleles = 1, palindromes = 1, maf_
threshold = 0.3,access_token = ieugwasr::check_access_token(),splitsize = 10000,proxy_splitsize = 500)
```

```
dat<-harmonise_data (exposure_dat = exposure, outcome_dat = outcome)
```

```
mr(dat)
```

```
generate_odds_ratios(mr_res = mr(dat))
```

```
mr(dat,method_list = c("mr_ivw","mr_egger_regression","mr_weighted_median","mr_weighted_mode", "mr_simple_
mode"))
```

```
mr_scatter_plot(mr_results = mr(dat,method_list = c("mr_ivw","mr_egger_regression","mr_weighted_median")),dat)
```

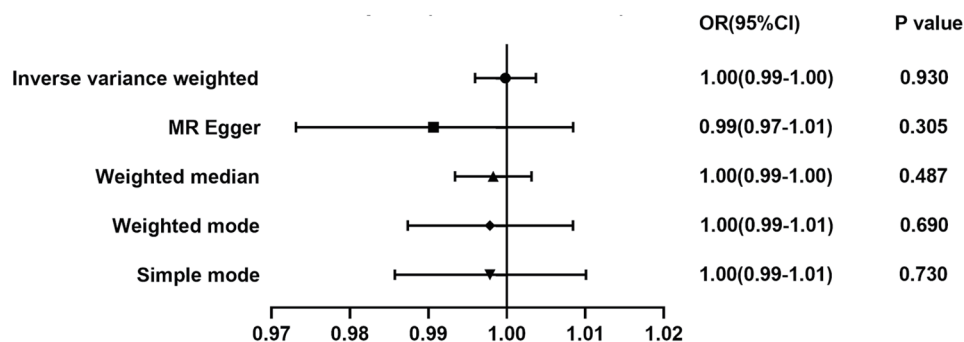
```
mr_heterogeneity(dat)
```

```
mr_funnel_plot(singlesnp_results = mr_singlesnp(dat))
```

```
mr_pleiotropy_test(dat)
```

```
mr_leaveoneout_plot(leaveoneout_results = mr_leaveoneout(dat))
```

```
MRPRESSO::mr_presso("beta.outcome", "beta.exposure", "se.outcome", "se.exposure", dat, OUTLIERtest = TRUE,
DISTORTIONtest = TRUE, SignifThreshold = 0.05, NbDistribution = 10000, seed = NULL)
```



**Figure S1** The estimates of the causal effect of hot beverages temperature preference on EC after removing the outlier detected by MR-PRESSO in the ieu-b-4960 dataset. EC, esophageal cancer; CI, confidence interval; MR, mendelian randomization.

**Table S1** SNPs for hot beverage temperature preference for East Asian population

	samplesize. exposure	se.exposure	pval.exposure	pos.exposure	beta.exposure	chr.exposure	id.exposure	SNP	effect_allele. exposure	other_allele. exposure	eaf.exposure	exposure	mr_keep. exposure	pval_origin. exposure	data_source. exposure
1	NA	0.02741	3.95E-06	14477944	0.1265	1	ukb-e-1518_EAS	rs929125	A	G	0.891	id:ukb-e-1518_EAS	TRUE	Reported	igd
2	NA	0.04581	7.25E-06	1.65E+08	-0.2055	2	ukb-e-1518_EAS	rs1446470	A	G	0.96351	id:ukb-e-1518_EAS	TRUE	Reported	igd
3	NA	0.1043	2.61E-06	99779997	-0.4899	3	ukb-e-1518_EAS	rs551516862	T	A	0.98854	id:ukb-e-1518_EAS	TRUE	Reported	igd
4	NA	0.02078	3.80E-06	1.39E+08	-0.09607	4	ukb-e-1518_EAS	rs78179605	A	C	0.6831	id:ukb-e-1518_EAS	TRUE	Reported	igd
5	NA	0.01876	7.86E-07	22710662	0.09268	5	ukb-e-1518_EAS	rs369274	T	C	0.3038	id:ukb-e-1518_EAS	TRUE	Reported	igd
6	NA	0.02184	1.55E-06	36496588	-0.1049	7	ukb-e-1518_EAS	rs200353196	A	T	0.8211	id:ukb-e-1518_EAS	TRUE	Reported	igd
7	NA	0.01753	5.19E-06	1.52E+08	0.07988	7	ukb-e-1518_EAS	rs62493976	C	T	0.4584	id:ukb-e-1518_EAS	TRUE	Reported	igd
8	NA	0.02297	9.94E-06	18709694	0.1015	9	ukb-e-1518_EAS	rs518607	A	G	0.1658	id:ukb-e-1518_EAS	TRUE	Reported	igd
9	NA	0.02996	2.01E-06	89990469	0.1424	9	ukb-e-1518_EAS	rs78859724	A	C	0.91651	id:ukb-e-1518_EAS	TRUE	Reported	igd
10	NA	0.02956	3.08E-06	89990345	-0.1379	9	ukb-e-1518_EAS	rs10746803	A	C	0.0931	id:ukb-e-1518_EAS	TRUE	Reported	igd
11	NA	0.02068	6.85E-06	71082272	0.09304	12	ukb-e-1518_EAS	rs9645829	A	G	0.2246	id:ukb-e-1518_EAS	TRUE	Reported	igd
12	NA	0.02176	3.78E-07	35827531	-0.1105	14	ukb-e-1518_EAS	rs12892278	A	G	0.8114	id:ukb-e-1518_EAS	TRUE	Reported	igd
13	NA	0.01762	7.61E-06	58741134	-0.07886	15	ukb-e-1518_EAS	rs485671	C	A	0.3837	id:ukb-e-1518_EAS	TRUE	Reported	igd
14	NA	0.03007	4.07E-06	44282592	0.1385	19	ukb-e-1518_EAS	rs11083721	C	T	0.0946	id:ukb-e-1518_EAS	TRUE	Reported	igd
15	NA	0.04411	7.96E-06	6967818	0.197	20	ukb-e-1518_EAS	rs4416292	T	C	0.93885	id:ukb-e-1518_EAS	TRUE	Reported	igd
16	NA	0.0173	6.50E-07	36164858	-0.08608	20	ukb-e-1518_EAS	rs6066750	C	G	0.555	id:ukb-e-1518_EAS	TRUE	Reported	igd

SNPs, single nucleotide polymorphisms.