

```
# Load required libraries
```

```
library(readxl) # For reading data from Excel files
```

```
## Warning: Paket 'readxl' wurde unter R Version 4.3.1 erstellt
```

```
library(multiMiR) # For querying validated miRNA-mRNA interactions
```

```
## Welcome to multiMiR.
```

```
##
```

```
## multiMiR database URL has been set to the
```

```
## default value: http://multimir.org/
```

```
##
```

```
## Database Version: 2.3.0 Updated: 2020-04-15
```

```
library(writexl) # For writing data to Excel files
```

```
## Warning: Paket 'writexl' wurde unter R Version 4.3.1 erstellt
```

```
# Read data from an Excel file named "miRNAmRNA.xlsx" and store it in the "new_list" variable.
```

```
new_list <- read_excel("C:/Users/Emre/Desktop/miRNAmRNA.xlsx")
```

```
mirnames <- new_list$miRNA
```

```
# Get validated miRNA-mRNA interactions using the "multiMiR" package.
```

```
# In this case, the interactions are queried for human (hsa) miRNAs (mirnames) from the "validated" tab
```

```
# The results will be summarized and stored in the "multimir_results" variable.
```

```
multimir_results <- get_multimir(org      = 'hsa',  
                                   mirna    = mirnames,  
                                   table     = 'validated',  
                                   summary   = TRUE)
```

```
## Searching mirecords ...
```

```
## Searching mirtarbase ...
```

```
## Searching tarbase ...
```

```
# Display the first few rows of the "multimir_results" data to get an overview of the miRNA-mRNA intera
```

```
head(multimir_results@data)
```

```
##      database mature_mirna_acc mature_mirna_id target_symbol target_entrez  
## 1 mirecords      MIMAT0000073   hsa-miR-19a-3p      PTEN           5728  
## 2 mirecords      MIMAT0000073   hsa-miR-19a-3p      PTEN           5728  
## 3 mirecords      MIMAT0000073   hsa-miR-19a-3p      PTEN           5728  
## 4 mirecords      MIMAT0000073   hsa-miR-19a-3p      PTEN           5728  
## 5 mirecords      MIMAT0000073   hsa-miR-19a-3p      PTEN           5728  
## 6 mirecords      MIMAT0000073   hsa-miR-19a-3p      PTEN           5728  
##      target_ensembl experiment support_type pubmed_id      type  
## 1 ENSG00000171862                14697198 validated  
## 2 ENSG00000171862                14697198 validated  
## 3 ENSG00000171862                14697198 validated  
## 4 ENSG00000171862                14697198 validated  
## 5 ENSG00000171862                14697198 validated  
## 6 ENSG00000171862                14697198 validated
```

```
# Extract the results of miRNA-mRNA interactions from the "multimir_results" variable and store them in  
targets <- multimir_results@data  
  
# Extract the results of miRNA-mRNA interactions from the "multimir_results" variable and store them in  
# Specify the Excel file name where the results will be saved.  
excel_file <- "multimir_results.xlsx"  
  
# Write the "targets" data to an Excel file with the specified file name.  
write_xlsx(targets, path = excel_file)
```