

main

August 15, 2021

## 1 Summary of features for interaction analysis

```
[1]: import pandas as pd
```

### 1.1 Function

```
[2]: def get_summary(feature):  
    fn = "../../_m/%s/significant_geneSNP_pairs_3tissues.tsv" % feature  
    df = pd.read_csv(fn, sep='\t')  
    cd = df[(df["N_Regions_Shared"] == 2) & (df["Hippocampus"] == 0)].shape[0]  
    ch = df[(df["N_Regions_Shared"] == 2) & (df["DLPFC"] == 0)].shape[0]  
    dh = df[(df["N_Regions_Shared"] == 2) & (df["Caudate"] == 0)].shape[0]  
    cc = df[(df["N_Regions_Shared"] == 1) & (df["Caudate"] == 1)].shape[0]  
    dd = df[(df["N_Regions_Shared"] == 1) & (df["DLPFC"] == 1)].shape[0]  
    hh = df[(df["N_Regions_Shared"] == 1) & (df["Hippocampus"] == 1)].shape[0]  
    print(feature.upper())  
    #print(df.groupby("N_Regions_Shared").size())  
    print("There are {} ( {:.1%} ) tissue specific eFeatures!".format(df.  
→groupby("N_Regions_Shared").size()[1],  
df.  
→groupby("N_Regions_Shared").size()[1] / df.shape[0]))  
    print("There are %d caudate specific eFeatures!" % cc)  
    print("There are %d DLPFC specific eFeatures!" % dd)  
    print("There are %d hippocampus specific eFeatures!\n" % hh)  
    print("There are {} ( {:.1%} ) eFeatures shared between two brain regions!".  
→format(df.groupby("N_Regions_Shared").size()[2],  
df.  
→groupby("N_Regions_Shared").size()[2] / df.shape[0]))  
    print("There are %d shared only between caudate and DLPFC!" % cd)  
    print("There are %d shared only between caudate and hippocampus!" % ch)  
    print("There are %d shared only between DLPFC and hippocampus!\n" % dh)  
    print("There are {} ( {:.1%} ) eFeatures shared across brain regions!\n".  
→format(df.groupby("N_Regions_Shared").size()[3],  
df.  
→groupby("N_Regions_Shared").size()[3] / df.shape[0]))
```

## 1.2 Summary

```
[3]: for feature in ["genes", "transcripts", "exons", "junctions"]:  
      get_summary(feature)
```

### GENES

There are 45 (18.6%) tissue specific eFeatures!

There are 45 caudate specific eFeatures!

There are 0 DLPFC specific eFeatures!

There are 0 hippocampus specific eFeatures!

There are 7 (2.9%) eFeatures shared between two brain regions!

There are 7 shared only between caudate and DLPFC!

There are 0 shared only between caudate and hippocampus!

There are 0 shared only between DLPFC and hippocampus!

There are 190 (78.5%) eFeatures shared across brain regions!

### TRANSCRIPTS

There are 204 (44.0%) tissue specific eFeatures!

There are 204 caudate specific eFeatures!

There are 0 DLPFC specific eFeatures!

There are 0 hippocampus specific eFeatures!

There are 2 (0.4%) eFeatures shared between two brain regions!

There are 0 shared only between caudate and DLPFC!

There are 2 shared only between caudate and hippocampus!

There are 0 shared only between DLPFC and hippocampus!

There are 258 (55.6%) eFeatures shared across brain regions!

### EXONS

There are 57 (13.6%) tissue specific eFeatures!

There are 32 caudate specific eFeatures!

There are 25 DLPFC specific eFeatures!

There are 0 hippocampus specific eFeatures!

There are 16 (3.8%) eFeatures shared between two brain regions!

There are 16 shared only between caudate and DLPFC!

There are 0 shared only between caudate and hippocampus!

There are 0 shared only between DLPFC and hippocampus!

There are 347 (82.6%) eFeatures shared across brain regions!

### JUNCTIONS

There are 13 (7.3%) tissue specific eFeatures!

There are 11 caudate specific eFeatures!

There are 2 DLPFC specific eFeatures!

There are 0 hippocampus specific eFeatures!

There are 6 (3.4%) eFeatures shared between two brain regions!

There are 6 shared only between caudate and DLPFC!

There are 0 shared only between caudate and hippocampus!

There are 0 shared only between DLPFC and hippocampus!

There are 160 (89.4%) eFeatures shared across brain regions!

[ ]: