

main

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## 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 86 (24.1%) tissue specific eFeatures!

There are 86 caudate specific eFeatures!

There are 0 DLPFC specific eFeatures!

There are 0 hippocampus specific eFeatures!

There are 16 (4.5%) 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 255 (71.4%) eFeatures shared across brain regions!

### TRANSCRIPTS

There are 238 (45.8%) tissue specific eFeatures!

There are 238 caudate specific eFeatures!

There are 0 DLPFC specific eFeatures!

There are 0 hippocampus specific eFeatures!

There are 8 (1.5%) eFeatures shared between two brain regions!

There are 3 shared only between caudate and DLPFC!

There are 5 shared only between caudate and hippocampus!

There are 0 shared only between DLPFC and hippocampus!

There are 274 (52.7%) eFeatures shared across brain regions!

### EXONS

There are 190 (25.7%) tissue specific eFeatures!

There are 186 caudate specific eFeatures!

There are 4 DLPFC specific eFeatures!

There are 0 hippocampus specific eFeatures!

There are 21 (2.8%) eFeatures shared between two brain regions!

There are 21 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 528 (71.4%) eFeatures shared across brain regions!

### JUNCTIONS

There are 30 (13.1%) tissue specific eFeatures!

There are 29 caudate specific eFeatures!

There are 1 DLPFC specific eFeatures!

There are 0 hippocampus specific eFeatures!

There are 14 (6.1%) eFeatures shared between two brain regions!

There are 10 shared only between caudate and DLPFC!

There are 4 shared only between caudate and hippocampus!

There are 0 shared only between DLPFC and hippocampus!

There are 185 (80.8%) eFeatures shared across brain regions!

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