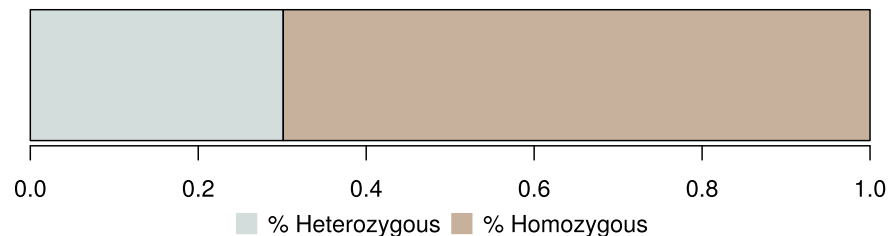


## Girl\_Scout\_Cookie\_

SGID 030-0011  
Date Mon Aug 20 14:22:46 MDT 2018  
PlateUID J.19  
PipelineMD5 fdde89a8c2512a0d9828235412084fc6

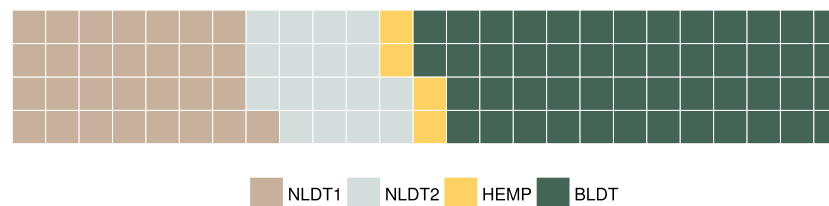
### Stability

Greater genetic homozygosity leads to greater phenotypic stability which is the goal when breeding a consistently superior strain. Girl\_Scout\_Cookie\_ tested as 69.88 % homozygous (stable) and would be over 90% stable after 4 generations of sibling crosses.



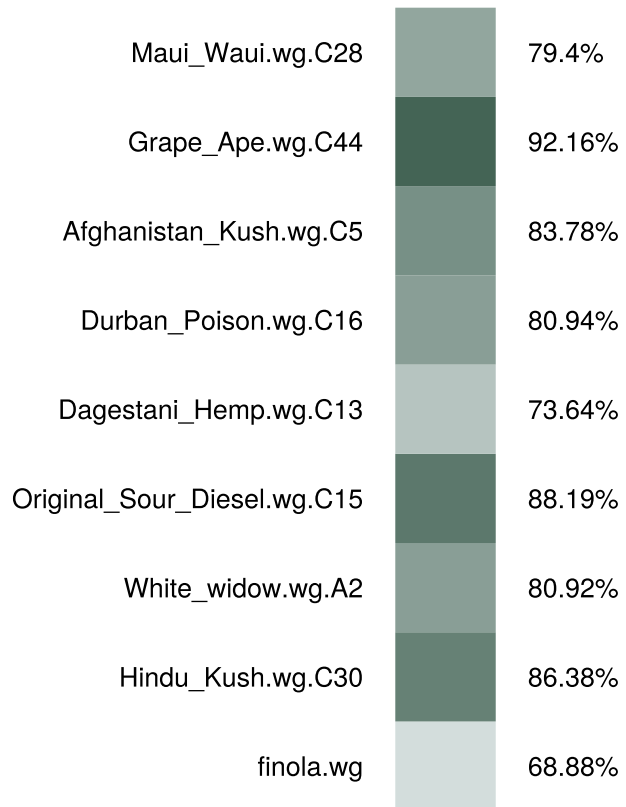
### Ancestry

Ancestry is a description of how Girl\_Scout\_Cookie\_ partitions into the four major clades currently identified within *Cannabis*. The pedigree of Girl\_Scout\_Cookie\_ is 28.77 % NLD1 (similar to the Durban Poisons and Haze), 17.20 % NLD2 (Hawaiian types fall into this clade), 50.14 % BLD1 (Afghan and/or Kush genetics), and 3.90 % Hemp (like Carmagnola and USO-31).



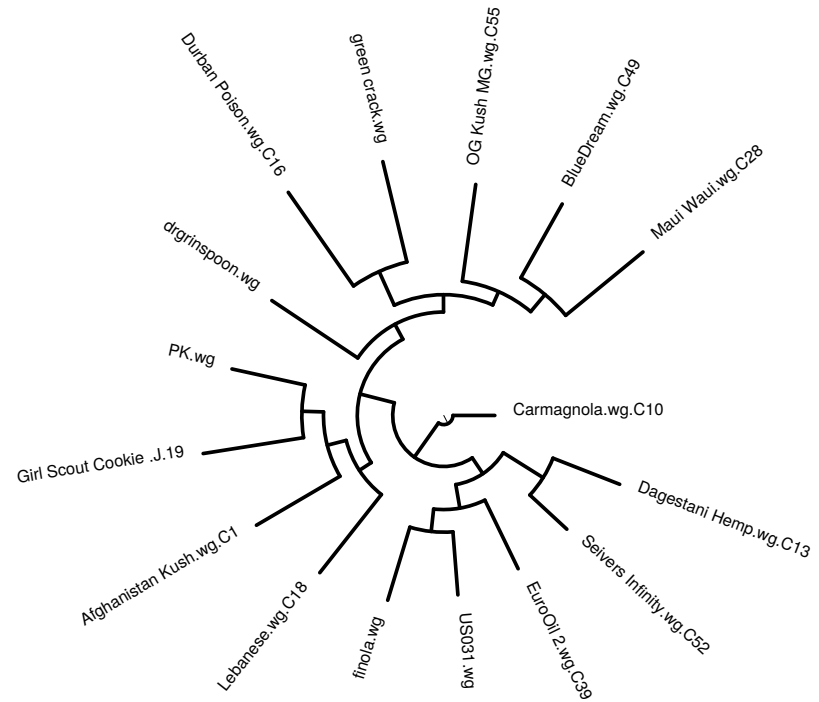
## Similarity

The heat map represents how similar at the DNA level *Girl\_Scout\_Cookie\_* is in relation to those in our reference database. The most similar strains (darker) are more recently related strains.



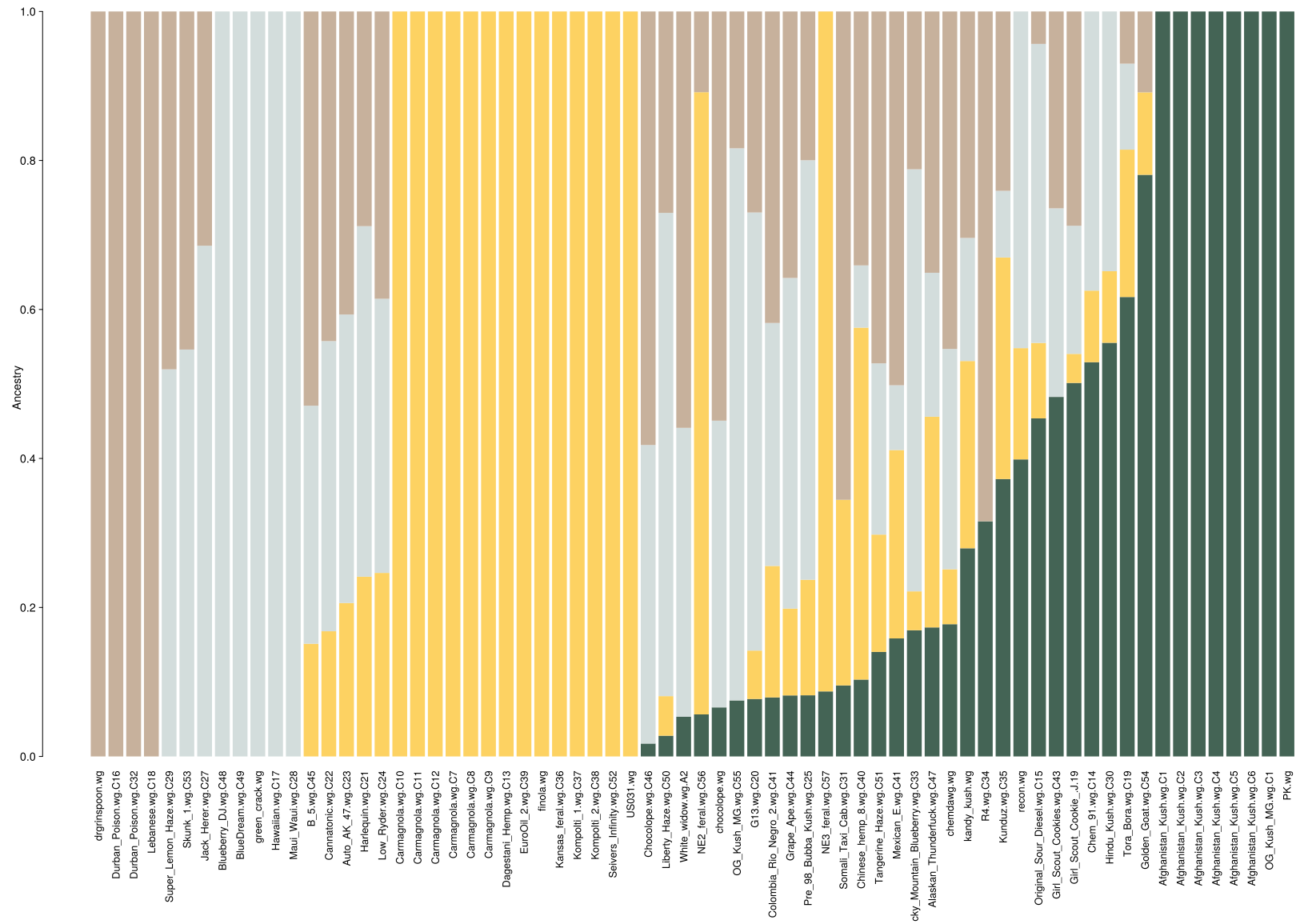
## Evolution

The figure shows the closest relatives to *Girl\_Scout\_Cookie\_* and it's most likely relation to fifteen popular and well-defined strains. Branch lengths are proportional to evolutionary distance.



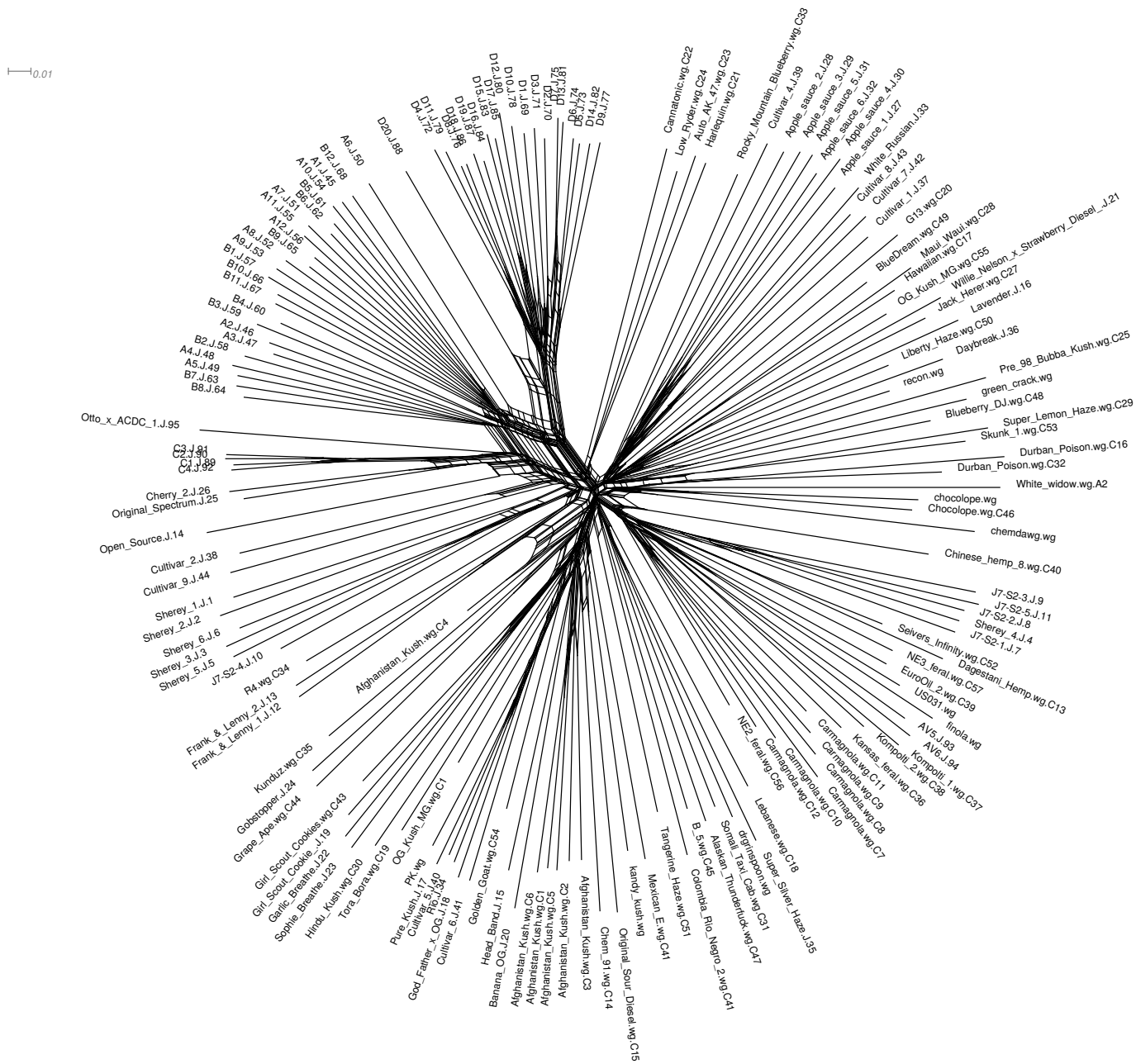
## Population Structure

The population structure is similar to the ancestry analysis, but shows Girl\_Scout\_Cookie\_ in the broader context of our reference database. Bars of a single color indicate strains with the smallest degree of admixture.



## Star Chart

*Cannabis* is a diverse plant taxa with a complex breeding history. This star chart illustrates hybridization events leading to the modern strains. Evolutionary distance is measured outwards from the inside of the star. Connections between rays indicate the degree of hybridization between lines.



## PCA & Clustering

We read thousands of genetic markers from Girl\_Scout\_Cookie\_ and compared them to hundreds of other plants. Next, we reduced this deluge of data down to the most informative principle components (PCs) - dimensions of variation. Three of the most important PCs are represented by one axis in the three below. The plants are partitioned into six groups based on how they cluster in this PC space. Each cluster is assigned a color and the arrows point to plant that is closest to each cluster's center. Girl\_Scout\_Cookie\_ is marked with a cannabis leaf in each figure and its five nearest neighbors are listed in the table at the bottom. Note that each figure displays two PCs. The upper two figures both have PC1 running horizontally and the two rightmost figures have PC3 running vertically. PC2 runs vertically through the top-left figure, horizontally through the bottom-right figure, and is absent from the figure in the corner. The percent of variation explained by each component is listed under its label.

