#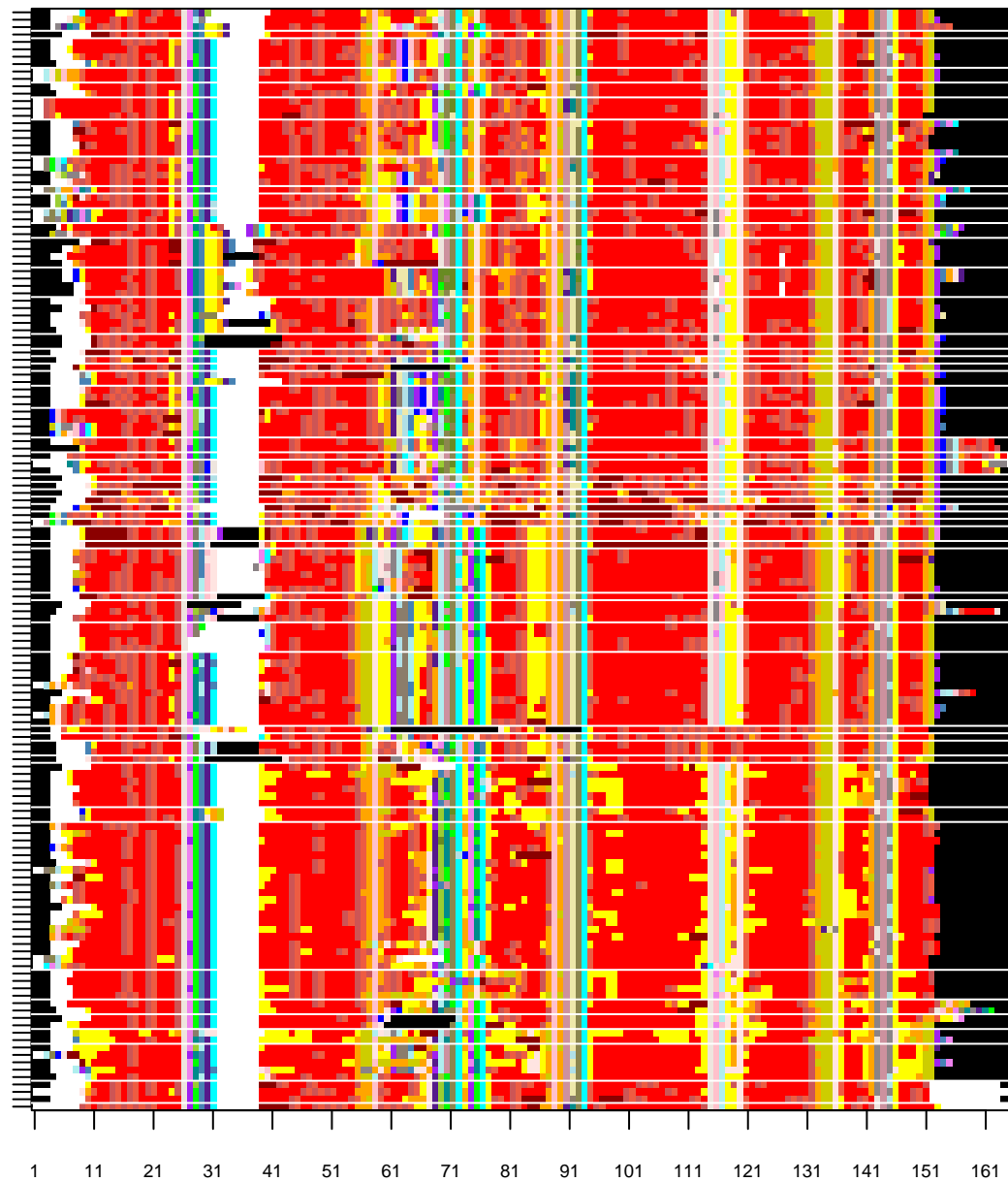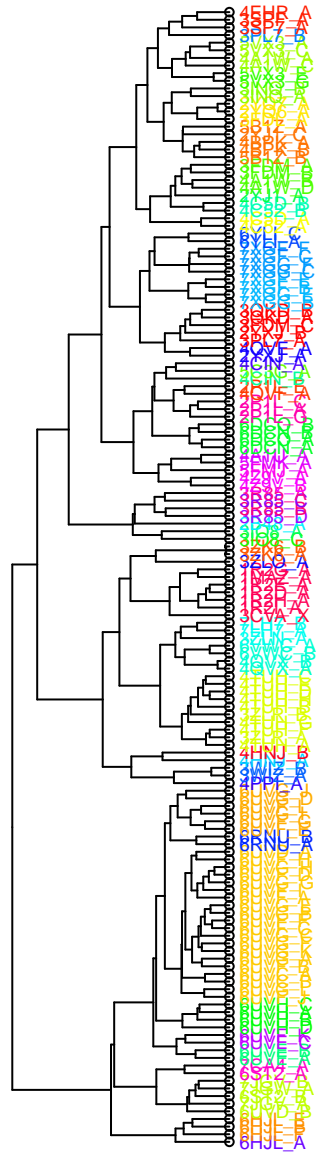 Optimal number of clusters: 53