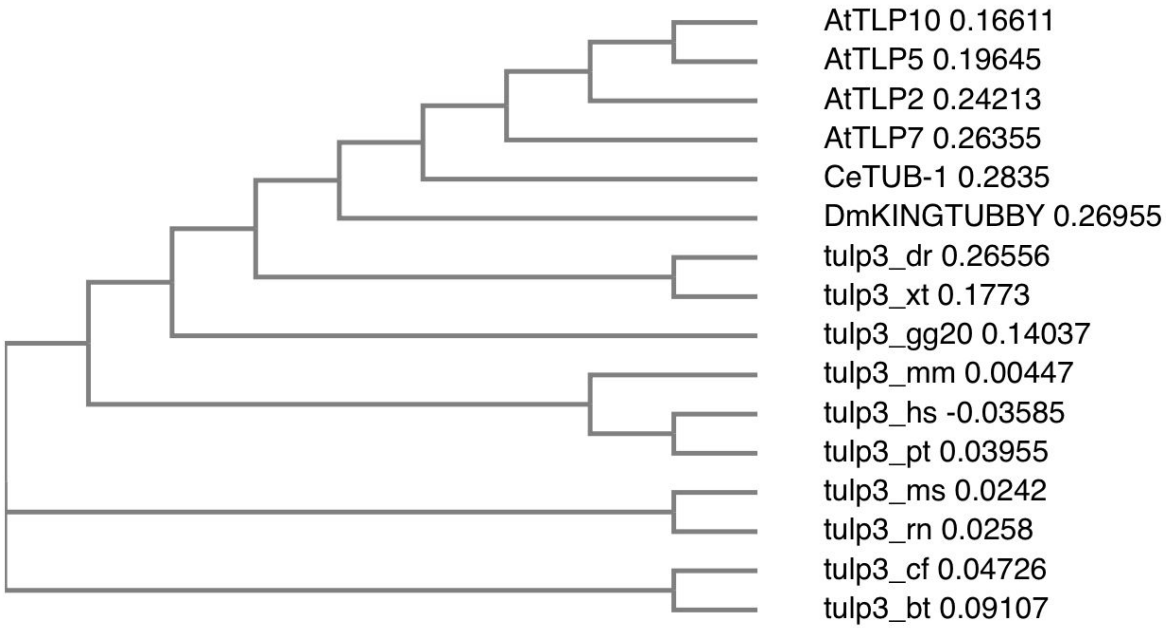
LCS-2d



https://www.ebi.ac.uk/Tools/msa/clustalo/

Algorithm Description
Create a table for LCS between sequences
Fill the matrix with the LCS length or size between two sequences
Find the max of the LCS matrix elements, and create a pairing of the max match.
Combine the pair into a single grouping by averaging the values of both strings.
Generate a new matrix with new grouping
Repeat till the matrix has a single row and column
Print the pairings.

The following is the list of groupings I created, each grouping is enclosed in a set of square brackets. The following pairings are in the form of nested pairings which represent a tree structure. Each pairing is represented in the form [A,B] and have many nested sub groups.

[[[[>tulp3_cf ,>tulp3_bt] ,[[[[[>tulp3_hs ,>tulp3_pt] ,>tulp3_dr] ,>CeTUB-1] ,>AtTLP10] ,>AtTLP2]] ,>tulp3_gg20] ,[[>tulp3_xt ,>tulp3_rn] ,[[[[>tulp3_ms ,>tulp3_mm] ,>DmKINGTUBBY] ,>AtTLP7] ,>AtTLP5]]]

Many of the parings are similar, the first set of base pairings are:
[>tulp3_cf ,>tulp3_bt] [>tulp3_hs ,>tulp3_pt] [>tulp3_xt ,>tulp3_rn] [>tulp3_ms ,>tulp3_mm]

Many of these pairs are similar to the table and some are different.And then there are various nested pairings.