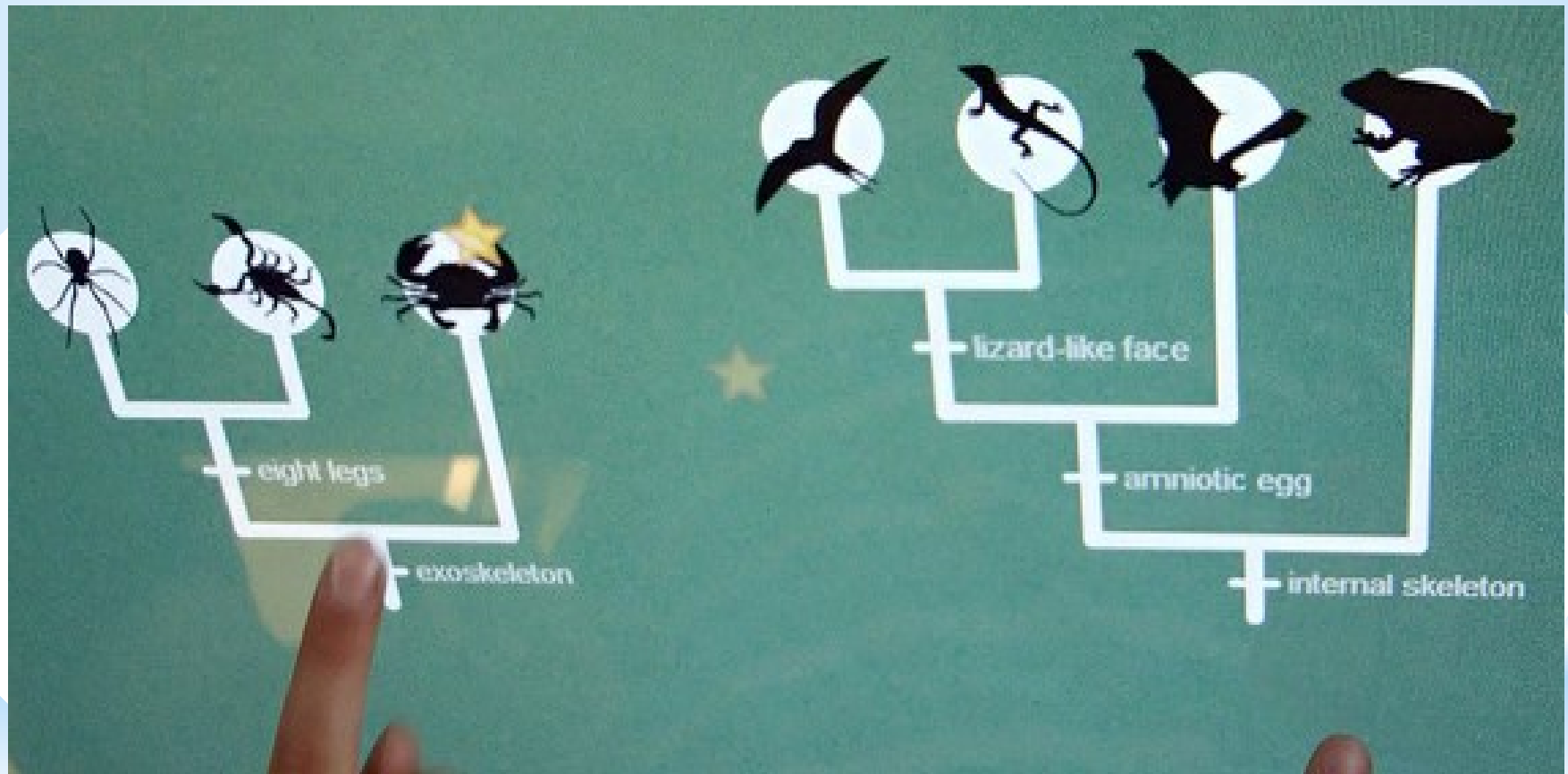


# Cladograms

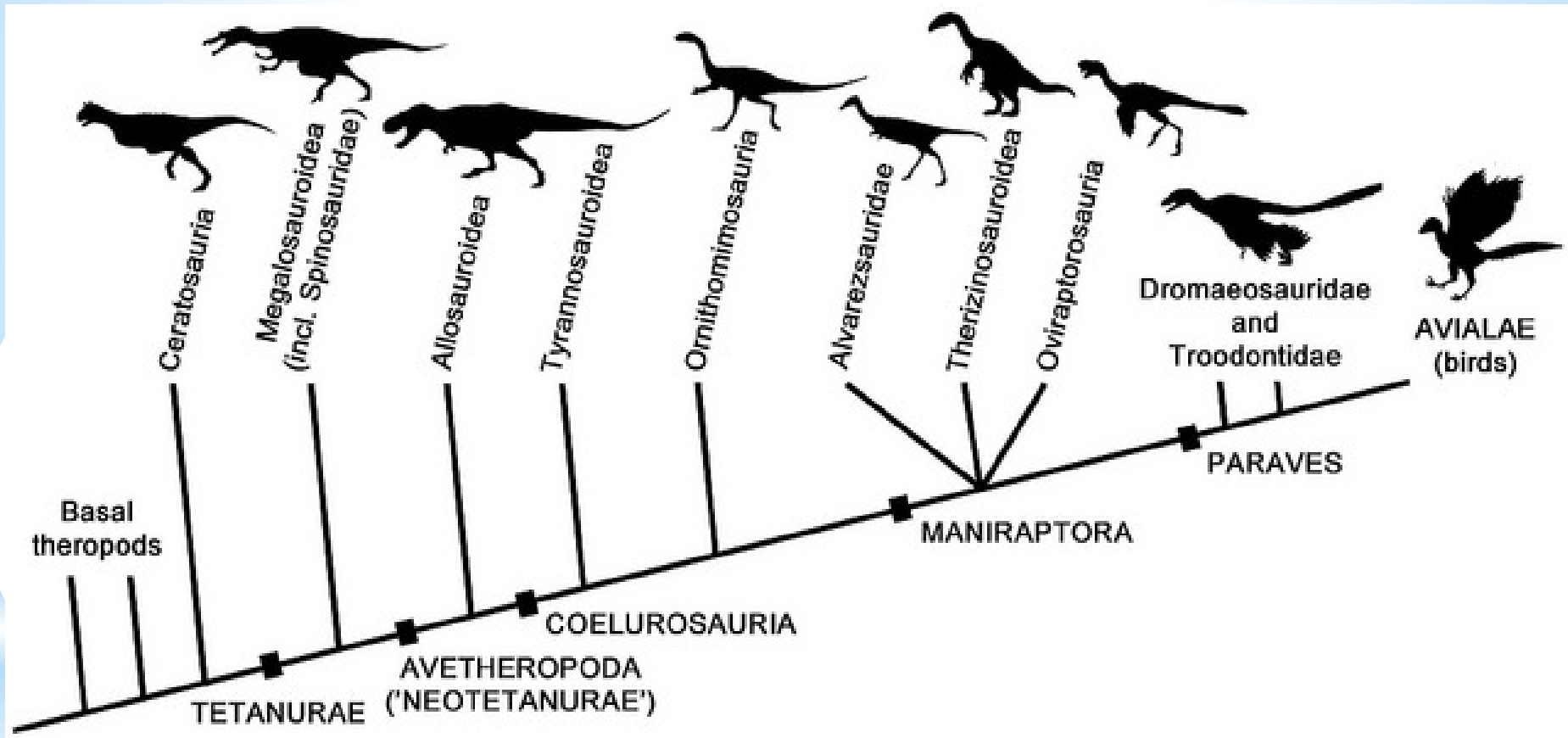
A few slides to show the variety of cladograms which exist



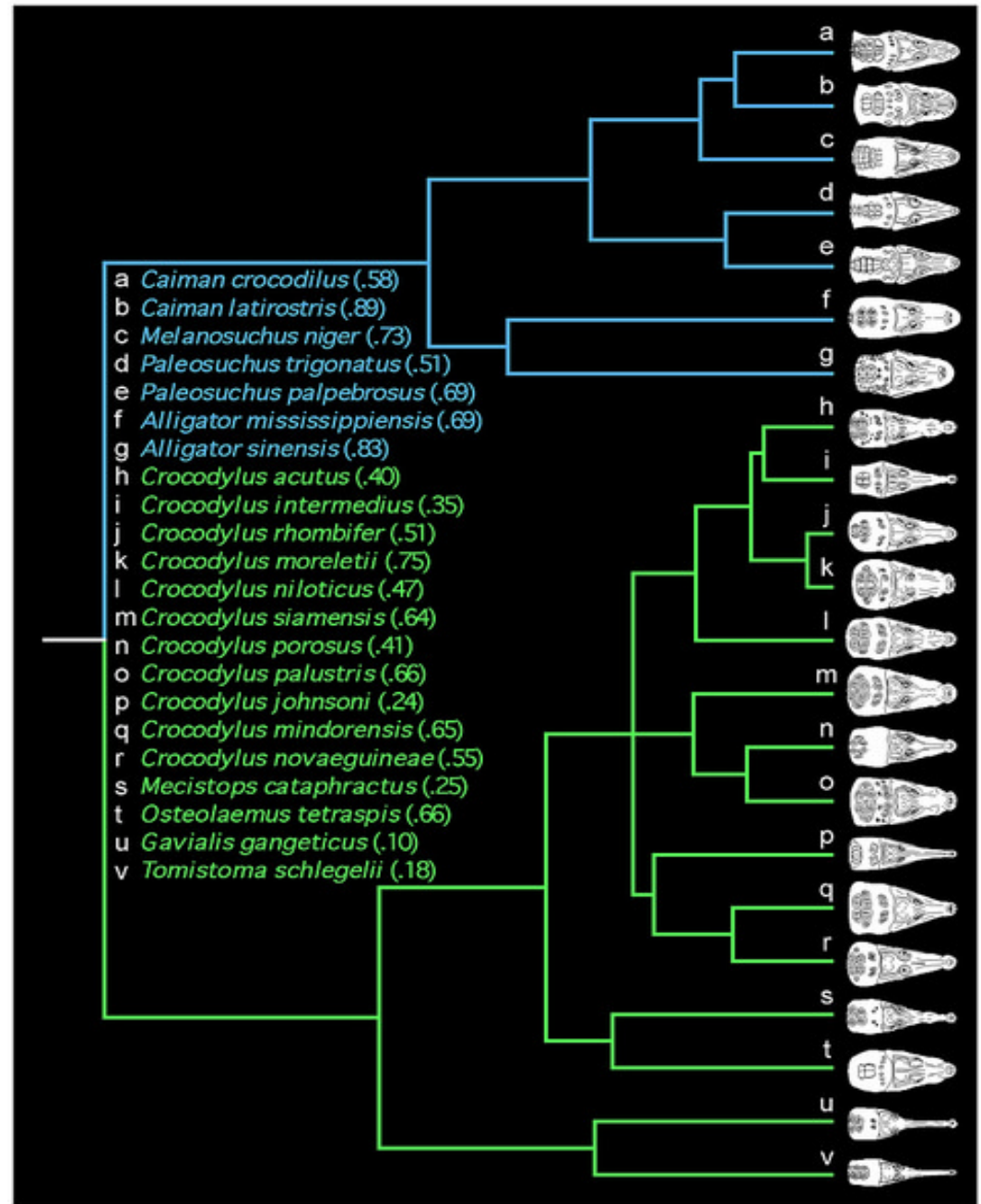
# Simple vertical cladogram



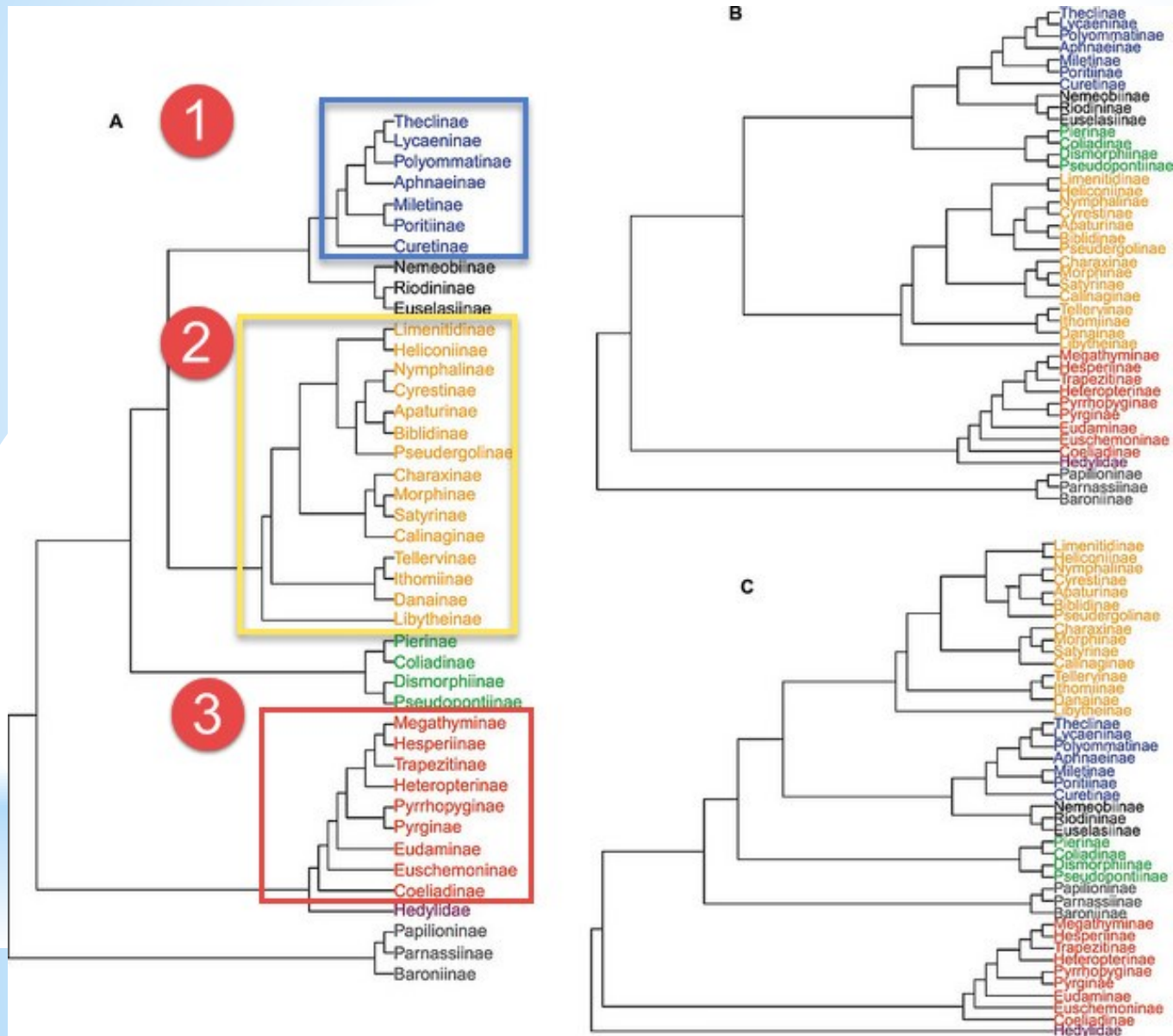
# Cladogram of Theropod dinosaurs



# A cladogram of extinct Crocodiles



# Three alternative cladograms of butterfly families

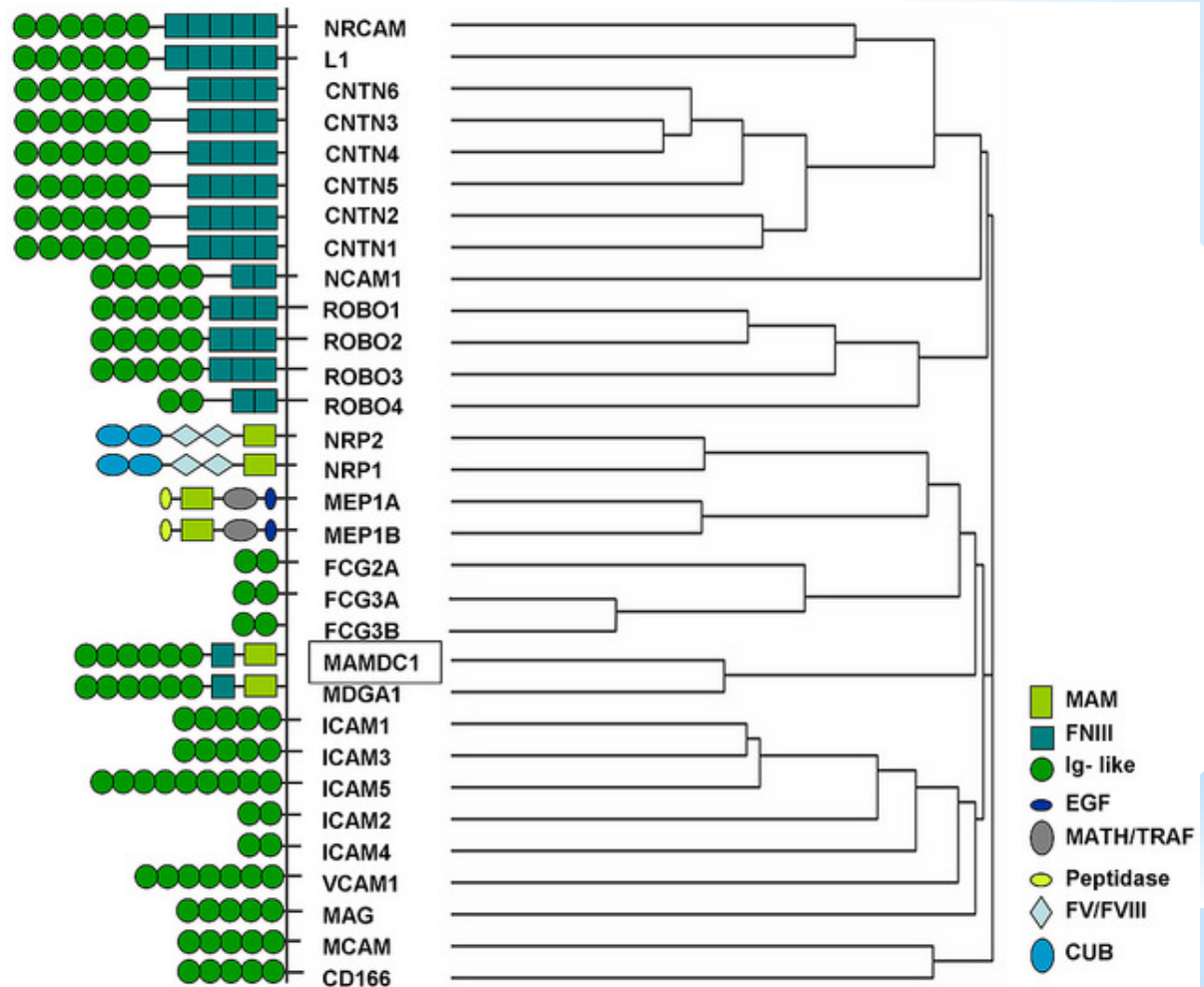


Even experts  
don't always  
agree!

# Cladogram comparison of the human MAMDC1 protein with other proteins containing similar structures

Protein structures are shown in green.

This illustrates how amino acid Sequences can be used to construct cladograms





# Cladogram produced using comparisons of the DNA sequences of the gene HP1 or Like-HP1 in different species

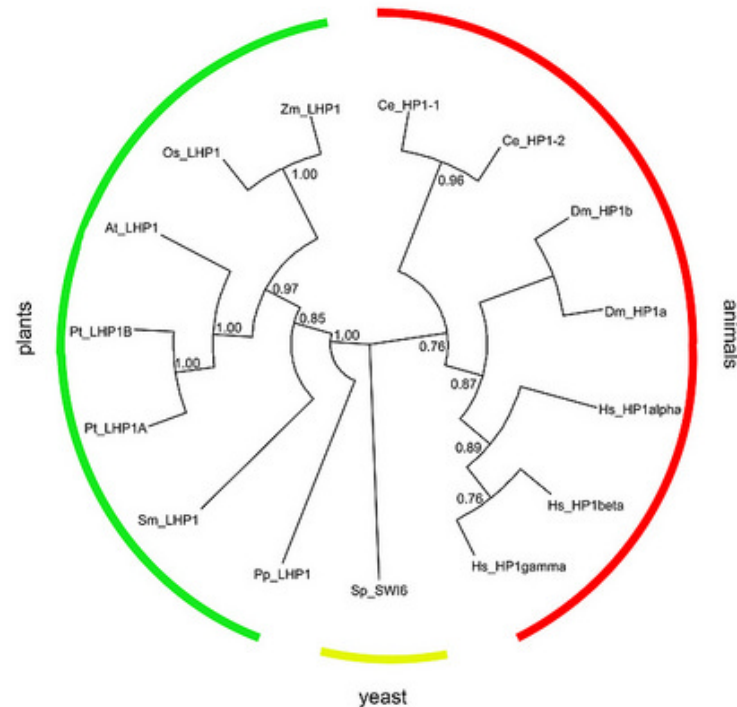
The DNA sequences are shown here

**A**

```

At_LHP1      : RPKLDEGFVEIEAIRRRRRR-KCK-QYVLIKWRGWPE-TANTWEELENIQSADVIDAFEGSLKPGKPGRRKRKRKYAGPH : 176
Pt_LHP1A     : RTKLDEGFVEIEAIRRRRRR-KCQ-QYVLIKWRGWPE-TANTWEELENIQSADVIDAFEGSLQSGKSFRKRKRKHGGPH : 162
Pt_LHP1B     : RTKLDEGFVEIEAIRRRRRR-KCQ-QYVLIKWRGWPE-TANTWEELENIQSADVIDAFEGSLRSGRSSRKRKRKHGAPH : 162
Os_LHP1      : PPKLAEGYVEIEAIRRRRRR-KCK-QYVLIKWRGWPE-SANTWEELENIQSADVIDAFEGSLQSPRPGRKRKRKITTP : 175
Zm_LHP1      : PPKLAEGYVEIEAIRRRRRR-KCQ-QYVLIKWRGWPE-SANTWEELENIKASDVIDAFENKRSRSPRSCGKRKRKTPTTP : 134
Sm_LHP1      : GKNLRGFFVEIEAIRRRRRR-KCK-QYVLIKWRGWPE-SVNTWEEFEHQODIVEDFERRKTNGGKRKRGGSNASARK : 169
Pp_LHP1      : EEVLGEGMFEVEAIRRRRRR-KCK-KEFLIKWRGWPE-KDNTWEEFSHUAKRDILEEFASQKARRGKRKFQTYTLDGA : 294
Hs_HP1beta   : -EEEEEEVVERVLDKRVV-KCK-VEYLLKWKGESE-EDNTWEEENID-EPDLIAEFLQSOK----- : 72
Hs_HP1gamma  : -EAPEEEVVERVLDKRVV-NCK-VEYFLKWKGFTE-ADNTWEEENID-EPDLIAEFLNSOK----- : 71
Hs_HP1alpha  : -SEDEEEVVERVLDKRVV-KCQ-VEYLLKWKGESE-EHNTWEEENID-EPDLIAEFLNSOK----- : 71
Dm_HP1b      : -----MAEFSVERVEDRTV-NCK-TEYLLKWKGYER-SENTWEEENID-EPDLIAEFLNSOK----- : 55
Dm_HP1a      : DAEDEEEVVERVLDKRVV-KCK-VEYLLKWKGYER-SENTWEEENID-EPDLIAEFLNSOK----- : 91
Ce_HP1-1     : FQESSNVVVERVLDKRTT-RGG-SEYITKWKGESE-SECSWEEENIQ-SDRMIOEYEKEAA----- : 88
Ce_HP1-2     : IEDPKDNVVERVLDKRTG-KAGRDEFLIKWKGESE-SDSSWEEENIQ-SDRMIOEYEKEAA----- : 71
Sp_SWI6      : -EEEEDEVEVVERVLDKRVV-KCK-VEYLLKWKGESE-EDNTWEEENID-EPDLIAEFLNSOK----- : 136
    
```

**B**



A circular cladogram.

Note:

Plant spp. (green)

Animals (red) & yeast (yellow).