

# Gene copy number promotes the rapid evolution of pests across Diptera

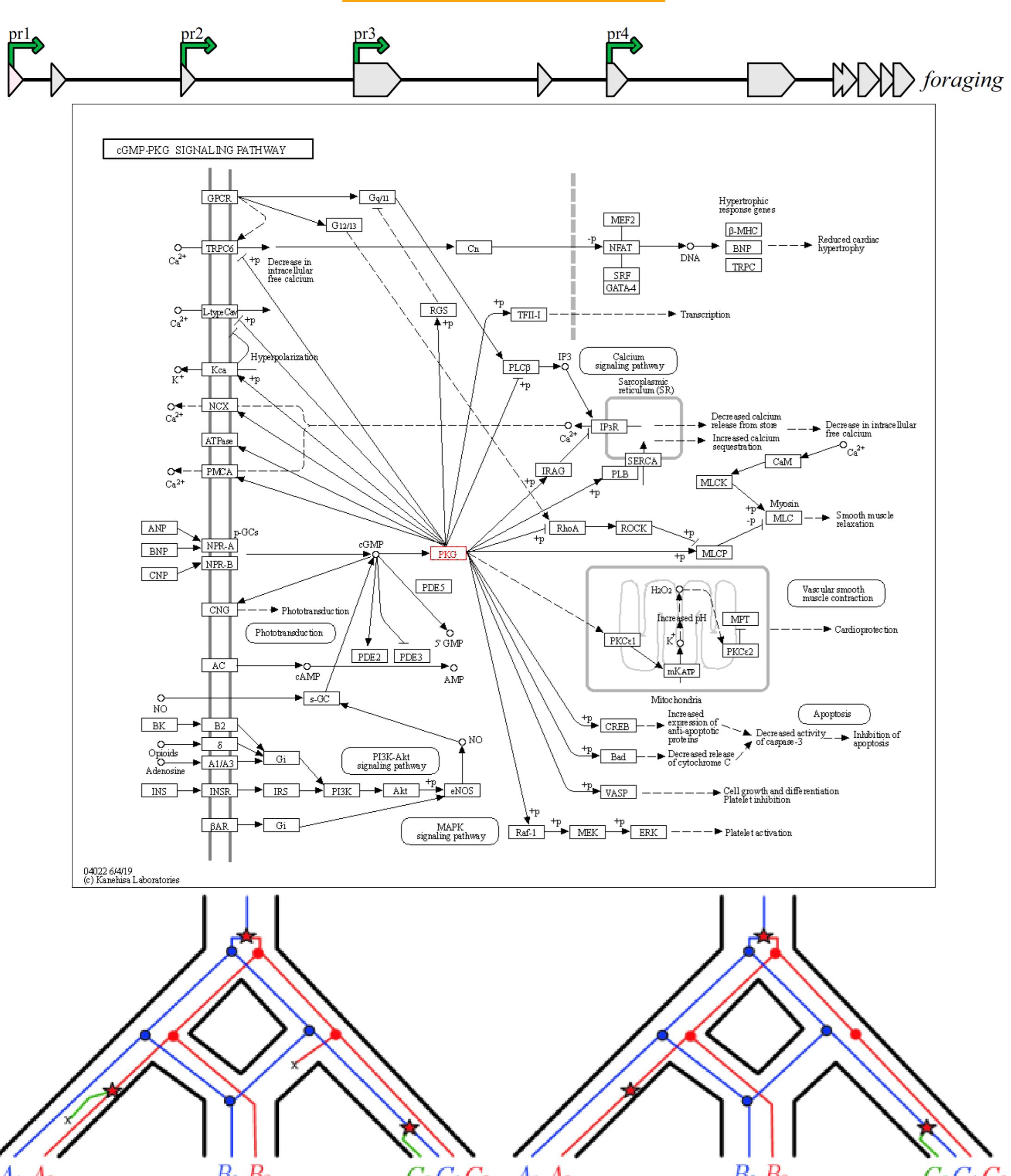
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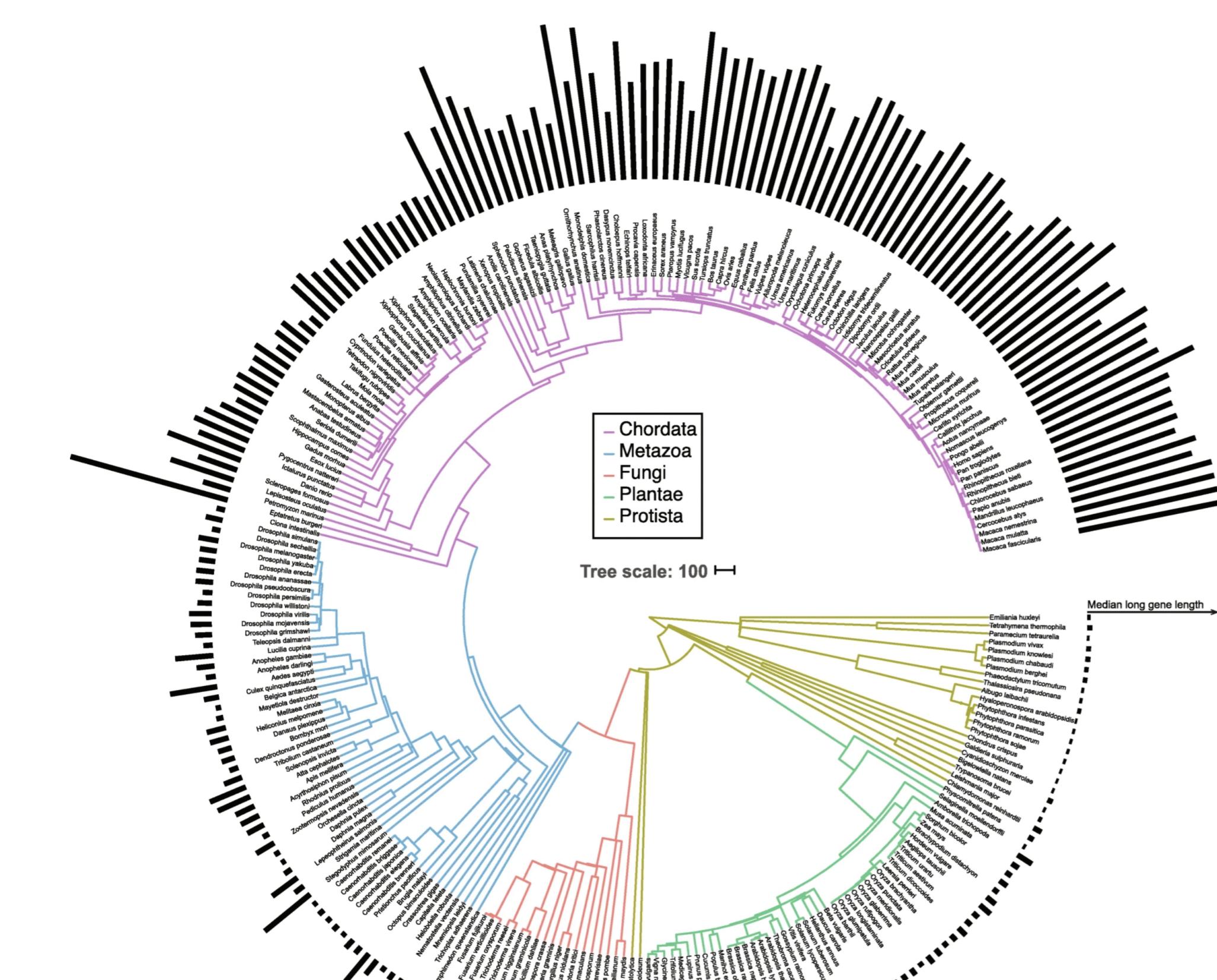
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## 1. Background



GCN provides genomic material for diversification and gene expansions or losses



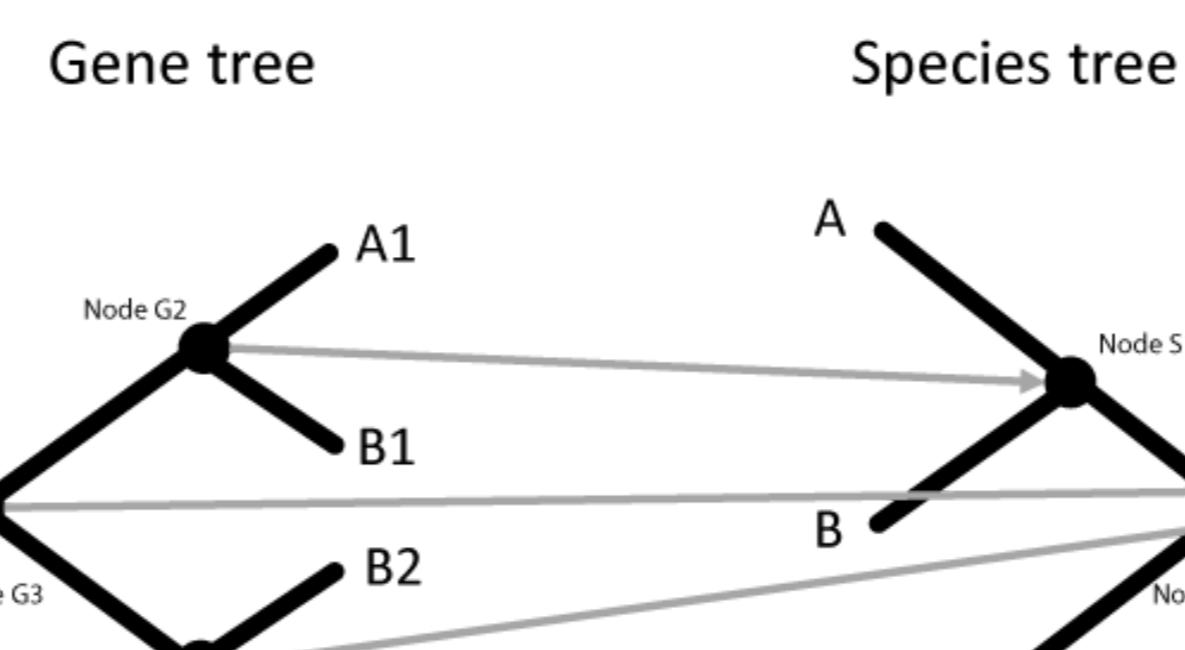
Differential gene size expansion during animal evolution

## 2. Materials and Methods

### OrthoDB

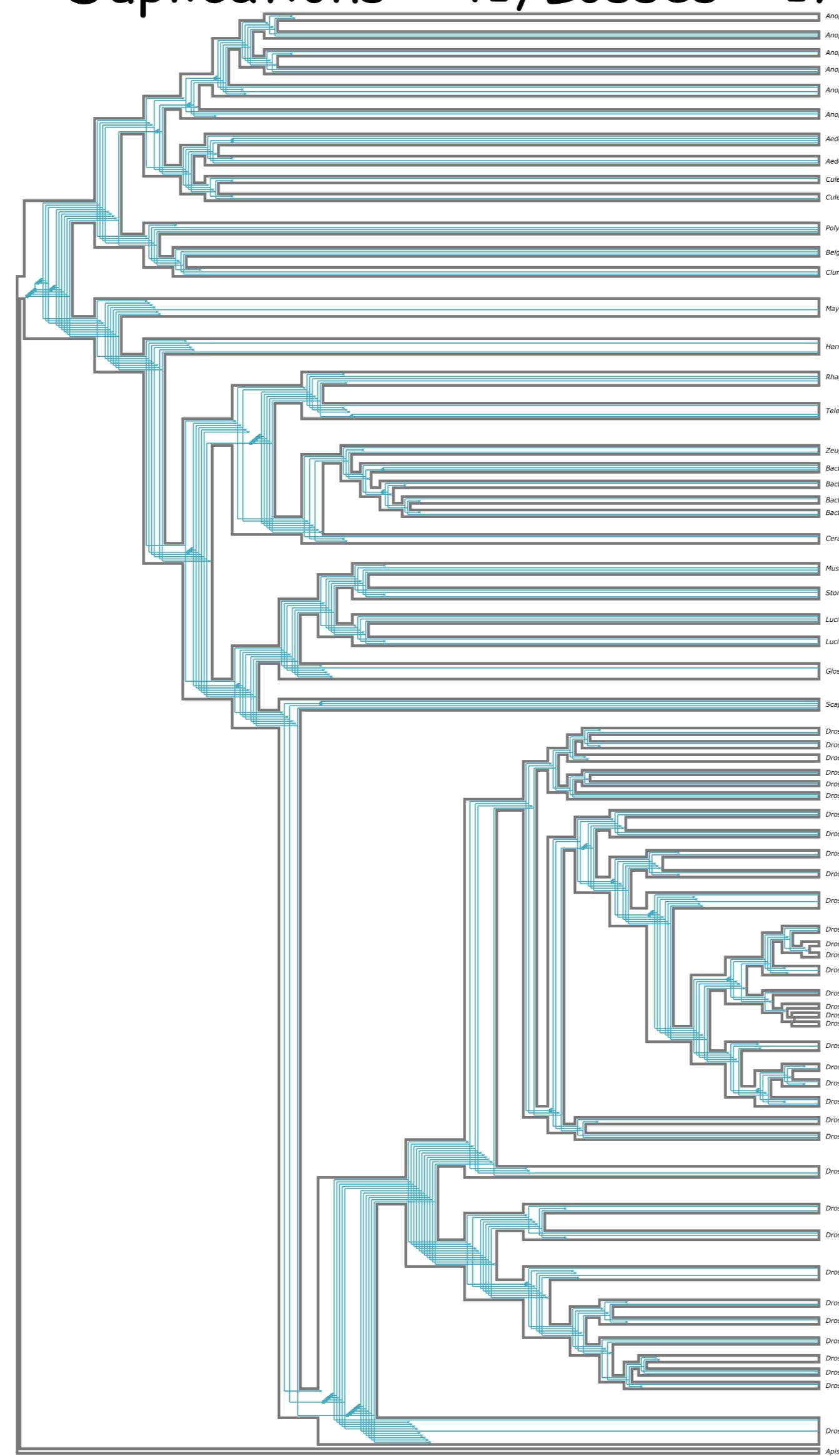
RAXML version 8.0.0

**TreeTecs** A tree reconciliation tool

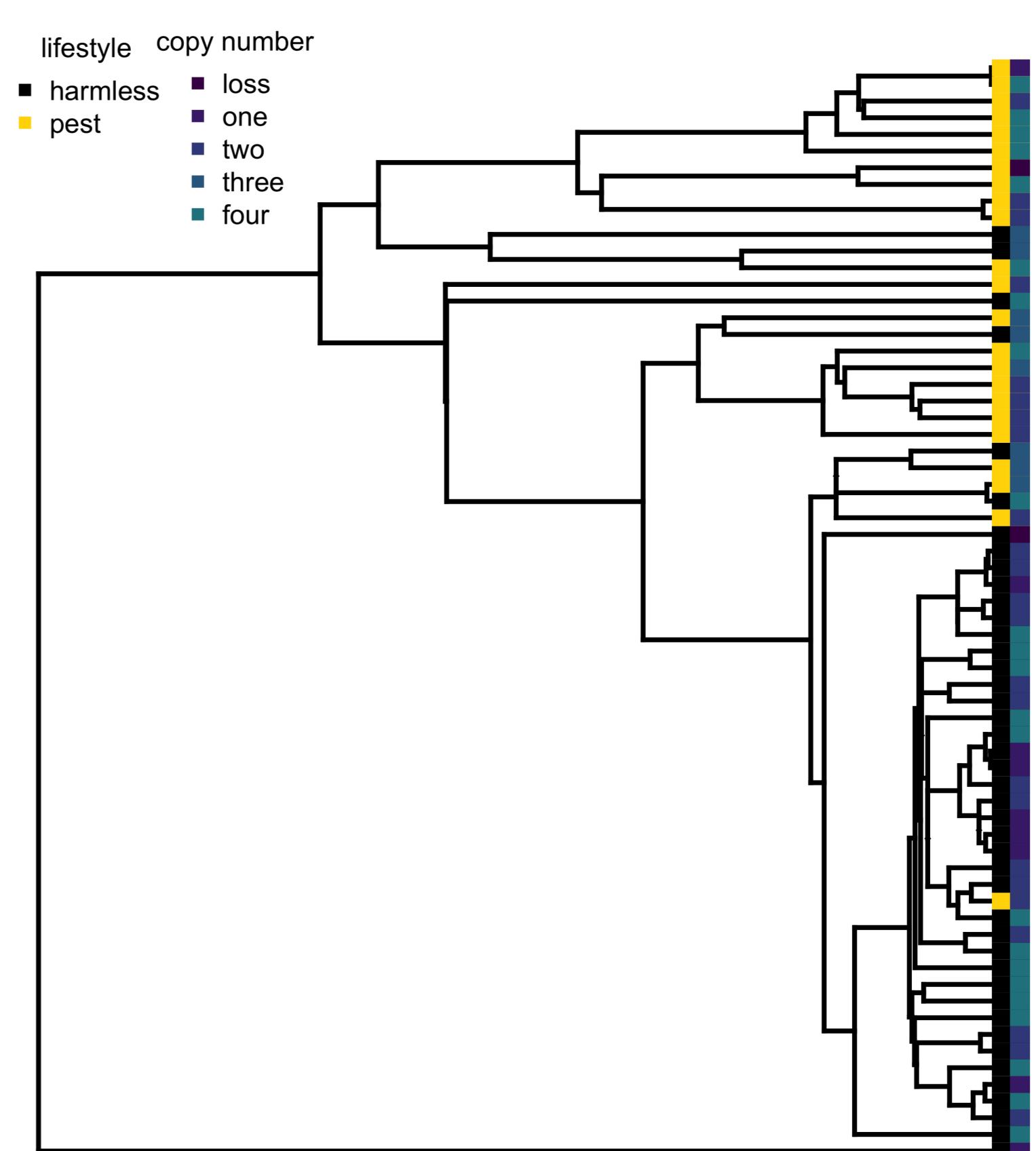


## 3. Results

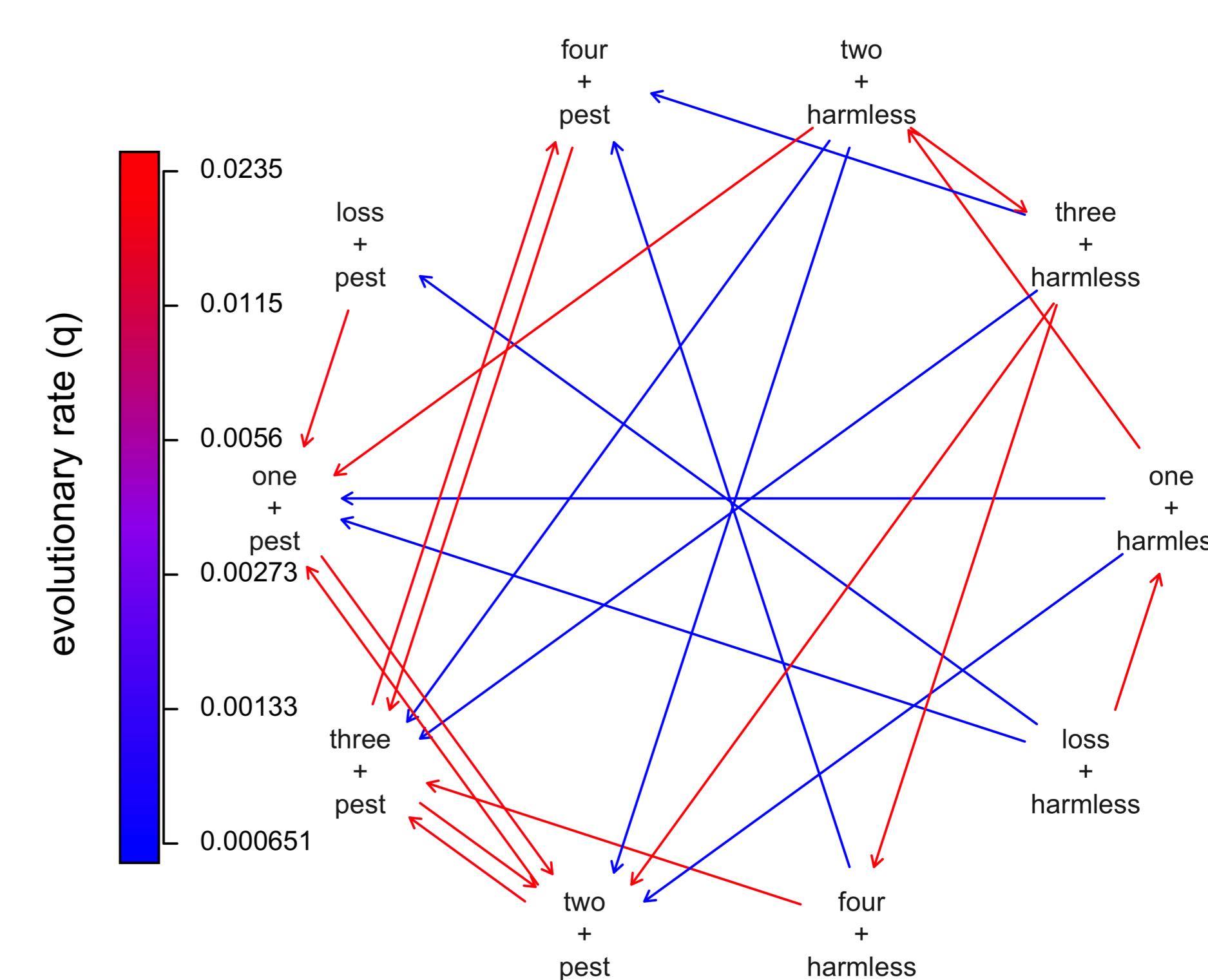
Duplications = 41, Losses = 173



How do lifestyle and gene copy number correlate?



To address our research question, we fitted a custom Pagel94 model



We found that the gene copy number tends to increase in species known as pests

Let's compare our model with the null expectation:

```
lr.test<-function(lik1,lik2){
  LR<-2*(lik2-lik1)
  as.numeric(
    pchisq(LR,df=attr(lik2,"df")-attr(lik1,"df"),
    lower.tail=FALSE))
}

p <- lr.test(logL.null, logLik(fit_xy))
```

$p = 0.044$

A custom Pagel94 model described the evolution between lifestyle and gene copy number better than the null model

