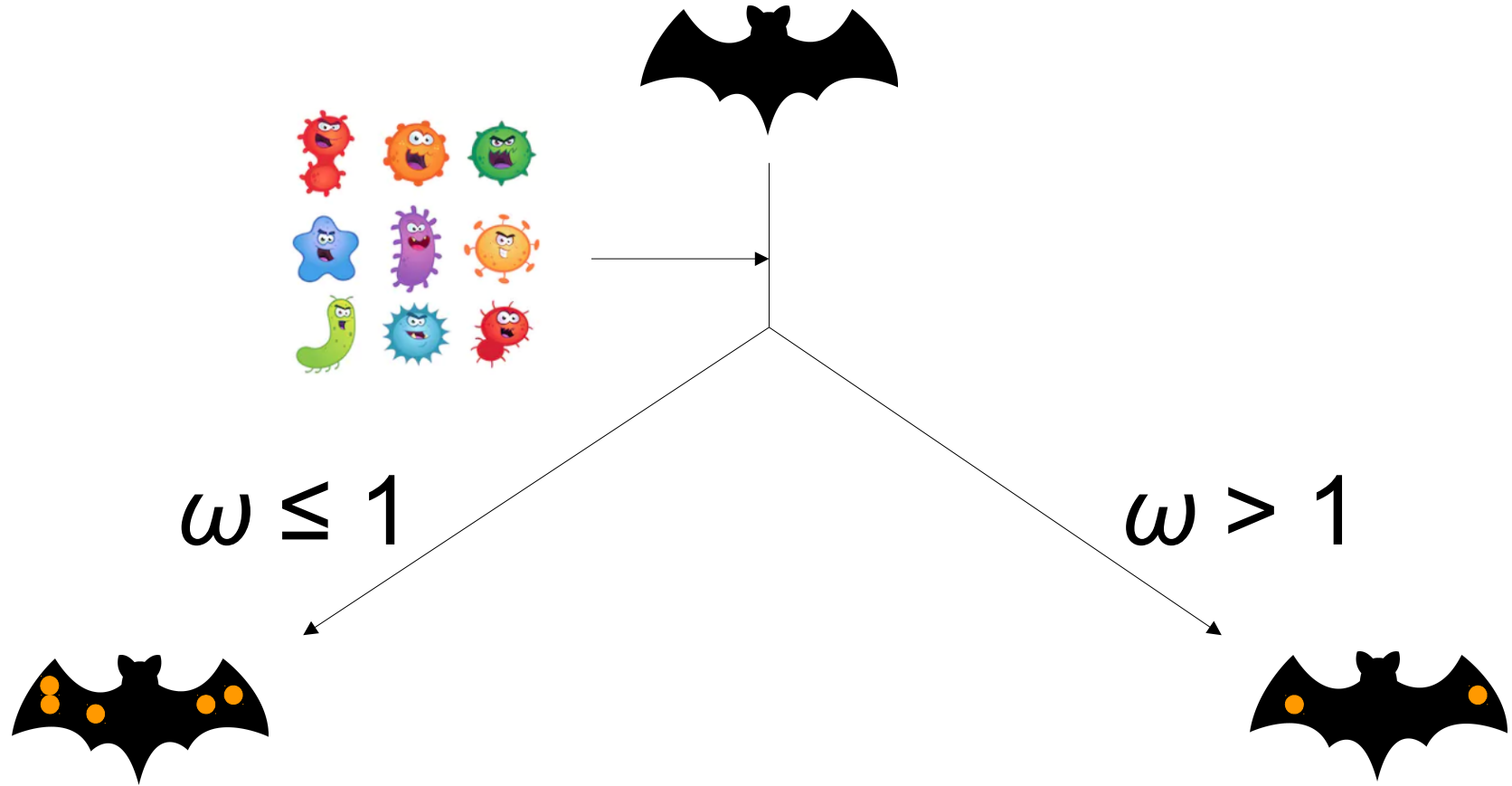


# Detecting natural selection signal in bat DNA sequences after exposure to white-nose syndrome

Markéta Harazim and Natália Martínková



Positive selection -  $\omega = d_N/d_S > 1$

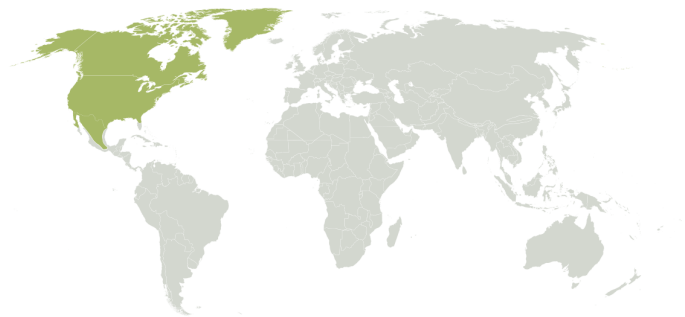
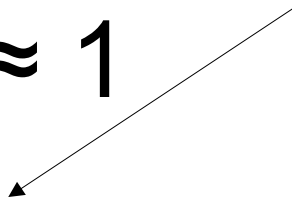




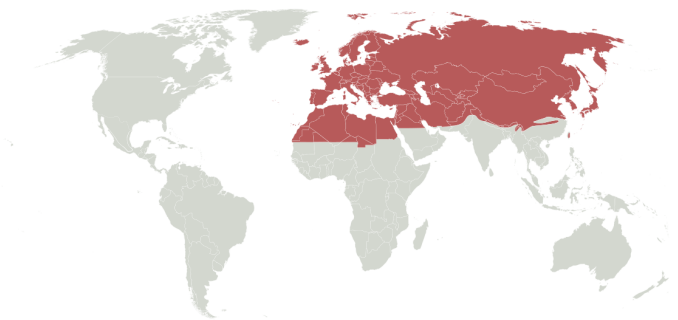
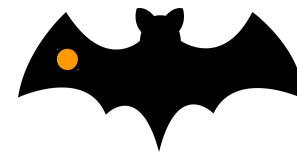
- $\omega = d_N/d_S$

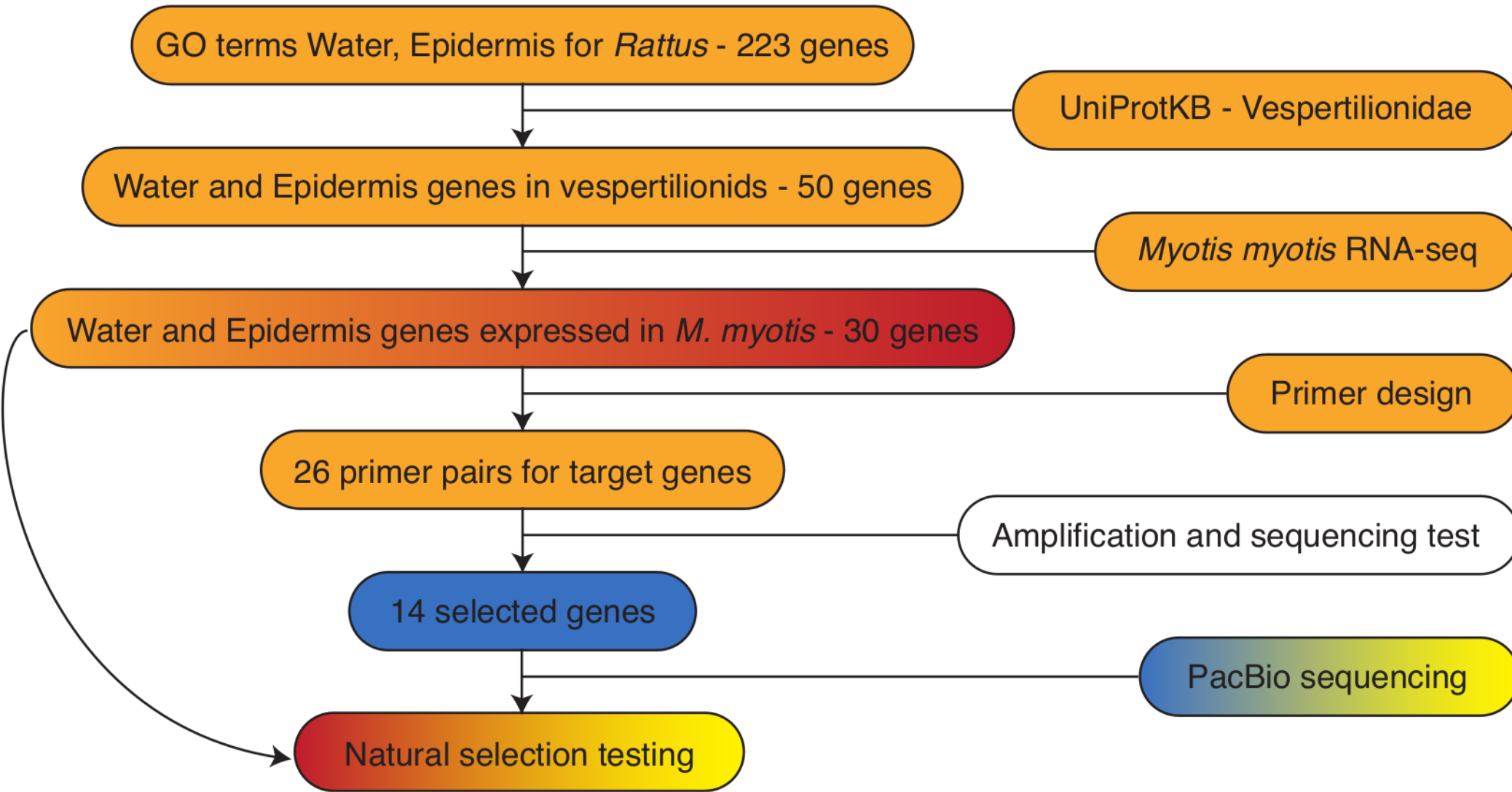


$\omega \approx 1$



$\omega > 1$



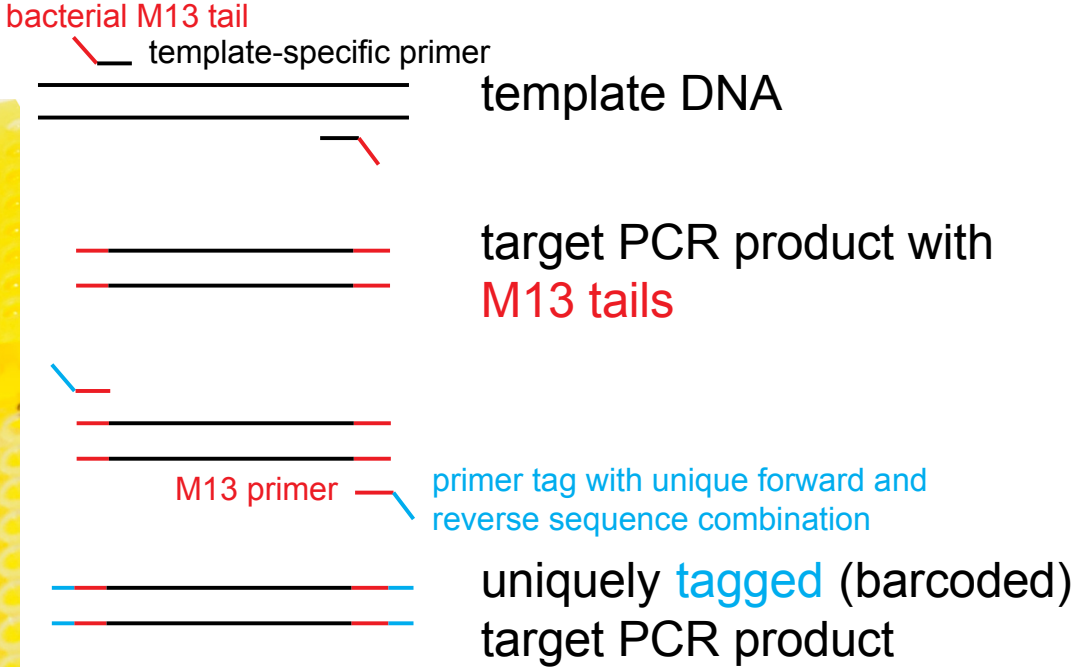


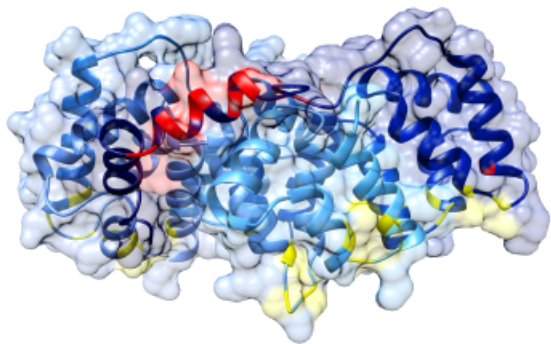


# PacBio sequencing

Nested  
PCRs :  
PCR1  
yellow

PCR2  
clear

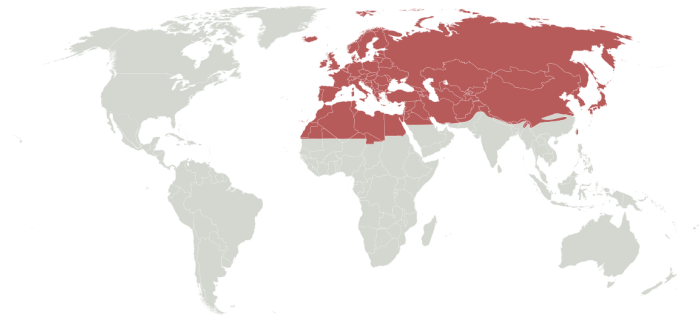
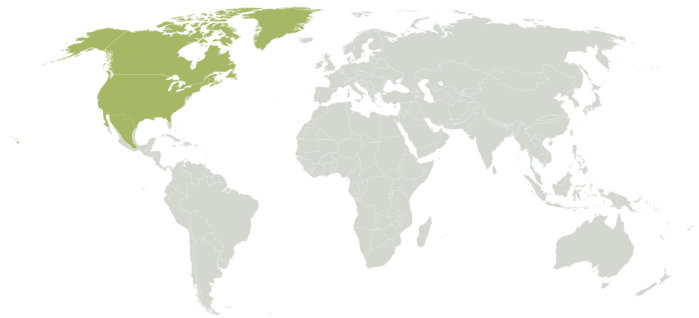




Site models



Branch-site models



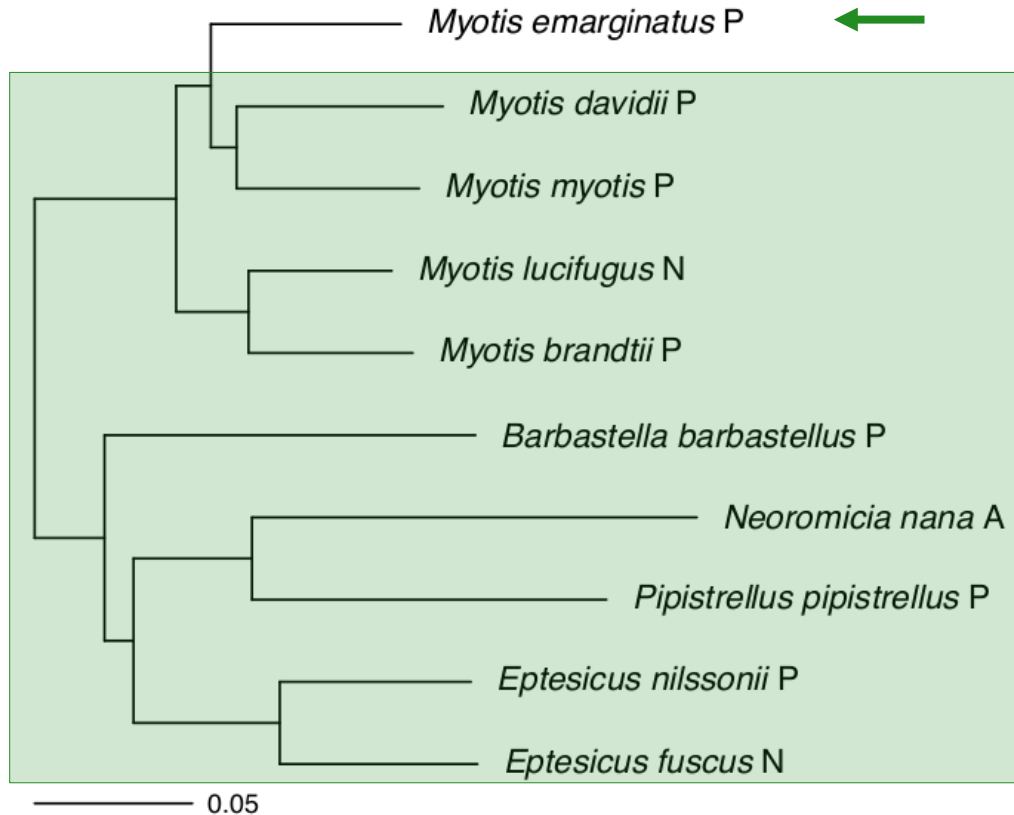
Clade model





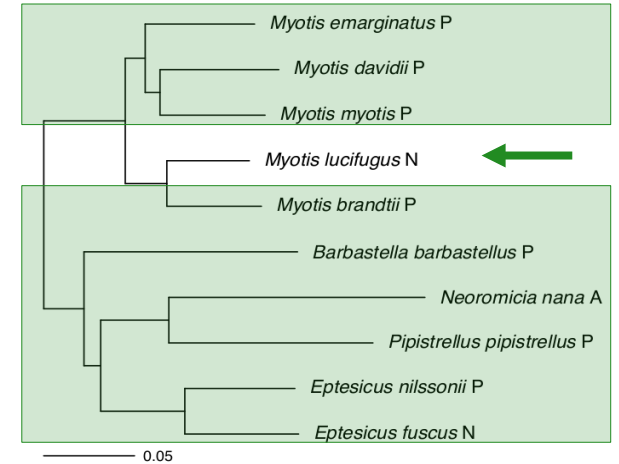
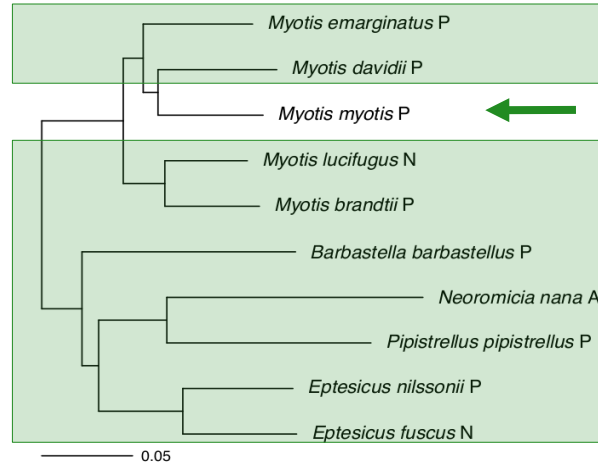
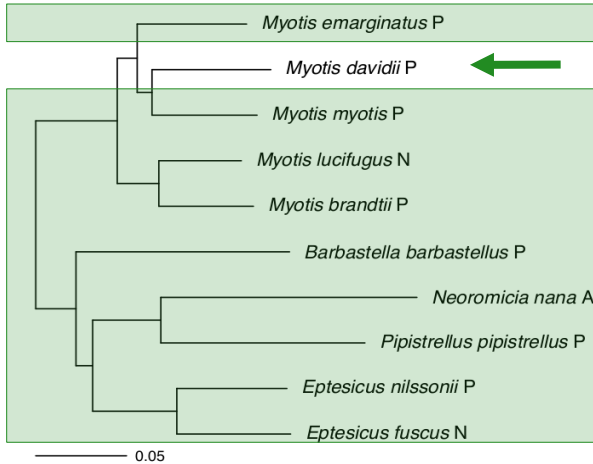


# Branch-site test of positive selection

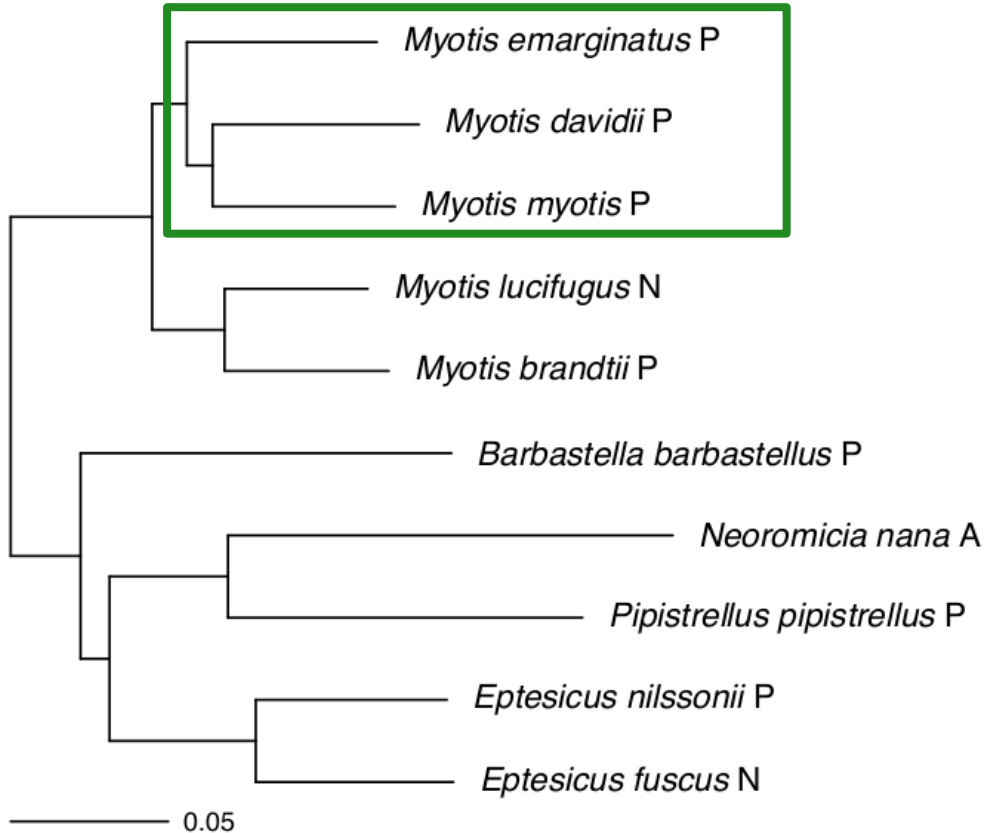


A1 model ( $\omega = 1$ ) - branch site model A ( $\omega > 1$ )

# Branch-site test of positive selection



# Clade model of positive selection

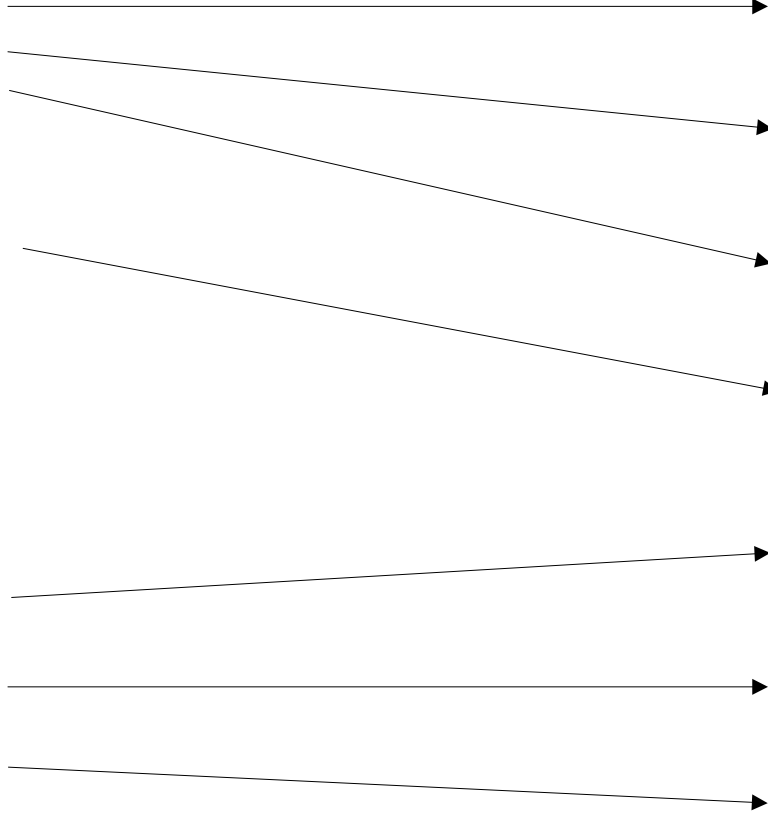


M2a\_rel ( $\omega = 1$ ) - Clade model C

( $\omega > 1$ )

# Genes under positive selection

- *acad10*
- *acp5*
- *anxa1*
- *aqp3*
- *aqp4*
- *aqp7*
- *aqp9*
- *bcam*
- *ctnnb1*
- *fads1*
- *fgf10*
- *guca2b*
- *has2*
- *hyal2*
- *hyal3*
- *krt8*
- *lrp4*
- *psen2*
- *ptch2*
- *pxn*
- *sncg*
- *tgm1*
- *tnfsf13*



*acp5*

*anxa1*

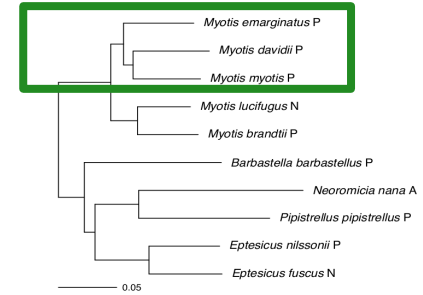
*aqp3*

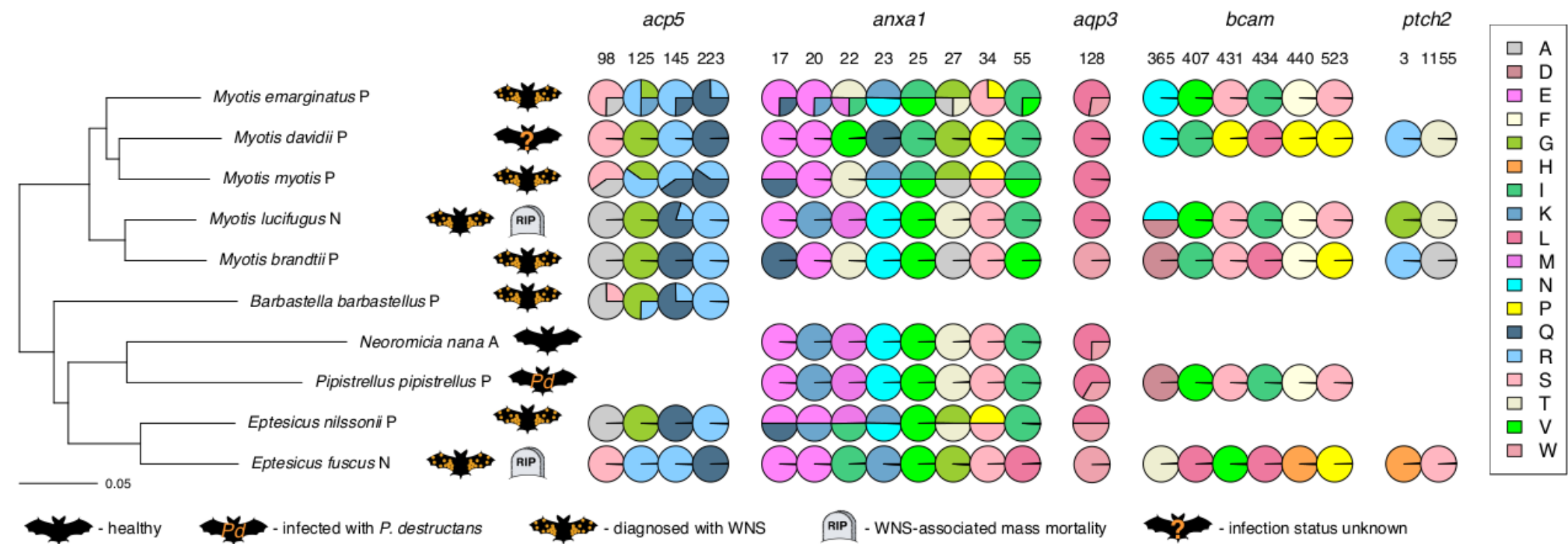
*bcam*

*lrp4*

*ptch2*

*sncg*

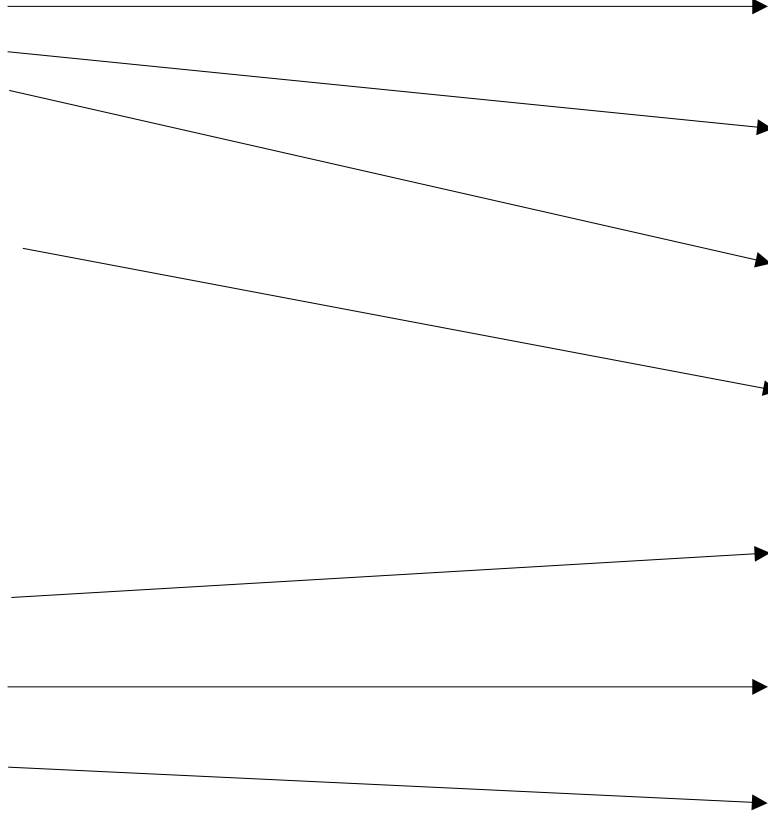






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- *lrp4*
- *psen2*
- *ptch2*
- *pxn*
- *sncg*
- *tgm1*
- *tnfsf13*



*acp5*

*anxa1*

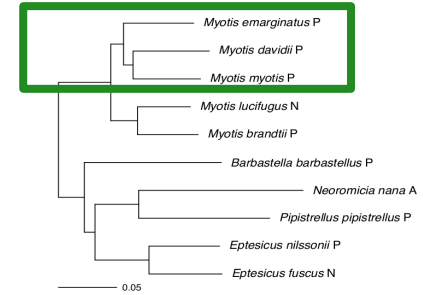
*aqp3*

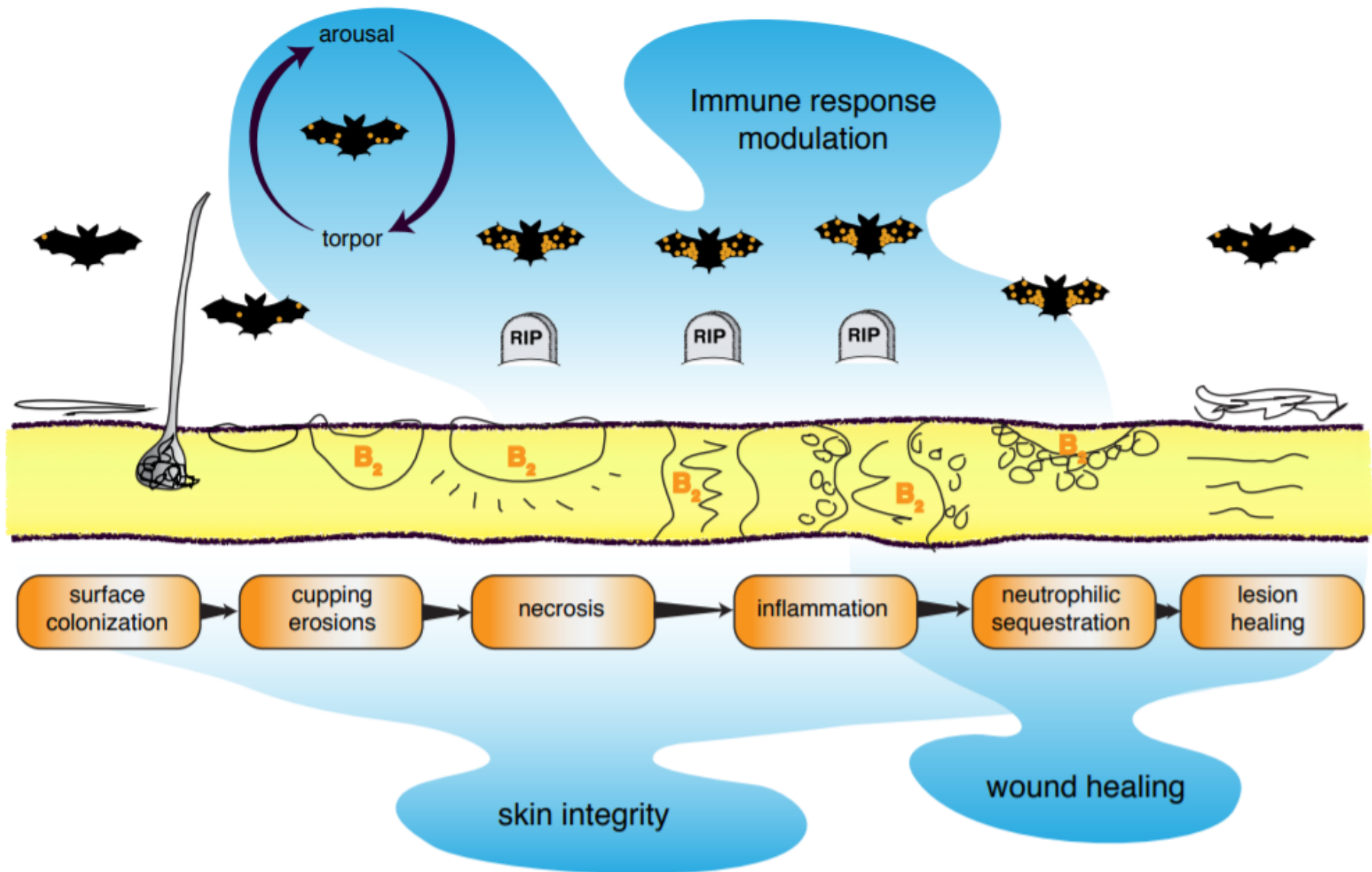
*bcam*

*lrp4*

*ptch2*

*sncg*





# Acknowledgement

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Thank you for your attention