

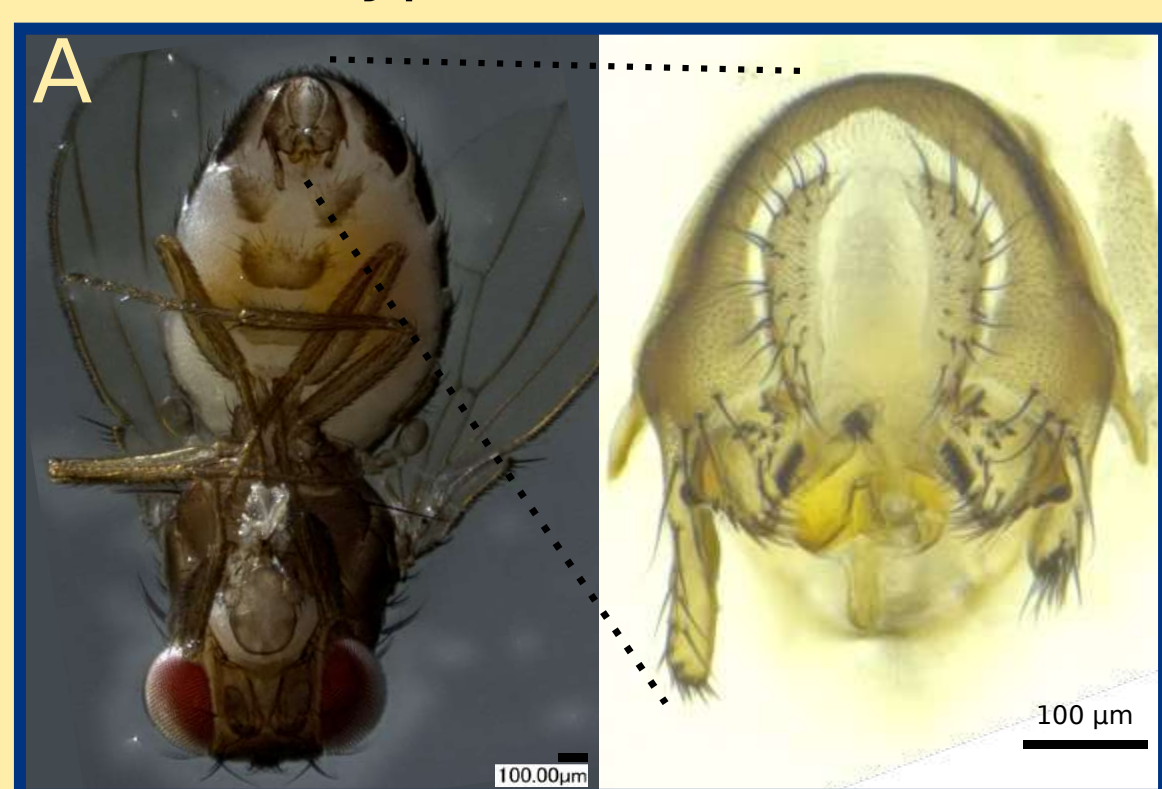
# *Drosophila pachea* as a model to unravel the development of left-right asymmetry

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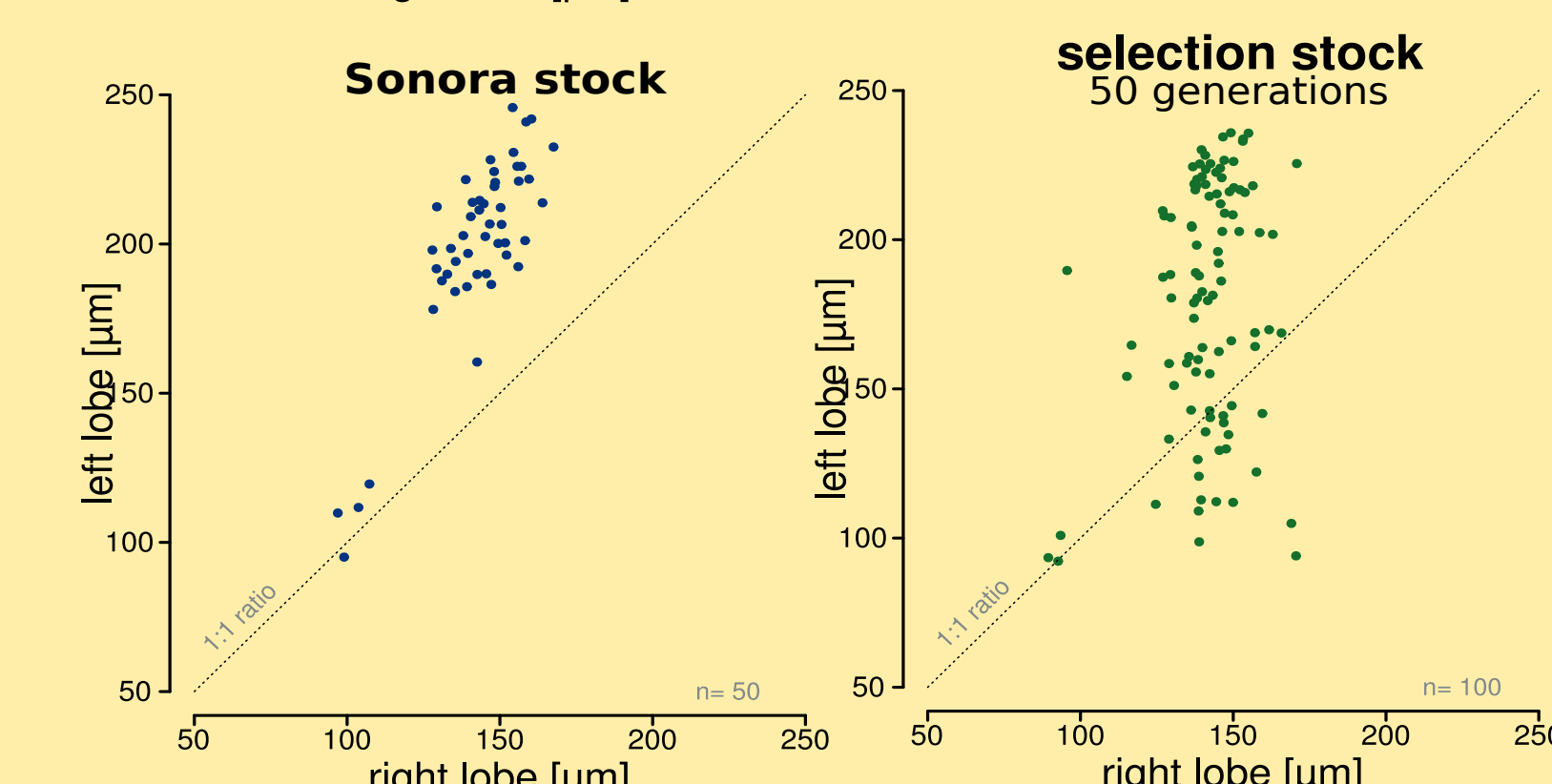
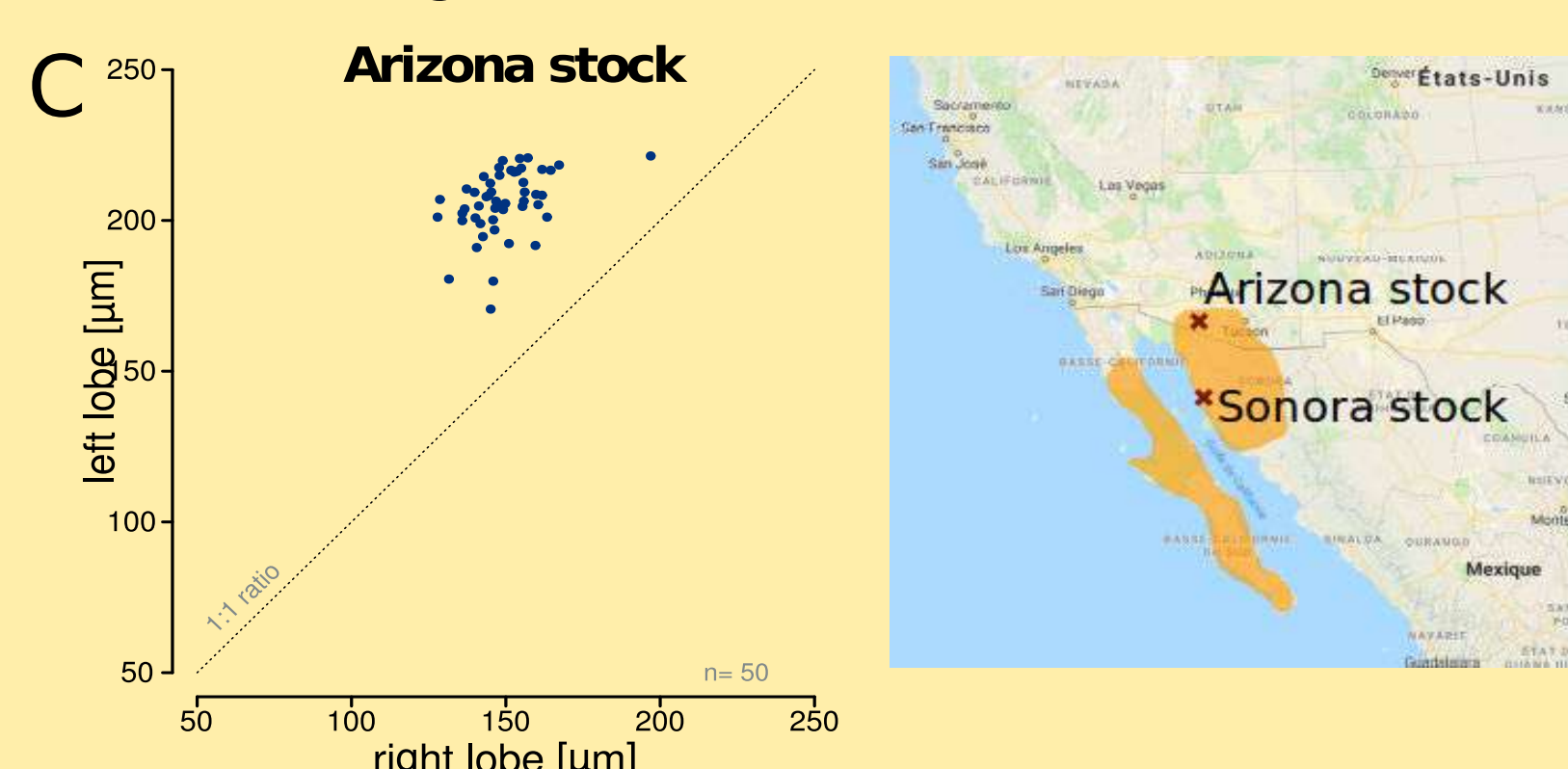
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## 1) Asymmetric male genitalia in *Drosophila pachea*

wild-type (Arizona stock)

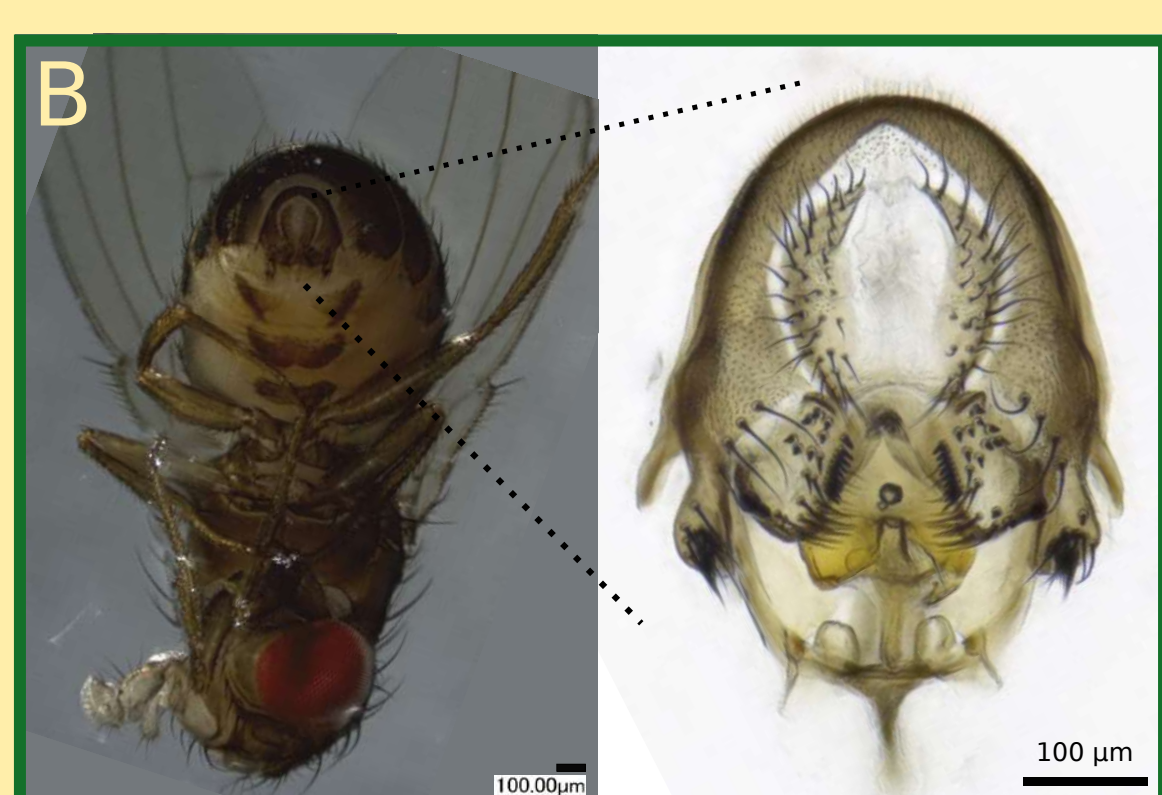


Lobe length of males from different stocks

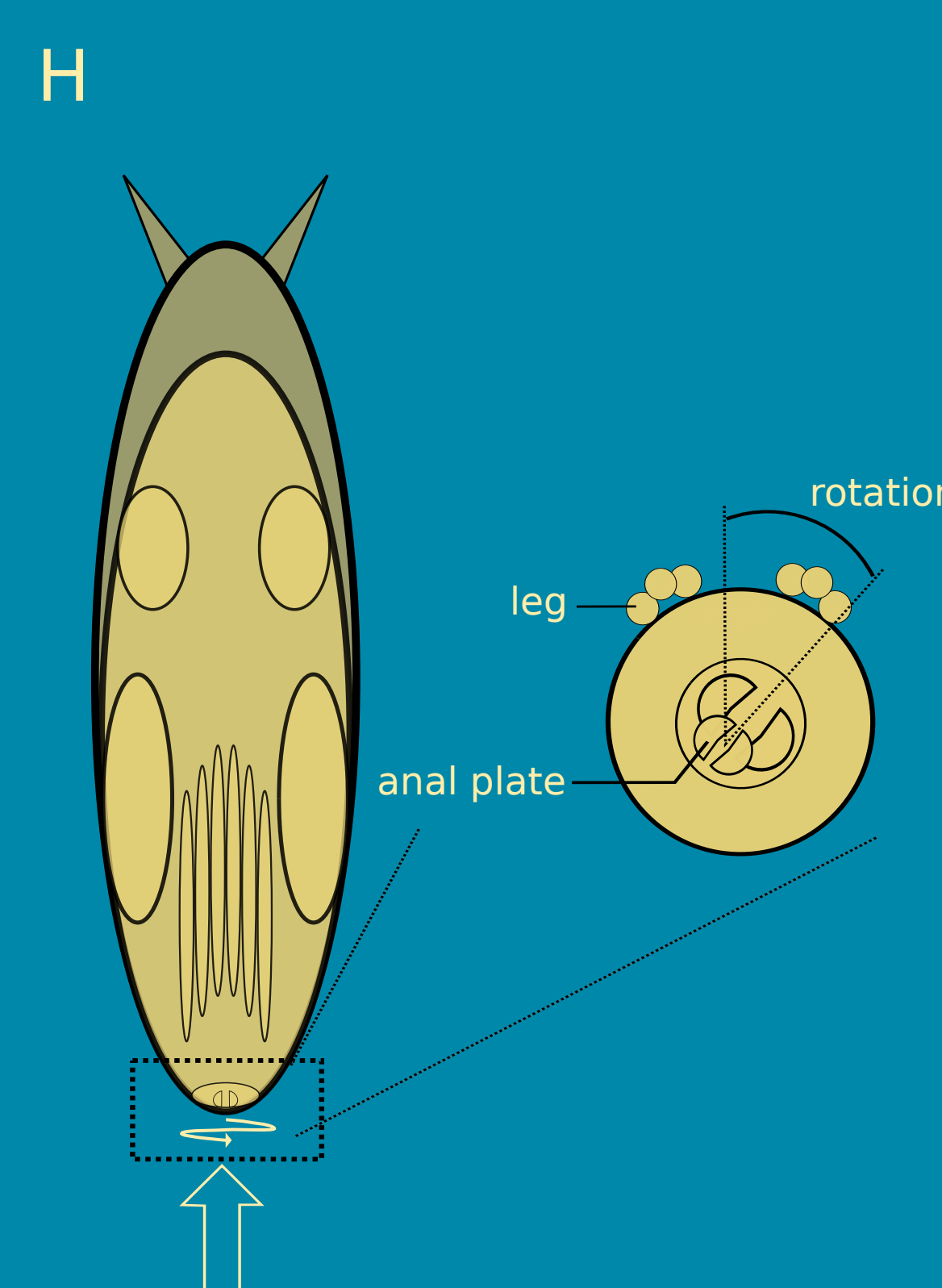
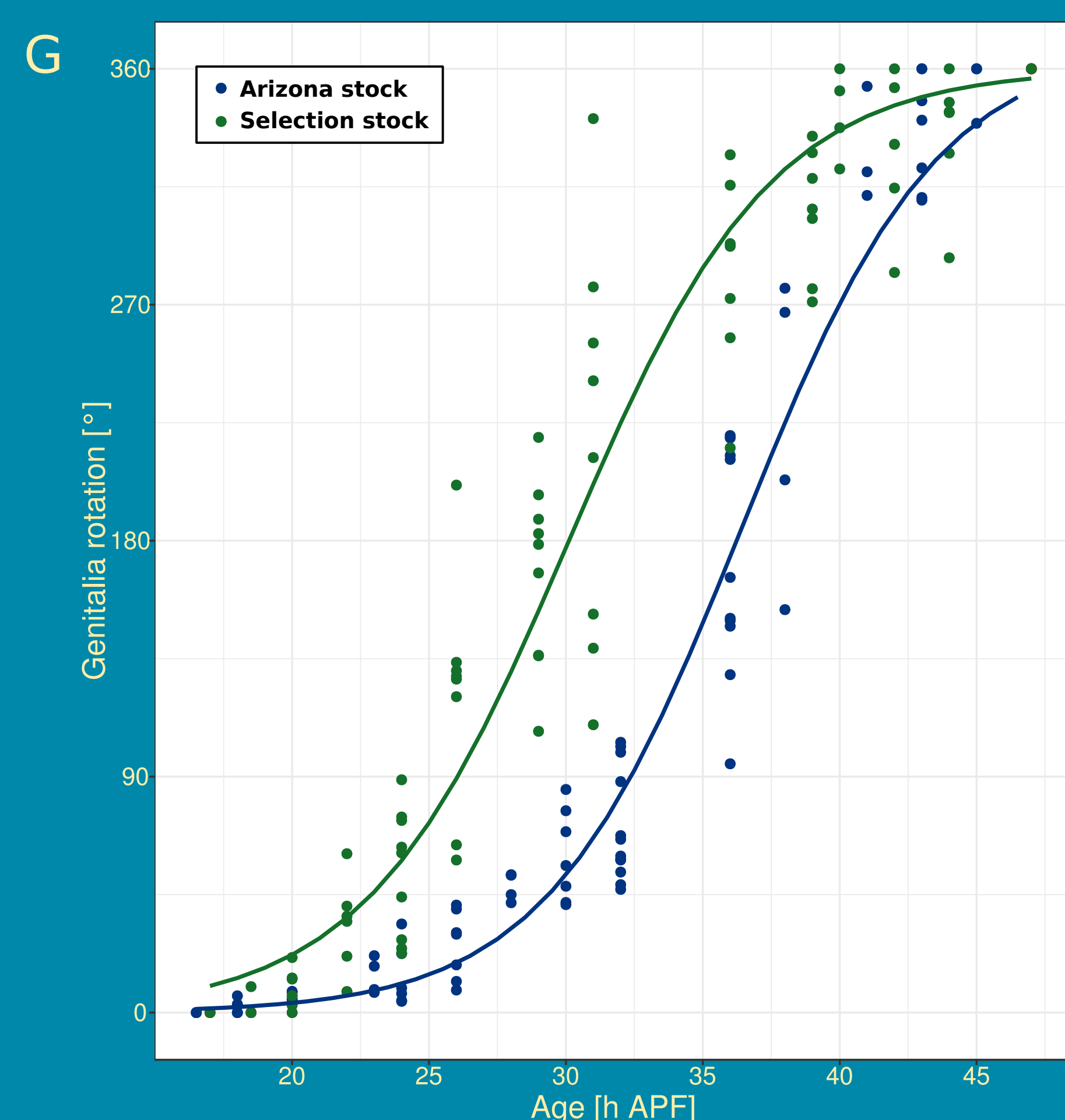


How is lobe asymmetry established during development and evolution ?

A mutation that affects left lobe length

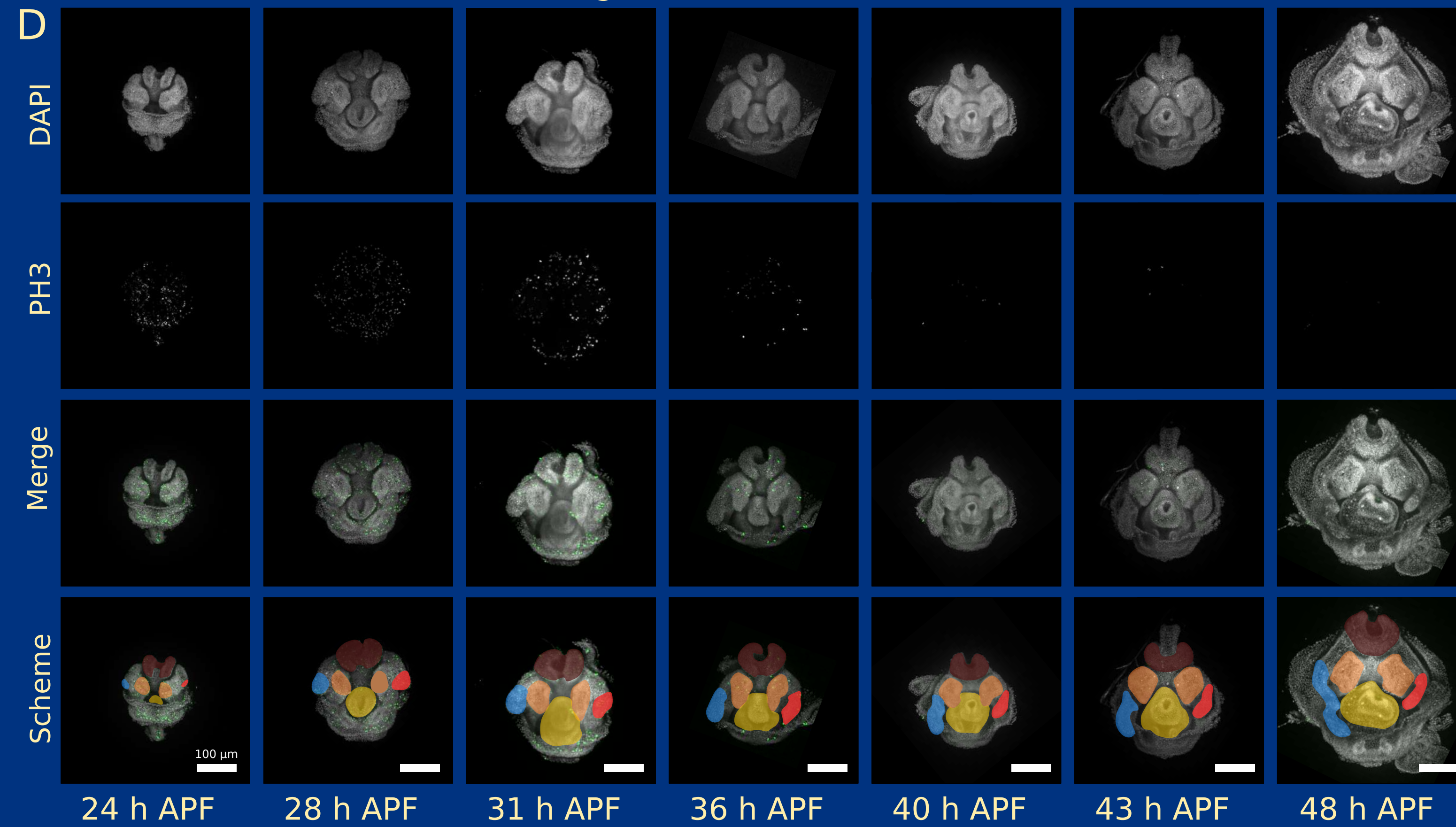


## 3) The mutation affects male genitalia rotation

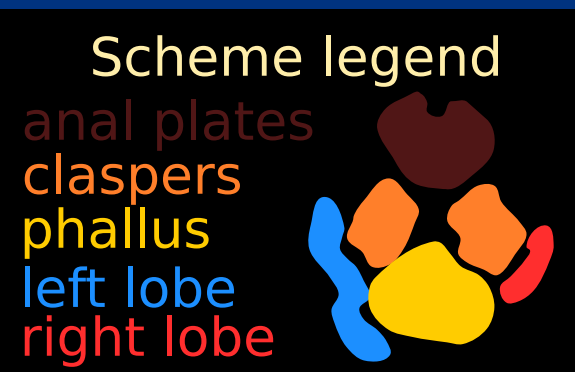


## 2) Asymmetric lobe growth during pupal development

Lobes grow from 24 to 36 h APF

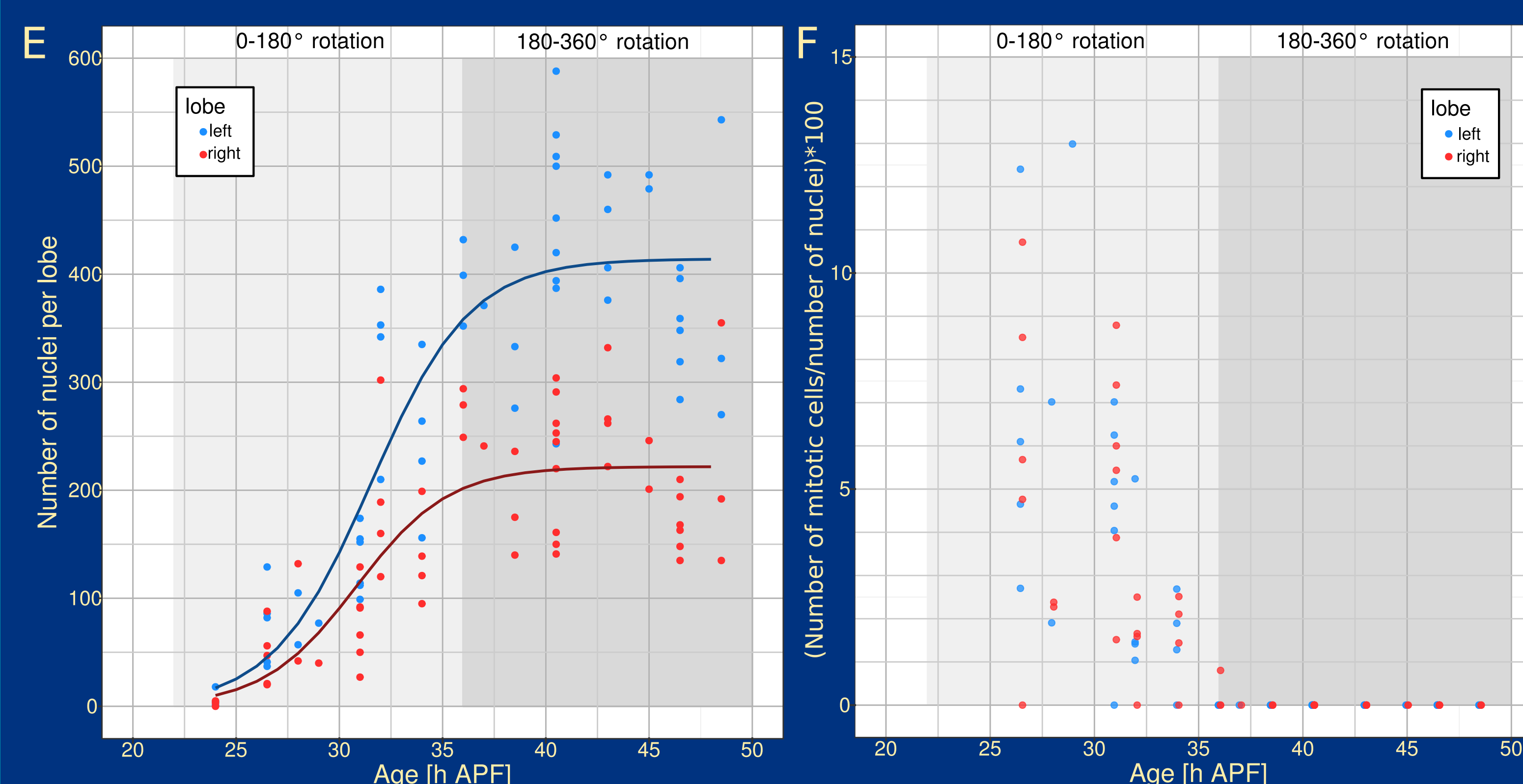


fixed genitalia, immuno-fluorescent staining



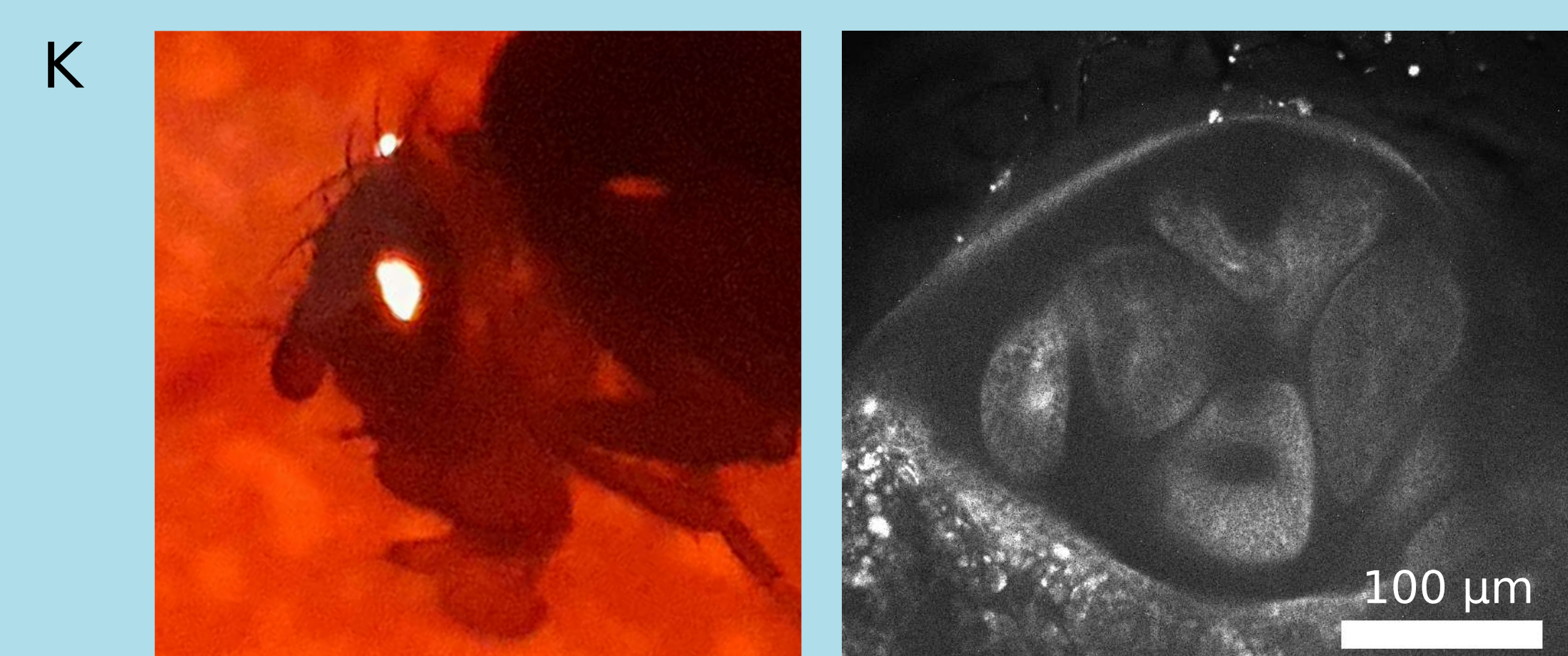
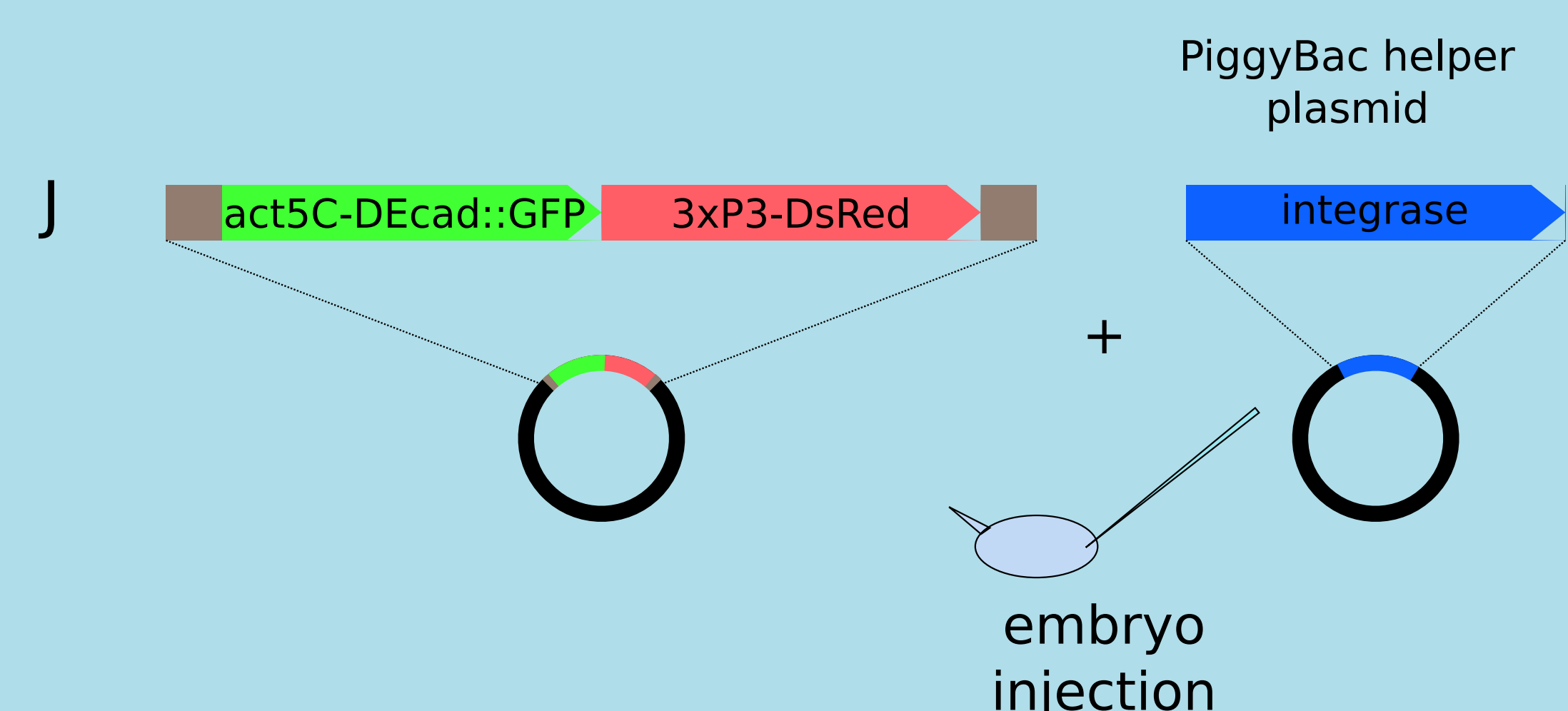
The left lobe has about twice as many nuclei as the right lobe

Similar rates of cell division



APF = After Puparium Formation

## 4) Development of *in vivo* cell labeling using a membrane marker



DsRed in eyes

GFP in male genitalia

## 5) Conclusions & perspectives

Asymmetric lobes grow between 24 h and 36 h APF, during genitalia rotation

Genitalia rotation might be important for asymmetry establishment

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Live imaging of developing genitalia will allow us to monitor both genitalia rotation and lobe development, and will shed light on dynamic mechanisms underlying asymmetry establishment

## Reference & acknowledgments

Distinct copulation positions in *Drosophila pachea* males with symmetric or asymmetric external genitalia. Michael Lang & Virginie Orgogozo ; Contribution to Zoology, 2012.

This work was supported by the CNRS and by an European Research Council grant given to Virginie Courtier-Orgogozo (Grant Agreement no. 337579). Bénédicte Lefèvre was supported by a pre-doctoral fellowship Sorbonne Paris Cité of the Université de Paris.



@DrosoPachea