

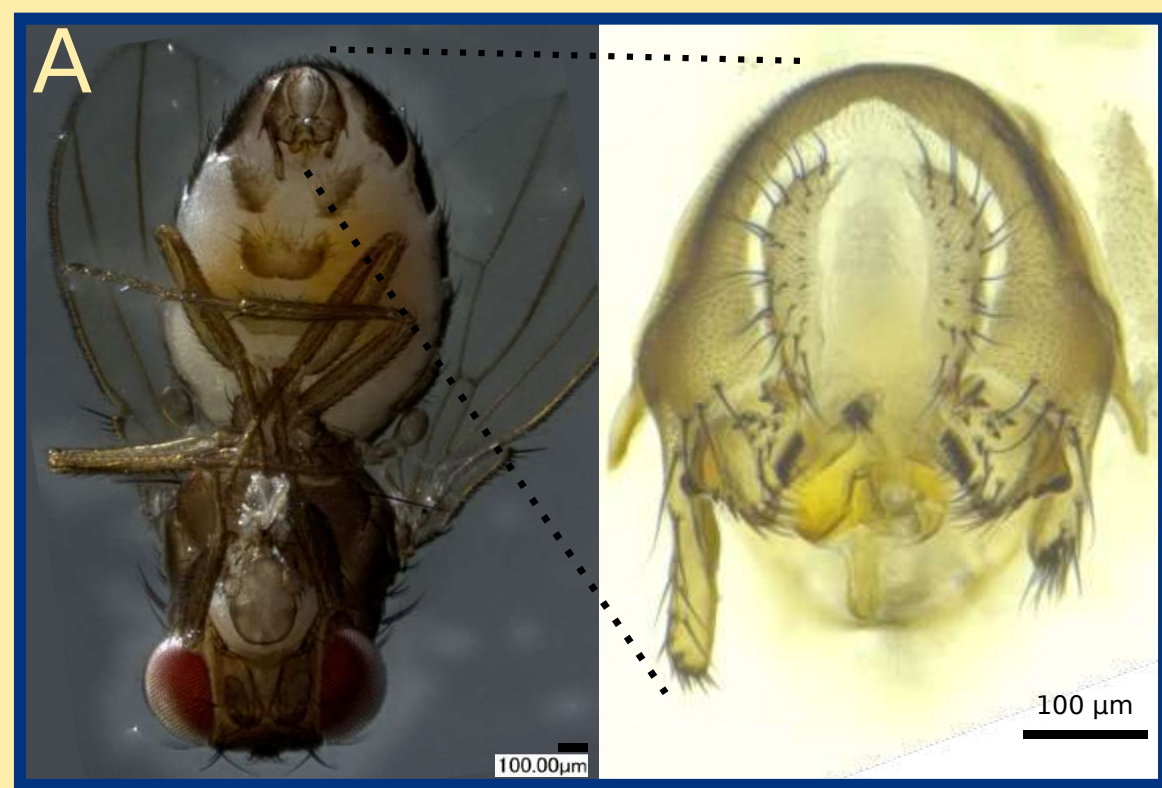
# *Drosophila pachea* as a model to unravel the development of left-right asymmetry

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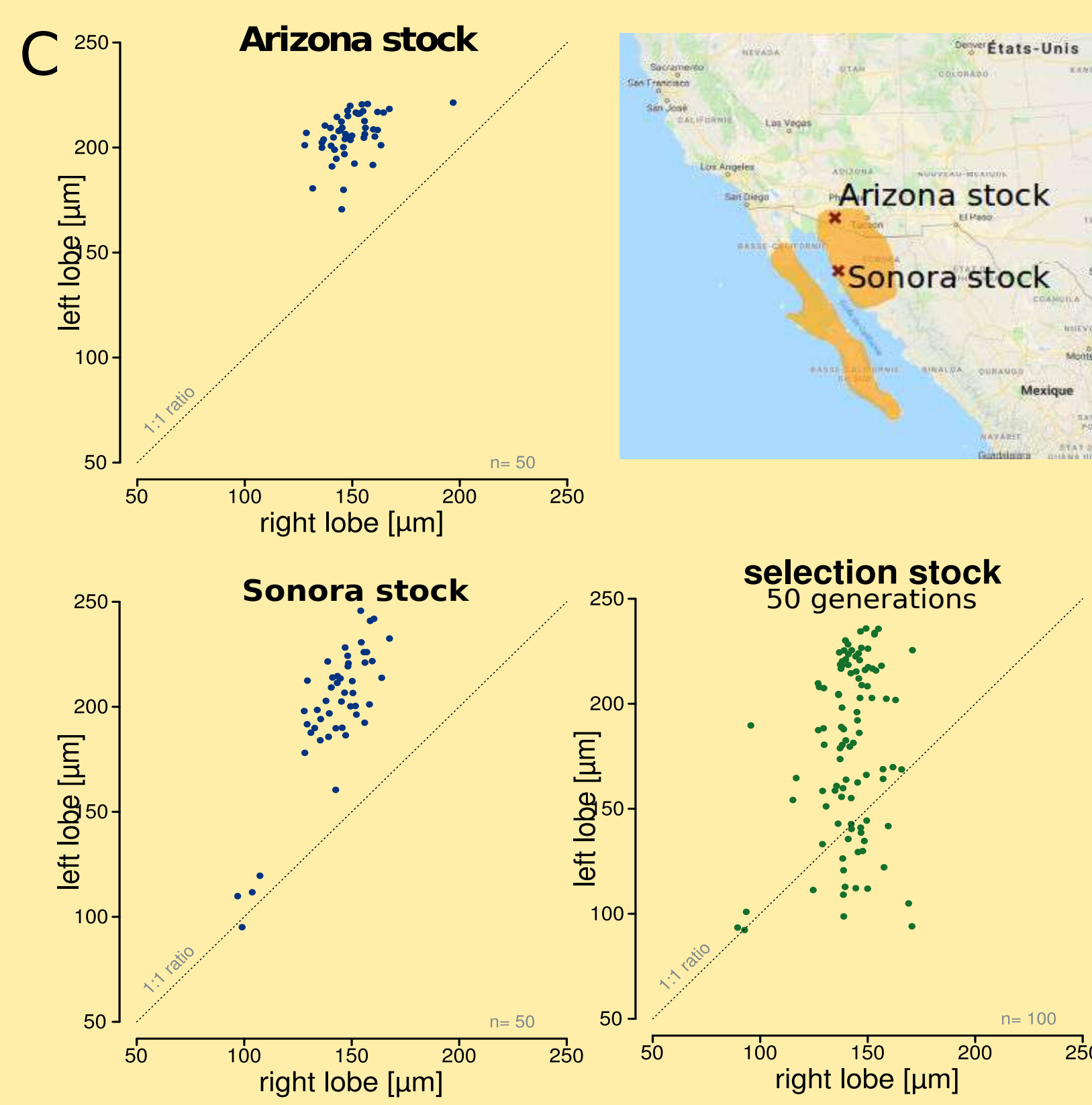
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## 1) Asymmetric male genitalia in *Drosophila pachea*

wild-type (Arizona stock)



Lobe length of males from different stocks

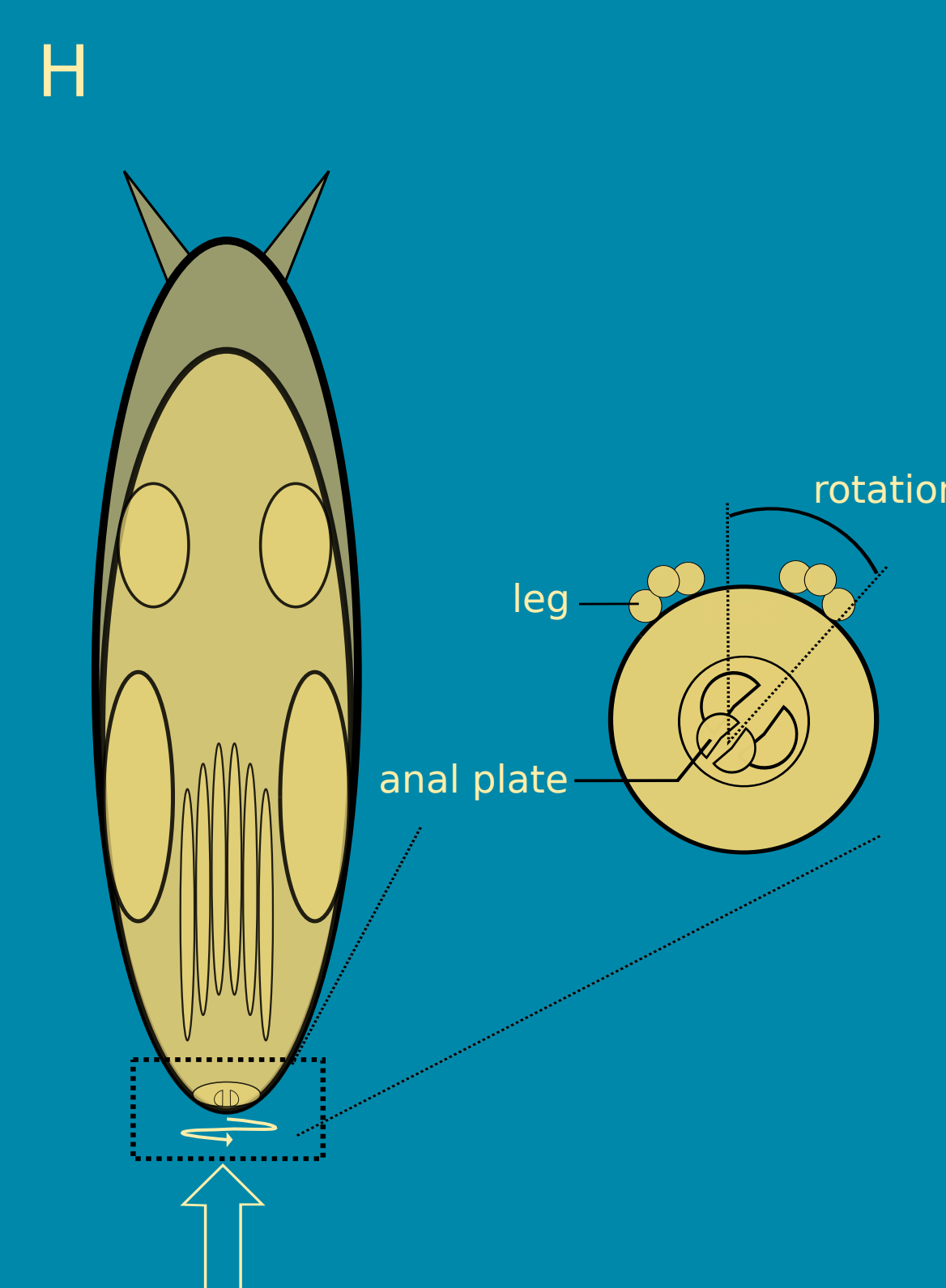
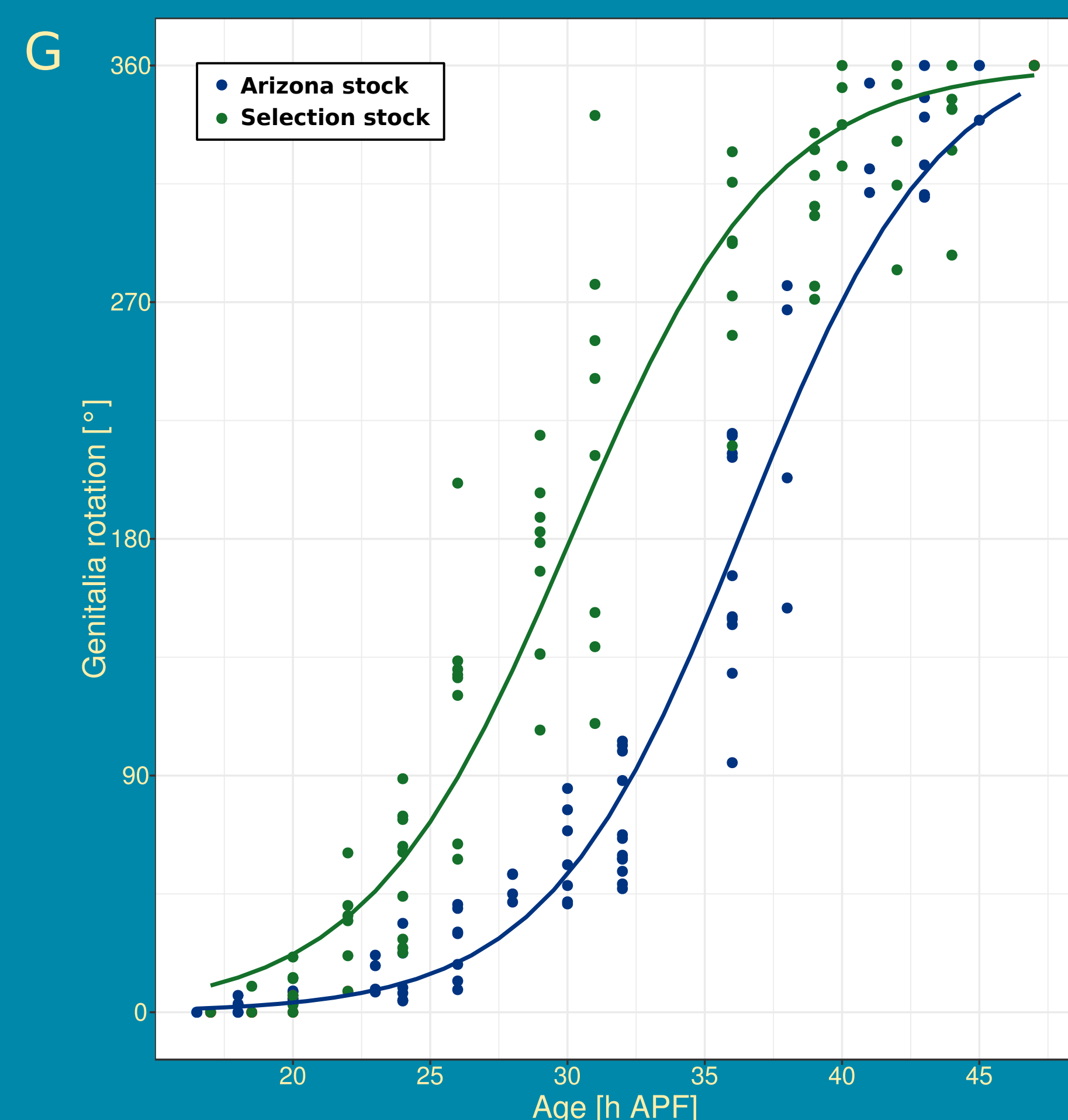


A mutation that affects left lobe length



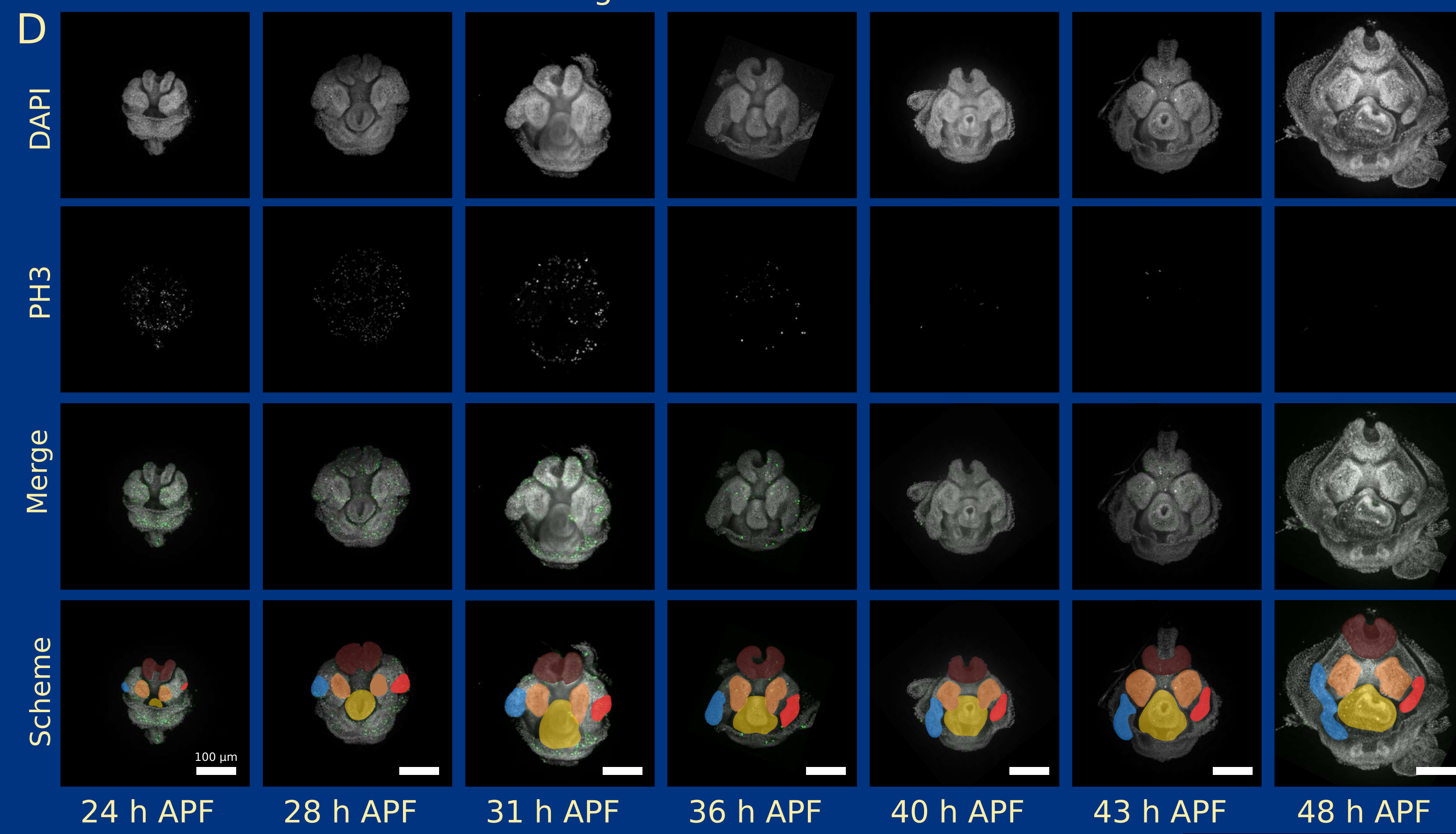
How is lobe asymmetry established during development and evolution ?

## 3) The mutation affects male genitalia rotation



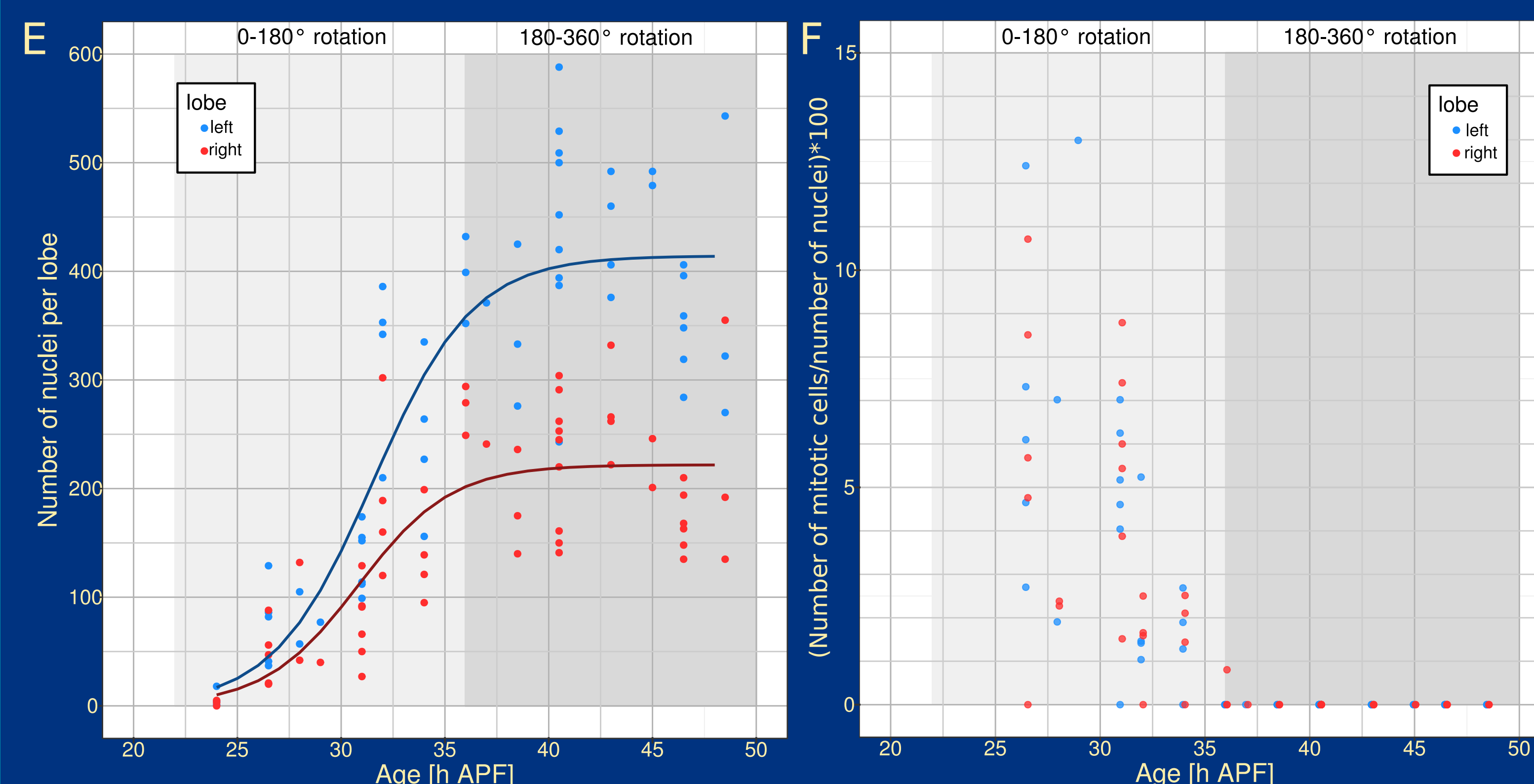
## 2) Asymmetric lobe growth during pupal development

Lobes grow from 24 to 36 h APF



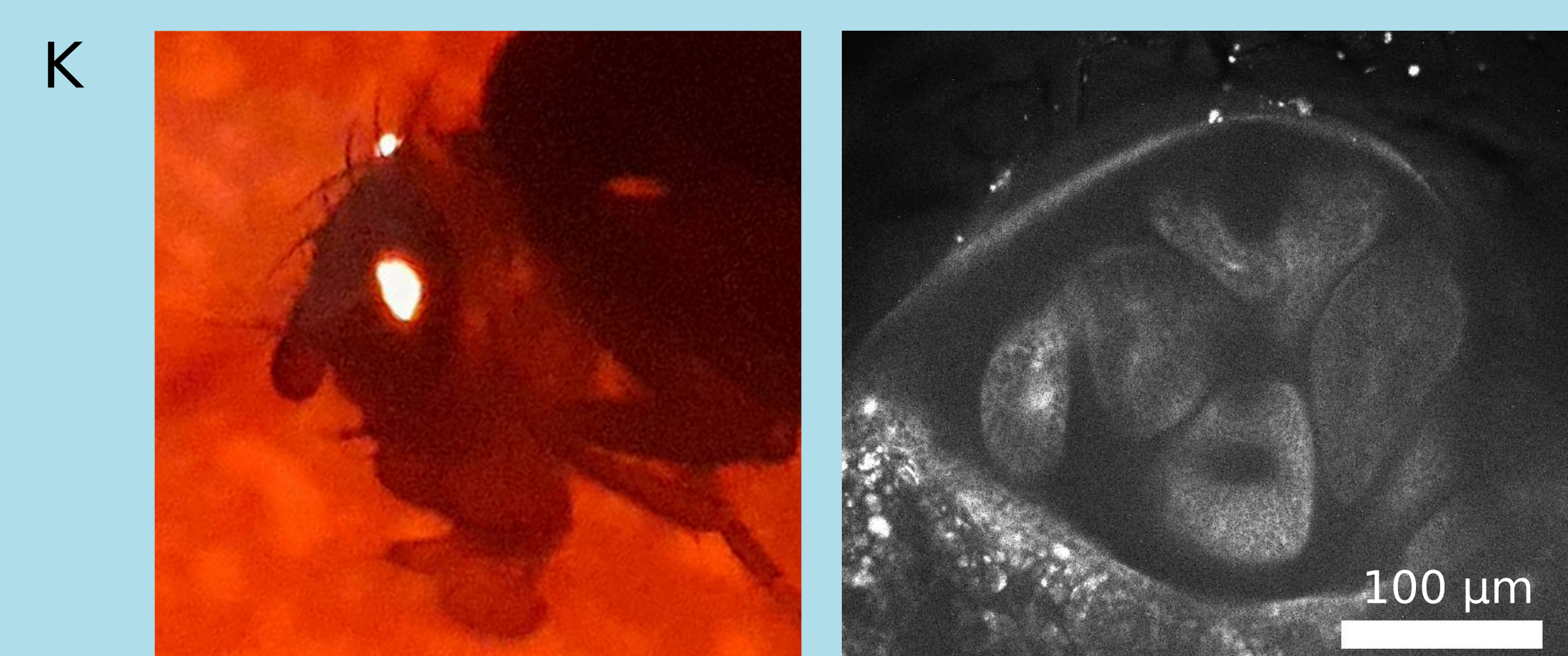
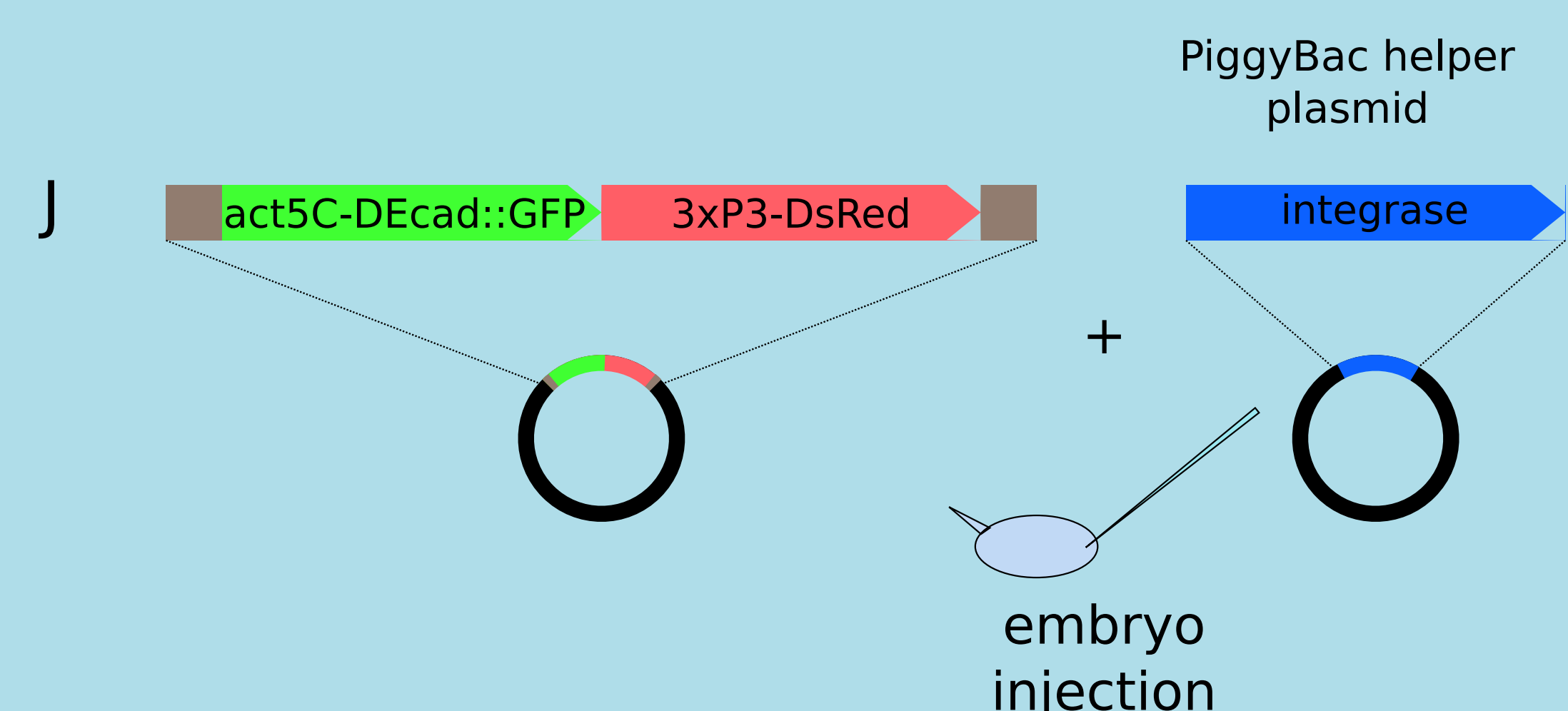
The left lobe has about twice as many nuclei as the right lobe

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.

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