

# Human evolution

Patterns of evolution

Our recent history

Sociality

Learning about the past

# Outline

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Context for evolution

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Primates

Apes

Hominins

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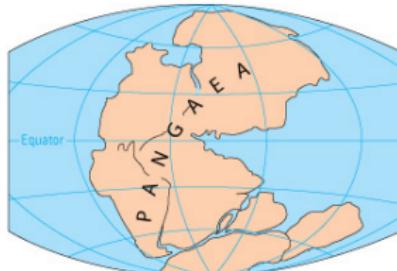
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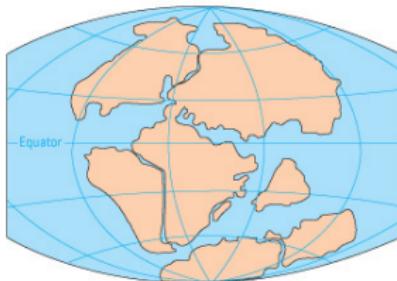
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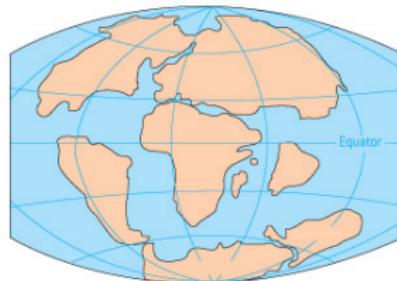
PERMIAN  
225 million years ago



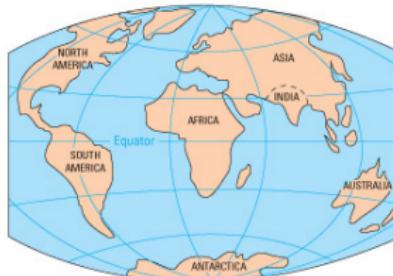
TRIASSIC  
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JURASSIC  
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CRETACEOUS  
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PRESENT DAY

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# Primates



Prosimians: Bushbabies and lemurs



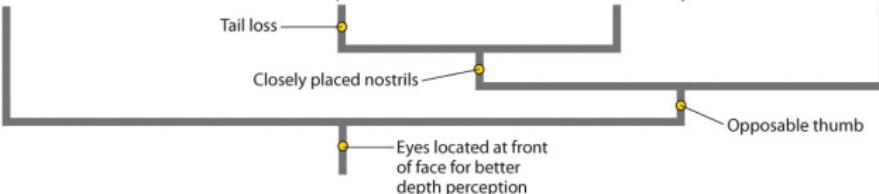
Apes



Old World monkeys



New World monkeys



**Figure 23.1**  
*Biology: How Life Works*  
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(Left to right) George Holton/Science Source; Penelope Deannah/Getty Images; Yellow Dog Production/Getty Images; Patrick Shyu/Getty Images; Cavan Images/ANL/REX/Shutterstock

# Observing ourselves

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# Outline

Patterns of evolution

Context for evolution

Our recent history

Primates

Apes

Hominins

Sociality

Learning about the past

# Apes

- Apes are more adapted for swinging through trees, whereas monkeys are more adapted for climbing and leaping



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# Apes

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Figure 23.11 (Part 2)  
Biology: How Life Works  
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Figure 23.11 (Part 2)  
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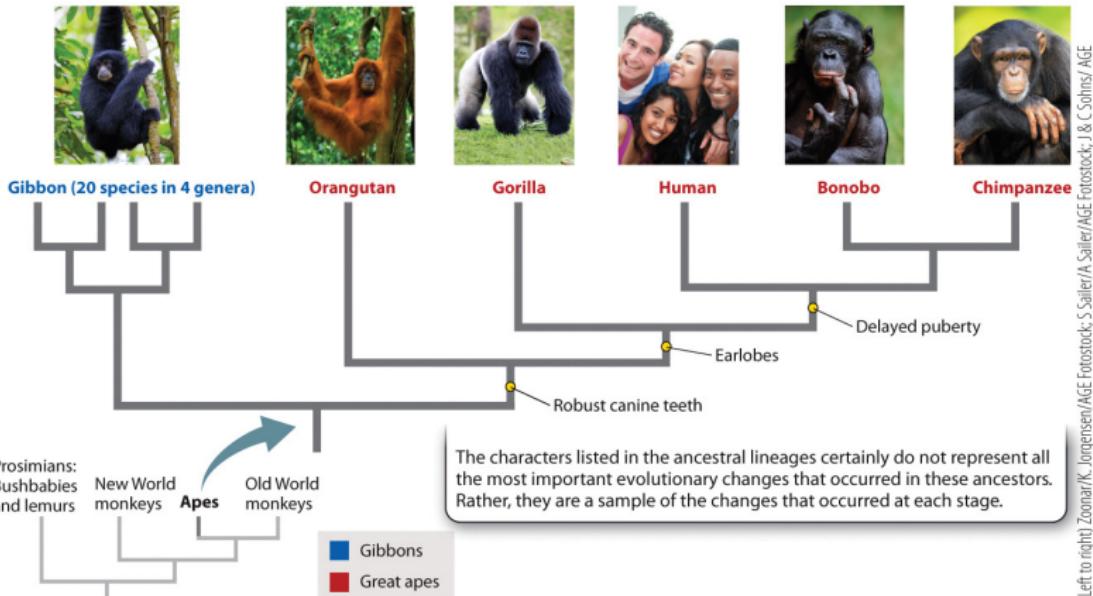
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**Figure 23.2**  
*Biology: How Life Works*  
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## Endangered gibbons



*PalmOilDetectives.Com*

# Mobile arm joints

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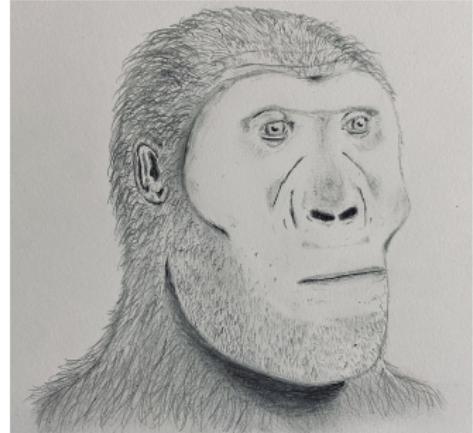
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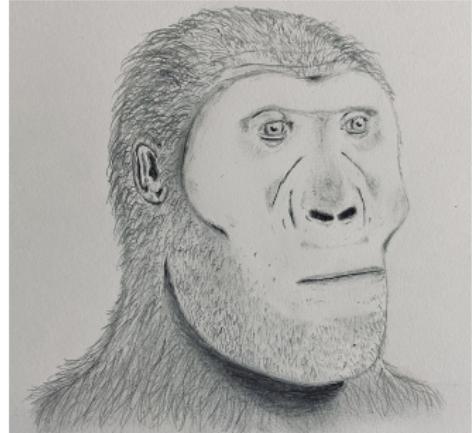
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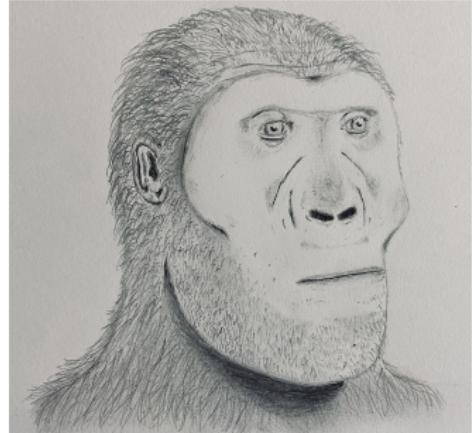
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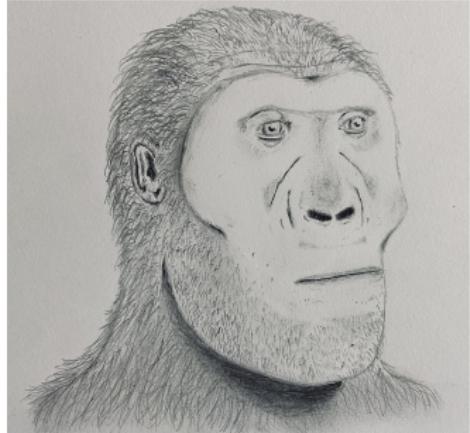
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  - ▶ Walking upright (even more than *other apes*)



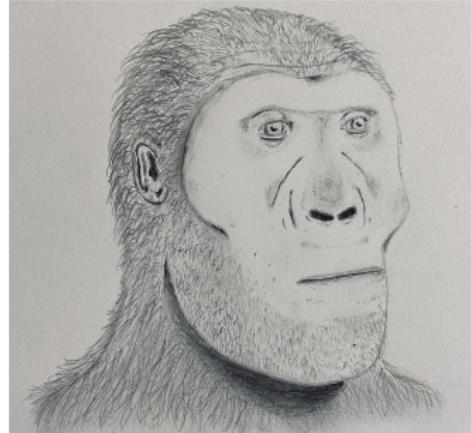
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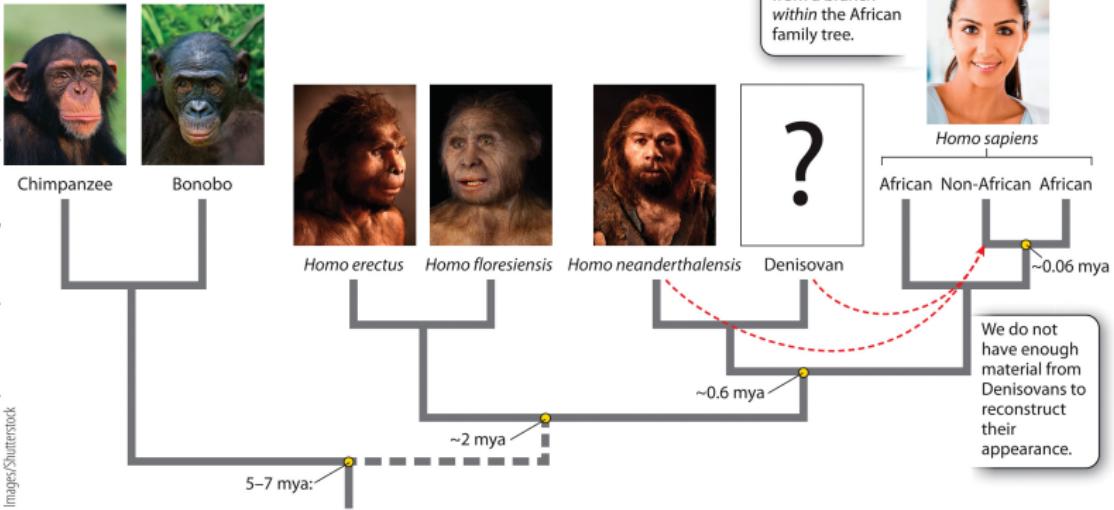


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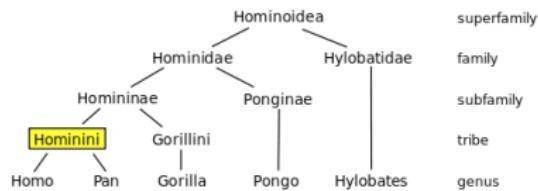
(Left to right) Frans/Godfrey Images/INTERFOTO/Alamy; Sylvain Leteressange & Elisabeth Daynes/Science Source; Sébastien Raby/Science Source; Sylvain Leteressange & Elisabeth Daynes/Science Source; Alla Images/Sutterstock



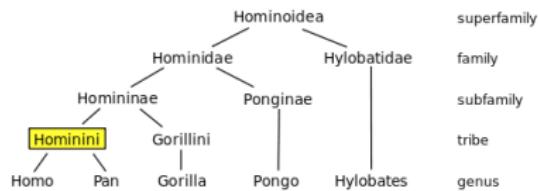
**Figure 23.9**  
*Biology: How Life Works*  
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# Taxonomy

- ▶ Homonoidea, Hominidae, Homininae, Hominini, Hominina, Homo



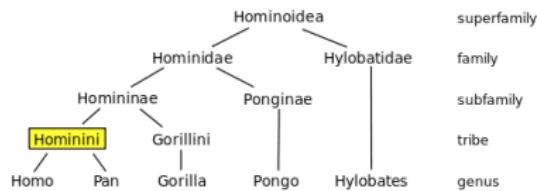
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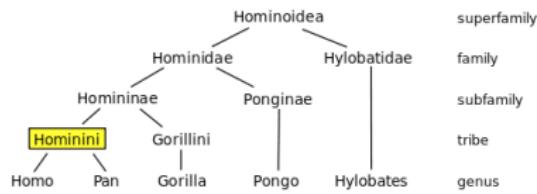


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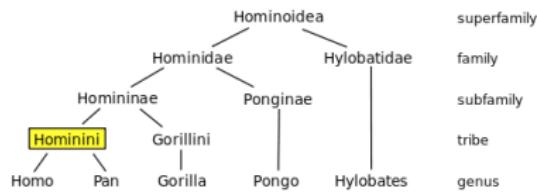


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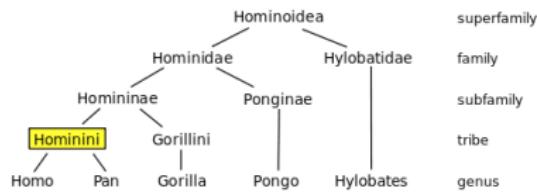
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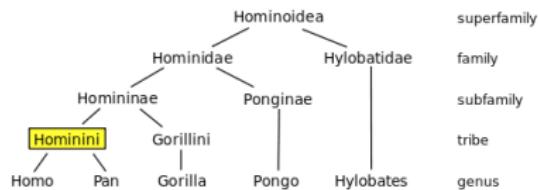


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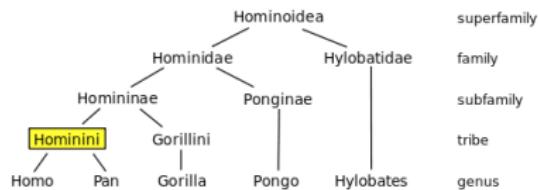
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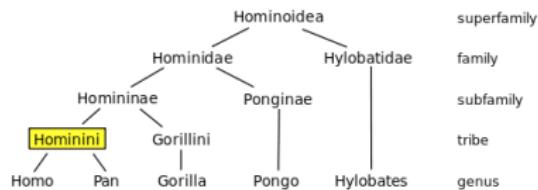
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*Observer bias is everywhere! (Extra)*

WHY IS THERE  
SOMETHING RATHER  
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OBSERVER BIAS.



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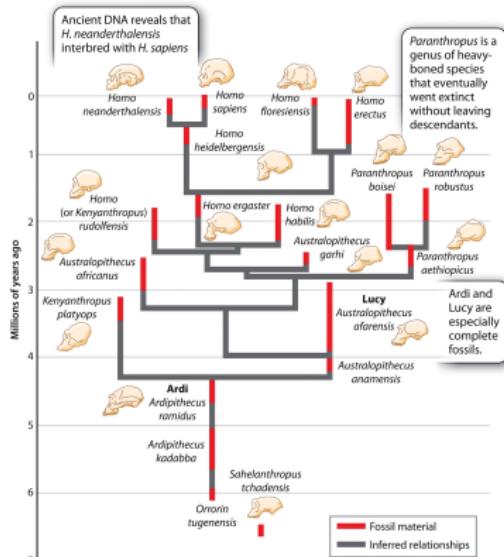
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# More radiation and contraction

- ▶ *H. ergaster* probably out-competed and replaced several related species, then radiated



Darwin R. G. Klein. 2009. *The Human Genome*. University of Chicago Press, p. 234. "Human Genome" from R. D. Martin, A. M. MacLennan, J. L. Phillips, L. Rinehimer, P. R. Williams, and W. B. DiGregorio. 2006. Comment on "The Birth of the Human Genome," *Science* 312:999.

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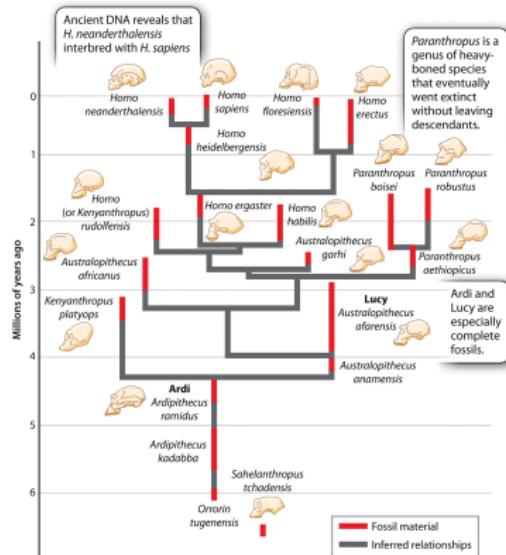


Figure 23.6  
Biology: How Life Works  
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Bar from R. G. Klein, 2009, *The Human Career*, Chicago, University of Chicago Press, p. 234; Lucy specimen, from R. D. Martin, N. M. MacLennan, J. L. Phillips, L. Renshaw, P. R. Williams, and W. B. DiGregorio, 2006, Comment on 'The Brain of LB1, Homo Floresiensis', *Science* 312:999.

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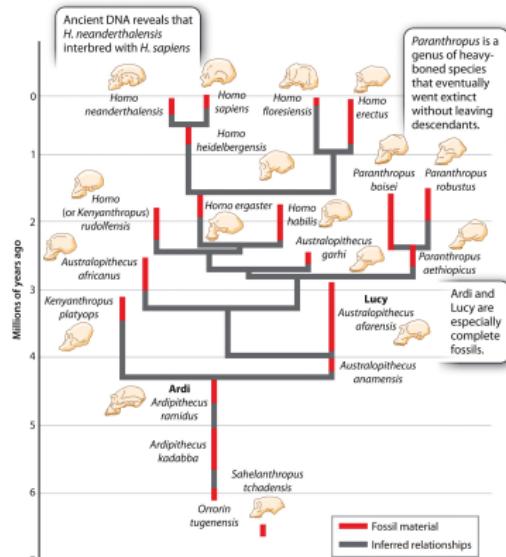


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# Outline

Patterns of evolution

Context for evolution

Our recent history

Primates

Apes

Hominins

## Sociality

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# Complex foraging

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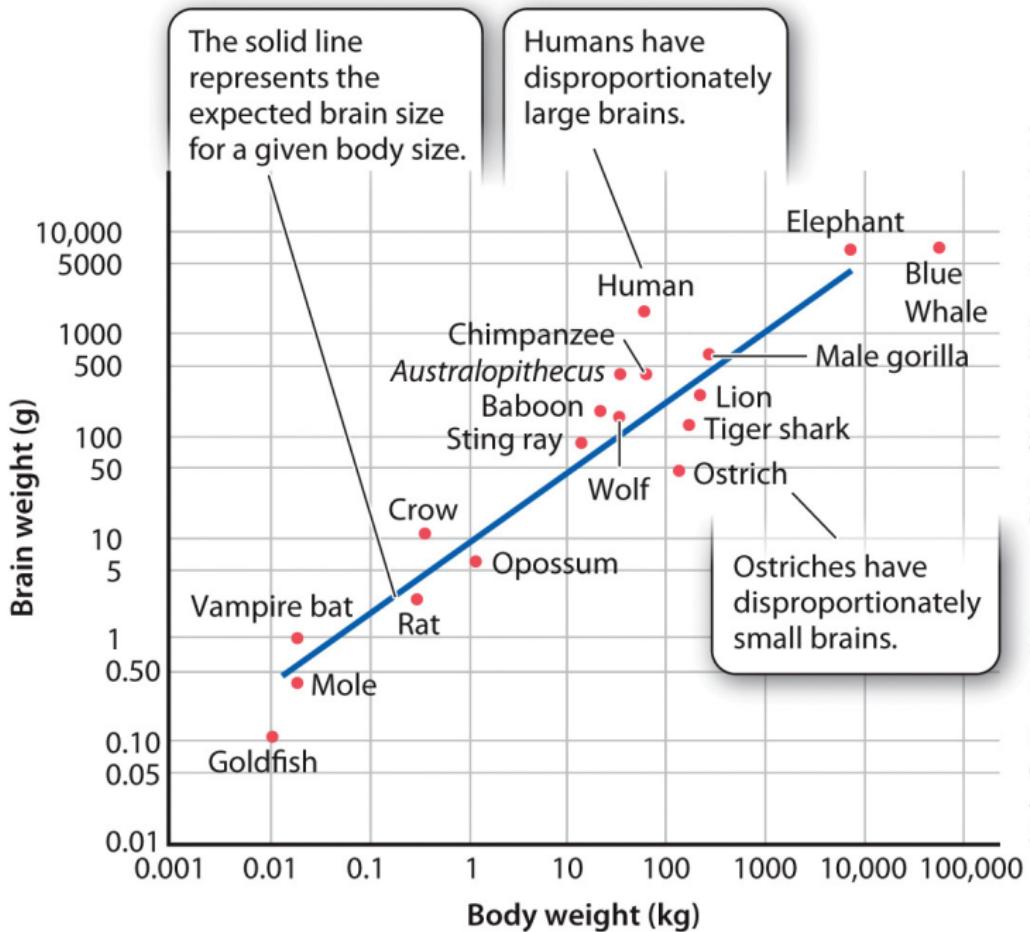
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Data from Fig. 2.4, p. 44, in H. J. Jerison, 1973, *Evolution of the Brain and Intelligence*, New York: Academic Press.

Figure 23.14  
Biology: How Life Works  
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# Brain and body size

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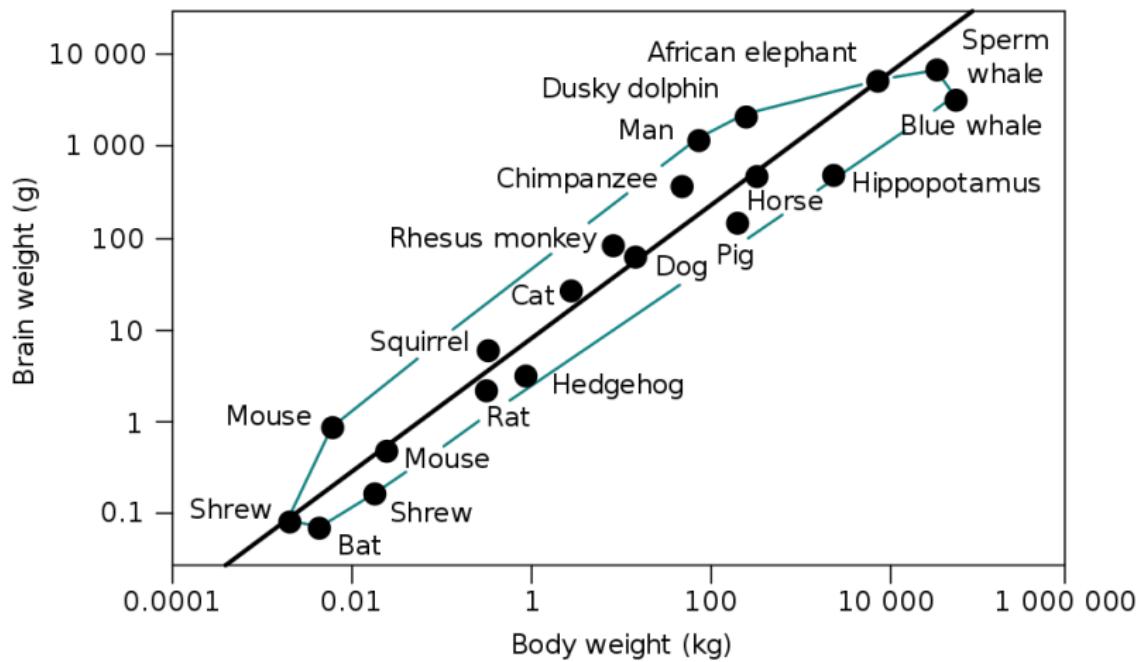
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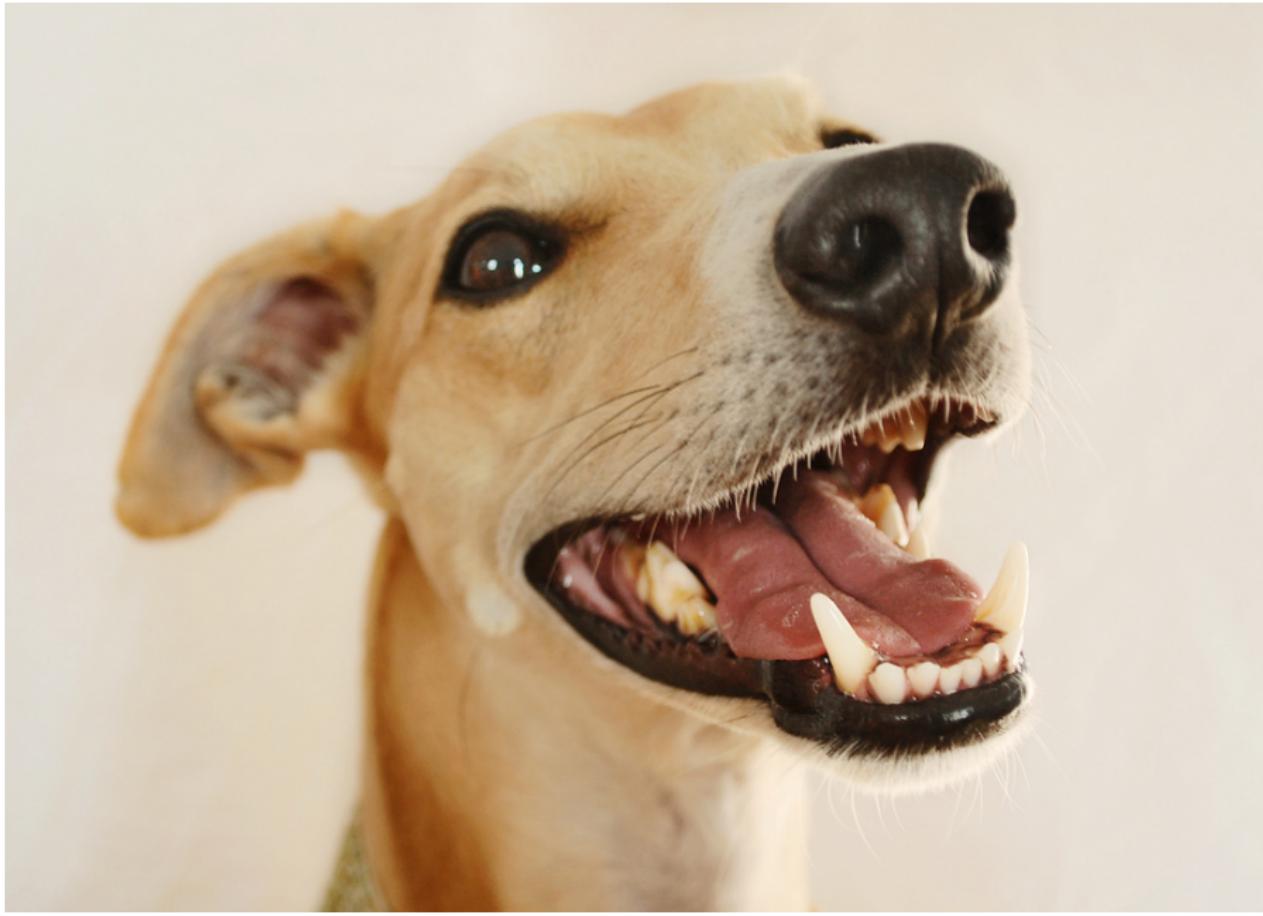
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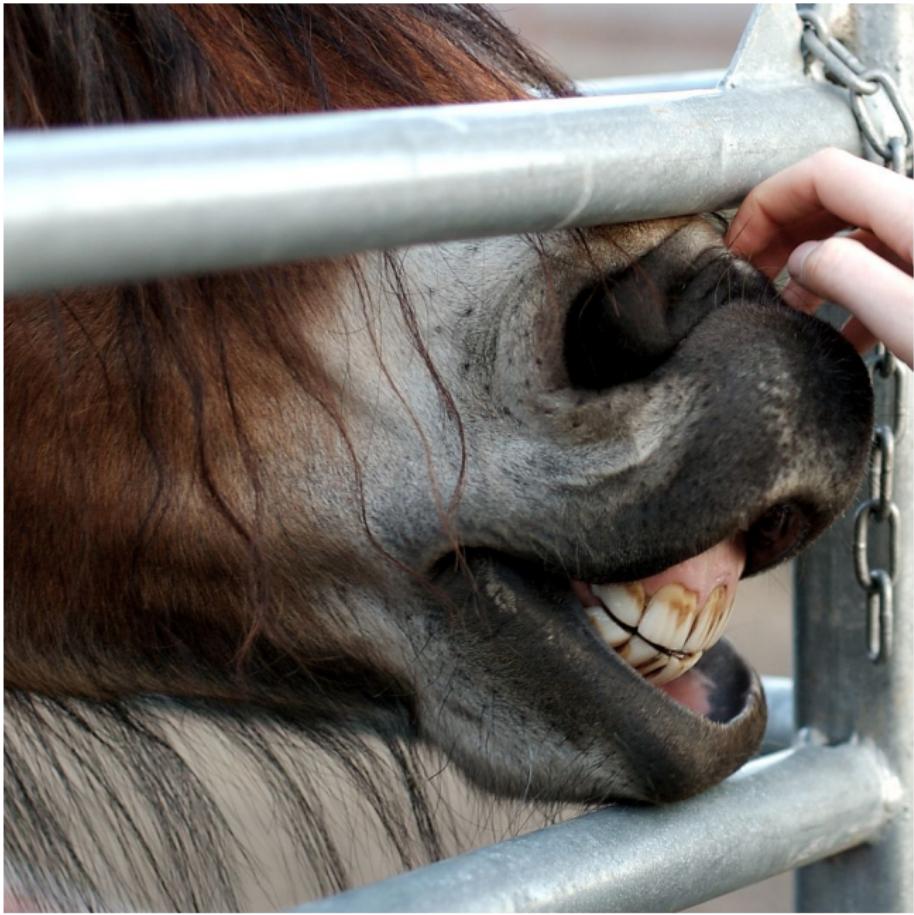
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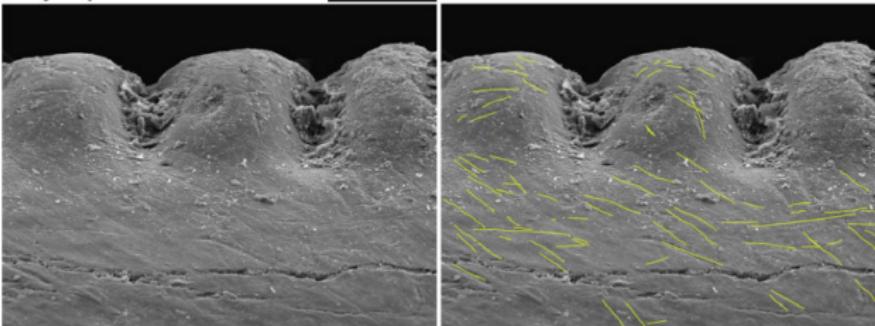
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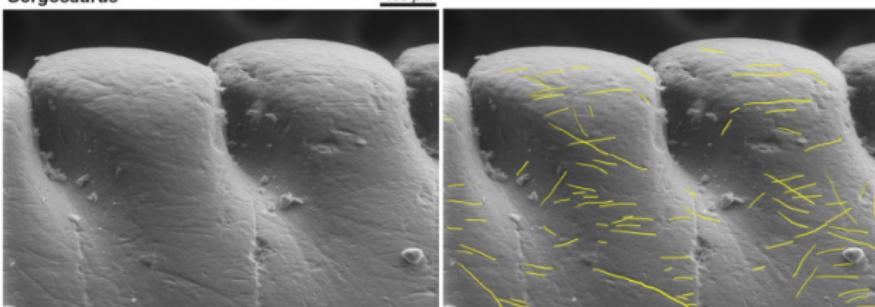
cf. *Pyroraptor*

100 µm



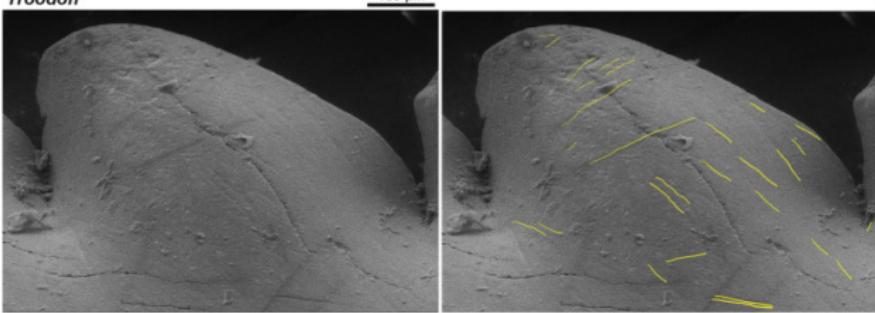
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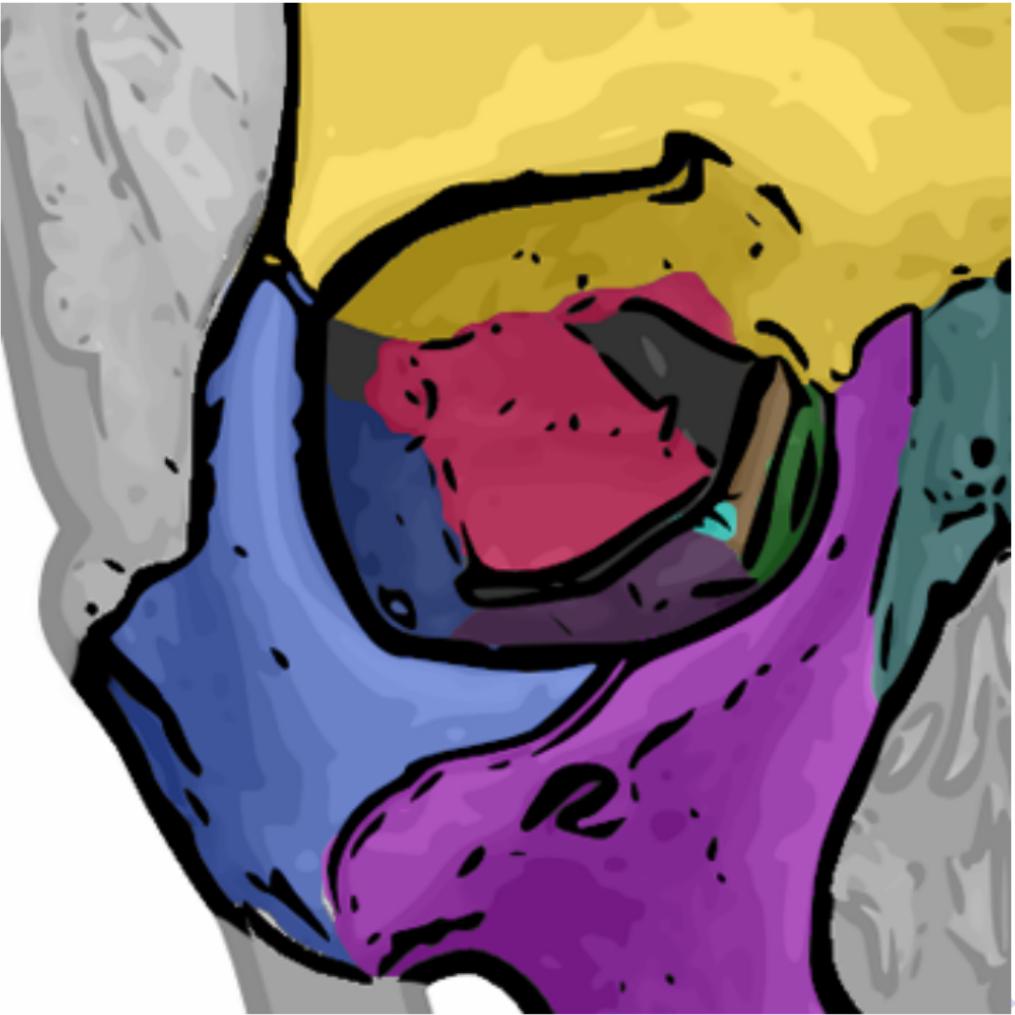
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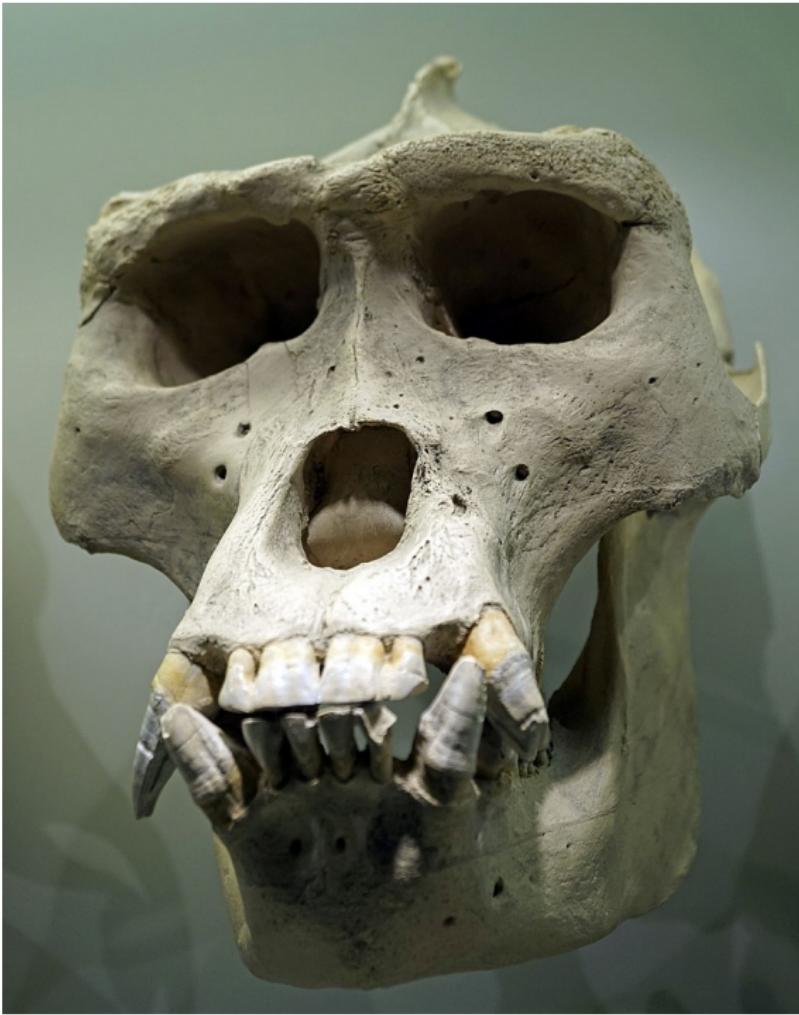
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