

Body Mass Scaling Example

Marsupial mammals scale in BMR (basal metabolic rate) with mass (in g) according to the following equation (see Withers 1992 Table 4-5):

$$\begin{aligned} BMR &= a * Mass^b \\ &= 47.6M^{0.75} J/hr \end{aligned}$$

Questions:

1. Who has higher BMR? A 10g or 10Kg animal?
2. Who has the higher mass-specific BMR?
3. Plot lines for mass vs. BMR and mass vs. mass-specific BMR on a log-log plot, indicate where the 10g and 10Kg animal lie on each. (First Log_{10} -transform the equations – it's easier to plot).

