



Nrf2 signalling in health and disease



Article

Global analysis of thermal tolerance and latitude in ectotherms.

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Sunday JM, Bates AE, Dulvy NK
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Based on a broad, biogeographical review of experimental evidence for thermal tolerance limits in ectotherms, this study strongly confirms a surprising contrast between marine and terrestrial taxa.

As expected, given the increasing seasonal temperature variation at higher latitudes, the breadth of temperature tolerance increases with latitude both on land and in the sea, and for marine taxa, both maximum and minimum thermal limits decline with latitude (and mean annual temperature). In contrast, among terrestrial ectotherms, only thermal minimum declines with latitude: temperate species are capable of tolerating tropical heat. For terrestrial ectotherms, this result casts serious doubt on the assumption (often made in species distribution modeling) that fundamental environmental niches generally limit geographic distributions. These results also give new life (at least for terrestrial ectotherms) to Darwin's notion that, whereas physiological constraints may set poleward range limits, biotic interactions generally set the equatorward limits of species' ranges.

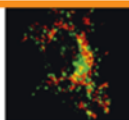
Competing interests: None declared

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