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Opinion

## Dates from the molecular clock: how wrong can we be?

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Large discrepancies have been found in dates of evolutionary events obtained using the molecular clock. Twofold differences have been reported between the dates estimated from molecular data and those from the fossil record; furthermore, different molecular methods can give dates that differ 20-fold. New software attempts to incorporate appropriate allowances for this uncertainty into the calculation of the accuracy of date estimates. Here, we propose that these innovations represent welcome progress towards obtaining reliable dates from the molecular clock, but warn that they are currently unproven, given that the causes and pattern of the discrepancies are the subject of ongoing research. This research implies that many previous studies, even some of those using recently developed methods, might have placed too much confidence in their date estimates, and their conclusions might need to be revised.

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