***eLife’s* transparent reporting form**

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* You should state whether an appropriate sample size was computed when the study was being designed
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* If no explicit power analysis was used, you should describe how you decided what sample (replicate) size (number) to use

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* You should report how often each experiment was performed
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* High-throughput sequence data should be uploaded before submission, with a private link for reviewers provided (these are available from both GEO and ArrayExpress)

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* Report exact p-values wherever possible alongside the summary statistics and 95% confidence intervals. These should be reported for all key questions and not only when the p-value is less than 0.05.

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To assess the significance of regression lines fitted to the data points, p-values less than 0.05 (95% confidence) are used (Figure 4, Figure 4 –figure supplement 1, Figure 4-figure supplement 2). Bootstrap analysis is used in Figure 8 to compare the result with the shuffled distributions. The details of both analyses are described in the Methods and in the relevant figure captions.

(For large datasets, or papers with a very large number of statistical tests, you may upload a single table file with tests, Ns, etc., with reference to sections in the manuscript.)

**Group allocation**

* Indicate how samples were allocated into experimental groups (in the case of clinical studies, please specify allocation to treatment method); if randomization was used, please also state if restricted randomization was applied
* Indicate if masking was used during group allocation, data collection and/or data analysis

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* Include model definition files including the full list of parameters used
* Include code used for data analysis (e.g., R, MatLab)
* Avoid stating that data files are “available upon request”

Please indicate the figures or tables for which source data files have been provided:

We have not provided any source data as all the data can be obtained from the simulations for which the codes are available (MatLab codes for reproducing main simulations and results are available from ModelDB: <http://modeldb.yale.edu/259620>).