

MANUSCRIPT CHECKLIST

	Yes	N/A
TITLE		
No more than 15 words	Yes	
Does not contain punctuation	Yes	
AUTHORS		
Full postal address for all authors is provided	Yes	
Ideally one e-mail address for correspondence is provided, but no more than 3	Yes	
Maximum of 6 equally contributing authors (further contributions can be outlined in the author contribution statement)	Yes	
Maximum of 6 joint supervisors (further contributions can be outlined in the author contribution statement)		
ABSTRACT		
No more than 150 words	Yes	
Does not contain references	Yes	
Results of the current study are written in present tense	Yes	
Starts with short description of background (2-3 sentences)	Yes	
Continues with presentation of the major results ('Here we show' or similar)	Yes	
Ends with a description of the paper's conclusion	Yes	
MAIN TEXT		
No more than 5,000 words in total (Introduction, Results, Discussion)	Yes	
Section order is: Title, Abstract, Introduction, Results, Discussion, Methods, References, End Notes, Figure legends, Tables	Yes	
Main text is provided as a Word or Tex document	Yes	
Abbreviations are defined at first use	Yes	
Genes and genotypes are italicized		N/A
Mathematics: Scalar variables and constants should be italic, vectors should be bold without italics, subscripts and superscripts are displayed in non-italic font unless they are variables. Unit dimensions should be expressed using negative integers (e.g. $\text{kg m}^{-1} \text{s}^{-2}$ not kg/ms^2) or the word 'per'	Yes	
Introduction		
Less than 1,000 words	Yes	
Contains no subheadings	Yes	
Introduces the background and rationale for work	Yes	
The last paragraph contains a brief summary of both the results and the conclusions (written in present tense)	Yes	
Contains no reference to display items (unless overview figures are presented)	Yes	
Results		
Divided by subheadings less than 60 characters (incl spaces) that do not contain punctuation	Yes	
All data are shown either in the main text or the Supplementary Information	Yes	
If personal communication from another laboratory is cited, written permission is provided		N/A
Reference to Supplementary items format is (Supplementary Fig. 1), (Supplementary Table 1), (Supplementary Note 1), (Supplementary Data 1), (Supplementary Movie 1)	Yes	

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	Yes	N/A
Discussion		
Does not contain subheadings	Yes	
Does not contain overlap with results section	Yes	
METHODS		
Methods are contained within main paper wherever possible	Yes	
Divided by subheadings less than 60 characters (incl spaces) that do not contain punctuation	Yes	
Contain sufficient detail to repeat experiments (avoid 'as previously described')	Yes	
Statement about availability of computer code, if important for main conclusions, is provided		N/A
The paper conforms to our requirements on mandatory data deposition (see http://www.nature.com/authors/policies/availability.html)	Yes	
For all papers section "Data availability" is provided at the end of the Methods (or end of main text, if no Methods) containing information on all mandatory and voluntary provision of research data. For further information refer to http://www.nature.com/authors/policies/data/data-availability-statements-data-citations.pdf	Yes	
REFERENCES		
As a guideline, Articles allow up to 70 references	36	
Numbered in the order they appear in the text, tables, figures and boxes	Yes	
Formatted in Nature Communications style: 'Authors, Title, Journal, Volume, First-last page, (year)'	Yes	
References to web-only journals include: 'Authors, Title, Journal, url/doi and year of publication'	Yes	
References to websites include: 'Authors (if known), Title of page, url and year of publication'		N/A
References to preprint servers should be formatted as 'Authors. Preprint title. For example: Preprint at http://arxiv.org/abs/ YYYY.NNNN (Year)'	Yes	
Research datasets may be cited if they have been assigned digital object identifiers (DOIs) and should be formatted as 'Authors. Title. Publisher/repository, doi (year)'. Example: Smith, A. & Doe, J. Title. Figshare http://dx.doi.org/ ... (2016)	Yes	
Contains only published work or work in press (including doi number)	Yes	
Does not contain footnotes	Yes	
END NOTES		
Acknowledgements are brief	Yes	
Author contributions statement is provided	Yes	
Conflict of interest statement is provided	Yes	
LEGENDS		
Contain a brief title	Yes	
No more than 350 words each	Yes	
Every panel is described	Yes	
Length of scale bars is defined	Yes	
Definitions for new abbreviations / symbols / colours is provided	Yes	
Error bars are defined as s.d. or s.e.m.	Yes	

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	Yes	N/A
DISPLAY ITEMS		
No more than 10 total	Yes	
Fit within a column/page (including legend)	Yes	
Numbered in the order they appear in the main text	Yes	
Figures		
Figures do not contain tables	Yes	
Figure panels are arranged into a rectangular shape	Yes	
Each panel is labelled with a single letter	Yes	
Panels are not subdivided	Yes	
Scale bars are included (but not labelled within the figure)	Yes	
Blots and gels contain molecular weight or size markers		N/A
Axes are labelled, including units	Yes	
Stereo figures sufficient width apart (equivalent points separated by 5.5cm)		N/A
Avoid the use of red and green in figures to avoid confusion for colour-blind readers (magenta and turquoise are alternatives)	Yes	
Tables		N/A
Include a title (no punctuation)		
Tables are editable (not embedded as a picture in the document)		
If table legend is required, it is displayed underneath the table		N/A
NMR standard table for structural refinement statistics has been used (http://www.nature.com/ncb/pdf/nsmb_tables_nmr_f.pdf)		N/A
X-ray standard table for structural refinement statistics has been used (please see http://www.nature.com/ncb/pdf/nsmb_tables_xray_f.pdf)		N/A
SUPPLEMENTARY INFORMATION		
Provided as a single Word file (except for Movies, Audio and Data)	PDF	
Supplementary files are less than 30 MB	Yes	
Supplementary items are labelled and contain only these elements: Supplementary Figure 1 etc. / Supplementary Table 1 / Supplementary Note 1 / Supplementary Discussion / Supplementary Methods / Supplementary References. Supplementary References appear at the end of the file.	Yes	
Each Supplementary item is cited in the main text	Yes	
Figure legends are displayed underneath each figure; ideally, each display item and its corresponding legend fit on one page	Yes	
Format of the legends is the same as in the main manuscript and any error bars are defined (please see section above)	Yes	
Movie legends are provided in the cover letter		N/A
Supplementary References are numbered sequentially from 1 and are self-contained (they do not refer to the list of References in the main paper; any such papers is duplicated in the list of Supplementary References)	Yes	
Where portions of blots and gels have been presented in the main paper, the full blot or gel are included in the Supplementary Information		N/A
Supplementary Information does not contain essential display items (these should be displayed in the main text)	Yes	
Supplementary Information does not contain Results	Yes	
Supplementary Data files contain titles	Yes	
Chemical structures are drawn using a Nature Chemistry Chemdraw template (please see http://www.nature.com/nchem/authors/submit/nchemstyleguide.pdf)		N/A