

## The ARRIVE Essential 10

These items are the basic minimum to include in a manuscript. Without this information, readers and reviewers cannot assess the reliability of the findings.

Item	Recommendation	Section/line number, or reason for not reporting	
<b>Study design</b>	1 For each experiment, provide brief details of study design including: <ol style="list-style-type: none"> <li>The groups being compared, including control groups. If no control group has been used, the rationale should be stated.</li> <li>The experimental unit (e.g. a single animal, litter, or cage of animals).</li> </ol>	Methods/lines 234-238 Methods/lines 234-238	
	<b>Sample size</b>	2 <ol style="list-style-type: none"> <li>Specify the exact number of experimental units allocated to each group, and the total number in each experiment. Also indicate the total number of animals used.</li> <li>Explain how the sample size was decided. Provide details of any <i>a priori</i> sample size calculation, if done.</li> </ol>	Methods/lines 234-238 Methods/lines 228-229
<b>Inclusion and exclusion criteria</b>	3 <ol style="list-style-type: none"> <li>Describe any criteria used for including and excluding animals (or experimental units) during the experiment, and data points during the analysis. Specify if these criteria were established <i>a priori</i>. If no criteria were set, state this explicitly.</li> <li>For each experimental group, report any animals, experimental units or data points not included in the analysis and explain why. If there were no exclusions, state so.</li> <li>For each analysis, report the exact value of <i>n</i> in each experimental group.</li> </ol>	Methods/lines 229-234 Methods/lines 247 Methods/lines 235-236	
	<b>Randomisation</b>	4 <ol style="list-style-type: none"> <li>State whether randomisation was used to allocate experimental units to control and treatment groups. If done, provide the method used to generate the randomisation sequence.</li> <li>Describe the strategy used to minimise potential confounders such as the order of treatments and measurements, or animal/cage location. If confounders were not controlled, state this explicitly.</li> </ol>	Methods/line 238-239 Methods/lines 225-228
		<b>Blinding</b>	5 Describe who was aware of the group allocation at the different stages of the experiment (during the allocation, the conduct of the experiment, the outcome assessment, and the data analysis).
<b>Outcome measures</b>	6 <ol style="list-style-type: none"> <li>Clearly define all outcome measures assessed (e.g. cell death, molecular markers, or behavioural changes).</li> <li>For hypothesis-testing studies, specify the primary outcome measure, i.e. the outcome measure that was used to determine the sample size.</li> </ol>	Methods/lines 280-286 Methods/lines 280-286	
	<b>Statistical methods</b>	7 <ol style="list-style-type: none"> <li>Provide details of the statistical methods used for each analysis, including software used.</li> <li>Describe any methods used to assess whether the data met the assumptions of the statistical approach, and what was done if the assumptions were not met.</li> </ol>	Methods/lines 292-296 Methods/lines 292-296
<b>Experimental animals</b>		8 <ol style="list-style-type: none"> <li>Provide species-appropriate details of the animals used, including species, strain and substrain, sex, age or developmental stage, and, if relevant, weight.</li> <li>Provide further relevant information on the provenance of animals, health/immune status, genetic modification status, genotype, and any previous procedures.</li> </ol>	Methods/lines 217-218 Methods/lines 217-218
	<b>Experimental procedures</b>	9 For each experimental group, including controls, describe the procedures in enough detail to allow others to replicate them, including: <ol style="list-style-type: none"> <li>What was done, how it was done and what was used.</li> <li>When and how often.</li> <li>Where (including detail of any acclimatisation periods).</li> <li>Why (provide rationale for procedures).</li> </ol>	Methods/lines 126-288 Methods/lines 126-288 Methods/lines 126-288 Methods/lines 126-288
<b>Results</b>		10 For each experiment conducted, including independent replications, report: <ol style="list-style-type: none"> <li>Summary/descriptive statistics for each experimental group, with a measure of variability where applicable (e.g. mean and SD, or median and range).</li> <li>If applicable, the effect size with a confidence interval.</li> </ol>	Results/lines 298-392 Results/lines 298-392

# The Recommended Set

These items complement the Essential 10 and add important context to the study. Reporting the items in both sets represents best practice.

Item	Recommendation	Section/line number, or reason for not reporting
<b>Abstract</b>	11 Provide an accurate summary of the research objectives, animal species, strain and sex, key methods, principal findings, and study conclusions.	Abstract/lines 34-55
<b>Background</b>	12 a. Include sufficient scientific background to understand the rationale and context for the study, and explain the experimental approach.	Abstract/lines 34-38
	b. Explain how the animal species and model used address the scientific objectives and, where appropriate, the relevance to human biology.	Abstract/lines 39-42
<b>Objectives</b>	13 Clearly describe the research question, research objectives and, where appropriate, specific hypotheses being tested.	Methods/lines 34-296
<b>Ethical statement</b>	14 Provide the name of the ethical review committee or equivalent that has approved the use of animals in this study, and any relevant licence or protocol numbers (if applicable). If ethical approval was not sought or granted, provide a justification.	Methods/lines 220-223 Ethical Statement/lines 544-549
<b>Housing and husbandry</b>	15 Provide details of housing and husbandry conditions, including any environmental enrichment.	Methods/lines 225-227
<b>Animal care and monitoring</b>	16 a. Describe any interventions or steps taken in the experimental protocols to reduce pain, suffering and distress.	Methods/lines 215-288
	b. Report any expected or unexpected adverse events.	Methods/lines 215-288
	c. Describe the humane endpoints established for the study, the signs that were monitored and the frequency of monitoring. If the study did not have humane endpoints, state this.	Methods/lines 215-288
<b>Interpretation/ scientific implications</b>	17 a. Interpret the results, taking into account the study objectives and hypotheses, current theory and other relevant studies in the literature.	Results/lines 298-392
	b. Comment on the study limitations including potential sources of bias, limitations of the animal model, and imprecision associated with the results.	Discussion/lines 498-502
<b>Generalisability/ translation</b>	18 Comment on whether, and how, the findings of this study are likely to generalise to other species or experimental conditions, including any relevance to human biology (where appropriate).	Discussion/lines 394-502
<b>Protocol registration</b>	19 Provide a statement indicating whether a protocol (including the research question, key design features, and analysis plan) was prepared before the study, and if and where this protocol was registered.	Methods/lines 220
<b>Data access</b>	20 Provide a statement describing if and where study data are available.	Footnote/lines 540-542
<b>Declaration of interests</b>	21 a. Declare any potential conflicts of interest, including financial and non-financial. If none exist, this should be stated.	Footnote/lines 537-538
	b. List all funding sources (including grant identifier) and the role of the funder(s) in the design, analysis and reporting of the study.	Acknowledgments/lines 518-530

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\*As the checklist was provided upon initial submission, the line number reported may be changed due to copyediting and may not be referable in the published version. In this case, the section may be used as an alternative reference.