

# Biology Open

## Checklist of key methodological and statistical information

This checklist is designed to ensure good reporting standards and reproducibility in your paper (and is compatible with the reporting standards recommended by the [National Institutes of Health](#)).

You should ensure that the following information is included in your manuscript, where relevant. In general, this is best achieved by having specific subsections in the Materials & Methods section for reagents, animal models and statistics. A [data and resource availability section](#) is required by default.

We recommend consulting the ARRIVE [guidelines](#) to ensure that all relevant aspects of animal studies are adequately reported.

We direct authors to the SAGER [guidelines](#) drawn up by the European Association of Science Editors (EASE) for reporting sex and gender information in study design, data analyses, results and interpretation of findings. Versions are available for studies with or without human participants.

The International Society for Stem Cell Research (ISSCR) has reporting [guidelines](#) for studies using human stem cells.

Where relevant, we strongly encourage authors to download and complete the relevant [ARRIVE](#), [SAGER](#) and [ISSCR](#) checklist(s) and append them to this document.

## Reagents

1. For cell lines, detail their source and state whether they were recently authenticated and tested for contamination.

Confirm - in Materials & Methods:

Reported elsewhere (specify)/NA:

2. For antibodies, provide citation, catalog number and/or clone number and batch number. Use of [RRIDs](#) is strongly encouraged as best practice. Provide details on antibody validation, either in Supplementary Information or by reference to an antibody validation profile (where possible). Give the dilutions used.

Confirm - in Materials & Methods:

Reported elsewhere (specify)/NA:

3. Authors are strongly encouraged to deposit reagents in relevant repositories, such as [Addgene](#) for plasmids, or the appropriate stock centres for mutant lines. Provide details on how reagents can be obtained.

Confirm - in Materials & Methods:

Reported elsewhere (specify)/NA:

### Animal models

1. Report species, strain, sex and age of animals

Confirm - in Materials & Methods:

Reported elsewhere (specify)/NA:

2. Provide details on compliance with relevant ethical regulations including, where necessary, the identity of the committee(s) approving the experiments.

Confirm - in Materials & Methods:

Reported elsewhere (specify)/NA:

### Human subjects

1. Provide details on compliance with relevant ethical regulations and identify the committee(s) approving the study protocol.
2. Provide a statement confirming that informed consent was obtained from all subjects.
3. Where photographs of patients are included, provide a statement confirming that consent to publish was obtained.
4. For work involving human eggs or embryos, any financial recompense to donors must be declared.
5. Where the work reports new clinical trial data or includes a tumor marker prognostic study, appropriate guidelines for reporting must be followed (e.g. reporting the clinical trial registration number, submitting a [CONSORT](#) checklist for randomized trials, following [REMARK](#) reporting guidelines). Please contact the Editorial Office for further guidance if required.

Confirm - in Materials & Methods:

Reported elsewhere (specify)/NA:

### Data and resource availability

For further details on our policies regarding data and resource availability, please see [here](#).

1. Include accession codes for deposited data and resource.

Confirm - in Data availability section:

Reported elsewhere (specify)/NA:

2. Include the source of all software. For any custom software, include a statement of how it can be obtained. Source code necessary for the reproduction of results should be deposited with a permanent digital identifier in a public repository such as [Zenodo](#).

Confirm - in Data availability section:

Reported elsewhere (specify)/NA:

## Methodology and statistics

The Materials and Methods section should provide information on all points listed below. Please read these carefully and confirm that your manuscript conforms to these standards.

1. State how the sample size ( $n$ ) was defined to ensure adequate power to detect a pre-specified effect size.
2. In general, descriptive statistics are not appropriate; graphs should allow the reader to see the true data spread (i.e. box-and-whisker plots, [SuperPlots](#), etc.). For small sample sizes, individual data points should be plotted.
3. Describe inclusion and exclusion criteria if samples or animals were excluded from the analysis. State whether the criteria were pre-established.
4. Describe any methods of randomization used to determine how samples or animals were allocated to experimental groups and processed.
5. If the investigator was blinded to the group allocation during the experiment and/or when assessing the outcome, state the extent of blinding.
6. For data presented, statistical tests must be appropriate to the type of data. For example, do the data meet the assumptions of the tests (e.g. normal distribution)? Is there an estimate of variation within each group of data? Is the variance similar between the groups that are that are being statistically compared?

Confirm:

### Use of Artificial Intelligence tools

1. Declare any AI tools used, including in the writing of the manuscript, generation of code or production of images, or in the collection and analysis of data. Describe which AI tool was used and how it was used.

Confirm:

## Figure legends

The following should be reported in every figure legend:

1. The exact sample size ( $n$ ) for each experimental group or condition, given as a number, not a range
2. A description of the sample collection allowing the reader to understand whether the samples represent technical or biological replicates (including how many animals, cultures, etc.).
3. A statement of how many times the experiment shown was replicated in the laboratory
4. Definition of average values as median or mean; definition of error bars as s.d., s.e.m. or c.i. (please write as e.g. mean $\pm$ s.e.m.). Error bars should reflect independent experiments and not technical replicates.
5. Statistical test results, e.g.  $P$  values.
6. Details of statistical method
  - $t$ -test, simple  $\times 2$  tests, Wilcoxon, Mann-Whitney tests and one-way and two-way ANOVA tests can be identified by name only in the figure legend. More complex tests should be described in the Materials & Methods.
  - Are tests one-tailed or two-tailed?
  - Are there adjustments for multiple comparisons?

Confirm: