**Peer review checklist**

Questions to consider when reviewing:

* Title
  + Is the title intelligible?
  + Is the title of a reasonable length?
  + Does the title accurately describe the research article?
* Abstract
  + Does it state the research question?
  + Does it summarize the major findings of the paper?
  + Are the points made justified by the results?
  + Is the text limited to objective statements?
* Introduction
  + Have the authors provided a fair overview of the literature?
  + Have the authors included all the relevant citations (i.e. have the researchers omitted individual publications or sections of the literature directly pertinent to the issue at hand?)
  + Are the references correct?
  + Is the writing easy to follow?
  + Is the writing of a sufficient grammatical standard?
  + Is the introduction succinct?
* Methods
  + Are all the methods used in the article described?
  + Have the authors described all growth conditions?
  + Have the authors described all the strains used, with genotypes?
  + Have the authors described the growth media used?
  + Have the authors described components of buffers?
  + Have the source of materials been appropriately described (e.g. stock centre and identifier for strain, source and identity of antibodies)
  + If using mathematical models have these been described in sufficient detail?
  + Have the authors cited appropriate studies (i.e. cited studies that contain methods not additional citations)?
  + Are the methods in paragraph format? ? (i.e. not provided in a recipe format - this type of protocol is more suitable for extended methods sections).
* Graphs and figures
  + Figure: does the data presented in each figure accurately described in the figure legend and results (is the interpretation of the data valid)?
  + Figure: is the data presented an experimental result with biological significance rather than confirmatory supporting data more suited to supplementary sections (e.g. gel images of steps involved in plasmid construction)?
  + Chart: have authors used the appropriate chart type to display the data (is it possible/appropriate to include all data points rather than summary data that may obscure relevant information)?
  + Chart: are the axes appropriately labelled?
  + Chart: is it legible and easy to follow? (e.g. can you read the font, clearly make out the data on the chart).
  + Chart: has statistical significance been reported where appropriate?
  + Chart: has the sample size been provided?
  + Chart: are the statistical tests valid given the distribution of the data?
  + Legend: is there sufficient information to understand the figure?
  + Legend: have the authors limited themselves to including a description of the figure? (i.e. not included discussion or methods).
  + Table: are the column headers appropriate?
  + Table: have units been provided in column headers?
  + Table: if including numeric values, is the number of significant figures used reasonable?
  + Figure: have the authors duplicated or repeated and panels in figures?
  + Figure: have the authors provided sufficient information for the correct interpretation of a figure (e.g. for western blots have they been sliced?)
  + Figure: is there any evidence of image manipulation?
* Results
  + Have the authors sufficiently and accurately described the data presented in each figure?
  + Are data quantified where appropriate (i.e. when qualitative information is insufficient)?
  + Are individual data/images representative of quantified data?
  + Have the authors used appropriate statistical tests to analyse their data?
  + Are the author’s conclusions justified by their data?
  + Have all the necessary control experiments been performed?
* Discussion
  + Have the authors put their results in context of previously reported findings?
  + Have relevant citations been included that may influence the interpretation of results?
  + Are there confounding factors that could impact on the conclusions drawn from experiments?
  + Are the citations correct?
  + Have the authors discussed the implications of their findings rather than repeat a description of the results?
  + Are the discussion points presented in a logical manner?
  + Are limitations of the current study highlighted?
* Data
  + Have the authors deposited their raw data in a [suitable database](https://www.nature.com/sdata/policies/repositories)?
  + Have the authors provided sufficient information to reproduce figures in the text?
  + Have the authors deposited their code in a suitable repository which provides a [DOI](https://www.doi.org/)? e.g. ([Dryad](https://datadryad.org/), [FigShare](https://figshare.com/), etc. Note the problem with GitHub repositories is they can be deleted)
  + Have the authors used [RRID](https://scicrunch.org/resources)s?