The ARRIVE guidelines 2.0: author checklist

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 |
|------|----------------|-----------------------------------------------|
| **Study design** | For each experiment, provide brief details of study design including: | N/A, this is a preliminary cage of animals |
| | a. The groups being compared, including control groups. If no control group has been used, the rationale should be stated. | |
| | b. The experimental unit (e.g. a single animal, litter, or cage of animals). | |
| **Sample size** | 2 a. 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. | 3 pigs were used without grouping |
| | b. Explain how the sample size was decided. Provide details of any a priori sample size calculation, if done. | |
| **Inclusion and exclusion criteria** | 3 a. 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 a priori. If no criteria were set, state this explicitly. | |
| | b. 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. | |
| | c. For each analysis, report the exact value of n in each experimental group. | |
| **Randomisation** | 4 a. 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. | There is no group, so randomisation was not used |
| | b. 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. | The order of treatments and measurements or animal location do not affect the results. |
| **Blinding** | 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). | This is a cohort animal study for preliminary evaluation of a new technology. Blinding was not applied. |
| **Outcome measures** | 6 a. Clearly define all outcome measures assessed (e.g. cell death, molecular markers, or behavioural changes). | Distances and angles were all accurately detected in corresponding software. |
| | b. For hypothesis-testing studies, specify the primary outcome measure, i.e. the outcome measure that was used to determine the sample size. | There is no specific primary outcome measures. |
| **Statistical methods** | 7 a. Provide details of the statistical methods used for each analysis, including software used. | Average and standard deviation were calculated using SPSS26.0. |
| | b. 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. | Not applicable. Only average and standard deviation were calculated. |
| **Experimental animals** | 8 a. Provide species-appropriate details of the animals used, including species, strain and substrain, sex, age or developmental stage, and, if relevant, weight. | Three female 12 months 45kg Danish Landrace Pigs in SPF-class were used in this study |
| | b. Provide further relevant information on the provenance of animals, health/immune status, genetic modification status, genotype, and any previous procedures. | These pigs were wild type and provided by Silverskaji Biomedicine Technologies Co. Ltd (Shanghai, China) |
| **Experimental procedures** | 9 For each experimental group, including controls, describe the procedures in enough detail to allow others to replicate them, including: | Piglet were anaesthetised, the ventral was performed, and rats were immobilised, such as by ip ketamine and injection of handpipe. Anywhere when something was needed. There is no special requirements about time and frequency. |
| | a. What was done, how it was done and what was used. | hybrid operation room with CT scan |
| | b. When and how often. | What was done in the animal study was physical operation, instead of chemical or genetic method. Therefore, any normal (primary anatomical structure) |
| | c. Where (including detail of any acclimatisation periods). | |
| | d. Why (provide rationale for procedures). | |
| **Results** | 10 For each experiment conducted, including independent replications, report: | Not applicable |
| | a. Summary/descriptive statistics for each experimental group, with a measure of variability where applicable (e.g. mean and SD, or median and range). | |
| | b. If applicable, the effect size with a confidence interval. | |
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                     | Section/line number, or reason for not reporting |
|--------------------------|--------------------------------------------------|
| **Abstract**             | line 33-53                                       |
| **Background**           | line 57-77 line 103-126                          |
| a. Include sufficient scientific background to understand the rationale and context for the study, and explain the experimental approach.  
  b. Explain how the animal species and model used address the scientific objectives and, where appropriate, the relevance to human biology. | |
| **Objectives**           | line 88-89                                       |
| **Ethical statement**    | line 101-102                                     |
| **Housing and husbandry**| line 107-113                                     |
| a. Describe any interventions or steps taken in the experimental protocols to reduce pain, suffering and distress.  
  b. Report any expected or unexpected adverse events.  
  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. | |
| **Interpretation/ scientific implications** | line 107-113 line 262-268 line 268-270 |
| a. Interpret the results, taking into account the study objectives and hypotheses, current theory and other relevant studies in the literature.  
  b. Comment on the study limitations including potential sources of bias, limitations of the animal model, and imprecision associated with the results. | |
| **Generalisability/ translation** | line 107-113 line 272-275 |
| **Protocol registration**| line 290                                         |
| **Data access**          | line 286-287 line 277-281                        |
| a. Declare any potential conflicts of interest, including financial and non-financial. If none exist, this should be stated.  
  b. List all funding sources (including grant identifier) and the role of the funder(s) in the design, analysis and reporting of the study. | |

Article Information: https://dx.doi.org/10.21037/tclr-21-554

*As the checklist was provided upon initial submission, the section/line number reported may be changed due to copyediting and may not be referable in the published version.