

## **Materials Design Analysis Reporting (MDAR) Checklist for Authors**

The MDAR framework establishes a minimum set of requirements in transparent reporting applicable to studies in the life sciences (see Statement of Task: [doi:10.31222/osf.io/9sm4x](https://doi.org/10.31222/osf.io/9sm4x)). The MDAR checklist is a tool for authors, editors and others seeking to adopt the MDAR framework for transparent reporting in manuscripts and other outputs. Please refer to the MDAR Elaboration Document for additional context for the MDAR framework.

**Materials**

<b>Antibodies</b>	<b>Yes (indicate where provided:</b>	<b>n/a</b>
For commercial reagents, provide supplier name, catalogue number and RRID, if available.	Yes (We strictly abide by this standard and describe it in detail in the "qRT-PCR" and "Western blot analysis" paragraphs of the "Methods" section.)	
<b>Cell materials</b>	<b>Yes (indicate where provided:</b>	<b>n/a</b>
<b>Cell lines:</b> Provide species information, strain. Provide accession number in repository <b>OR</b> supplier name, catalog number, clone number, <b>OR</b> RRID		N/A Our study does not involve cell culture.
<b>Primary cultures:</b> Provide species, strain, sex of origin, genetic modification status.		N/A Our study does not involve cell culture.
<b>Experimental animals</b>	<b>Yes (indicate where provided:</b>	<b>n/a</b>
<b>Laboratory animals:</b> Provide species, strain, sex, age, genetic modification status. Provide accession number in repository <b>OR</b> supplier name, catalog number, clone number, <b>OR</b> RRID		N/A Our research does not include animal experiments.
<b>Animal observed in or captured from the field:</b> Provide species, sex and age where possible		N/A Our research does not include animal experiments.
<b>Model organisms:</b> Provide Accession number in repository (where relevant) <b>OR</b> RRID		N/A Our research does not include animal experiments.
<b>Plants and microbes</b>	<b>Yes (indicate where provided:</b>	<b>n/a</b>
<b>Plants:</b> provide species and strain, unique accession number if available, and source (including location for collected wild specimens)		N/A Our research does not include plant experiments.
<b>Microbes:</b> provide species and strain, unique accession number if available, and source		N/A Our research does not include microbe experiments.
<b>Human research participants</b>	<b>Yes (indicate where provided:</b>	<b>n/a</b>
Identify authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.	Yes (We strictly follow the standard and describe it in detail in the "Data source" paragraph of the "Methods" section.) And a scanned copy of the approval report of the Zhengzhou University Life Sciences Ethics Review Committee for this study has been submitted to your journal along with the manuscript	
Provide statement confirming informed consent obtained from study participants.	Yes (We strictly follow the standard and describe it in detail in the "Data source" paragraph of the "Methods" section.)	
Report on age and sex for all study participants.		N/A Our experimental study does not need to analyze the age and gender information of human research.

**Design**

<b>Study protocol</b>	<b>Yes (indicate where provided:</b>	<b>n/a</b>
For clinical trials, provide the trial registration number <b>OR</b> cite DOI in manuscript.		N/A Our experimental study does not include clinical trials.
<b>Laboratory protocol</b>	<b>Yes (indicate where provided:</b>	<b>n/a</b>
Provide DOI or other citation details if detailed step-by-step protocols are available.		N/A Our experimental study does not require a laboratory protocol.
<b>Experimental study design (statistics details)</b>	<b>Yes (indicate where provided:</b>	<b>n/a</b>
State whether and how the following have been done, <b>or</b> if they were not carried out.		
Sample size determination	Yes (We strictly follow the standard and describe it in detail in the "Data source" paragraph of the "Methods" section.)	
Randomisation	Yes (We strictly follow the standard and describe it in detail in the "Data source" paragraph of the "Methods" section.)	
Blinding		N/A Our experimental study does not require this.
Inclusion/exclusion criteria	Yes (We strictly follow the standard and describe it in detail in the "Data source" paragraph of the "Methods" section.)	
<b>Sample definition and in-laboratory</b>	<b>Yes (indicate where provided:</b>	<b>n/a</b>
State number of times the experiment was replicated in laboratory	Yes (We strictly abide by this standard and describe it in detail in the "qRT-PCR" analysis" and "Western blot analysis" paragraphs of the "Methods" section.)	
Define whether data describe technical or biological replicates		N/A Our experimental study does not require this.
<b>Ethics</b>	<b>Yes (indicate where provided:</b>	<b>n/a</b>
Studies involving human participants: State details of authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.	Yes (We strictly follow the standard and describe it in detail in the "Data source" paragraph of the "Methods" section.) And a scanned copy of the approval report of the Zhengzhou University Life Sciences Ethics Review Committee for this study has been submitted to your journal along with the manuscript	
Studies involving experimental animals: State details of authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.		N/A Our experimental study does not involve animal experiments.
Studies involving specimen and field samples: State if relevant permits obtained, provide details of authority approving study; if none were required, explain why.		N/A Our experimental study does not involve specimen and field samples.
<b>Dual Use Research of Concern (DURC)</b>	<b>Yes (indicate where provided:</b>	<b>n/a</b>

If study is subject to dual use research of concern, state the authority granting approval and reference number for the regulatory approval		N/A This study is not subject to dual use research of concern.
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## Analysis

<b>Attrition</b>	<b>Yes (indicate where provided: section/paragraph)</b>	<b>n/a</b>
State if sample or data point from the analysis is excluded, and whether the criteria for exclusion were determined and specified in advance.	Yes (We strictly follow the standard and describe it in detail in the "Data source" paragraph of the "Methods" section.)	
<b>Statistics</b>	<b>Yes (indicate where provided: section/paragraph)</b>	<b>n/a</b>
Describe statistical tests used and justify choice of tests.	Yes (We strictly follow the standard and describe it in detail in the "Data source" paragraph of the "Statistical analysis" section.)	
<b>Data Availability</b>	<b>Yes (indicate where provided: section/paragraph)</b>	<b>n/a</b>
State whether newly created datasets are available, including protocols for access or restriction on access.	Yes (We strictly follow the standard and describe it in detail in the "Data Sharing Statement" section.)	
If data are publicly available, provide accession number in repository or DOI or URL.		N/A Not applicable to our study.
If publicly available data are reused, provide accession number in repository or DOI or URL, where possible.		N/A Not applicable to our study.
<b>Code Availability</b>	<b>Yes (indicate where provided: section/paragraph)</b>	<b>n/a</b>
For all newly generated code and software essential for replicating the main findings of		
State whether the code or software is available.		N/A Not applicable to our study.
If code is publicly available, provide accession number in repository, or DOI or URL.		N/A Not applicable to our study.

## Reporting

<b>Adherence to community standards</b>	<b>Yes (indicate where provided: section/paragraph)</b>	<b>n/a</b>
MDAR framework recommends adoption of discipline-specific guidelines, established and endorsed through community initiatives. Journals have their own policy about requiring specific guidelines and recommendations to complement MDAR.		
State if relevant guidelines (eg., ICMJE, MIBBI, ARRIVE) have been followed, and whether a checklist (eg., CONSORT, PRISMA, ARRIVE) is provided with the manuscript.	ICMJE guidelines were followed, as the journal follows ICMJE recommendations for publication.	

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