

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

Antibodies	Yes (indicate where provided: section/paragraph)	n/a
For commercial reagents, provide supplier name, catalogue number and RRID, if available.	No antibodies are used in this research.	✓
Cell materials	Yes (indicate where provided: section/paragraph)	n/a
Cell lines: Provide species information, strain. Provide accession number in repository OR supplier name, catalog number, clone number, OR RRID	Sample information section, 1 st paragraph,	
Primary cultures: Provide species, strain, sex of origin, genetic modification status.	Sample information section, 1 st paragraph	
Experimental animals	Yes (indicate where provided: section/paragraph)	n/a
Laboratory animals: Provide species, strain, sex, age, genetic modification status. Provide accession number in repository OR supplier name, catalog number, clone number, OR RRID	Species: mouse Strain: spleen Age: 6-8 weeks old SPF class Supplier: Guangzhou Yancheng Biotechnology Co., Ltd	
Animal observed in or captured from the field: Provide species, sex and age where possible	No captured animal is used	✓
Model organisms: Provide Accession number in repository (where relevant) OR RRID		✓
Plants and microbes	Yes (indicate where provided: section/paragraph)	n/a
Plants: provide species and strain, unique accession number if available, and source (including location for collected wild specimens)	No plants or microbes are used in this research.	✓
Microbes: provide species and strain, unique accession number if available, and source	No plants or microbes are used in this research.	✓
Human research participants	Yes (indicate where provided: section/paragraph)	n/a
Identify authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.	No human research participants are used in this research.	✓
Provide statement confirming informed consent obtained from study participants.	No human research participants are used in this research.	✓
Report on age and sex for all study participants.	No human research participants are used in this	✓

Design

Study protocol	Yes (indicate where provided: section/paragraph)	n/a
For clinical trials, provide the trial registration number OR cite DOI in manuscript.	No clinical trials are used in this research.	✓
Laboratory protocol	Yes (indicate where provided: section/paragraph)	n/a
Provide DOI or other citation details if detailed step-by-step protocols are available.	RNA extraction and quality control 1 st paragraph Detection and analysis of LC-MS metabolomics 1 st -2 nd paragraph	
Experimental study design (statistics details)	Yes (indicate where provided: section/paragraph)	n/a
State whether and how the following have been done, or if they were not carried out.		
Sample size determination	Sample information section, 1 st paragraph	
Randomisation	Sample information section, 1 st paragraph	
Blinding	Sample information section, 1 st paragraph	
Inclusion/exclusion criteria	Sample information section, 1 st paragraph	
Sample definition and in-laboratory replication	Yes (indicate where provided: section/paragraph)	n/a
State number of times the experiment was replicated in laboratory	Methods section	
Define whether data describe technical or biological replicates	Statistical analysis section	
Ethics	Yes (indicate where provided: section/paragraph)	n/a
Studies involving human participants: State details of authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.	No human participants	✓
Studies involving experimental animals: State details of authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.	No granting ethics approval needed	✓
Studies involving specimen and field samples: State if relevant permits obtained, provide details of authority approving study; if none were required, explain why.	No permit needed	✓
Dual Use Research of Concern (DURC)	Yes (indicate where provided: section/paragraph)	n/a
If study is subject to dual use research of concern, state the authority granting approval and reference number for the regulatory approval	This study is not subject to dual use research of concern	✓

Analysis

Attrition	Yes (indicate where provided: section/paragraph)	n/a
State if sample or data point from the analysis is excluded, and whether the criteria for exclusion were determined and specified in advance.		✓
Statistics	Yes (indicate where provided: section/paragraph)	n/a
Describe statistical tests used and justify choice of tests.	Statistical analysis	
Data Availability	Yes (indicate where provided: section/paragraph)	n/a
State whether newly created datasets are available, including protocols for access or restriction on access.	No newly created datasets.	✓
If data are publicly available, provide accession number in repository or DOI or URL.	http://prime.psc.riken.jp/compms/msdial/main.html#MSP	
If publicly available data are reused, provide accession number in repository or DOI or URL, where possible.	http://prime.psc.riken.jp/compms/msdial/main.html#MSP	
Code Availability	Yes (indicate where provided: section/paragraph)	n/a
For all newly generated code and software essential for replicating the main findings of the study:	No newly generated code and software	
State whether the code or software is available.		✓
If code is publicly available, provide accession number in repository, or DOI or URL.		✓

Reporting

Adherence to community standards	Yes (indicate where provided: section/paragraph)	n/a
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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