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.). 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.		NA

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,	Cell lines were not used in this work.	n/a
Primary cultures: Provide species, strain, sex of origin, genetic	Cell lines were not used in this work.	n/a

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	Laboratory animals were not used in this work.	n/a
Animal observed in or captured from the field: Provide species, sex and age where possible	Animal observed in or captured from the field were not used in this work.	n/a
Model organisms: Provide Accession number in repository (where	Model organisms were not used in this work.	n/a

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	Plants were not used in this work.	n/a
Microbes: provide species and strain, unique accession number if available,	Microbes were not used in this work.	n/a

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.	Yes. Please see methods/paragraph 1.	
Provide statement confirming informed consent obtained from study participants.	Yes. Please see methods/paragraph 1.	
Report on age and sex for all study	Yes. Please see results/paragraph 1.	

Design

Study protocol	Yes (indicate where provided: section/paragraph)	n/a
For clinical trials, provide the trial registration number **OR** cite DOI in manuscript.	This work was not referring to clinical trials.	n/a

Laboratory protocol	Yes (indicate where provided: section/paragraph)	n/a
Provide DOI or other citation details if detailed step-by-step protocols are available.	Yes. Please see methods/paragraph 2,3,4, and 5.	

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	Yes. Please see methods/paragraph 1.	
Randomisation	Randomisation is required for clinical trials or prospective studies. This study was not referring to clinical trials or prospective studies.	n/a
Blinding	Blinding is required for clinical trials or prospective studies. This study was not referring to clinical trials or prospective studies.	n/a
Inclusion/exclusion criteria	Yes. Please see methods/paragraph 1	

Sample definition and in-laboratory replication	Yes (indicate where provided: section/paragraph)	n/a
State number of times the experiment was replicated in laboratory	*In vivo* or *in vitro* studies were not performed in this work.	n/a
Define whether data describe technical or biological replicates	Yes. Please see methods/paragraph 1.	

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.	Yes. Please see methods/paragraph 1.	
Studies involving experimental animals: State details of authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.	Experimental animals were not used in this work.	n/a
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

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 work was not referring to dual use research of concern.	n/a

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.		NA

Statistics	Yes (indicate where provided: section/paragraph)	n/a
Describe statistical tests used and justify choice of tests.	Methods/paragraph 5	

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.	Yes. Please see methods/paragraph 6.	
If data are publicly available, provide accession number in repository or DOI or URL.	Data used to support the results of this study can be obtained from the corresponding author.	n/a
If publicly available data are reused, provide accession number in repository or DOI or URL, where possible.	Data used to support the results of this study can be obtained from the corresponding author.	n/a

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:		
State whether the code or software is available.	No new code and software were generated in this work.	n/a
If code is publicly available, provide accession number in repository, or DOI or URL.	No new code and software were generated in this work.	n/a

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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