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.	Yes, we indicated in Method section provided in corresponding assay.	

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	Yes, We indicated in cells and tissue specimens section of Method section.	
Primary cultures: Provide species, strain, sex of origin, genetic modification status.	We didn't perform primary cultures.	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 number, **OR** RRID	We didn't perform animal experiment.	n/a
Animal observed in or captured from the field: Provide species, sex and age where possible	We didn't perform animal experiment.	n/a
Model organisms: Provide Accession number in repository (where relevant) **OR** RRID	We didn't perform animal experiment.	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 specimens)	We didn't perform plant and microbe experiment.	n/a
Microbes: provide species and strain, unique accession number if available, and source	We didn't perform plant and microbe experiment.	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, we indicated in Method section cell and tissue specimens. Besides, we also provided in footnote.	
Provide statement confirming informed consent obtained from study participants.	Yes, we indicated in Method section cell and tissue specimens. Besides, we also provided in footnote.	
Report on age and sex for all study participants.	Yes, we provided in Supplementary table 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.	We didn't performed 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, we provided in corresponding assay of Method section.	

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	They were not carried out.	n/a
Randomisation	They were not carried out.	n/a
Blinding	They were not carried out.	n/a
Inclusion/exclusion criteria	They were not carried out.	n/a

Sample definition and in-laboratory replication	Yes (indicate where provided: section/paragraph)	n/a
State number of times the experiment was replicated in laboratory	Yes, we provide in Statistical analysis of Method section.	
Define whether data describe technical or biological replicates	Yes, we provide in Statistical analysis of Method 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.	Yes, we indicated in Method section cell and tissue specimens. Besides, we also provided in footnote.	
Studies involving experimental animals: State details of authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.	We didn't performed animal experiment.	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.	Yes, we indicated in Method section cell and tissue specimens. Besides, we also provided in footnote.	

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	The study isn't subject 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.	No sample is excluded.	n/a

Statistics	Yes (indicate where provided: section/paragraph)	n/a
Describe statistical tests used and justify choice of tests.	Yes, we provide in Statistical analysis of Method section.	

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.	n/a
If data are publicly available, provide accession number in repository or DOI or URL.	No newly created datasets.	n/a
If publicly available data are reused, provide accession number in repository or DOI or URL, where possible.	Yes, we provided in paragraph 1 of results section.	

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 newly generated code and software.	n/a
If code is publicly available, provide accession number in repository, or DOI or URL.	No publicly available code.	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 guidelines for publication.	

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