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.	Supplier names of commercial reagents were provided in "Methods" section.	

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		Cell lines were not utilized in the present work.
Primary cultures: Provide species, strain, sex of origin, genetic modification status.		Cell lines were not utilized in the present work.

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		Animal experiments were not carried out in the present work.
Animal observed in or captured from the field: Provide species, sex and age where possible		Animal experiments were not carried out in the present work.
Model organisms: Provide Accession number in repository (where relevant) **OR** RRID		Animal experiments were not carried out in the present work.

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 utilized in the present work.
Microbes: provide species and strain, unique accession number if available,		Microbes were not utilized in the present work.

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.	Authority granting ethics approval and reference number for approval were provided in "Footnote" section.	
Provide statement confirming informed consent obtained from study participants.	Informed consent statement was provided in "Footnote" section.	
Report on age and sex for all study participants.	The age and sex for all study participants were provided in "Result" section and 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.		Clinical trials were not carried out in the present work.

Laboratory protocol	Yes (indicate where provided: section/paragraph)	n/a
Provide DOI or other citation details if detailed step-by-step protocols are available.		Step-by-step protocols are shown in manual instructions for commercial reagents and kits.

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 ("Method" section and Figure S1).	
Randomisation		Randomisation was not required for the present work.
Blinding		Blinding was not required for the present work.
Inclusion/exclusion criteria	Yes ("Method" section and Figure S1).	

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 vitro* and or *in vivo* studies were not carried out in the present study.
Define whether data describe technical or biological replicates		*In vitro* and or *in vivo* studies were not carried out in the present study.

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.	Authority granting ethics approval and reference number for approval were provided in "Footnote" section.	
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 utilized in the present work.
Studies involving specimen and field samples: State if relevant permits obtained, provide details of authority approving study; if none were required, explain why.	Informed consent statement from study participants was provided in "Footnote" section.	

Dincluual 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		Dual use research of concern did not involve the present work.

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.	The inclusion/exclusion criteria were provided in "Methods" section.	

Statistics	**Yes (indicate where provided: section/paragraph)**	**n/a**
Describe statistical tests used and justify choice of tests.	Yes ("Methods" 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.		
If data are publicly available, provide accession number in repository or DOI or URL.		Data were not publicly available.
If publicly available data are reused, provide accession number in repository or DOI or URL, where possible.		

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.	The name of software utilized in our present work was provided in "Methods" section.	
If code is publicly available, provide accession number in repository, or DOI or URL.		In-house analysis scripts were utilized in the present work.

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. MDAR checklist is provided with the manuscript.	

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