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. 1. In material and methods part 2.1 and 2.2, DMEM with high glucose was from Gibco (catalogue no. 11995065), PRIM 1640 was from Gibco (catalogue no. 11875085), FBS was from Gibco (catalogue no. 10099141C), and penicillin-streptomycin (PS) was from HyClone (catalogue no. SV30010). 2. In figure 1 and 4, FITC Annexin V Apoptosis Detection Kit I (catalogue no. 556547; BD Pharmingen), which includes Anti-Annexin V-FITC antibody and PI, were used to detect cell apoptosis. 3. In material and methods part 2.3, the cell counting kit-8 (CCK-8) assay (catalogue no. CK04; Dojindo, Japan) was used to evaluate cell proliferation and viability. 4. In material and methods part 2.5, cell cycle and apoptosis detection kit (catalogue no. C1052; Beyotime, China) was used to detect the cell cycle. 5. In material and methods part 2.7, Total RNA was isolated using TRIzol reagent (catalogue no. 15596026; Invitrogen, USA), and cDNA was synthesized with a ReverTra Ace qPCR RT kit (catalogue no. FSK-101; Toyobo, Japan). qPCR was performed with SYBR Green real-time PCR master mix (catalogue no. QPK-201; Toyobo, Japan).	

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. RAW264.7 and A7r5 cells were used in this study, which was obtained from Cell Bank of the Chinese Academy of Sciences (Shanghai, China). The catalog number of RAW264.7 and A7r5 cells were 3111C0001CCC000146 and 3131C0001000500007, respectively.	
Primary cultures: Provide species, strain, sex of origin, genetic modification status.		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		n/a
Animal observed in or captured from the field: Provide species, sex and age where possible		n/a
Model organisms: Provide Accession number in repository (where relevant) **OR** RRID		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)		n/a
Microbes: provide species and strain, unique accession number if available, and source		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.		n/a
Provide statement confirming informed consent obtained from study participants.		n/a
Report on age and sex for all study participants.		n/a

Design

Study protocol	Yes (indicate where provided: section/paragraph)	n/a
For clinical trials, provide the trial registration number **OR** cite DOI in manuscript.		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.	For JDBM extract preparation was prepared according to the previous studies, including PMID: 31849975, 29538391 and 25428068. (Material and Methods part: 2.1)	

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		n/a
Randomisation		n/a
Blinding		n/a
Inclusion/exclusion criteria		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. The RT-QPCR assay was replicated for 4 times (Results part: 3.2, 3.3, 3.4, 3.5 and 3.7). The ion concentration and pH detection were replicated for 4 times (Results part: 3.1) The CCK-8 assay was replicated for 3 times (Results part: 3.1 and 3.5). Apoptosis detection was replicated for 3 times (Results part: 3.1 and 3.4) Cell cycle analysis was replicated for 3 times (Results part: 3.5) Transwell migration and wound healing assays were replicated for 3 times (Results part: 3.6)	
Define whether data describe technical or biological replicates	These data describe biological replicates.	

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.		n/a
Studies involving experimental animals: State details of authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.		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		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.		n/a

Statistics	Yes (indicate where provided: section/paragraph)	n/a
Describe statistical tests used and justify choice of tests.	Yes. Statistical analysis was performed by using Mann-Whitney U test or one-way ANOVA with Tukey's honestly significant difference (HSD) test.	

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.		n/a
If data are publicly available, provide accession number in repository or DOI or URL.		n/a
If publicly available data are reused, provide accession number in repository or DOI or URL, where possible.		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:		n/a
State whether the code or software is available.		n/a
If code is publicly available, provide accession number in repository, or DOI or URL.		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.	Yes.	
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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