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.	Provided in the parts "Materials and methods" of the manuscripts.	

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	Provided in the parts" Materials and methods" of the manuscripts.	
Primary cultures: Provide species, strain, sex of origin, genetic modification status.	Provided in the parts "Materials and methods" of the manuscripts.	

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	No laboratory animals were used.	
Animal observed in or captured from the field: Provide species, sex and age where possible	No Animal observed in or captured from the field.	
Model organisms: Provide Accession number in repository (where relevant) **OR** RRID	No model organisms.	

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.	
Microbes: provide species and strain, unique accession number if available, and source	No microbes.	

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.	Acknowledgments section, Ethical Statement.	
Provide statement confirming informed consent obtained from study participants.	Acknowledgments section, Ethical Statement.	
Report on age and sex for all study participants.	Patient collection without the sex and age, because the method developed was age-and sex-independent.	

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 were conducted.	

Laboratory protocol	Yes (indicate where provided: section/paragraph)	n/a
Provide DOI or other citation details if detailed step-by-step protocols are available.	All methods are concise and important modification parameters are provided. It will be easy to repeat by professionals in the field through “material &method”.	n/a

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	No. This study is an exploratory research non clinical trial, there was no statistical design in the beginning, but further comparison of the performance of this method requires consideration of statistical significance in sample size and sample comparison.	
Randomisation	No, for the same reason.	
Blinding	No, for the same reason.	
Inclusion/exclusion criteria	No, for the same reason.	

Sample definition and in-laboratory replication	Yes (indicate where provided: section/paragraph)	n/a
State number of times the experiment was replicated in laboratory	For clinical samples, there was no duplication due to the limitation of cfDNA residue.	
Define whether data describe technical or biological replicates	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.	Acknowledgments section, Ethical Statement.	
Studies involving experimental animals: State details of authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.	No experimental animals were used.	
Studies involving specimen and field samples: State if relevant permits obtained, provide details of authority approving study; if none were required, explain why.	Studies that do not involve specimen or field samples.	

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	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.	In this article, we did not discard any samples or data points that have passed the criteria mentioned in our analysis method.	

Statistics	Yes (indicate where provided: section/paragraph)	n/a
Describe statistical tests used and justify choice of tests.	We use Wilcoxon rank-sum test for analyses that compared two groups because the sample size is small and does not conform to the normal distribution in our data.	

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, for the data used in this article, if the researcher has a very valid reason, he can send an email to the corresponding author to obtain it.	
If data are publicly available, provide accession number in repository or DOI or URL.	No.	
If publicly available data are reused, provide accession number in repository or DOI or URL, where possible.	No, public available data was not used in this work.	

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.	Sequencing raw data analysis is done through common software in the field, which has been clearly described in the method section of the article. The insertsize of paired-end sequences was extracted from bam file using samtools.	
If code is publicly available, provide accession number in repository, or DOI or URL.	No.	

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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