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.	Current study did not use any antibody	

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	Current study did not use any cell materials	
Primary cultures: Provide species, strain, sex of origin, genetic modification status.	Current study did not use any cell materials	

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	Current study did not use any experimental animal	
Animal observed in or captured from the field: Provide species, sex and age where possible	Current study did not use any experimental animal	
Model organisms: Provide Accession number in repository (where relevant) **OR** RRID	Current study did not use any experimental animal	

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)	Current study did not use any plant and microbe	
Microbes: provide species and strain, unique accession number if available, and source	Current study did not use any plant and microbe	

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.	Current study did not include any human participant	
Provide statement confirming informed consent obtained from study participants.	Current study did not include any human participant	
Report on age and sex for all study participants.	Current study did not include any human participant	

Design

Study protocol	Yes (indicate where provided: section/paragraph)	n/a
For clinical trials, provide the trial registration number **OR** cite DOI in manuscript.	Current study is not clinical study	

Laboratory protocol	Yes (indicate where provided: section/paragraph)	n/a
Provide DOI or other citation details if detailed step-by-step protocols are available.	Methods(section2)/paragraph 2.1-2.2	

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.	Current study did not design statistical analysis. Because the image reconstruction algorithm does not need the data of other cases, just a phantom image is enough.	
Sample size determination	Not applicable	
Randomisation	Not applicable	
Blinding	Not applicable	
Inclusion/exclusion criteria	Not applicable	

Sample definition and in-laboratory replication	Yes (indicate where provided: section/paragraph)	n/a
State number of times the experiment was replicated in laboratory	Current study did not include in-laboratory replication	
Define whether data describe technical or biological replicates	Not applicable	

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.	Current study did not include any human participant	
Studies involving experimental animals: State details of authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.	Current study did not include any experimental animal	
Studies involving specimen and field samples: State if relevant permits obtained, provide details of authority approving study; if none were required, explain why.	Current study did not include any specimen and field sample	

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	Current study did not include 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.	Current study did not include the step of data selection	

Statistics	Yes (indicate where provided: section/paragraph)	n/a
Describe statistical tests used and justify choice of tests.	Results(section3)/paragraph 3.1-3.2	

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.	Current study did not create new datasets	
If data are publicly available, provide accession number in repository or DOI or URL.	Not applicable	
If publicly available data are reused, provide accession number in repository or DOI or URL, where possible.	Not applicable	

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:	Current study did not generate new software	
State whether the code or software is available.	Results(section3)/paragraph 3.1-3.2	
If code is publicly available, provide accession number in repository, or DOI or URL.	Current study has not disclosed the code	

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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