# 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: | n/a |
|---|---|---|
| For commercial reagents, provide supplier name, catalogue number and RRID, if available. | | **n/a** **Some detailed content is missing after a long time.** |

| Cell materials | Yes  (indicate where provided: | n/a |
|---|---|---|
| **Cell lines:** Provide species information, strain. Provide accession number in repository **OR** supplier name, catalog number, clone number, **OR** RRID | | **n/a** **Some detailed content is missing after a long time.** |
| **Primary cultures:** Provide species, strain, sex of origin, genetic modification status. | | **n/a** **No** species was involved |

| Experimental animals | Yes  (indicate where provided: section/paragraph) | n/a No animals was involved. |
|---|---|---|
| **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** **No animals was involved.** |
| **Animal observed in or captured from the field:** Provide species, sex and age where possible | | **n/a** **No animals was involved.** |
| **Model organisms:** Provide Accession number in repository (where relevant) **OR** RRID | | **n/a** **No animals was involved.** |

| Plants and microbes | Yes  (indicate where provided: | n/a |
|---|---|---|
| **Plants:** provide species and strain, unique accession number if available, and source (including location for collected wild specimens) | | **n/a** No wild specimens was involved |
| **Microbes:** provide species and strain, unique accession number if available, and source | | **n/a** **No** species was involved |

| Human research participants | Yes  (indicate where provided: | n/a |
|---|---|---|
| Identify authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval. | | **n/a** **This is not** clinical trial |
| Provide statement confirming informed consent obtained from study participants. | | **n/a** **This is not** clinical trial |
| Report on age and sex for all study participants. | | **n/a** **This is not** clinical trial |

## Design

| Study protocol | Yes  (indicate where provided: | n/a |
|---|---|---|
| For clinical trials, provide the trial registration number **OR** cite DOI in manuscript. | | **n/a** <br> **This is not**  clinical trial |

| Laboratory protocol | Yes  (indicate where provided: | n/a |
|---|---|---|
| Provide DOI or other citation details if detailed step-by-step protocols are available. | | **n/a** <br> **This is not**  clinical trial |

| Experimental study design (statistics details) | Yes  (indicate where provided: section/paragraph) | n/a <br> **This is not**  clinical trial |
|---|---|---|
| State whether and how the following have been done**, or** if they were not carried out. | | **n/a** <br> **This is not**  clinical trial |
| Sample size determination | | **n/a** <br> **This is not**  clinical trial |
| Randomisation | | **n/a** <br> **This is not**  clinical trial |
| Blinding | | **n/a** <br> **This is not**  clinical trial |
| Inclusion/exclusion criteria | | **n/a** <br> **This is not**  clinical trial |

| Sample definition and in-laboratory replication | Yes  (indicate where provided: section/paragraph) | |
|---|---|---|
| State number of times the experiment was replicated in laboratory | Yes. In the last paragraph of the methods section | |
| Define whether data describe technical or biological replicates | | n/a |

| Ethics | Yes  (indicate where provided: | 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** <br> **This is not**  clinical trial |
| Studies involving experimental animals: State details of authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval. | | **n/a** <br> **This study has no in vivo experiment.** |
| 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** <br> **This is not**  clinical trial. No specimen was involved |

| Dual Use Research of Concern (DURC) | Yes  (indicate where provided: | 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** <br>  This study is not subject to dual use research of  concern. |

## Design

## Analysis

| Attrition | Yes (indicate where | 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** study is subject to dual use research of concern |

| Statistics | Yes (indicate where provided: section/paragraph) | n/a |
|---|---|---|
| Describe statistical tests used and justify choice of tests. | Yes. We have described statistical tests in the section of ##Statistical analysis. | |

| Data Availability | Yes (indicate where | n/a |
|---|---|---|
| State whether newly created datasets are available, including protocols for access or restriction on access. | | **n/a** No datasets was involved |
| If data are publicly available, provide accession number in repository or DOI or URL. | | **n/a** No datasets was involved |
| If publicly available data are reused, provide accession number in repository or DOI or URL, where possible. | | **n/a** No datasets was involved |

| Code Availability | Yes (indicate where provided: section/paragraph) | **n/a** No newly generated code and software was involved. |
|---|---|---|
| For all newly generated code and software essential for replicating the main findings of the study: | | **n/a** No newly generated code and software was involved. |
| State whether the code or software is available. | | **n/a** No newly generated code and software was involved. |
| If code is publicly available, provide accession number in repository, or DOI or URL. | | **n/a** No code was involved. |

## 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. | | **n/a** |
| 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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