

## **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](https://doi.org/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**

|   |  |            |
|---|--|------------|
| <b>Antibodies</b>   | <b>Yes (indicate where provided: section/paragraph)</b>  | <b>n/a</b> |
| For commercial reagents, provide supplier name, catalogue number and RRID, if available.  | See Page 5, line 12, Methods section, paragraph 4.   |            |
| <b>Cell materials</b>   | <b>Yes (indicate where provided: section/paragraph)</b>  | <b>n/a</b> |
| <b>Cell lines:</b> Provide species information, strain. Provide accession number in repository <b>OR</b> supplier name, catalogue number, clone number, <b>OR</b> RRID                                  | See Page 4, line 17, Methods section, paragraph 3. The catalog number of human breast cancer cell line MCF-7 is TCHu 47. The catalog number of human breast cancer cell line T-47D is TCHu 87. |            |
| <b>Primary cultures:</b> Provide species, strain, sex of origin, genetic modification status.   |  | Not used.  |
| <b>Experimental animals</b>   | <b>Yes (indicate where provided: section/paragraph)</b>  | <b>n/a</b> |
| <b>Laboratory animals:</b> Provide species, strain, sex, age, genetic modification status. Provide accession number in repository <b>OR</b> supplier name, catalog number, clone number, <b>OR</b> RRID |  | Not used.  |
| <b>Animal observed in or captured from the field:</b> Provide species, sex and age where possible   |  | Not used.  |
| <b>Model organisms:</b> Provide Accession number in repository (where relevant) <b>OR</b> RRID  |  | Not used.  |
| <b>Plants and microbes</b>  | <b>Yes (indicate where provided: section/paragraph)</b>  | <b>n/a</b> |
| <b>Plants:</b> provide species and strain, unique accession number if available, and source (including location for collected wild specimens)   |  | Not used.  |
| <b>Microbes:</b> provide species and strain, unique accession number if available, and source   |  | Not used.  |
| <b>Human research participants</b>  | <b>Yes (indicate where provided: section/paragraph)</b>  | <b>n/a</b> |
| Identify authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.   | See Page 4, line 1, Methods section, paragraph 1, and Page 15, line 14, Footnote section, paragraph 2.   |            |
| Provide statement confirming informed consent obtained from study participants.   | See Page 4, line 1, Methods section, paragraph 1.  |            |
| Report on age and sex for all study participants.   | See Page 3, line 21, Methods section, paragraph 1.   |            |

**Design**

|   |  |  |
|---|--|--|
| <b>Study protocol</b>   | <b>Yes (indicate where provided: section/paragraph)</b>  | <b>n/a</b>   |
| For clinical trials, provide the trial registration number <b>OR</b> cite DOI in manuscript.  |  | This study is not a clinical trial.                        |
| <b>Laboratory protocol</b>  | <b>Yes (indicate where provided: section/paragraph)</b>  | <b>n/a</b>   |
| Provide DOI or other citation details if detailed step-by-step protocols are available.   |  | Detailed step-by-step protocols are not available.         |
| <b>Experimental study design (statistics details)</b>   | <b>Yes (indicate where provided: section/paragraph)</b>  | <b>n/a</b>   |
| State whether and how the following have been done, <b>or</b> if they were not carried out.   |  |  |
| Sample size determination   |  | Not carried out.   |
| Randomisation   |  | Not carried out.   |
| Blinding  |  | Not carried out.   |
| Inclusion/exclusion criteria  |  | Not carried out.   |
| <b>Sample definition and in-laboratory replication</b>  | <b>Yes (indicate where provided: section/paragraph)</b>  | <b>n/a</b>   |
| State number of times the experiment was replicated in laboratory   | See Page 8, line 9, Methods section, paragraph 12.   |  |
| Define whether data describe technical or biological replicates   | See Page 8, line 9, Methods section, paragraph 12. Biological samples were collected independently for 3 times and each sample was technically tested in triplicate. |  |
| <b>Ethics</b>   | <b>Yes (indicate where provided: section/paragraph)</b>  | <b>n/a</b>   |
| Studies involving human participants: State details of authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.   | See Page 4, line 1, Methods section, paragraph 1, and Page 15, line 14, Footnote section, paragraph 2.   |  |
| 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 used in this study.          |
| Studies involving specimen and field samples: State if relevant permits obtained, provide details of authority approving study; if none were required, explain why. |  | Specimen and field samples were not used in this study.    |
| <b>Dual Use Research of Concern (DURC)</b>  | <b>Yes (indicate where provided: section/paragraph)</b>  | <b>n/a</b>   |
| If study is subject to dual use research of concern, state the authority granting approval and reference number for the regulatory approval                         |  | This study is not subject to dual use research of concern. |

**Analysis**

|   |  |   |
|---|--|---|
| <b>Attrition</b>  | <b>Yes (indicate where provided: section/paragraph)</b>  | <b>n/a</b>  |
| State if sample or data point from the analysis is excluded, and whether the criteria for exclusion were determined and specified in advance. |  | No sample or data point from the analysis was excluded. |
| <b>Statistics</b>   | <b>Yes (indicate where provided: section/paragraph)</b>  | <b>n/a</b>  |
| Describe statistical tests used and justify choice of tests.  | See Page 8, line 9, Methods section, paragraph 12.   |   |
| <b>Data Availability</b>  | <b>Yes (indicate where provided: section/paragraph)</b>  | <b>n/a</b>  |
| State whether newly created datasets are available, including protocols for access or restriction on access.                                  |  | No newly created datasets was utilized.                 |
| If data are publicly available, provide accession number in repository or DOI or URL.   | See Page 4, line 5, Methods section, paragraph 2. Formal citations were included in the reference list. DOI of each reference is listed as follows: 10.1093/nar/gkx247; 10.1007/s10549-011-1457-7; 10.1186/1755-8794-2-18. |   |
| If publicly available data are reused, provide accession number in repository or DOI or URL, where possible.                                  | See Page 4, line 5, Methods section, paragraph 2. Formal citations were included in the reference list. DOI of each reference is listed as follows: 10.1093/nar/gkx247; 10.1007/s10549-011-1457-7; 10.1186/1755-8794-2-18. |   |
| <b>Code Availability</b>  | <b>Yes (indicate where provided: section/paragraph)</b>  | <b>n/a</b>  |
| For all newly generated code and software essential for replicating the main findings of the study:   |  |   |
| State whether the code or software is available.  | See Page 8, line 10, Methods section, paragraph 12.  |   |
| If code is publicly available, provide accession number in repository, or DOI or URL.   |  | No public code was used.                                |

**Reporting**

|  |   |            |
|--|---|------------|
| <b>Adherence to community standards</b>  | <b>Yes (indicate where provided: section/paragraph)</b>   | <b>n/a</b> |
| 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.   | All authors completed the ICMJE uniform disclosure forms. The forms were uploaded online. ICMJE guidelines were followed, as the journal follows ICMJE recommendations for publication. |            |

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