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.	Paragraph 3, 4 and 12 in MATERIALS AND METHODS section	

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	Paragraph 1 in MATERIALS AND METHODS section	
Primary cultures: Provide species, strain, sex of origin, genetic modification status.	Paragraph 13 in MATERIALS AND METHODS section	

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

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

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.	Paragraph 1 in MATERIALS AND METHODS section	
Provide statement confirming informed consent obtained from study participants.	Paragraph 1 in MATERIALS AND METHODS section	
Report on age and sex for all study participants.	Paragraph 1 in MATERIALS AND METHODS section	

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	

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

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	
Randomisation	No	
Blinding	No	
Inclusion/exclusion criteria	Paragraph 1 in MATERIALS AND METHODS section	

Sample definition and in-laboratory replication	Yes (indicate where provided: section/paragraph)	n/a
State number of times the experiment was replicated in laboratory	Paragraph 14 and 17 in MATERIALS AND METHODS section	
Define whether data describe technical or biological replicates	Paragraph 14 and 17 in MATERIALS AND METHODS section	

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.	Paragraph 1 in MATERIALS AND METHODS section	
Studies involving experimental animals: State details of authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.	No	
Studies involving specimen and field samples: State if relevant permits obtained, provide details of authority approving study; if none were required, explain why.	Paragraph 1 in MATERIALS AND METHODS section	

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	No	

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.	MATERIALS AND METHODS section	

Statistics	Yes (indicate where provided: section/paragraph)	n/a
Describe statistical tests used and justify choice of tests.	Paragraph 18 in MATERIALS AND METHODS section	

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.	Paragraph 1 in MATERIALS AND METHODS section	
If data are publicly available, provide accession number in repository or DOI or URL.	Paragraph 1 in MATERIALS AND METHODS section	
If publicly available data are reused, provide accession number in repository or DOI or URL, where possible.	Paragraph 1 in MATERIALS AND METHODS section	

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.	Paragraph 1, 2, 5, 6, 7, 8, 9 and 10 in MATERIALS AND METHODS section	
If code is publicly available, provide accession number in repository, or DOI or URL.	Paragraph 1, 2, 5, 6, 7, 8, 9 and 10 in MATERIALS AND METHODS section	

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 guidelines for publication.	

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The REMARK checklist

Item to be reported		Reported on Page Number/Line Number	Reported on Section/Paragraph
INTRODUCTION			
1	State the marker examined, the study objectives, and any pre-specified hypotheses.	Page 2 Line 48-50 Page 2 Line 55-57	Paragraph 1 and 2 of INTRODUCTION section
MATERIALS AND METHODS			
Patients			
2	Describe the characteristics (e.g., disease stage or co-morbidities) of the study patients, including their source and inclusion and exclusion criteria.	Page 2 Line 79-80	Paragraph 1 of MATERIALS AND METHODS section
3	Describe treatments received and how chosen (e.g., randomized or rule-based).	Page 2 Line 79-80	Paragraph 1 of MATERIALS AND METHODS section
Specimen characteristics			
4	Describe type of biological material used (including control samples) and methods of preservation and storage.	Page 2 Line 81-82	Paragraph 1 of MATERIALS AND METHODS section
Assay methods			
5	Specify the assay method used and provide (or reference) a detailed protocol, including specific reagents or kits used, quality control procedures, reproducibility assessments, quantitation methods, and scoring and reporting protocols. Specify whether and how assays were performed blinded to the study endpoint.	Page 3 Line 114-117	Paragraph 4 of MATERIALS AND METHODS section
Study design			
6	State the method of case selection, including whether prospective or retrospective and whether stratification or matching (e.g., by stage of disease or age) was used. Specify the time period from which cases were taken, the end of the follow-up period, and the median follow-up time.	Page 3 Line 118-121	Paragraph 4 of MATERIALS AND METHODS section
7	Precisely define all clinical endpoints examined.	Page 3 Line 118-121	Paragraph 4 of MATERIALS AND METHODS section
8	List all candidate variables initially examined or considered for inclusion in models.	Page 9 Line 318-319	Table 1
9	Give rationale for sample size; if the study was designed to detect a specified effect size, give the target power and effect size.	Page 9 Line 318-319	Table 1
Statistical analysis methods			
10	Specify all statistical methods, including details of any variable selection procedures and other model-building issues, how model assumptions were verified, and how missing data were handled.	Page 5 Line 226-234	Paragraph 18 of MATERIALS AND METHODS section

11	Clarify how marker values were handled in the analyses; if relevant, describe methods used for cutpoint determination.	Page 3 Line 118-121	Paragraph 4 of MATERIALS AND METHODS section

RESULTS			
Data			
12	Describe the flow of patients through the study, including the number of patients included in each stage of the analysis (a diagram may be helpful) and reasons for dropout. Specifically, both overall and for each subgroup extensively examined report the numbers of patients and the number of events.	Page 6 Line 257-263	Paragraph 1 of RESULTS section
13	Report distributions of basic demographic characteristics (at least age and sex), standard (disease-specific) prognostic variables, and tumor marker, including numbers of missing values.	Page 6 Line 257-263	Paragraph 1 of RESULTS section
Analysis and presentation			
14	Show the relation of the marker to standard prognostic variables.	Page 8 Line 285-288	Paragraph 2 of RESULTS section
15	Present univariable analyses showing the relation between the marker and outcome, with the estimated effect (e.g., hazard ratio and survival probability). Preferably provide similar analyses for all other variables being analyzed. For the effect of a tumor marker on a time-to-event outcome, a Kaplan-Meier plot is recommended.	Page 7 Line 266-272	Paragraph 2 of RESULTS section
16	For key multivariable analyses, report estimated effects (e.g., hazard ratio) with confidence intervals for the marker and, at least for the final model, all other variables in the model.	Page 8 Line 293-295	Paragraph 2 of RESULTS section
17	Among reported results, provide estimated effects with confidence intervals from an analysis in which the marker and standard prognostic variables are included, regardless of their statistical significance.	Page 6 Line 260-263	Paragraph 1 of RESULTS section
18	If done, report results of further investigations, such as checking assumptions, sensitivity analyses, and internal validation.	No	No
DISCUSSION			
19	Interpret the results in the context of the pre-specified hypotheses and other relevant studies; include a discussion of limitations of the study.	Page 14 to 18 Line 394-494	Paragraph 1to 5 of DISCUSSION section
20	Discuss implications for future research and clinical value.	Page 18 Line 495-504	Paragraph 6 to 7 of DISCUSSION section

From: McShane LM, Altman DG, Sauerbrei W, Taube SE, Gion M, Clark GM: Reporting recommendations for tumor marker prognostic studies (REMARK). J Natl Cancer Inst 2005; 97: 1180-1184.

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*As the checklist was provided upon initial submission, the page number/line number reported may be changed due to copyediting and may not be referable in the published version. In this case, the section/paragraph may be used as an alternative reference.