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	n/a
For commercial reagents, provide supplier name, catalogue number and RRID, if available.		Antibodies were not used in this study.

Cell materials	Yes (indicate where	n/a
Cell lines: Provide species information, strain. Provide accession number in repository **OR** supplier name, catalog number, clone number, **OR** RRID		Cell lines were not used in this study.
Primary cultures: Provide species, strain, sex of origin, genetic modification status.		Primary cultures were not used in this study.

Experimental animals	Yes (indicate where	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		Laboratory animals were not used in this study.
Animal observed in or captured from the field: Provide species, sex and age where possible		Animal observed in or captured from the field were not used in this study.
Model organisms: Provide Accession number in repository (where relevant) **OR** RRID		Model organisms were not used in this study.

Plants and microbes	Yes (indicate where	n/a
Plants: provide species and strain, unique accession number if available, and source (including location for collected wild specimens)		Plants were not used in this study.
Microbes: provide species and strain, unique accession number if available, and source		Microbes were not used in this study.

Human research participants	Yes (indicate where	n/a
Identify authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.		The data are from public databases and need not to be approved by the ethics committee.
Provide statement confirming informed consent obtained from study participants.		There were no clinical trials in this study.
Report on age and sex for all study participants.	Line231-239, page 7-8	

Design

Study protocol	Yes (indicate where	n/a
For clinical trials, provide the trial registration number **OR** cite DOI in manuscript.		There were no clinical trials in this study.

Laboratory protocol	Yes (indicate where	n/a
Provide DOI or other citation details if detailed step-by-step protocols are available.		There were no laboratory experiments in this study.

Experimental study design (statistics details)	Yes (indicate where	n/a
State whether and how the following have been done**, or** if they were not carried out.		
Sample size determination	Line 160-169, P5	
Randomisation		Randomisation was not included.
Blinding		Blinding was not included.
Inclusion/exclusion criteria	Line 156-159, P5	

Sample definition and in-laboratory replication	Yes (indicate where	n/a
State number of times the experiment was replicated in laboratory		There were no laboratory experiments in this study.
Define whether data describe technical or biological replicates		There were no laboratory experiments in this study.

Ethics	Yes (indicate where	n/a
Studies involving human participants: State details of authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.		The data are from public databases and need not to be approved by the ethics committee.
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 included 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.		The data are from public databases and need not to be approved.

Dual Use Research of Concern (DURC)	Yes (indicate where	n/a
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 subject not to DURC.

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.		No samples were excluded in this study.

Statistics	Yes (indicate where	n/a
Describe statistical tests used and justify choice of tests.	Line 165-166, P5 Line 173-174, P6	

Data Availability	Yes (indicate where	n/a
State whether newly created datasets are available, including protocols for access or restriction on access.		There was no newly created datasets.
If data are publicly available, provide accession number in repository or DOI or URL.		There was no newly created datasets.
If publicly available data are reused, provide accession number in repository or DOI or URL, where possible.	Line 155-156, P5 Line 168, P5	

Code Availability	Yes (indicate where	n/a
For all newly generated code and software essential for replicating the main findings of the study:		There was no newly generated code and software.
State whether the code or software is available.	Line 164-165, P5 Line 173,179,180,201, 202,P6 Line 209-210,217-218, 224-225, P7	
If code is publicly available, provide accession number in repository, or DOI or URL.	Line 164-165, P5 Line 173,179,180,201, 202,P6 Line 209-210,217-218, 224-225, P7	

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.	Page4/Line126-128 Page5/Line143-144	Introduction/paragraph5
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.	Page7-8/Line231-239 Page5/Line153-169	Method/Paragraph2
3	Describe treatments received and how chosen (e.g., randomized or rule-based).	Not applicable. Because the data of retrospective study come from the public database, and it does not involve management.	
Specimen characteristics			
4	Describe type of biological material used (including control samples) and methods of preservation and storage.	Not applicable. Because the data of retrospective study come from the public database, and it does not involve management.	
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.	Not applicable. Because the data of retrospective study come from the public database, and it does not involve management.	
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.	Not applicable. Because the data of retrospective study come from the public database, and it does not involve management.	
7	Precisely define all clinical endpoints examined.	Not applicable. Because the data of retrospective study come from the public database, and it does not involve management.	
8	List all candidate variables initially examined or considered for inclusion in models.	Not applicable. Because the data of retrospective study come from the public database, and it does not involve management.	
9	Give rationale for sample size; if the study was designed to detect a specified effect size, give the target power and effect size.	Not applicable. Because the data of retrospective study come from the public database, and it does not involve management.	
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.	Page7/Line223-227 Page5/Line166-169 Page8/Line239	Method/Paragraph9 Method/Paragraph1 Results/Paragraph1
11	Clarify how marker values were handled in the analyses; if relevant, describe methods used for cutpoint determination.	Page10/Line321	Results/Paragraph9

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.	Not applicable because this is not a clinical cohort study.	
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.	Page7-8/Line231-239	Results/Paragraph1
Analysis and presentation			
14	Show the relation of the marker to standard prognostic variables.	Not applicable, because this study did not establish a prognosis model, only analyzed the differential genes related to prognosis.	
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.	This study did not establish a prognosis model, so no univariable analyses were performed. Page10/319-331	This study did not establish a prognosis model, so no univariable analyses were performed. Results/Paragraph9
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.	Not applicable, because this study did not establish a prognosis model, only analyzed the differential genes related to prognosis.	
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.	Not applicable, because this study did not establish a prognosis model, only analyzed the differential genes related to prognosis.	
18	If done, report results of further investigations, such as checking assumptions, sensitivity analyses, and internal validation.	Page10/309-331 Page11/353-361	Results/Paragraph8-9 Results/Paragraph11
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.	Page12-15/382-500 Page15/500-503	Discussion/Paragraph1-5 Discussion/Paragraph6
20	Discuss implications for future research and clinical value.	Page15/503-504	Discussion/Paragraph6

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.