

## **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: page no/section/legend)</b>	<b>n/a</b>
For commercial reagents, provide supplier name, catalogue number and RRID, if available.	Supplementary material, page 7-8, Sample analyses in the section of Method details	
<b>Cell materials</b>	<b>Yes (indicate where provided: page no/section/legend)</b>	<b>n/a</b>
<b>Cell lines:</b> Provide species information, strain. Provide accession number in repository <b>OR</b> supplier name, catalog number, clone number, <b>OR</b> RRID		n/a
<b>Primary cultures:</b> Provide species, strain, sex of origin, genetic modification status.		n/a
<b>Experimental animals</b>	<b>Yes (indicate where provided: page no/section/legend)</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		n/a
<b>Animal observed in or captured from the field:</b> Provide species, sex and age where possible		n/a
<b>Model organisms:</b> Provide Accession number in repository (where relevant) <b>OR</b> RRID		n/a
<b>Plants and microbes</b>	<b>Yes (indicate where provided: page no/section/legend)</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)		n/a
<b>Microbes:</b> provide species and strain, unique accession number if available, and source		n/a
<b>Human research participants</b>	<b>Yes (indicate where provided: page no/section/legend)</b>	<b>n/a</b>
Identify authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.	Supplementary material, page 2, Study participants in the section of Experimental model and participant details	
Provide statement confirming informed consent obtained from study participants.	Supplementary material, page 2, Study participants in the section of Experimental model and participant details	
Report on age and sex for all study participants.	Supplementary material, page 21, Table S4	

## Design

<b>Study protocol</b>	<b>Yes (indicate where provided: page no/section/legend)</b>	<b>n/a</b>
For clinical trials, provide the trial registration number <b>OR</b> cite DOI in manuscript.	Trial registration number, title page of the manuscript, Abstract, and page 2 of Supplementary material in the Study participants section	
<b>Laboratory protocol</b>	<b>Yes (indicate where provided: page no/section/legend)</b>	<b>n/a</b>
Provide DOI or other citation details if detailed step-by-step protocols are available.	Supplementary material, page 2-9, Method details	
<b>Experimental study design (statistics details)</b>	<b>Yes (indicate where provided: page no/section/legend)</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	Supplementary material, page 8, Statistical Analyses	
Randomisation	Supplementary material, page 4, Randomization, intervention, and follow-up testing	
Blinding	Supplementary material, page 4, Randomization, intervention, and follow-up testing	
Inclusion/exclusion criteria	Supplementary material, page 2, Study participants	
<b>Sample definition and in-laboratory replication</b>	<b>Yes (indicate where provided: page no/section/legend)</b>	<b>n/a</b>
State number of times the experiment was replicated in laboratory	Main manuscript and figure legends	
Define whether data describe technical or biological replicates	Main manuscript and figure legends	
<b>Ethics</b>	<b>Yes (indicate where provided: page no/section/legend)</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.	Supplementary material, page 2, Study participants	
Studies involving experimental animals: State details of authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.		n/a
Studies involving specimen and field samples: State if relevant permits obtained, provide details of authority approving study; if none were required, explain why.	Supplementary material, page 2, Study participants	
<b>Dual Use Research of Concern (DURC)</b>	<b>Yes (indicate where provided: page no/section/legend)</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		n/a

## Analysis

<b>Attrition</b>	<b>Yes (indicate where provided: page no/section/legend)</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.	Data from all participants who completed the study were analyzed and reported. Details are stated in the Supplementary material, page 4-5, Randomization, intervention, and follow-up testing	
<b>Statistics</b>	<b>Yes (indicate where provided: page no/section/legend)</b>	<b>n/a</b>
Describe statistical tests used and justify choice of tests.	Main manuscript, figure legends; and Supplementary material, page 8, Statistical Analyses	
<b>Data Availability</b>	<b>Yes (indicate where provided: page no/section/legend)</b>	<b>n/a</b>
State whether newly created datasets are available, including protocols for access or restriction on access.		n/a
If data are publicly available, provide accession number in repository or DOI or URL.	All data from this study are available and the skeletal muscle sequencing datasets have been deposited (Gene Expression Omnibus database ( <a href="https://www.ncbi.nlm.nih.gov/geo">https://www.ncbi.nlm.nih.gov/geo</a> ) under accession no. GSE157988). There are no restrictions on data availability.	
If publicly available data are reused, provide accession number in repository or DOI or URL, where possible.		n/a
<b>Code Availability</b>	<b>Yes (indicate where provided: page no/section/legend)</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.		n/a
If code is publicly available, provide accession number in repository, or DOI or URL.		n/a

## Reporting

<b>Adherence to community standards</b>	<b>Yes (indicate where provided: page no/section/legend)</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.	CONSORT checklist is provided	