

## **Materials Design Analysis Reporting (MDAR) Checklist for Authors**

The [MDAR framework](#) establishes a minimum set of requirements in transparent reporting mainly applicable to studies in the life sciences.

*eLife* asks authors to **provide detailed information within their article** to facilitate the interpretation and replication of their work. Authors can also upload supporting materials to comply with relevant reporting guidelines for health-related research (see [EQUATOR Network](#)), life science research (see the [BioSharing Information Resource](#)), or animal research (see the [ARRIVE Guidelines](#) and the [STRANGE Framework](#); for details, see *eLife*'s [Journal Policies](#)). Where applicable, authors should refer to any relevant reporting standards materials in this form.

For all that apply, please note **where in the article** the information is provided. Please note that we also collect information about data availability and ethics in the submission form.

### **Materials:**

Newly created materials	Indicate where provided: section/figure legend	N/A
The manuscript includes a dedicated "materials availability statement" providing transparent disclosure about availability of newly created materials including details on how materials can be accessed and describing any restrictions on access.		NA

Antibodies	Indicate where provided: section/figure legend	N/A
For commercial reagents, provide supplier name, catalogue number and <a href="#">RRID</a> , if available.	Material and Methods section: <ul style="list-style-type: none"> <li>• Olink® Proteomics: Paragraph Inflammatory Proteome; <b>page 18, lines 276-286</b></li> <li>• Circulating inflammatory markers: paragraph Measurement of the circulating inflammatory mediators; <b>pages 18-19, lines 287-291</b></li> <li>• Plasma metabolome: paragraph Plasma Metabolome; <b>pages 19-20, lines 292-310</b></li> </ul>	

DNA and RNA sequences	Indicate where provided: section/figure legend	N/A
Short novel DNA or RNA including primers, probes: Sequences should be included or deposited in a public repository.		NA

<b>Cell materials</b>	<b>Indicate where provided: section/figure legend</b>	<b>N/A</b>
Cell lines: Provide species information, strain. Provide accession number in repository OR supplier name, catalog number, clone number, OR RRID.		NA
Primary cultures: Provide species, strain, sex of origin, genetic modification status.		NA

<b>Experimental animals</b>	<b>Indicate where provided: section/figure legend</b>	<b>N/A</b>
Laboratory animals or Model organisms: Provide species, strain, sex, age, genetic modification status. Provide accession number in repository OR supplier name, catalog number, clone number, OR RRID.		NA
Animal observed in or captured from the field: Provide species, sex, and age where possible.		NA

<b>Plants and microbes</b>	<b>Indicate where provided: section/figure legend</b>	<b>N/A</b>
Plants: provide species and strain, ecotype and cultivar where relevant, unique accession number if available, and source (including location for collected wild specimens).		NA
Microbes: provide species and strain, unique accession number if available, and source.		NA

<b>Human research participants</b>	<b>Indicate where provided: section/figure legend) or state if these demographics were not collected</b>	<b>N/A</b>
If collected and within the bounds of privacy constraints report on age, sex, gender and ethnicity for all study participants.	The demographic characteristics of study participants are provided in <b>Table 1</b> and <b>Table 1-Supplemental Figure 1</b> . More information is also available in the <b>Method section under study design and population (page 17; lines 253-267)</b>	

## Design:

Study protocol	Indicate where provided: section/figure legend	N/A
If the study protocol has been pre-registered, provide DOI. For clinical trials, provide the trial registration number OR cite DOI.		NA

Laboratory protocol	Indicate where provided: section/figure legend	N/A
Provide DOI OR other citation details if detailed step-by-step protocols are available.	<p>The current study is part of the Human Functional Genomics Project (HFGP; (<a href="https://www.humanfunctionalgenomics.org">https://www.humanfunctionalgenomics.org</a>), which employs standardized procedures for sample collection, handling, and pre-processing.</p> <p>The protein measurements were performed by Olink (Olink® Proteomics AB, Uppsala, Sweden) using the protocol described in the following paper: <a href="https://doi.org/10.1371/journal.pone.0095192">https://doi.org/10.1371/journal.pone.0095192</a></p> <p>Plasma samples of the Tanzanian cohort were measured using the untargeted metabolomics workflow by General Metabolics (Boston, MA) detailed procedures were previously described (<a href="https://doi.org/10.1021/ac201267k">https://doi.org/10.1021/ac201267k</a>)</p>	

Experimental study design (statistics details) *		
For in vivo studies: State whether and how the following have been done	Indicate where provided: section/figure legend. If it could have been done, but was not, write "not done"	N/A
Sample size determination	In earlier studies by our collaboration group, the associations between genome and immunity have been reliably obtained in a group of approximately 100 volunteers ( <i>Smeekens et al, Nature Communications 2013</i> ). Because we intend to add an aspect to this	

	analysis and assess the interaction between proteome, metabolome, and immunity we decided to increase the number of individuals tested to 300.	
Randomisation	The study was designed as a cross-sectional study in which healthy volunteers were sampled once without a follow-up	
Blinding	Blinding was not relevant in this type of study design	
Inclusion/exclusion criteria	<p>This information is available in the method section under study design and population</p> <p>The more detailed inclusion and exclusion criteria were previously reported at DOI: <a href="https://doi.org/10.1038/s41590-021-00867-8">https://doi.org/10.1038/s41590-021-00867-8</a> and <a href="https://doi.org/10.1016/j.cell.2016.10.018">https://doi.org/10.1016/j.cell.2016.10.018</a></p>	

<b>Sample definition and in-laboratory replication</b>	<b>Indicate where provided: section/figure legend</b>	<b>N/A</b>
State number of times the experiment was replicated in the laboratory.		NA
Define whether data describe technical or biological replicates.		NA

<b>Ethics</b>	<b>Indicate where provided: section/submission form</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.	<p>These studies were approved by the Ethical Committees of the Kilimanjaro Christian Medical University College (CREC) (No 2443) and the National Institute for Medical Research in Tanzania (NIMR/HQ/R.8a/Vol. IX/2290 and NIMR/HQ/R.8a/Vol.IX/3318). The 500FG cohort study was approved by the Ethical Committee of the Radboud University Medical Centre Nijmegen, the Netherlands (NL42561.091.12, 2012/550).</p> <p>This information is described in</p>	

	<b>the Method section under the ethical statement (Page 20; lines 311-317)</b>	
Studies involving experimental animals: State details of authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval.		NA
Studies involving specimen and field samples: State if relevant permits obtained, provide details of authority approving study; if none were required, explain why.	Sample collection was approved by the same authorities as stated above	

<b>Dual Use Research of Concern (DURC)</b>	<b>Indicate where provided: section/submission form</b>	<b>N/A</b>
If study is subject to dual use research of concern regulations, state the authority granting approval and reference number for the regulatory approval.		NA

### Analysis:

<b>Attrition</b>	<b>Indicate where provided: section/figure legend</b>	<b>N/A</b>
Describe whether exclusion criteria were pre-established. Report if sample or data points were omitted from analysis. If yes, report if this was due to attrition or intentional exclusion and provide justification.	Outliers' detection was done using principal component analysis (PCA) in which data points that fall in more than 3 standard deviations from the mean of principal components one (PC1) and two (PC2) were excluded. This pre-analytical process led to exclusion of 12 participants (N=7 Dutch and N=5 Tanzanians) as potential outliers. Proteins with >25% data values below LOD in both cohorts were excluded (N=18 in the Dutch and N=20 in the Tanzania cohorts), leaving 74 and 72 inflammatory proteins for the downstream data analysis in the Dutch and Tanzanian cohorts respectively. The details of pre-analytical processing and the information regarding the excluded participants and or samples are provided in <b>Methods under statistical analysis (pages 20-21; lines 318-346) and in Figure 1-Supplement Figure 1</b>	

<b>Statistics</b>	<b>Indicate where provided: section/figure legend</b>	<b>N/A</b>
Describe statistical tests used and justify choice of tests.	Statistical tests used and their justification is available in the <b>Methods section under statistical analysis (page 20-21; lines 318-346)</b>	

<b>Data availability</b>	<b>Indicate where provided: section/submission form</b>	<b>N/A</b>
For newly created and reused datasets, the manuscript includes a data availability statement that provides details for access (or notes restrictions on access).	The data availability statement and the details for access is included in the manuscript's main text on <b>page 22; lines 347-354</b>	
When newly created datasets are publicly available, provide accession number in repository OR DOI and licensing details were available.	The accession number is provided for the publicly available data on <b>page 22; lines 347-354</b>	
If reused data is publicly available provide accession number in repository OR DOI, OR URL, OR citation.	Publicly available databases used for this study include KEGG ( <a href="https://www.genome.jp/kegg/">https://www.genome.jp/kegg/</a> ), 327 HMDB ( <a href="https://www.hmdb.ca/">https://www.hmdb.ca/</a> ) and ChEBI ( <a href="https://ebi.ac.uk/chebi/">https://ebi.ac.uk/chebi/</a> ).	NA

<b>Code availability</b>	<b>Indicate where provided: section/figure legend</b>	<b>N/A</b>
For any computer code/software/mathematical algorithms essential for replicating the main findings of the study, whether newly generated or re-used, the manuscript includes a data availability statement that provides details for access or notes restrictions.		NA
Where newly generated code is publicly available, provide accession number in repository, OR DOI OR URL and licensing details where available. State any restrictions on code availability or accessibility.		NA
If reused code is publicly available provide accession number in repository OR DOI OR URL, OR citation.		NA

## Reporting:

The MDAR framework recommends adoption of discipline-specific guidelines, established and endorsed through community initiatives.

Adherence to community standards	Indicate where provided: section/figure legend	N/A
State if relevant guidelines (e.g., ICMJE, MIBBI, ARRIVE, STRANGE) have been followed, and whether a checklist (e.g., CONSORT, PRISMA, ARRIVE) is provided with the manuscript.		NA

\* We provide the following guidance regarding transparent reporting and statistics; we also refer authors to [Ten common statistical mistakes to watch out for when writing or reviewing a manuscript](#).

### Sample-size estimation

- You should state whether an appropriate sample size was computed when the study was being designed
- You should state the statistical method of sample size computation and any required assumptions
- If no explicit power analysis was used, you should describe how you decided what sample (replicate) size (number) to use

### Replicates

- You should report how often each experiment was performed
- You should include a definition of biological versus technical replication
- The data obtained should be provided and sufficient information should be provided to indicate the number of independent biological and/or technical replicates
- If you encountered any outliers, you should describe how these were handled
- Criteria for exclusion/inclusion of data should be clearly stated
- High-throughput sequence data should be uploaded before submission, with a private link for reviewers provided (these are available from both GEO and ArrayExpress)

### Statistical reporting

- Statistical analysis methods should be described and justified
- Raw data should be presented in figures whenever informative to do so (typically when N per group is less than 10)
- For each experiment, you should identify the statistical tests used, exact values of N, definitions of center, methods of multiple test correction, and dispersion and precision measures (e.g., mean, median, SD, SEM, confidence intervals; and, for the major substantive results, a measure of effect size (e.g., Pearson's  $r$ , Cohen's  $d$ ))
- Report exact p-values wherever possible alongside the summary statistics and 95% confidence intervals. These should be reported for all key questions and not only when the p-value is less than 0.05.

### Group allocation

- Indicate how samples were allocated into experimental groups (in the case of clinical studies, please specify allocation to treatment method); if randomization was used, please also state if restricted randomization was applied
- Indicate if masking was used during group allocation, data collection and/or data analysis