

Editorial Policy Checklist

This form is used to ensure compliance with Nature Research editorial policies related to research ethics and reproducibility. For further information, please see our [editorial policies](#) site. All relevant questions on the form must be answered.

Competing interests

Policy information about [competing interests](#)

Competing interests declaration

In the interest of transparency and to help readers form their own judgements of potential bias, Nature Research journals require authors to declare any competing financial and/or non-financial interest in relation to the work described in the submitted manuscript.

- ☐ We declare that none of the authors have competing financial or non-financial interests as defined by Nature Research.
- ☒ We declare that one or more of the authors have a competing interest as defined by Nature Research.

MC receives funding from the National Institute for Health Research (NIHR) Birmingham Biomedical Research Centre, the NIHR Surgical Reconstruction and Microbiology Research Centre and NIHR Applied Research Collaboration (ARC), Health Data Research UK, Innovate UK (part of UK Research and Innovation), Macmillan Cancer Support, SPINE UK (UKRI), UCB Pharma, Janssen, GSK and Gilead. MC has received personal fees from Astellas, Aparito Ltd, CIS Oncology, Takeda, Merck, Daiichi Sankyo, Glaukos, GSK and the Patient-Centered Outcomes Research Institute (PCORI) outside the submitted work.

SEH is supported by NIHR ARC, West Midlands. SEH has received personal fees from Cochlear Ltd and Aparito Ltd outside the submitted work.

OLA receives funding from the NIHR Birmingham Biomedical Research Centre (BRC), NIHR ARC, Innovate UK (part of UK Research and Innovation), Gilead Sciences Ltd, and Janssen pharmaceuticals, Inc. OLA declares personal fees from Gilead Sciences Ltd, GlaxoSmithKline (GSK) and Merck outside the submitted work.

CM receives funding from NIHR Surgical Reconstruction and Microbiology Research Centre, Innovate UK, and has received personal fees from Aparito Ltd outside the submitted work.

ADS is supported by a postdoctoral fellowship from THIS Institute, NIHR University College London Hospitals BRC, grants from NIHR and British Heart Foundation Accelerator Award.

ES has received grant from the Wellcome Trust, MRC, NIHR EME, NIHR HTA, HDR-UK, BLF, EPSRC and Alpha 1 Foundation in the last 36 months. She has been an honorarium for lectures about COVID-19 treatments which are run by GSK, attended a virtual conference at the European Respiratory Society in 2020 which was funded by AstraZeneca, and participated in an advisory board for COPD which is run by Boehringer Ingelheim.

SM has received funding from NIHR (RfPB, PGfAR, HTA and EME streams), UKRI, ESRC and the Midlands Engine. He has attended educational events funded by Psychiatric Genetic Testing, Janssen and Lundbeck in the last 5 years.

PM, TW, CI and EL are employees of CPRD, the data custodians for CPRD Aurum. As a not-for-profit UK government body, CPRD seeks to recoup the cost of delivering its research services to academic, industry and government researchers through research user license fees.

JC receives funding from NIHR on PPI from a study at UCL (NIHR132914) and a study at University Hospitals Bristol (NIHR203304). JC is a lay member on the NICE Covid expert panel and a citizen partner on the COVID END Evidence synthesis global horizon scanning panel. JC declares personal fees from MEDABLE Inc, GlaxoSmithKline, Roche Canada outside of submitted work.

KLM is a Trustee and volunteer at Long COVID SOS. KLM is on Long COVID Advisory Board for Dysautonomia International. KLM is employed by NIHR.

All other co-authors have no relevant competing interests to declare.

Authorship

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Prior to submission all listed authors must agree to all manuscript contents, the author list and its order and the author contribution statements. Any changes to the author list after submission must be approved by all authors.

- ☒ We have read the Nature Research Authorship Policy and confirm that this manuscript complies.

Data availability

Policy information about [availability of data](#)

Data availability statement

All manuscripts must include a [data availability statement](#). This statement should provide the following information, where applicable:

- Accession codes, unique identifiers, or web links for publicly available datasets
- A list of figures that have associated raw data
- A description of any restrictions on data availability

☒ We have provided a full data availability statement in the manuscript.

Mandated accession codes ([where applicable](#))

Confirm that all relevant data are deposited into a public repository and that accession codes are provided.

☐ All relevant accession codes are provided ☐ Accession codes will be available before publication ☒ No data with mandated deposition

Code availability

Policy information about [availability of computer code](#)

Code availability statement

For all studies using custom code or mathematical algorithm that is deemed central to the conclusions, the manuscript must include a statement under the heading "Code availability" describing how readers can access the code, including any access restrictions. Code availability statements should be provided as a separate section after the data availability statement but before the References.

☒ We have provided a full code availability statement in the manuscript

Data presentation

For all data presented in a plot, chart or other visual representation confirm that:

n/a Confirmed

- ☒ ☐ Individual data points are shown when possible, and always for $n \leq 10$
- ☒ ☐ The format shows data distribution clearly (e.g. dot plots, box-and-whisker plots)
- ☒ ☐ Box-plot elements are defined (e.g. center line, median; box limits, upper and lower quartiles; whiskers, 1.5x interquartile range; points, outliers)
- ☐ ☒ Clearly defined error bars are present and what they represent (SD, SE, CI) is noted

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Unprocessed data must be provided upon request. Please double-check figure assembly to ensure that all panels are accurate (e.g. all labels are correct, no inadvertent duplications have occurred during preparation, etc.).

Where blots and gels are presented, please take particular care to ensure that lanes have not been spliced together, that loading controls are run on the same blot, and that unprocessed scans match the corresponding figures.

Additional policy considerations

Some types of research require additional policy disclosures. Please indicate whether each of these apply to your study. If you are not certain, please read the appropriate section before selecting a response.

Does not apply

☒

Involved in the study

☒

☐ Macromolecular structural data

☒

☐ Unique biological materials

☒

☐ Research animals and/or animal-derived materials that require ethical approval

☒

☐ Human embryos, gametes and/or stem cells

☐

☒ Human research participants

☐

☒ Clinical data

Human research participants

Policy information about [studies involving human research participants](#)

Ethical compliance

☒ We have complied with all relevant ethical regulations and include a statement affirming this in the manuscript.

Ethics committee

Confirm that the manuscript states the name(s) of the board and/or institution that:

☒ Approved the study protocol -OR- ☐ Provided guidelines for study procedures (if protocol approval is not required)

Informed consent

☒ We have obtained informed consent from all participants and this is noted in the manuscript.

Identifiable images

For publication of identifiable images of research participants, confirm that consent to publish was obtained and is noted in the Methods.

Authors must ensure that consent meets the conditions set out in the [Nature Research participant release form](#).

☐ Yes ☒ No identifiable images of human research participants

Clinical studies

Policy information about [clinical studies](#)

Clinical trial registration

☒ We have provided the trial registration number from [ClinicalTrials.gov](#) or an equivalent agency in the manuscript.

Phase 2 and 3 randomized controlled trials

We have provided the [CONSORT checklist](#) with your submission.

☐ Yes ☐ No ☒ Not a phase 2/3 randomized controlled trial

Tumor marker prognostic studies

We have followed the [REMARK reporting guidelines](#).

☐ Yes ☐ No ☒ Not a tumor marker prognostic study

I certify that all the above information is complete and correct.

Typed signature Krishnarajah Nirantharakumar

Date Feb 10, 2022