

## 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.

### Authorship

Policy information about [authorship](#)

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

## Image integrity

Policy information about [image integrity](#)

- We have read Nature Research's image integrity policy and all images comply.

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
<input type="checkbox"/>	<input checked="" type="checkbox"/> Macromolecular structural data
<input type="checkbox"/>	<input type="checkbox"/> Unique biological materials
<input type="checkbox"/>	<input type="checkbox"/> Research animals and/or animal-derived materials that require ethical approval
<input type="checkbox"/>	<input type="checkbox"/> Human embryos, gametes and/or stem cells
<input type="checkbox"/>	<input type="checkbox"/> Human research participants
<input type="checkbox"/>	<input type="checkbox"/> Clinical data

## Macromolecular structural data

Policy information about [special considerations](#) for specific types of data

### Validation report

- We have provided an official validation report from [wwPDB](#) for all macromolecular structures studied.

## Biological materials

Policy information about [availability of materials](#)

Obtaining biological materials

- We have described these restrictions in the manuscript.  We have described how to obtain all materials in the manuscript.

## Research animals

Policy information about [studies involving animals](#); [ARRIVE guidelines](#) recommended for reporting animal research

### Ethical compliance

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

### Ethics committee

- We have disclosed the name(s) of the board and institution that approved the study protocol in the manuscript.

## Human embryos, gametes and stem cells

Policy information about [studies involving human embryos, gametes and stem cells](#)

Manuscripts involving the use of human embryos, gametes or stem cells must include an ethics statement that provides the following information:

- The institutional and/or licensing committee(s) that approved the study protocol
- Confirmation that informed consent was obtained from all recipients and/or donors of cells or tissues
- The conditions for donating materials for the research

We have read the Nature Research policy on human embryos, gametes and stem cells and have complied with policy requirements.

## 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 Vijay Jayaraman

Date Sep 16, 2021