nature portfolio

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Reporting Summary

Nature Portfolio wishes to improve the reproducibility of the work that we publish. This form provides structure for consistency and transparency in reporting. For further information on Nature Portfolio policies, see our Editorial Policies and the Editorial Policy Checklist.

Statistics

For all statistical analyses, confirm that the following items are present in the figure legend, table legend, main text, or Methods section.

n/a	Confirmed
☒	☐ The exact sample size (*n*) for each experimental group/condition, given as a discrete number and unit of measurement
☒	☐ A statement on whether measurements were taken from distinct samples or whether the same sample was measured repeatedly
☒	☐ The statistical test(s) used AND whether they are one- or two-sided *Only common tests should be described solely by name; describe more complex techniques in the Methods section.*
☒	☐ A description of all covariates tested
☒	☐ A description of any assumptions or corrections, such as tests of normality and adjustment for multiple comparisons
☒	☐ A full description of the statistical parameters including central tendency (e.g. means) or other basic estimates (e.g. regression coefficient) AND variation (e.g. standard deviation) or associated estimates of uncertainty (e.g. confidence intervals)
☒	☐ For null hypothesis testing, the test statistic (e.g. *F*, *t*, *r*) with confidence intervals, effect sizes, degrees of freedom and *P* value noted *Give P values as exact values whenever suitable.*
☒	☐ For Bayesian analysis, information on the choice of priors and Markov chain Monte Carlo settings
☒	☐ For hierarchical and complex designs, identification of the appropriate level for tests and full reporting of outcomes
☒	☐ Estimates of effect sizes (e.g. Cohen's *d*, Pearson's *r*), indicating how they were calculated

Our web collection on statistics for biologists contains articles on many of the points above.

Software and code

Policy information about availability of computer code

Data collection	Not applicable.
Data analysis	Not applicable.

For manuscripts utilizing custom algorithms or software that are central to the research but not yet described in published literature, software must be made available to editors and reviewers. We strongly encourage code deposition in a community repository (e.g. GitHub). See the Nature Portfolio guidelines for submitting code & software for further information.

Data

Policy information about availability of data

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 description of any restrictions on data availability
- For clinical datasets or third party data, please ensure that the statement adheres to our policy

Not applicable.

Research involving human participants, their data, or biological material

Policy information about studies with human participants or human data. See also policy information about sex, gender (identity/presentation), and sexual orientation and race, ethnicity and racism.

Reporting on sex and gender	This information was not collected for the technical expert panel. For the patient stakeholder panels, information on gender was collected based on self-reporting. Consent to share individual-level data was not obtained, and there are no plans to share this information except in aggregate in the Appendix.
Reporting on race, ethnicity, or other socially relevant groupings	For the technical expert panel, we collected the names, institutional affiliations, credentials, and contact information of all study participants, which are presented in the manuscript. Demographic information collected from patient stakeholders in the survey (age, gender, race/ethnicity, chronic disease history, education, patient group the stakeholder is representing) was needed to ensure that the multiethnic panel was diverse and represented people of different race/ethnicities, ages, and genders. All data are de-identified and only presented in aggregate in the Appendix.
Population characteristics	We collected the names, institutional affiliations, credentials, and contact information of participants in the study. For the multiethnic stakeholder panelists, we collected demographic information on age group, gender, race/ethnicity, chronic disease history, education, and the patient group that the stakeholder is representing through an electronic survey; participants could have chosen not to disclose this information if they wished.
Recruitment	The technical expert panel were contacted directly by study investigators by email or phone to obtain their agreement to participate. Experts were invited based on professional expertise, authorship of key documents, reputation, and policy-making experience. TEP membership reflected disciplinary, racial, gender, age, and geographic diversity. Stakeholder patient panelists were recruited from a stakeholder group provided by the Tufts Clinical and Translational Science Institute (CTSI) Community Stakeholder Engagement Core. Purposive sampling criteria included diversity of age, gender, race, ethnicity, medical history, and education.
Ethics oversight	Tufts Health Sciences Institutional Review Board

Note that full information on the approval of the study protocol must also be provided in the manuscript.

Field-specific reporting

Please select the one below that is the best fit for your research. If you are not sure, read the appropriate sections before making your selection.

☐ Life sciences ☒ Behavioural & social sciences ☐ Ecological, evolutionary & environmental sciences

For a reference copy of the document with all sections, see nature.com/documents/nr-reporting-summary-flat.pdf

Behavioural & social sciences study design

All studies must disclose on these points even when the disclosure is negative.

Study description	Qualitative study
Research sample	We identified key stakeholder groups from which to recruit the technical expert panel and patient stakeholder group including health system leadership, clinicians, engineers/computer scientists, clinical prediction modelers (using both classical statistical and machine learning approaches), medical informaticians, ethicists, lawyers, health disparities scientists, methodologists, policy experts, statisticians, trialists, and patients.
Sampling strategy	Purposive sampling was used for both the technical expert panel and patient stakeholder group. Criteria for the former included academic discipline, race, gender, age, and geographic diversity. Criteria for the latter included diversity of age, gender, race, ethnicity, medical history, and education.
Data collection	We collected the names, institutional affiliations, credentials, and contact information of participants in the study. For the multiethnic stakeholder panelists, we collected demographic information on age group, gender, race/ethnicity, chronic disease history, education, and the patient group that the stakeholder is representing through an electronic survey; participants could have chosen not to disclose this information if they wished.
Timing	Data collection began November 12, 2020 and November 19, 2021.
Data exclusions	No data were excluded.
Non-participation	No participants dropped out or declined participation.

Randomization	Not applicable.

Reporting for specific materials, systems and methods

We require information from authors about some types of materials, experimental systems and methods used in many studies. Here, indicate whether each material, system or method listed is relevant to your study. If you are not sure if a list item applies to your research, read the appropriate section before selecting a response.

Materials & experimental systems

n/a	Involved in the study
☒	☐ Antibodies
☒	☐ Eukaryotic cell lines
☒	☐ Palaeontology and archaeology
☒	☐ Animals and other organisms
☒	☐ Clinical data
☒	☐ Dual use research of concern
☒	☐ Plants

Methods

n/a	Involved in the study
☒	☐ ChIP-seq
☒	☐ Flow cytometry
☒	☐ MRI-based neuroimaging

Plants

Seed stocks	*Report on the source of all seed stocks or other plant material used. If applicable, state the seed stock centre and catalogue number. If plant specimens were collected from the field, describe the collection location, date and sampling procedures.*
Novel plant genotypes	*Describe the methods by which all novel plant genotypes were produced. This includes those generated by transgenic approaches, gene editing, chemical/radiation-based mutagenesis and hybridization. For transgenic lines, describe the transformation method, the number of independent lines analyzed and the generation upon which experiments were performed. For gene-edited lines, describe the editor used, the endogenous sequence targeted for editing, the targeting guide RNA sequence (if applicable) and how the editor was applied.*
Authentication	*Describe any authentication procedures for each seed stock used or novel genotype generated. Describe any experiments used to assess the effect of a mutation and, where applicable, how potential secondary effects (e.g. second site T-DNA insertions, mosiacism, off-target gene editing) were examined.*