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Reporting Summary

Nature Research 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 Research policies, see Authors & Referees 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	Study data were collected and managed using REDCap electronic data capture tools hosted at University of Edinburgh.
Data analysis	Base SAS, GraphPad Prism7, Microsoft Excel.

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/reviewers. We strongly encourage code deposition in a community repository (e.g. GitHub). See the Nature Research 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 list of figures that have associated raw data
- A description of any restrictions on data availability

All the data generated or analyzed during this study are included in this published article or are available from the corresponding author upon reasonable request.

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

Life sciences study design

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

Sample size	Sample size n=9. This phase 1 first-in-human trial used a standard 3+3 dose-escalation design.
Data exclusions	No data were excluded from the analyses.
Replication	All biochemical analyses were conducted using validated SOPs with rigorous QC and reproducibility criteria (e.g. ELF test, Nordic protein fingerprint biomarkers). Fibroscan tests adhered strictly to the manufacturer's validity criteria.
Randomization	Not relevant (Phase 1 first-in-human dose escalation trial with no placebo group).
Blinding	Due to the nature of the study, there was no blinding of the investigators or study subjects except sample bioanalysts (including serum markers, cytokines).

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
☒	☐ Animals and other organisms
☐	☒ Human research participants
☐	☒ Clinical data

Methods

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

Human research participants

Policy information about studies involving human research participants

Population characteristics	Adult male and female participants (with a mean age of 58.54±5.85) with a diagnosis of cirrhosis of the liver from different aetiologies but similar stage of disease defined as MELD score between 10 and 16 were included. In this study all subjects were Caucasians. Other comorbidities may be present (including Type 2 diabetes mellitus or ischaemic heart disease or airways disease such as asthma or COPD).
Recruitment	Patients attending hepatology outpatient clinics at the Royal Infirmary of Edinburgh were initially approached by a member of the direct clinical care team. If they showed interest in the trial they were offered a patient information leaflet and subsequently contacted by the MATCH trial team.
Ethics oversight	This trial was approved by Scotland A Research Ethics Committee (REC reference: 15/SS/0121), the NHS Lothian Research and Development department and the Medicine and Health Care Regulatory Agency (MHRA-UK).

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

Clinical data

Policy information about clinical studies

All manuscripts should comply with the ICMJE guidelines for publication of clinical research and a completed CONSORT checklist must be included with all submissions.

Clinical trial registration	Trial registry ((ISRCTN) reference: 32274) and the European Clinical Trial Database ((EudraCT) reference: 2015-000963-15).
Study protocol	The study protocol is included in the supplementary material.
Data collection	Recruitment occurred between August 2016 to April 2017. Data were collected by a delegated trial member at each subject visit using paper case report forms. These were independently quality checked by a competent individual to ensure 100% accuracy. After study monitors were satisfied with the accuracy of the data in the paper case report forms these were uploaded into the electronic case report form (REDCap) by a delegated member of the trial team. Electronic case reporting forms were again cross-checked with source data by a delegated member of the trial team. The last visit for the last patient occurred in April 2018 when the data collection was completed.

Outcomes	Primary outcomes were pre-defined as per Phase 1 dose escalation trials: safety, feasibility and maximum tolerated dose. Secondary outcomes were pre-defined validated and clinically-meaningful endpoints for an advanced cirrhosis treatment population: liver function was expressed as Model for End Stage Liver Disease (MELD) score; liver fibrosis was quantified non-invasively by serum and imaging biomarkers; quality of liver was measured using the Chronic Liver Disease Questionnaire (CLDQ) instrument; survival outcome was assessed by recording transplant-free survival.