

Macrophage therapy for liver cirrhosis

Submission date 29/06/2016	Recruitment status No longer recruiting	<input checked="" type="checkbox"/> Prospectively registered <input checked="" type="checkbox"/> Protocol
Registration date 04/07/2016	Overall study status Completed	<input type="checkbox"/> Statistical analysis plan <input checked="" type="checkbox"/> Results
Last Edited 26/05/2026	Condition category Digestive System	<input type="checkbox"/> Individual participant data

Plain English summary of protocol

Background and study aims

Liver disease can overtime cause scarring and damage to the liver and eventually lead to a condition called liver cirrhosis. When this happens the liver is unable to work properly and the person can become tired and unwell. A malfunctioning liver makes people prone to infection, bruising, swelling, confusion and jaundice (yellowing of the skin). Cirrhosis is the fifth most common cause of death in UK. Currently we have no cure for liver cirrhosis but liver transplant. This is a very big operation which requires lifelong treatment with immunosuppressant drugs. Not everyone is suitable to have a liver transplant and there aren't enough transplantable livers to cure all the patients. Our group has demonstrated using animals models that selected cells (monocytes) taken from the patient's own blood can be grown in the laboratory into cells called macrophages and infused back into the patient to replace damaged liver cells. The aim of this study is to test the safety and effectiveness of autologous macrophage infusion in humans.

Who can participate?

Adults age 16-75 with liver cirrhosis

What does the study involve?

The first part of the study is to check that the macrophages are safe and find out the best number of macrophages to use. Three patients receive the same dose and if there are no side effects the dose is increased for the second group of three patients, until the maximum safe dose is reached. The second part of the study looks at whether the treatment can benefit patients with liver disease. Patients are randomly allocated to receive either the macrophage treatment or standard medical care. Liver function is then assessed after 3 months.

What are the possible benefits and risks of participating?

Patients may not gain direct benefit from the study but this could lead to the development in the future of a treatment for liver cirrhosis. This is a first in human study so the side effects are not known. We could potentially witness side effects similar to blood transfusion reactions or allergic reactions. Macrophages Activation Syndrome is a very rare condition that could potential arise from this treatment. This will be characterised by low blood pressure and difficulties in breathing. Appropriate measures are in place in the remote eventuality this may occur. Liver function could worsen. There is no information available to support the increased risk of cancer but it is difficult to predict. Patients could experience discomfort during blood sampling.

Where is the study run from?
Edinburgh Royal Infirmary (UK)

When is the study starting and how long is it expected to run for?
August 2016 to August 2021

Who is funding the study?
Medical Research Council (UK)

Who is the main contact?
Prof. Stuart Forbes
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Contact information

Type(s)
Scientific

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Additional identifiers

Clinical Trials Information System (CTIS)
2015-000963-15

Protocol serial number
MR/M007588/1

Study information

Scientific Title
Macrophage therapy for liver cirrhosis

Acronym
MATCH01

Study objectives
Autologous macrophages therapy can improve liver function and reduce fibrosis in patients with established liver cirrhosis.

Ethics approval required

Old ethics approval format

Ethics approval(s)

REC - Research Ethics Committee South East Scotland, 24/06/2016, REC ref: 15/SS/0121

Primary study design

Interventional

Study design

Dose-escalation phase I single-centre study with 3+3 design followed by randomized controlled single-centre phase II study

Study type(s)

Treatment

Health condition(s) or problem(s) studied

Liver cirrhosis

Interventions

Dose-escalation phase I single-centre study with 3+3 design: 3 patients will receive the same dose, if no dose-limiting toxicity recorded dose will be escalated to the second group of 3 patients until maximum tolerated dose.

Followed by randomised controlled single centre phase II study of autologous activated macrophage infusion versus standard medical care. Macrophages will be infused via peripheral vein for the duration of 30 minutes. Participants will be randomised 1:1 via computer system based on a minimisation algorithm using the key variable aetiology of disease. No blinding will be possible but efficacy data will be analysed at the end of the trial to avoid bias.

Intervention Type

Biological/Vaccine

Phase

Phase I/II

Drug/device/biological/vaccine name(s)

Autologous activated macrophage infusion

Primary outcome(s)

Phase I: The safety and feasibility of re-infusion of autologous macrophages, measured 14 days after infusion of 3rd patient in each dose escalation group (model 3+3), and the maximum safe dose of infusion

Phase II: Liver function (MELD score) at 3 months

Key secondary outcome(s)

1. Markers of liver fibrosis
2. Disease-related quality of life
3. Liver-related clinical events
4. Transplant-free survival

Measured at 3 months and 1 year (improvement in markers of fibrosis of the liver, improvement of quality of life, transplant free)

Completion date

26/11/2021

Eligibility

Key inclusion criteria

1. Age 17-65
2. Liver cirrhosis
3. Model for End-Stage Liver Disease (MELD) score 10-16
4. Aetiology liver disease: ALRD, NAFLD, PBC, hemochromatosis, alpha 1 anti trypsin deficiency, previous Hep C with SVR

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Adult

Sex

All

Total final enrolment

63

Key exclusion criteria

1. Refusal or inability to give informed consent to participate in the study
2. Other cause of chronic liver disease/cirrhosis not included in listed aetiologies – this is left to the clinical judgement of the investigator based on previous investigations and trial screening
3. Portal hypertensive bleeding; active episode of bleeding requiring hospitalisation in the last 3 months where varices have not been eradicated by banding
4. Ascites unless, in the opinion of the investigator, the ascites is minimal and well controlled with no increase to diuretic therapy in last 3 months
5. Encephalopathy; current or requiring hospitalisation for treatment in last 3 months
6. Hepatocellular carcinoma – uncertain cases to be discussed at local hepatobiliary multidisciplinary meeting, dysplastic or indeterminate nodules to be excluded, regenerative or other nodules to be included at discretion of MDM
7. Previous diagnosis of hepatocellular carcinoma
8. Previous organ transplant or previous recipient of tissue
9. Listed for liver transplantation
10. Any situation that in the Investigators' opinion may interfere with optimal study participation such as alcohol or drug abuse, domicile too distant from study site, potential non-compliance or inability to co-operate
11. Presence of clinically relevant acute illness that in the opinion of the investigator might compromise the participant's safe participation in the study

12. Presence or history of cancer within past 5 years with exception of adequately treated localised skin carcinoma, in situ cervical cancer or solid malignancy surgically excised in total without recurrence for 5 years
13. Pregnancy or breastfeeding

Date of first enrolment

01/08/2016

Date of final enrolment

26/11/2021

Locations

Countries of recruitment

United Kingdom

Scotland

Study participating centre

Edinburgh Royal Infirmary

Little France Crescent

Edinburgh

Scotland

EH16 4SA

Study participating centre

Ninewells Hospital

Ninewells Avenue

Dundee

Scotland

DD1 9SY

Study participating centre

Glasgow Royal Infirmary

84 Castle Street

Glasgow

Scotland

G4 0SF

Sponsor information

Organisation

ACCORD (UK)

ROR

<https://ror.org/01x6s1m65>

Funder(s)

Funder type

Research council

Funder Name

Medical Research Council

Alternative Name(s)

Medical Research Council (United Kingdom), UK Medical Research Council, Medical Research Committee and Advisory Council, MRC

Funding Body Type

Government organisation

Funding Body Subtype

National government

Location

United Kingdom

Results and Publications

Individual participant data (IPD) sharing plan

The datasets generated during and/or analysed during the current study are/will be available upon request.

IPD sharing plan summary

Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	Phase I primary safety results	01/10/2019	10/10/2019	Yes	No
Results article	Primary and secondary clinical outcomes	10/01/2025	14/01/2025	Yes	No
Results article	Long-term follow-up	25/05/2026	26/05/2026 10/11	Yes	No

[Protocol article](#)
[HRA research](#)
[summary](#)

08/11/2021	/2021	Yes	No
	28/06	No	No
	/2023		