







# Macrophage therapy for liver cirrhosis

<b>Submission date</b> 29/06/2016	<b>Recruitment status</b> No longer recruiting	 Prospectively registered
		 Protocol added
<b>Registration date</b> 04/07/2016	<b>Overall study status</b> Completed	 SAP not yet added
		 Results added
<b>Last Edited</b> 19/10/2022	<b>Condition category</b> Digestive System	 Raw data not yet added
		 Study completed

## Plain English Summary

### 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  
Stuart.Forbes@ed.ac.uk

## Contact information

**Type(s)**  
Scientific

**Contact name**  
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## Additional identifiers

**EudraCT/CTIS number**  
2015-000963-15

**IRAS number**

**ClinicalTrials.gov number**

**Protocol/serial number**  
MR/M007588/1

## Study information

**Scientific Title**  
Macrophage therapy for liver cirrhosis

**Acronym**  
MATCH01

**Study hypothesis**

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

**Study design**

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

**Primary study design**

Interventional

**Secondary study design**

Randomised controlled trial

**Study setting(s)**

Hospital

**Study type(s)**

Treatment

**Participant information sheet**

Not available in web format, please use contact details to request a participant information sheet

**Condition**

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

**Primary outcome measure**

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

### **Secondary outcome measures**

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)

### **Overall study start date**

01/08/2016

### **Overall study end date**

01/08/2021

## **Eligibility**

### **Participant 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

### **Age group**

Adult

### **Sex**

Both

### **Target number of participants**

55-74

### **Total final enrolment**

63

### **Participant 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

**Recruitment start date**

01/08/2016

**Recruitment end date**

26/11/2021

## **Locations**

**Countries of recruitment**

Scotland

United Kingdom

**Study participating centre**

**Edinburgh Royal Infirmary**

Little France Crescent

Edinburgh

United Kingdom

EH16 4SA

**Study participating centre**

**Ninewells Hospital**

Ninewells Avenue

Dundee

United Kingdom

DD1 9SY

**Study participating centre**  
**Glasgow Royal Infirmary**  
84 Castle Street  
Glasgow  
United Kingdom  
G4 0SF

## Sponsor information

### Organisation

ACCORD (UK)

### Sponsor details

Research Governance & QA Office  
Queens Medical Research Institute  
47 Little France Crescent  
Edinburgh  
Scotland  
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EH16 4TJ  
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### Sponsor type

University/education

### Website

<http://accord.scot/>

### ROR

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

## Funder(s)

### Funder type

Research council

### Funder Name

Medical Research Council

### Alternative Name(s)

UK Medical Research Council, MRC

### Funding Body Type

Government organisation

### Funding Body Subtype

National government

### Location

United Kingdom

## Results and Publications

### Publication and dissemination plan

Not provided at time of registration

### Intention to publish date

01/08/2023

### 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?
<a href="#">Results article</a>	safety results	01/10/2019	10/10/2019	Yes	No
<a href="#">Protocol article</a>		08/11/2021	10/11/2021	Yes	No
<a href="#">HRA research summary</a>			28/06/2023	No	No