

Anchored muscle cells for incontinence

Submission date 12/11/2024	Recruitment status No longer recruiting	☒ Prospectively registered ☐ Protocol
Registration date 22/09/2025	Overall study status Ongoing	☐ Statistical analysis plan ☐ Results
Last Edited 10/03/2026	Condition category Digestive System	☐ Individual participant data ☒ Record updated in last year

Plain English summary of protocol

Background and study aims

Faecal incontinence (FI) is a public health problem with a big impact on people's quality of life. Women who have given birth form a significant proportion of this patient group, as tears to the perineum during childbirth can lead to faecal incontinence. This study will test the safety of a cell-based therapy in women with post-obstetric faecal incontinence.

Who can participate?

Female patients aged 18 years and over with chronic faecal incontinence and a history of obstetric anal sphincter injury.

What does the study involve?

Surgeons will take a muscle biopsy from the patient's chest. This biopsy will be processed to grow muscle cells, which are combined with small porous carrier particles called microcarriers. The combination cell-microcarrier product will be injected into the patient's external anal sphincter, leading to muscle regeneration.

All the patients will receive the same treatment and all the patients and their doctors are aware of the treatment. The researchers will assess the safety of treatment. Researchers will also look at the number of FI episodes participants experience, and will record other patient-reported outcomes to find out how well the treatment works. When looking at this, researchers will compare data collected during the patient's initial visits with data collected 12 months after treatment.

Participants will take part in 11 visits.

What are the possible benefits and risks of participating?

The treatment used is an experimental product so it has not yet been authorised/marketed for use by the general public. As this study is a 'first-in-human' usage, there is no data to show its safety.

The researchers have reviewed all previous studies of ASMDC (cells without microcarriers). In these studies, which involved a total of 615 patients (in 14 studies), the risks of treatment with cells alone were small. The risks were almost entirely related to the biopsy and injection procedures:

Pain or skin irritation: approx. 1 in 10 (10%)

Minor bruising: approx. 1 in 20 (5%)

Superficial infection: <1 in 20 (<5%)

Muscle weakness at biopsy site: <1 in 100 (<1%)

Bleeding requiring surgical intervention: 1 reported in 615

Complications of routine anaesthesia: No occurrences. Typical risk is <1 in 1000.

Since PLGA microcarriers are a newer treatment, we don't have studies like this on their safety in treating faecal incontinence. The study team has also done tests in laboratories to check the risks of treatment, and the results have been acceptable. There are also several commercially available products which have been approved for clinical use which use microcarriers in products that are injected into the body.

Muscle biopsy: It is inevitable that some pain will be experienced during the procedure due to the injection of the local anaesthetic and possibly the biopsy itself. There may also be some pain after the procedure. Potential risks include bruising, haematoma (a clot of blood), infection, delayed wound healing and a small amount of scarring. Participants may be provided with simple analgesics as needed.

Product injection: Potential side effects include bleeding, infection, inflammatory response or irritation, pain or discomfort, worsening incontinence, diarrhoea, constipation, blockage of the intestine or faecal retention. There is also a small risk of allergic response to the contents of the product (cells or components of the final formulation), and infection. This is expected to be minimal because the product is made from the participant's own cells.

Because this study involves an experimental treatment, not all risks and outcomes can be predicted. There may be some risks that the study doctors are not currently aware of. It is possible that some of these unknown risks could be permanent, serious, or life-threatening. Participant safety will be monitored throughout the trial. Oversight committees (and where appropriate, regulators) will be kept informed of trial safety. Stopping rules will trigger study stop if accruing data indicates a safety concern.

Patients will be provided with a safety card containing contact details of the study team, which they can use to ask questions about the study, or if they are experiencing pain or discomfort and want advice.

There is a chance of product delivery failure. This could happen for a number of reasons, including but not limited to delays to the courier, problems with temperature control, or issues when making the product, which could mean the trial treatment isn't safe to use. Should the risk occur, where time and resources allow, participants will be offered a second round of muscle biopsy and treatment.

Participants may find trial involvement or questionnaire/ diary completion burdensome. Clinical trial involvement could affect participants' insurance cover.

This research study may have unknown risks for a pregnancy, and nursing infants. People who are breastfeeding/ pregnant/ planning to become pregnant cannot participate in the study. Pregnancy testing will be performed, and the use of effective contraception methods will be required for people of child-bearing potential. Should patients become pregnant during the trial, they will be withdrawn from the trial or monitored (according to whether the treatment has yet been administered).

Administered drugs: A small chance of reaction or allergy to antibiotics and other drugs used.

Endoanal ultrasound, anorectal manometry, sigmoidoscopy: Small chance of soreness or minor bleeding afterwards and a negligible (<1/10,000) possibility of perforation or damage of the intestinal wall.

Blood testing: Risk of bleeding, discomfort, light-headedness, pain, bruising, and rarely, an infection at the puncture site.

Where is the study run from?

University College London (UK)

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

December 2025 to August 2027

Who is funding the study?
Horizon 2020

Who is the main contact?
Dr Josephine Parker, cctu.amelie@ucl.ac.uk

Contact information

Type(s)
Scientific

Contact name
Dr Josephine Parker

Contact details
Gower Street
London
United Kingdom
WC1E 6BT
+44 (0)207 670 4845
cctu.amelie@ucl.ac.uk

Type(s)
Principal investigator

Contact name
Dr Charles Knowles

Contact details
327 Mile End Road
London
United Kingdom
E1 4NS
-
c.h.knowles@qmul.ac.uk

Additional identifiers

Integrated Research Application System (IRAS)
1007874

Central Portfolio Management System (CPMS)
58948

Protocol serial number
CTU/2018/324

Study information

Scientific Title

AMELIE: European, multicentre, single-arm (Phase I) trial of autologous skeletal muscle-derived cell microcarrier combination for the treatment of faecal incontinence in women with obstetric anal sphincter injury

Acronym

AMELIE

Study objectives

Current study objectives as of 10/03/2026:

The co-primary objectives of the trial are:

1. To determine the safety of the autologous skeletal muscle-derived cell (ASMDC)-PLGA microcarrier treatment within the 12 months post-treatment.
2. To determine whether treatment with ASMDC-PLGA microcarriers leads to a clinically relevant reduction in how often patients experience episodes of faecal incontinence.

The two secondary objectives of the trial are:

1. To determine treatment impact on quality of life.
2. To determine the cost-benefit profile of the treatment.

Previous study objectives:

The co-primary objectives of the trial are:

1. To determine the safety of the autologous skeletal muscle-derived cell (ASMDC)-PLGA microcarrier treatment within the 6 months post-treatment.
2. To determine whether treatment with ASMDC-PLGA microcarriers leads to a clinically relevant reduction in how often patients experience episodes of faecal incontinence.

The two secondary objectives of the trial are:

1. To determine treatment impact on quality of life.
2. To determine the cost-benefit profile of the treatment.

Ethics approval required

Ethics approval required

Ethics approval(s)

Approved 05/02/2025, South Central - Berkshire B Research Ethics Committee (2 Redman Place, Stratford, London, E20 1JQ, United Kingdom; +44 (0)207 104 8276; berkshireb.rec@hra.nhs.uk), ref: 24/SC/0387

Primary study design

Interventional

Study design

Single-arm trial first in human

Study type(s)

Safety

Health condition(s) or problem(s) studied

Faecal incontinence (FI) in women with obstetric anal sphincter injury

Interventions

Advanced therapy medicinal product – cell-based

ASMDC-PLGA microcarriers [Poly(DL-lactide-co-glycolide) (PLGA) microcarriers combined with autologous skeletal muscle cells (ASMDC), derived from the skeletal muscle biopsy

All participants will undergo surgery to obtain a muscle biopsy from the pectoralis major muscle. Following successful product preparation, all will receive a one-off injection of autologous skeletal muscle derived cell (ASMDC) PLGA microcarrier combination treatment into the external anal sphincter. After injection, the patient will be followed up with safety checks, which will continue for 12 months after treatment.

Intervention Type

Biological/Vaccine

Phase

Phase I

Drug/device/biological/vaccine name(s)

ASMDC-PLGA microcarriers [Poly(DL-lactide-co-glycolide) (PLGA) microcarriers combined with autologous skeletal muscle cells (ASMDC), derived from the skeletal muscle biopsy

Primary outcome(s)

1. The incidence of ATIMP-related or ATIMP administration procedure-related adverse events associated with the use of ASMDC-PLGA microcarriers within 12 months post-treatment (safety endpoint of primary hypothesis and outcome is reported at 12 months)
2. Estimate of a minimum clinically relevant reduction in the frequency of total FI episodes measured using participant bowel diaries at 12 months compared to baseline levels

Key secondary outcome(s)

1. Quality of life assessed using patient questionnaires: Resource Use Measure, EQ-5D-5L, mean cost of healthcare resource use per patient
2. Additional clinical efficacy outcomes will be assessed using patient questionnaires: St Mark's Incontinence Score; Likert scale of patient's global impression of treatment success; Short-Form Bowel Symptom Importance Questionnaire (SF-BSIQ); Measure Yourself Medical Outcome Profile

All secondary outcome measures are evaluated at baseline (visit 3), and 3 and 6 months after treatment (visit 9 and 10). Where patients take part in extended follow-up, data collection will take place at visits 11 and 12 (12 and 18 months after treatment).

Exceptions:

Likert scale not evaluated at visit 3

EQ-5D-5L collected at visit 6 (day of treatment).

Resource Use Measure not collected at visit 9 (3 months)

Completion date

31/08/2027

Eligibility

Key inclusion criteria

1. Female patients aged ≥ 18 years
2. Chronic faecal incontinence
3. History of obstetric external anal sphincter injury
4. Non-surgical treatments for faecal incontinence have been attempted to applicable national standards
5. Minimum severity: 8 faecal incontinence or urgency episodes in 4-week screening period, with a minimum of 4 episodes of faecal incontinence

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Mixed

Lower age limit

18 Years

Upper age limit

100 Years

Sex

Female

Total final enrolment

0

Key exclusion criteria

1. Patients within 1 year of acute sphincter injury
2. Patients who have undergone previous anal reconstructive surgery
3. Other gastro-intestinal diseases (see protocol for details)
4. Pregnancy or intent to become pregnant during trial
5. Morbid obesity (BMI ≥ 35 kg/m²)
6. Certain comorbidities (recent history of cancer, systemic neuromuscular and connective tissue diseases, transmissible viral infection)
7. Patient currently using sacral neuromodulation (SNM) or has failed SNM implant for faecal incontinence; failed test stimulation phase is permitted
8. Patient has positive virology or parasitology results (Hepatitis B, C & E, HIV 1 & 2, syphilis, human T-lymphotropic virus I or II, Epstein-Barr virus, Cytomegalovirus, Toxoplasma gondii, Trypanosoma cruzi, West Nile Virus or malaria) confirmed, where appropriate, using local testing policies. Note T. cruzi, malaria and West Nile Virus tests only required if relevant participant history criteria met.

Date of first enrolment

15/12/2025

Date of final enrolment

13/02/2026

Locations

Countries of recruitment

United Kingdom

England

Wales

Study participating centre

Barts Health NHS Trust

The Royal London Hospital

80 Newark Street

London

England

E1 2ES

Study participating centre

University Hospital of Wales

Heath Park

Cardiff

England

CF14 4XW

Sponsor information

Organisation

University College London

ROR

<https://ror.org/02jx3x895>

Funder(s)

Funder type

Government

Funder Name

Horizon 2020

Alternative Name(s)

EU Framework Programme for Research and Innovation, Horizon 2020 - Research and Innovation Framework Programme, European Union Framework Programme for Research and Innovation

Funding Body Type

Government organisation

Funding Body Subtype

National government

Location

Results and Publications

Individual participant data (IPD) sharing plan

The data that support the findings of this study are not openly available and anonymised data could be requested and would require approval in writing where appropriate, after formal application to the TMG and CCTU.

IPD sharing plan summary

Available on request