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A study to find out if a new blood test (microRNA) can be used to monitor people after surgery for seminoma or dysgerminoma cancer

Submission date
22/12/2025

Recruitment status
Recruiting

Registration date
14/01/2026

Overall study status
Ongoing

Last Edited
24/09/2026

Condition category
Cancer

[X] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[_] Results
[_] Individual participant data
[X] Record updated in last year

Plain English summary of protocol

Background and study aims
This study wants to find out if a blood test that detects circulating microRNA (miRNA) could be used to detect if a patient's cancer has returned. Testicular seminoma is one of the commonest cancers in young men, while ovarian dysgerminoma is rarer, typically affecting teenagers/young adults. Stage I disease is well managed with surgery followed by surveillance using imaging (CT or MRI, or ultrasound for younger dysgerminoma patients), but this is a burden for patients, may expose them to harmful radiation, and is costly for the NHS. Approximately 15% of these patients will have their cancer come back, and this is usually treated successfully. miRNA shows significant promise as a blood-based marker for detecting if a patient's cancer is returning. It might reduce the need for imaging and even bring relapse detection forward, reducing the need for subsequent intensive treatment.

Who can participate?
OTIS-S is split into two parts. OTIS-S aims to recruit people with early (stage I) seminoma or dysgerminoma who have undergone surgery and are planned for surveillance.

What does the study involve?
In part A, participants who join OTIS-S will have their blood analysed to see if any miRNA can be detected, alongside the regular imaging they would have as standard of care. Once the trial has enough data and the study team are satisfied with the results, the study will move on to part B, where patients will have either miRNA blood tests only or imaging only.

Part A is expected to take 2.5 years to enrol 260 participants; all participants will be followed up for 5 years after they are enrolled. The results from Part A of the study will be used to develop the next part (Part B) of the study. Part B is expected to recruit for approximately 3.5 years; participants in Part B will be followed up for 3 years after they are enrolled.

What are the possible benefits and risks of participating?
For the majority of patients, there are no direct benefits to taking part, but the information gained from this study will help improve treatment for other people with seminoma in the future. It is possible that the miRNA testing will help to pick up the cancer returning earlier, but it is unknown if that will be the case.

People taking part in this study will have CT or MRI scans. They may also have a PET-CT scan and an X-ray. They will still have most, if not all, of these if they do not take part. CT scans, PET-CT scans and X-rays use ionising radiation to form images of the body, which provide doctors with clinical information. Ionising radiation can cause cell damage that may, after many years or decades, turn cancerous. The chances of this happening to you as a consequence of taking part in this study are 0.1%. There are no other anticipated disadvantages or risks involved in taking part in this study, as people will receive the usual care.

Where is the study run from?
NHS hospitals across the UK, coordinated by the Institute of Cancer Research Clinical Trials and Statistics Unit (ICR-CTSU).

When is the study starting and how long is it expected to run for?
March 2026 to March 2025. Part A of the study is due to start enroling participants in March 2026. Part B is expected to start enroling in Autumn 2028.

Who is funding the study?
The Cancer Research UK.

Who is the main contact?
OTIS-S-icrctsu@icr.ac.uk

https://www.cancerresearchuk.org/about-cancer/find-a-clinical-trial/a-study-looking-blood-test-monitor-people-after-surgery-seminoma-dysgerminoma-otis-s

Contact information

Type(s)
Public, Scientific

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Additional identifiers

Integrated Research Application System (IRAS)
342479

Central Portfolio Management System (CPMS)
61831

CRUK Grant code
24/008

Study information

Scientific Title
A phase II/III trial evaluating use of circulating serum miRNA as part of active surveillance for patients with stage I seminoma and dysgerminoma

Acronym
OTIS - S

Study objectives
Primary Objective
Part A:
• To demonstrate the high sensitivity of miRNA for relapse detection in patients who have undergone surgery for stage I seminoma or dysgerminoma
Part B:
• To demonstrate the non-inferiority of miRNA monitoring, when compared with standard imaging, for the detection of advanced relapse in patients who have undergone surgery for stage I seminoma or dysgerminoma
Secondary Objectives
Part A:

• To demonstrate the high specificity of miRNA for relapse detection in this setting
• To demonstrate the feasibility and acceptability to patients of miRNA monitoring in this setting
• To quantify the lead time (extent to which relapse diagnosis can be brought forward) associated with miRNA monitoring when compared with standard surveillance
Part B:
• To demonstrate the cost-effectiveness of miRNA monitoring compared with standard surveillance
• To demonstrate reduced use of imaging and subsequent impact on radiation exposure with miRNA monitoring compared with standard imaging-based surveillance
• To further evaluate the acceptability to patients of miRNA monitoring in this setting
• To quantify anxiety, fear of recurrence and health-related quality of life for patients managed with the two different approaches to surveillance
• To understand any impact on disease outcomes and subsequent treatment associated with the use of miRNA monitoring in place of standard imaging
• To understand the risk-benefit balance of a miRNA monitoring approach (when compared to standard surveillance) from the perspective of different stakeholders, including patients

Ethics approval required
Ethics approval required

Ethics approval(s)
Approved 19/12/2025, London - South East Research Ethics Committee (2 Redman Place, Stratford, London, E20 1JQ, United Kingdom; -; londonsoutheast.rec@hra.nhs.uk), ref: 25/LO/0836

Primary study design
Interventional

Allocation
Randomized controlled trial

Masking
Open (masking not used)

Control
Active

Assignment
Sequential

Purpose
Screening

Study type(s)
Diagnostic, Screening

Health condition(s) or problem(s) studied
Seminoma and dysgerminoma

Interventions

OTIS-S will include patients with stage I seminoma or dysgerminoma and will use a seamless, phased approach to evaluation. In part A (single-arm), 260 patients will undergo regular miRNA testing alongside standard active surveillance (including imaging) and sensitivity will be assessed. If sensitivity is sufficiently high, part B will randomise 558 patients to miRNA monitoring (with only triggered imaging) vs standard active surveillance.

Patient pathway
Participants will be recruited from selected sites across the UK. Potential participants will be identified in oncology clinics and discussed at Multi-Disciplinary Team (MDT) meetings. Participants will be those with stage I seminoma or dysgerminoma who have had surgery and have no adjuvant therapy planned.

Participants will be approached by a member of their clinical care team and will receive a verbal explanation of the trial, together with a Patient Information Sheet, which they will take home with them. They will be given sufficient time to make a decision about whether they would like to participate and will be able to discuss their options with friends, family or their GP. They will have the opportunity to raise any questions about OTIS-S with their clinical care or research team and these will be addressed prior to their decision about whether to participate. Should they choose to participate, they will be asked to sign a consent form to record their informed consent. Consent will be sought from the parent/guardian for potential participants under 16. Young people will be involved in the decision as much as possible and offered the opportunity to assent as appropriate.

Part A participants:
In Part A, all registered OTIS-S participants will undergo serum miRNA monitoring alongside standard surveillance using MRI/CT. The participants will undergo the following assessments:

Assessments after registration:
Medical history
Physical examination

Routine Tumour Markers: AFP, HCG and LDH (investigations undertaken as part of standard care within 3 weeks prior to registration are acceptable)

Radiological assessment as follows (investigations undertaken as part of standard care within 6 weeks prior to registration are acceptable):

o For seminoma participants: MRI/CT abdomen as per local practice

o For dysgerminoma participants: MRI and/or abdominal ultrasound.

Collection of blood sample for miRNA analysis

Follow-up surveillance assessments:

At 3 months (m), 6m, 9m, 12m, 15m, 18m, 21m, 24m, 30m, 36m, 42m, 48m, 54m and 60m after registration in the trial

Physical examination

Routine tumour Markers (AFP, B-HCG and LDH)

Review/reporting SAEs as appropriate

Collection of blood sample for miRNA analysis (except at 54m)

Imaging assessments:

o For seminoma participants: Cross-sectional abdominal imaging at 6m, 18m and 36m, preferably with MRI but CT can be used according to local practice.

o For dysgerminoma participants: Cross-sectional abdominal+/-pelvic imaging at 6, 18 and 36 months, preferably with MRI. For participants under the age of 19, pelvic ultrasound (US) may be used at the physician's discretion, where MRI is not possible or where US is used routinely at the site.

Additional imaging according to local practice: In addition to the required radiological assessments above, the following can also be performed according to local practice:

o cross-sectional imaging (abdominal+/-pelvic MRI or CT) can be performed at up to 4 further time points over the 5-year follow-up period

o For seminoma, chest x-ray can be performed as per local practice

o For dysgerminoma participants, low-dose chest CT and transvaginal US can be performed as per local practice.

Acceptability questionnaire to be completed by participant at 12m (participants aged 16 and over only)

Follow-up in response to specific miRNA analysis results:

If a participant has a miRNA result that is indeterminate, then a physical examination, routine tumour markers and another blood collection for miRNA analysis will be performed six weeks after the indeterminate result.

If a participant has a positive miRNA result, the participant will undergo an MRI/CT (as per local practice). For participants under the age of 19, US may be used at the physician's discretion. A repeat miRNA test will also be performed. In the event of negative imaging but a further positive miRNA result, the participant will undergo an FDG PET CT (and contralateral US of the testis for seminoma participants).

If the participant has disease recurrence confirmed, they will receive relapse treatment /management as per standard of care.

Part B participants:

All part B participants will be randomised to receive either monitoring via the miRNA blood test or imaging only. The assessments for part B participants will be similar to part A participants, with the exception that the imaging-only groups will not have miRNA blood samples taken and the miRNA-only group will not have standard imaging except in the case of a positive miRNA result.

For the part B participants having miRNA blood samples taken, it is intended that this will only be done at randomisation and 3, 6, 12, 18, 24, 30 and 36 months post-randomisation.

Prior to the commencement of Part B, a protocol amendment will be issued where full details of Part B assessments will be confirmed.

It is intended that recruitment to part A will take 2.5 years and recruitment to part B will take 3.5 years. All patients will be followed up for 5 years after trial entry.

Central trial management will be conducted by the Institute of Cancer Research Clinical Trials and Statistics Unit (ICR-CTSU). Analysis of all primary and secondary endpoints will be conducted by ICR-CTSU and will be pre-specified in a detailed analysis plan. Primary analysis of Part A will be based on the number of relapses observed but is expected to take place around the time of completing recruitment to Part A, thus allowing a relatively seamless transition into Part B. Further secondary analysis of part A data will take place as participants proceed through the follow-up period. Part B analysis is expected to take place after all patients have been followed up for 3 years.

A Trial Management Group (TMG) will be set up and will have responsibility for the day-to-day management of the trial. It will include the Chief Investigator, ICR-CTSU methodology lead, co-investigators and identified collaborators, the Trial Statistician and the Trial Manager. Principal Investigators and key study personnel will be invited to join the TMG as appropriate to ensure representation from a range of sites and professional groups and will also include lay/consumer representatives.

An independent Trial Steering Committee (TSC) and Independent Data Monitoring Committee (IDMC) will be established, including people with relevant clinical and methodological expertise. The TSC will meet annually throughout the trial to oversee the study's progress on behalf of the sponsor and funder. The IDMC will meet in confidence, at least annually, to review data and make recommendations to the TSC and TMG.

Intervention Type
Other

Primary outcome(s)
1. Sensitivity of miRNA for relapse detection measured using the number of relapses detectable on miRNA testing before or at the same time as detection on imaging (or via other components of standard surveillance), as a proportion of the total number of relapses identified via standard investigations, at registration, 3, 6, 9, 12, 15, 18, 21, 24, 30, 36, 42, 48, 54 and 60 months post registration

Key secondary outcome(s)
1. Lead time for relapse detection on miRNA measured using the time between relapse detection on miRNA (date sample taken) and relapse detection on imaging (date of scan) at registration, 3, 6, 9, 12, 15, 18, 21, 24, 30, 36, 42, 48, 54 and 60 months post registration

2. Specificity of miRNA for relapse detection measured using the number of non-relapsing participants (based on imaging) whose miRNA levels remained negative (or indeterminate) throughout the follow-up period, as a proportion of all non-relapsing participants, at registration, 3, 6, 9, 12, 15, 18, 21, 24, 30, 36, 42, 48, 54 and 60 months post registration

3. Time from blood draw for miRNA testing to miRNA results being available to the clinical team (and participant), and the number (proportion) of results available within 2 weeks measured using data collected during the study at 3, 6, 9, 12, 15, 18, 21, 24, 30, 36, 42, 48, 54 and 60 months post registration

4. Adherence to miRNA testing measured using the number of samples taken for miRNA testing as a proportion of all scheduled tests, the number of tests performed more than a 4-week window either side of the schedule time point and the number of samples that could not be analysed, at registration, 3, 6, 9, 12, 15, 18, 21, 24, 30, 36, 42, 48, 54 and 60 months post registration

5. Adherence to imaging schedules measured using the number of attendances for imaging as a proportion of all scheduled imaging; the number of scans performed; numbers of scans performed more than a 4-week window either side of the schedule time point will also be reported at registration, 3, 6, 9, 12, 15, 18, 21, 24, 30, 36, 42, 48, 54 and 60 months post registration

6. Patient-reported acceptability of miRNA monitoring without routine surveillance imaging measured using a trial-specific questionnaire based on a validated, generic instrument for evaluating acceptability of healthcare interventions at 12 months post registration

Completion date
15/03/2035

Eligibility

Key inclusion criteria
1. Histologically confirmed testicular pure seminoma* or extra-cranial dysgerminoma
2. Primary cancer managed by orchiectomy or complete surgical removal of dysgerminoma (trial entry is permitted within 8 weeks following surgery, up to a maximum of 10 weeks under exceptional circumstances.)
3. Stage I based on CT or MRI abdomen and pelvis and CT chest. For participants under the age of 19, pelvic ultrasound (US) may be used at physician's discretion where MRI is not possible or where US is used routinely at site.
4. Normal post-operative tumour markers as follows (may have been raised pre-operatively and immediately post-operatively, but have returned to normal range):
a.AFP< = 10 ng/ml [AFP > 10 and < = 25 ng/ml and confirmed as not rising on three successive tests may be accepted as eligible after discussion with Chief Investigator or delegate]
b.β-HCG< = 4 IU/L
c.LDH< 1.2 x upper limit of normal
5. No adjuvant therapy planned
6. Participant (or, where the participant is under 16 years old, their parent or guardian) has given written informed consent prior to any study-specific procedures.
*Patients with any non-seminomatous elements, including teratoma, are not eligible

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
All

Lower age limit
0 Years

Upper age limit
110 Years

Sex
All

Total final enrolment
0

Key exclusion criteria
1. Previous contralateral testis tumour within 3 years of trial entry.
2. Previous or concurrent illness or condition which, in the investigator’s opinion, would interfere with participation in the trial
3. Pregnancy (pregnancy can be excluded on the basis of β-HCG result)
4. Unable/unwilling to comply with trial visit schedule/trial assessments.

Date of first enrolment
15/03/2026

Date of final enrolment
15/03/2032

Locations

Countries of recruitment
United Kingdom

England

Northern Ireland

Scotland

Wales

Study participating centre
St James' S University Hospital
Beckett Street
Leeds
England
LS9 7TF

Study participating centre
Worthing Hospital
Lyndhurst Road
Worthing
England
BN11 2DH

Study participating centre
Northern General Hospital
Herries Road
Sheffield
England
S5 7AU

Study participating centre
The Royal Marsden Hospital
Fulham Road
London
England
SW3 6JJ

Study participating centre
Leicester Royal Infirmary
Infirmary Square
Leicester
England
LE1 5WW

Study participating centre
Velindre NHS Trust
Unit 2
Charnwood Court
Heol Billingsley
Cardiff
Wales
CF15 7QZ

Study participating centre
Southampton General Hospital
Tremona Road

Southampton
England
SO16 6YD

Study participating centre
University Hospitals Bristol and Weston NHS Foundation Trust
Trust Headquarters
Marlborough Street
Bristol
England
BS1 3NU

Study participating centre
Queen Elizabeth Hospital
Mindelsohn Way
Edgbaston
Birmingham
England
B15 2GW

Study participating centre
Queens Medical Centre
Nottingham University Hospital
Derby Road
Nottingham
England
NG7 2UH

Study participating centre
Lothian
Waverleygate
2-4 Waterloo PLACE
Edinburgh
City of Edinburgh
Scotland
EH1 3EG

Study participating centre
Poole Hospital
Longfleet Road
Poole

England
BH15 2JB

Study participating centre
Maidstone Hospital
Hermitage Lane
Maidstone
England
ME16 9QQ

Study participating centre
Royal Preston Hospital
Sharoe Green Lane
Fulwood
Preston
England
PR2 9HT

Study participating centre
Tonna Hospital
Tonna Uchaf
Tonna
Neath
Wales
SA11 3LX

Study participating centre
Colchester General Hospital
Turner Road
Colchester
England
CO4 5JL

Study participating centre
Grampian
Summerfield House
2 Eday Road
Aberdeen
Scotland
AB15 6RE

Study participating centre
Birmingham Women's and Children's NHS Foundation Trust
Steelhouse Lane
Birmingham
England
B4 6NH

Study participating centre
Belfast Health and Social Care Trust
Trust Headquarters
A Floor - Belfast City Hospital
Lisburn Road
Belfast
England
BT9 7AB

Study participating centre
Royal Preston Hospital
Sharoe Green Lane
Fulwood
Preston
England
PR2 9HT

Study participating centre
Westmorland General Hospital
Burton Road
Kendal
England
LA9 7RG

Study participating centre
Cambridge University Hospitals NHS Foundation Trust
Cambridge Biomedical Campus
Hills Road
Cambridge
England
CB2 0QQ

Study participating centre
Royal Surrey County Hospital Guildford
Egerton Road
Guildford
England
GU2 7XX

Study participating centre
John Radcliffe Hospital
Headley Way
Headington
Oxford
England
OX3 9DU

Study participating centre
University College London Hospital
250 Euston Road
London
England
NW1 2PG

Sponsor information

Organisation
Institute of Cancer Research

ROR
https://ror.org/043jzw605

Funder(s)

Funder type
Government

Funder Name
Cancer Research UK

Alternative Name(s)
CR_UK, Cancer Research UK - London, Cancer Research UK (CRUK), CRUK

Funding Body Type
Private sector organisation

Funding Body Subtype
Other non-profit organizations

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 from Otis-s-icrctsu@icr.ac.uk. The ICR-CTSU supports the wider dissemination of information from its research and increased cooperation between investigators. Trial data are collected, managed, stored, shared, and archived according to ICR-CTSU Standard Operating Procedures to ensure the enduring quality, integrity, and utility of the data. Formal requests for data sharing are considered in line with ICR-CTSU procedures, with due regard given to funder and sponsor guidelines. Requests are via a standard proforma describing the nature of the proposed research and the extent of data requirements. Data recipients are required to enter a formal data sharing agreement that describes the conditions for release and requirements for data transfer, storage, archiving, publication, and intellectual property. Requests are reviewed by the Trial Management Group (TMG) in terms of scientific merit and ethical considerations, including patient consent. Data sharing is undertaken if proposed projects have a sound scientific or patient benefit rationale, as agreed by the TMG and approved by the Independent Data Monitoring and Steering Committee, as required. Restrictions relating to patient confidentiality and consent will be limited by aggregating and anonymising identifiable patient data. Additionally, all indirect identifiers that could lead to deductive disclosures will be removed in line with Cancer Research UK Data Sharing Guidelines. Full details of the ICR-CTSU data sharing policy are available at https://www.icr.ac.uk/research-and-discoveries/centres-and-strategic-collaborations/clinical-trials-and-statistics-unit-icr-ctsu/about-us/data-sharing.

IPD sharing plan summary
Available on request