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A study to test the effectiveness of a vaccine targeting a protein that hides cancer cells from the body's immune system in operable colorectal cancer that has defective mismatch repair

Submission date 13/07/2024	**Recruitment status** Recruiting	[_] Prospectively registered [_] Protocol
Registration date 21/03/2025	**Overall study status** Ongoing	[_] Statistical analysis plan [_] Results
Last Edited 10/04/2026	**Condition category** Cancer	[_] Individual participant data [X] Record updated in last year

Plain English summary of protocol

Background and study aims

Early colon cancer is normally treated with surgery and chemotherapy for high-risk patients with cancer that has spread to the local lymph nodes. Despite these treatments, up to 50% of patients have cancer that comes back. There needs to be more understanding of the disease biology to improve treatments. About 15% of early colon cancer patients have, something called defective mismatch repair. This means that in the cancer more mutations or errors in the DNA are present than in a 'normal' bowel cancer patient. This is significant because the new generation of drugs which stimulate the immune system to attack cancer works very well in this subgroup. In fact, in trials, these drugs can make colon cancers disappear completely. The vaccine in this study works by stimulating the immune system to produce antibodies to attack this subtype of colon cancer. The study aims to give the vaccine before surgery and then see how much cancer killing has happened in the surgical specimen. It will also explore from the tumour specimen, blood tests and stool samples, what makes people become responders to treatment or not. If the study is successful, a larger phase study will be undertaken.

Who can participate?

Adult patients aged 18 years old and over with adenocarcinoma cancer of the colon and high rectum

What does the study involve?

Recruited patients will receive 3 doses of the vaccine, 2 weeks apart, before having their standard-of-care surgery. They will be monitored throughout the vaccine period and during follow-up through blood tests, physical exams and CT scans. Following surgery, patients may have further chemotherapy if residual disease is present. All patients will be followed up for a minimum of 2 years from surgery.

What are the possible benefits and risks of participating?
Benefits – the vaccine may activate the immune system to destroy cancer cells in the tumour.
Risks – patients may have inflammation around the injection site of the vaccine. Patients will be monitored closely during the vaccine and up to 1 hr after injection and any reactions will be treated locally by site staff.

Where is the study run from?
Royal Surrey County Hospital, UK

When is the study starting and how long is it expected to run for?
July 2024 to March 2029

Who is funding the study?
Imugene Limited, Australia

Who is the main contact?
Dr Tony Dhillon, Tony.dhillon@nhs.net

Plain English summary under review with external organisation

Contact information

Type(s)
Public, Scientific, Principal investigator

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Type(s)
Public, Scientific

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Additional identifiers

Central Portfolio Management System (CPMS)
56910

Integrated Research Application System (IRAS)
1008650

ClinicalTrials.gov (NCT)
NCT06692959

Protocol serial number
79361

Study information

Scientific Title
A phase II trial of neoadjuvant PD-1 vaccine PD1-Vaxx in operable MSI high colorectal cancer

Acronym
Neo-POLEM

Study objectives
To determine major pathological response rates after administering neoadjuvant PD-1 vaccine IMU-201 (PD1-Vaxx) in operable MSI high CRC patients

To assess the safety of PD-1 vaccine IMU-201 (PD1-Vaxx) in the neo-adjuvant setting.
Rate of complete response (defined as no viable tumour cells) after receiving PD1-Vaxx
To report the objective response rate (ORR) of PD-1 vaccine IMU-201 (PD1-Vaxx) in the neo-adjuvant setting
To assess disease free survival (post-surgery) and overall survival
Clavien-Dindo assessment of complications of surgery
To assess health-related quality of life

Ethics approval required
Ethics approval required

Ethics approval(s)
approved 19/03/2025, East of England-Cambridge Central Research Ethics Committee (2 Redman Place, Stratford, London, E20 1JQ, United Kingdom; +44 207 104 8271; cambridgecentral.rec@hra.nhs.uk), ref: 24/LO/0584

Study design
Phase II trial

Primary study design
Interventional

Study type(s)
Efficacy, Safety

Health condition(s) or problem(s) studied
Operable microsatellite instability-high (MSI-high) colorectal cancer

Interventions
Arm 1, patients will be given PD-1 Vaxx which consists of 100ug/dose of IMU-201 and administered as a 0.5ml intramuscular injection. Administration takes place on Day 1, 15 and 29. Patients will then undergo surgery between 21-42 days after completing trial treatment. Follow-up will begin once the patient has been discharged from surgery and/or adjuvant chemotherapy. Patients will remain in active follow-up for up to 2 years. Once the last patient has completed their last visit, a check will be made on all patients to confirm their recurrence and survival status.

Intervention Type
Biological/Vaccine

Phase
Phase II

Drug/device/biological/vaccine name(s)
IMU-201 (PD1-Vaxx)

Primary outcome(s)
The proportion of major pathological response (MPR), defined by ≤10% viable tumour cells after receiving PD-1 vaccine IMU-201 (PD1-Vaxx), measured using the Pataer system at surgery

Key secondary outcome(s))
1. Proportion with complete response, defined as no viable tumour cells after receiving PD1-Vaxx. The proportion of patients with complete response after receiving at least 1 vaccine at surgery measured using patient data
2. Objective response rate (ORR), defined by RECIST v1.1, measured using patient data before surgery before surgery
3. Disease-free survival (DFS) following surgery measured using patient data from surgery to any recurrence at 12 months
4. Overall Survival (OS) measured using patient data from the time of registration to death from any cause at 12 months
5. Adverse events, as assessed by the National Cancer Institute Common Terminology Criteria for Adverse Events (NCI-CTCAE) v5.0. and graded according to CTCAE v5.0 from the time of initiation of the vaccine
6. Health-related quality of life measures using the EORTC QLQ-C30 and EQ-5D-5L at screening, pre-op and post-op
7. Grading of surgical complications measured using the Clavien-Dindo classification at screening, pre-op and post-op

Completion date
30/06/2029

Eligibility

Key inclusion criteria

1. Patients must have a signed and dated written informed consent form. This must be performed before the performance of any protocol-related procedures that are not part of the normal care
2. Patients must be willing and able to comply with the scheduled visits, treatment schedules, laboratory tests and other requirements of the study
3. Histologically confirmed adenocarcinoma cancer of the colon and high rectum
4. ECOG Performance Status 0 or 1
5. Measurable disease per RECIST 1.1 criteria
6. Tumour tissue from a colonoscopy must be provided for biomarker analysis. If an insufficient amount of tumour tissue from a colonoscopy is available before the start of the screening phase patients will be required to consent to allow the acquisition of additional tumour tissue for the performance of biomarker analyses
7. To be entered into the study, patients must be classified as MSI-high (confirmation of MMR deficiency or MSI-H)
8. Stage II (T3-T4 N0) III (any T, N1 or N2, M0) CRC
9. Radiological evidence of operable CRC, determined by local MDT, usually a CT scan
10. Treatment naïve patients (no prior anti-CRC therapy)
11. Screening laboratory values must meet the following criteria:
11.1. Neutrophils ≥ 1.5x 10^9/L
11.2. Platelets ≥ 100 x 10^9/L
11.3. Haemoglobin ≥ 9.0 g/dl
11.4. Serum creatinine ≤ 1.5 x upper limit of normal (ULN) or calculated creatinine clearance > 50 mL/min (using the Cockcroft Gault formula)
11.5. Total bilirubin ≤ 1.5 x ULN; for patients with documented/suspected Gilbert's disease, bilirubin ≤3 x ULN
11.6. AST ≤1.5 x ULN
11.7. ALT ≤1.5 x ULN
12. Aged ≥ 18 years
13. Women of childbearing potential (WOCBP) must have a negative serum or urine pregnancy test (minimum sensitivity 25 IU/L or equivalent units of HCG) within 72 hours before the start of the study drug
14. WOCBP must agree to follow instructions for method(s) of contraception, as indicated in the informed consent form. Contraception must be used for the duration of treatment and a period of 180 days after the last dose of the study drug
15. Males who are sexually active with WOCBP must agree to follow instructions for method(s) of contraception, as indicated in the informed consent form for 180 days. Men who are sexually active with WOCBP must continue contraception for 180 days after the last dose of the investigational drug (combination or monotherapy). In addition, male patients must be willing to refrain from sperm donation during this time.
16. Azoospermic males are exempt from contraceptive requirements. WOCBP who are continuously not heterosexually active are also exempt from contraceptive requirements, and still must undergo pregnancy testing as described in this section

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group

Mixed

Lower age limit
18 years

Upper age limit
120 years

Sex
All

Total final enrolment
0

Key exclusion criteria
1. History of severe allergic reactions (i.e, Grade 4 allergy, anaphylactic reaction from which the patient did not recover within 6 hours of institution of supportive care) to any unknown allergens or any components of the PD-1 vaccine formulations
2. Distant metastases or peritoneal nodules (M1)
3. Active or prior documented autoimmune disease (including inflammatory bowel disease, coeliac disease and Wegener syndrome)
4. Any concurrent chemotherapy or biologic or hormonal therapy for CRC treatment. Concurrent use of hormones for non-cancer-related conditions (e.g. insulin for diabetes and hormone replacement therapy) is acceptable
5. History of primary immunodeficiency, solid organ transplantation, or previous clinical diagnosis of tuberculosis
6. If they are positive for hepatitis B virus surface antigen (HBVsAg) or hepatitis C virus ribonucleic acid (HCV antibody) indicating acute or chronic infection
7. If they have known history of testing positive for human immunodeficiency virus (HIV) or known acquired immunodeficiency syndrome (AIDS)
8. Receipt of live, attenuated vaccine within 28 days prior to the first dose of PD-1 vaccine IMU-201 (PD1-Vaxx) (patients, if enrolled, should not receive live vaccine during the study and 180 days after the last dose of Investigational Medicinal Product (IMP))
9. Other invasive malignancy within two years except for non-invasive malignancies such as cervical carcinoma in situ, non-melanomatous carcinoma of the skin or ductal carcinoma in situ of the breast that has/have been surgically cured. Cancer patients with incidental histological findings of prostate cancer (tumour/node/metastasis stage of T1a or T1b or prostate-specific antigen <10) who have not received hormonal treatment may be included.
10. Uncontrolled inter-current illness including, but not limited to, ongoing or active infection, symptomatic congestive heart failure, uncontrolled hypertension, unstable angina pectoris, cardiac arrhythmia, active peptic ulcer disease or gastritis, or psychiatric illness/social situations that would limit compliance with study requirement or compromise the ability of the patient to give written informed consent
11. Any condition that, in the opinion of the investigator or sponsor, would interfere with the evaluation of the investigational product or interpretation of patient safety or study results
12. Patients with a condition requiring systemic treatment with either corticosteroids (>10 mg daily prednisolone equivalents) or other immunosuppressive medications within 14 days of study drug administration. Inhaled or topical steroids and adrenal replacement doses >10 mg daily prednisolone equivalents are permitted in the absence of active autoimmune disease
13. Systemic antibiotic treatment within 7 days prior to the start of trial treatment

Date of first enrolment
31/08/2024

Date of final enrolment
31/03/2027

Locations

Countries of recruitment
United Kingdom

England

Australia

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

Study participating centre
The Christie
550 Wilmslow Road
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Sponsor information

Organisation
University of Southampton

ROR
https://ror.org/01ryk1543

Funder(s)

Funder type

Industry

Funder Name
Imugene Limited

Results and Publications

Individual participant data (IPD) sharing plan
To meet our ethical obligation to share data generated by interventional clinical trials responsibly, SCTU operates a transparent data-sharing request process. At a minimum, anonymous data will be available for request from three months after the publication of an article, to researchers who provide a completed Data Sharing request form that describes a methodologically sound proposal, for the approved proposal and a signed Data Sharing Agreement if appropriate. Data will be shared once all parties have signed relevant data-sharing documentation.

Researchers interested in our data are asked to complete the Request for Data Sharing form (CTU/FORM/5219) [template located on the SCTU website, https://www.southampton.ac.uk/ctu] to provide a brief research proposal on how they wish to use the data. It will include; the objectives, what data are requested, timelines for use, intellectual property and publication rights, data release definition in the contract, participant informed consent, etc. If considered necessary, a Data Sharing Agreement from Sponsor may be required.

IPD sharing plan summary
Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Study website	Study website	11/11/2025	11/11/2025	No	Yes