

A double-blind randomised trial to compare oral azacitidine (CC-486) with placebo in adults with acute myeloid leukaemia and myelodysplasia who are undergoing allogeneic stem cell transplantation

Submission date 25/02/2019	Recruitment status No longer recruiting	<input checked="" type="checkbox"/> Prospectively registered <input type="checkbox"/> Protocol
Registration date 25/02/2019	Overall study status Ongoing	<input type="checkbox"/> Statistical analysis plan <input type="checkbox"/> Results
Last Edited 23/05/2025	Condition category Cancer	<input type="checkbox"/> Individual participant data <input checked="" type="checkbox"/> Record updated in last year

Plain English summary of protocol

<https://www.cancerresearchuk.org/about-cancer/find-a-clinical-trial/a-trial-looking-at-azacitidine-for-acute-myeloid-leukaemia-or-myelodysplasia-amadeus>

Contact information

Type(s)

Scientific

Contact name

Ms Andrea Hodgkinson

Contact details

Haematology Team
Room 13, Centre for Clinical Haematology
Queen Elizabeth Hospital
Edgbaston
Birmingham
United Kingdom
B15 2TH
+44 (0)121 371 7858
amadeus@trials.bham.ac.uk

Additional identifiers

Clinical Trials Information System (CTIS)

2018-001012-30

ClinicalTrials.gov (NCT)
NCT04173533

Protocol serial number
41275

Study information

Scientific Title

A double-blind, phase III, randomised study to compare the efficacy and safety of oral azacitidine (CC-486) versus placebo in subjects with acute myeloid leukaemia or myelodysplastic syndromes as maintenance after allogeneic haematopoietic stem cell transplantation

Acronym

AMADEUS

Study objectives

The aim of the study is to find out if there is a difference in the relapse free survival of patients with AML or high risk MDS treated with maintenance therapy of oral azacitidine versus placebo after stem cell transplantation.

Ethics approval required

Old ethics approval format

Ethics approval(s)

Approved 02/05/2019, East Midlands - Leicester Central Research Ethics Committee (The Old Chapel, Royal Standard Place, Nottingham, NG1 6FS; Tel: +44 (0)207 1048098; Email: nrescommittee.eastmidlands-leicestercentral@nhs.net), ref: 19/EM/0063

Study design

Randomised; Interventional; Design type: Treatment, Drug

Primary study design

Interventional

Study type(s)

Treatment

Health condition(s) or problem(s) studied

Acute myeloid leukaemia, myelodysplastic syndromes

Interventions

Patients will be randomised 1:1 to either treatment with oral azacitidine (CC-486) or matching placebo. Patients will take a dose of 200 mg once daily from days 1 – 14 of a 28-day cycle. Patients will commence therapy between days 42 and 84 post-transplant up to a maximum of 12 months from the date of transplant. Patients will be followed up for 2 years for survival information.

Intervention Type

Drug

Phase

Phase III

Drug/device/biological/vaccine name(s)

Azacitidine (CC-486)

Primary outcome(s)

Relapse free survival; Timepoint(s): Date of first relapse (including morphological, cytogenetic or molecular relapse) or death from any cause. Patients who are progression free and still alive at the end of the trial will be censored at their date of last follow-up

Key secondary outcome(s)

1. Overall survival is defined as the time from date of randomisation to date of death, from any cause. Patients who are alive at the end of the trial will be censored at their date last seen.
2. Cumulative incidence of relapse is defined as the time from date of randomisation to date of relapse. Patients who die without relapse will be considered a competing risk, at their date of death. Patients who are alive and relapse free at the end of the trial will be censored at their date last seen.
3. Non-relapse mortality is defined as the time from date of randomisation to date of any death not following relapse. Patients who die post relapse will be considered a competing event at their date of death and patients who are alive at the end of the trial will be censored at their date last seen.
4. Incidence of acute and chronic GVHD of any grade reported throughout the trial.
5. Time to early treatment discontinuation is defined as the time from date of randomisation to date of treatment discontinuation, for any reason. Patients who take the full year of treatment will be censored at 12 months.
6. Safety will be collected in accordance with CTCAE criteria version 4.0 and defined as the number of patients who experience one or more adverse event.
7. Quality of life measured using the EORTC-QLQ-C30 and EQ-5D questionnaires at randomisation i.e. baseline and at 3, 6, 12 (end of treatment) and 24 months post randomisation
8. GVHD-free and relapse-free survival defined as time from date of randomisation to date of first event or death. An event is defined as GVHD or relapse (including molecular relapse and progression). Patients who are alive and event free at the end of the trials will be censored at their date last seen

Completion date

31/03/2027

Eligibility

Key inclusion criteria

Current participant inclusion criteria as of 24/02/2021:

1. Age \geq 16 years at the time of signing the informed consent form
2. Patients with a diagnosis of any of the below and undergoing allo-SCT using MAC or RIC preparative regimens, and with either peripheral blood or bone marrow as the source of hematopoietic stem cells:
 - 2.1. AML (CR1 or CR2) according to WHO classification

- 2.2. Secondary AML (defined as a previous history of MDS, antecedent hematological disease, or chemotherapy exposure; CR1 or CR2)
- 2.3. Advanced or high-risk MDS with an IPSS-R of ≥ 3.5 (intermediate 3.5 or higher) including intermediate or high-risk CMML (e.g. CPSS int-2 or high risk)
3. At the time of allo-SCT
 - 3.1. No prior allo-SCT
 - 3.2. No more than 1 antigen mismatch at HLA-A, -B, -C, -DRB1 or -DQB1 locus for either related or unrelated donor
 - 3.3. No haplotype or cord blood donor
 - 3.4. Bone marrow blast $< 5\%$ for AML and $< 10\%$ for MDS patients
4. Able to commence study therapy between 42 to 84 days following allo-SCT
5. Post-transplant bone marrow:
 - 5.1. AML patients – blast count $\leq 5\%$ confirmed within 28 days prior to starting study therapy
 - 5.2. MDS patients – confirmation of CR post-transplant with blast count $\leq 5\%$ in bone marrow
6. Adequate neutrophil and platelet engraftment within 14 days prior to starting study therapy defined as:
 - 6.1. ANC $\geq 1.0 \times 10^9/\text{l}$ on two consecutive testing without daily use of myeloid growth factor
 - 6.2. Platelet $\geq 50 \times 10^9/\text{l}$ on two consecutive testing without platelet transfusion within 1 week
7. Adequate organ function:
 - 7.1. Serum AST or ALT $< 3 \times$ upper limit of normal (ULN)
 - 7.2. Serum bilirubin $< 2 \times$ ULN. Higher levels are acceptable if these can be attributed to active red blood cell (RBC) precursor destruction within the bone marrow (i.e., ineffective erythropoiesis) or Gilbert's syndrome.
 - 7.3. Serum creatinine $< 2 \times$ ULN
8. Adequate coagulation (PT ≤ 15 s and PTT ≤ 40 s)
9. Eastern Cooperative Oncology Group (ECOG) performance status of ≤ 2
10. Patients with adequately controlled GVHD (defined as GVHD grade $< \text{II}$ with concurrent use of corticosteroids equivalent of prednisone at a dose ≤ 0.5 mg/kg) can be included
11. Females of childbearing potential may participate, providing they meet the following conditions:
 - 11.1. Agree to use at least two effective contraceptive methods (oral, injectable, or implantable hormonal contraceptive; tubal ligation; intra-uterine device; barrier contraceptive with spermicide; or vasectomised partner) or practice true abstinence throughout the study, and for 3 months following the last dose of study therapy
 - 11.2. Have a negative serum or urine pregnancy test (sensitivity of at least 25 mIU/mL) at screening
 - 11.3. Have a negative serum or urine (investigator's discretion) pregnancy test (sensitivity of at least 25 mIU/mL) within 72 h prior to starting study therapy. This applies even if the subject practices complete abstinence from heterosexual contact.
12. Male patients with a female partner of childbearing potential must agree to the use of at least two physician-approved contraceptive methods throughout the course of the study and should avoid fathering a child during the course of the study and for 3 months following the last dose study therapy
13. Understand and voluntarily sign an informed consent form (ICF) prior to any study-related assessments or procedures being conducted
14. Able to adhere to the study visit schedule (i.e., clinic visits at the study sites are mandatory unless noted otherwise for study visits) and other protocol requirements

Previous participant inclusion criteria:

1. Age ≥ 16 at the time of signing the informed consent form
2. Patients with a diagnosis of AML (CR1 or CR2) according to WHO classification or high risk MDS (as per IPSS-R) undergoing allo-SCT using MAC or RIC preparative regimens, and with either

peripheral blood or bone marrow as the source of hematopoietic stem cells.

3. At the time of allo-SCT:

3.1. No prior allo-SCT; and

3.2. No more than 1 antigen mismatch at HLA-A, -B, -C, -DRB1 or -DQB1 locus for either related or unrelated donor; and

3.3. No haplotype or cord blood donor; and

3.4. Bone marrow blast < 5% for AML and < 10% for MDS patients

4. Able to commence study therapy between 42 to 84 days following allo-SCT

5. Post-transplant bone marrow

5.1. AML patients – blast count < = 5% confirmed within 28 days prior to starting study therapy

5.2. MDS patients – confirmation of CR post-transplant with blast count < = 5% in bone marrow

6. Adequate neutrophil and platelet engraftment within 14 days prior to starting study therapy defined as:

6.1. ANC > = $1.0 \times 10^9/L$ on two consecutive testing without daily use of myeloid growth factor; and

6.2. Platelet > = $50 \times 10^9/L$ on two consecutive testing without platelet transfusion within 1 week

7. Adequate organ function:

7.1. Serum AST and ALT < 3 x upper limit of normal (ULN)

7.2. Serum bilirubin < 2 x ULN. Higher levels are acceptable if these can be attributed to active red blood cell (RBC) precursor destruction within the bone marrow (i.e., ineffective erythropoiesis) or Gilbert's syndrome

7.3. Serum creatinine < 2 x ULN

8. Adequate coagulation (PT < = 15 seconds, PTT < = 40 seconds, and/or INR < = 1.5)

9. Eastern Cooperative Oncology Group (ECOG) performance status of < = 2

10. Patients with adequately controlled GVHD (defined as GVHD grade < II with concurrent use of corticosteroids equivalent of prednisone at a dose < = 0.5 mg/kg) can be included

11. Females of childbearing potential (FCBP) may participate, providing they meet the following conditions:

11.1. Agree to use at least two effective contraceptive methods (oral, injectable, or implantable hormonal contraceptive; tubal ligation; intra-uterine device; barrier contraceptive with spermicide; or vasectomised partner) throughout the study, and for 3 months following the last dose of study therapy and

11.2. Have a negative serum pregnancy test (sensitivity of at least 25 mIU/mL) at screening; and

11.3. Have a negative serum or urine (investigator's discretion) pregnancy test (sensitivity of at least 25 mIU/mL) within 72 hours prior to starting study therapy. This applies even if the subject practices complete abstinence from heterosexual contact.

12. Male patients with a female partner of childbearing potential must agree to the use of at least two physician-approved contraceptive methods throughout the course of the study and should avoid fathering a child during the course of the study and for 3 months following the last dose study therapy

13. Understand and voluntarily sign an informed consent form (ICF) prior to any study related assessments or procedures being conducted

14. Able to adhere to the study visit schedule (i.e., clinic visits at the study sites are mandatory, unless noted otherwise for study visits) and other protocol requirements

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Adult

Sex

All

Total final enrolment

326

Key exclusion criteria

Current participant exclusion criteria as of 24/02/2021:

1. Use of any of the following after transplantation and prior to starting study therapy:
 - 1.1. Any agents (chemotherapy or targeted agents) used for adjuvant therapy (note that prophylactic use of these agents is allowed in this study, e.g., methotrexate for GVHD or rituximab for EBV reactivation)
 - 1.2. Unlicensed investigational agents/therapies used within 28 days prior to starting study therapy
 - 1.3. Azacitidine, decitabine or other hypomethylating agent (HMA)
 - 1.4. Lenalidomide, thalidomide and pomalidomide used within 28 days prior to starting study therapy
 - 1.5. Any chemotherapy used for adjuvant therapy
2. Subjects who have undergone a haploidentical or cord blood transplant
3. Active GVHD grade II or higher (acute GVHD Clinical Staging and Grading)
4. Concurrent use of corticosteroids equivalent of prednisone at a dose > 0.5 mg/kg
5. Known active viral infection with Human Immunodeficiency Virus (HIV), Hepatitis B Virus (HBV) or Hepatitis C Virus (HCV)
6. Active uncontrolled systemic fungal, bacterial, or viral infection (defined as ongoing signs /symptoms related to the infection without improvement despite appropriate antibiotics, antiviral therapy, and/or other treatment)
7. History of inflammatory bowel disease (e.g., Crohn's disease, ulcerative colitis), celiac disease (i.e., sprue), prior gastrectomy or upper bowel removal, or any other GI disorder or defect that may interfere with the absorption, distribution, metabolism or excretion of the investigational medicinal products (IMPs) and/or predispose the subject to an increased risk of gastrointestinal toxicity prior to allo-SCT
8. Idiopathic thrombocytopenic purpura (ITP), disseminated intravascular coagulation, haemolytic uremic syndrome, thrombotic thrombocytopenic purpura (TTP)
9. History of prior malignancies. However, the following will be exceptions:
 - 9.1. Fully resected basal cell or squamous cell carcinoma of skin
 - 9.2. Treated cervical carcinoma in situ
 - 9.3. Lobular breast carcinoma in situ,
 - 9.4. Incidental histologic finding of prostate cancer (T1a or T1b using the tumor, node, metastasis clinical staging system)
 - 9.5. Previous Myelodysplastic Syndrome (MDS), Chronic Myelomonocytic Leukemia (CMML), Myeloproliferative Neoplasm (MPN) resulting in secondary acute myeloid leukaemia (AML)
 - 9.6. Cancer treated with curative intent ≥ 5 years previously
10. Significant active cardiac disease within the previous 6 months, including:
 - 10.1. New York Heart Association (NYHA) class III or IV congestive heart failure
 - 10.2. Unstable angina or angina requiring surgical or medical intervention; and/or
 - 10.3. Myocardial infarction
11. Known or suspected hypersensitivity to azacitidine or mannitol
12. Pregnant or lactating females

13. Any significant medical condition, laboratory abnormality, or psychiatric illness that would prevent the patient from participating in the study.
14. Any condition including the presence of laboratory abnormalities, which places the patient at unacceptable risk if he/she were to participate in the study
15. Any condition that confounds the ability to interpret data from the study

Previous participant exclusion criteria:

1. Use of any of the following after transplantation and prior to starting study therapy:
 - 1.1. Any agents (chemotherapy or targeted agents) used for adjuvant therapy (note that prophylactic use of these agents is allowed in this study, e.g., methotrexate for GVHD or rituximab for EBV reactivation)
 - 1.2. Unlicensed investigational agents/therapies used within 28 days prior to starting study therapy
 - 1.3. Azacitidine, decitabine or other hypomethylating agent (HMA)
 - 1.4. Lenalidomide, thalidomide and pomalidomide used within 28 days prior to starting study therapy
2. Subjects who have undergone a haploidentical or cord blood transplant
3. Active GVHD grade II or higher (acute GVHD Clinical Staging and Grading)
4. Concurrent use of corticosteroids equivalent of prednisone at a dose > 0.5 mg/kg
5. Known active viral infection with Human Immunodeficiency Virus (HIV), Hepatitis B Virus (HBV) or Hepatitis C Virus (HCV)
6. Active uncontrolled systemic fungal, bacterial, or viral infection (defined as ongoing signs /symptoms related to the infection without improvement despite appropriate antibiotics, antiviral therapy, and/or other treatment)
7. History of inflammatory bowel disease (e.g., Crohn's disease, ulcerative colitis), celiac disease (i.e., sprue), prior gastrectomy or upper bowel removal, or any other GI disorder or defect that may interfere with the absorption, distribution, metabolism or excretion of the investigational medicinal products (IMPs) and/or predispose the subject to an increased risk of gastrointestinal toxicity prior to allo-SCT
8. Idiopathic thrombocytopenic purpura (ITP), disseminated intravascular coagulation, haemolytic uremic syndrome, thrombotic thrombocytopenic purpura (TTP)
9. Prior history of/concurrent malignancies (including CMML). However, subjects with the following history/concurrent conditions are allowed:
 - 9.1. Basal or squamous cell carcinoma of the skin
 - 9.2. Carcinoma in situ of the cervix
 - 9.3. Carcinoma in situ of the breast
 - 9.4. Incidental histologic finding of prostate cancer (T1a or T1b using the tumor, node, metastasis (TNM) clinical staging system)
10. Significant active cardiac disease within the previous 6 months, including:
 - 10.1. New York Heart Association (NYHA) class III or IV congestive heart failure
 - 10.2. Unstable angina or angina requiring surgical or medical intervention; and/or
 - 10.3. Myocardial infarction
11. Known or suspected hypersensitivity to azacitidine or mannitol
12. Pregnant or lactating females
13. Any significant medical condition, laboratory abnormality, or psychiatric illness that would prevent the patient from participating in the study.
14. Any condition including the presence of laboratory abnormalities, which places the patient at unacceptable risk if he/she were to participate in the study
15. Any condition that confounds the ability to interpret data from the study

Date of first enrolment

14/06/2019

Date of final enrolment

27/03/2023

Locations

Countries of recruitment

United Kingdom

England

Scotland

Wales

Study participating centre

Beatson West of Scotland Cancer Centre

Glasgow

United Kingdom

G12 0YN

Study participating centre

King's College Hospital

London

United Kingdom

SE5 9RS

Study participating centre

St. James's University Hospital

Leeds

United Kingdom

LS9 7TF

Study participating centre

Manchester Royal Infirmary

Manchester

United Kingdom

M13 9WL

Study participating centre

Freeman Hospital
Newcastle-Upon-Tyne
United Kingdom
NE7 7DN

Study participating centre
Churchill Hospital
Oxford
United Kingdom
OX3 7LE

Study participating centre
Queen Elizabeth Hospital
Birmingham
United Kingdom
B15 2TH

Study participating centre
St Bartholomew's Hospital
London
United Kingdom
EC1A 7BE

Study participating centre
Bristol Haematology and Oncology Centre
Bristol
United Kingdom
BS2 8ED

Study participating centre
University College London Hospitals
London
United Kingdom
NW1 2BU

Study participating centre

Addenbrookes Hospital

Cambridge
United Kingdom
CB2 0QQ

Study participating centre

University Hospital of Wales

Cardiff
United Kingdom
CF14 4XW

Study participating centre

Christie Hospital

Manchester
United Kingdom
M20 4BX

Study participating centre

Hammersmith Hospital

London
United Kingdom
W12 0HS

Study participating centre

Leicester Royal Infirmary

Leicester
United Kingdom
LE1 5WW

Study participating centre

The Clatterbridge Cancer Centre

Liverpool
United Kingdom
CH63 4JY

Study participating centre

Nottingham City Hospital
Nottingham
United Kingdom
NG5 1PB

Study participating centre
Derriford Hospital
Plymouth
United Kingdom
PL6 8DH

Study participating centre
The Royal Marsden Hospital
London
United Kingdom
SW3 6JJ

Study participating centre
Royal Hallamshire Hospital
Sheffield
United Kingdom
S5 7AU

Sponsor information

Organisation
University of Birmingham

ROR
<https://ror.org/03angcq70>

Funder(s)

Funder type
Charity

Funder Name
IMPACT (funded by NHS Blood & Transplant, Anthony Nolan and Leuka)

Funder Name

Celgene

Alternative Name(s)

Celgene Corporation

Funding Body Type

Private sector organisation

Funding Body Subtype

For-profit companies (industry)

Location

United States of America

Results and Publications

Individual participant data (IPD) sharing plan

The data sharing plans for the current study are unknown and will be made available at a later date.

IPD sharing plan summary

Data sharing statement to be made available at a later date

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
HRA research summary			28/06/2023	No	No
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes
Study website	Study website	11/11/2025	11/11/2025	No	Yes