ISRCTN11223313 https://doi.org/10.1186/ISRCTN11223313

A Phase I, safety, tolerability, pharmacokinetics, pharmacodynamics, and preliminary efficacy of a subcutaneous injection of BC-006 in adults with obesity - part 1

Submission date
12/03/2025

Recruitment status
No longer recruiting

Registration date
16/03/2025

Overall study status
Completed

Last Edited
19/09/2025

Condition category
Nutritional, Metabolic, Endocrine

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

Plain English summary of protocol

Background and study aims
BC-006 is a type of investigational medication called a small interfering ribonucleic acid (siRNA) which works in the liver to reduce the production of a protein called inhibin subunit beta E (INHBE). Part 1 of the study will investigate the effects of a single ascending doses (SAD) of BC-006 in adult participants with obesity. The purpose of Part 1 of this study is: to evaluate how safe and well tolerated BC-006 is, in adult participants with obesity; measure levels of BC-006 in the blood over time, following a single dose; measure the body's response to a single dose of BC-006; and, assess the effect of BC-006 on body composition.

Who can participate?
Healthy volunteers aged 18 – 65 years old

What does the study involve?
Participants may be on the study for (up to) 16 weeks, including a screening, dosing, and follow-up period. The study requires a 3-night stay at the research unit and 8 scheduled follow-up clinic visits. Study assessments, informed consent, eligibility check, history and demographics, vital signs, height, weight and waist-to-hip circumference, physical examination, electrocardiogram (ECG), pregnancy tests / post-menopausal test, blood samples, urine samples, alcohol breath testing and drug of abuse testing, health and medication check, mental health questionnaires, body composition scan.

What are the possible benefits and risks of participating?
The study is not designed to provide participants with any therapeutic benefits. The information from this study might help to develop better treatments in the future for obesity.

This is the first time that BC-006 is being tested in humans, and as such, there is no human experience available to identify all of the risks of BC-006. Animal studies have been done with BC-006 to try and predict what type of side effects might occur in people. However, animal

studies do not always predict human responses to medications. When BC-006 was given to animals at doses higher than the doses that will be given in this study, no adverse (harmful) side effects were seen. The below effects were observed in animal studies:
- Changes in liver cells and function
- Skin reactions at the injection site
The doses planned for this study in people are lower than any of the doses given to animals.

Where is the study run from?
New Zealand Clinical Research- Christchurch

When is the study starting and how long is it expected to run for?
December 2024 to November 2025. Part 1 of the Study is starting to recruit in April 2025 and is expected to run until October 2025.

Who is funding the study?
BaseCure Therapeutics Inc.

Who is the main contact?
Ms Yvonne Chen, yvonne_chen@basecuretx.com

Contact information

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Additional identifiers

Clinical Trials Information System (CTIS)
Nil known

Protocol serial number
CBC006A1101

Study information

Scientific Title
A Phase I, randomized, double-blind, placebo-controlled, single-dose study to evaluate the safety, tolerability, pharmacokinetics, pharmacodynamics, and preliminary efficacy of a subcutaneous injection of BC-006 in adults with obesity - part 1

Study objectives
This first-in-human, two-part study is designed to provide initial single dose safety, tolerability, pharmacokinetics (PK), pharmacodynamics (PD), and preliminary efficacy of SC administered BC-006 in adults with obesity. The study will be conducted in 2 parts. This record is Part 1, which is a single-ascending-dose (SAD) study of BC-006. Part 2 will be comprised of an initial open-label Tirzepatide (TZP) run-in period followed by a double-blind, placebo-controlled BC-006 treatment phase. An SRC will oversee dose escalation decisions in Part 1 (SAD) and will be responsible for determining the BC-006 doses to be used in Part 2 based on emerging data from Part 1. Analysis of urine and plasma concentrations will characterize the single dose PK of BC-006 and its metabolites. Pharmacodynamic, immunogenicity and exploratory samples, as well as preliminary markers of efficacy, will be analyzed to further characterize the effects of single dose BC-006 exposure. The results of this study will be used to refine dosing strategies for future studies.

Ethics approval required
Ethics approval required

Ethics approval(s)
Approved 24/02/2025, Northern B Health and Disability Ethics Committee (Ministry of Health, 133 Molesworth Street, PO Box 5013, Wellington, 6011, New Zealand; +64 (0)800 855 066; hdecs@health.govt.nz), ref: 2025 FULL 22086

Primary study design

Interventional

Study design
Two-part single-center Phase I first-in-human study including the randomized, placebo-controlled, double-blind dose-escalation cohort of part 1

Study type(s)
Safety, Efficacy

Health condition(s) or problem(s) studied
Diet and nutrition

Interventions
A single -center, Phase I, randomized, double-blind, placebo-controlled, single-dose study to evaluate the safety, tolerability, pharmacokinetics (PK), pharmacodynamics (PD), and preliminary efficacy of a subcutaneous injection of BC-006 in adults with obesity. The study will be conducted in two parts. Part 1 of the study will be a randomized, placebo-controlled, double-blind dose-escalation-cohort design. Four ascending dose cohorts (Cohort A-D), each comprising 8 adult participants with obesity, will be enrolled to receive a single subcutaneous (SC) injection dose of BC-006 or placebo, given by a researcher. Randomization is performed by the Randomization and Trial Supply Management (RTSM) computer program. The pharmacist will be able to randomize manually if required, based on the randomization schedule provided to them (as a Back-up). Participants are randomly assigned in a ratio of 3:1 (6 active treatment and 2 placebo per cohort) and will be followed for a total of 85 days after dosing. For each dose level, the first 2 participants will be assigned as sentinels. Sentinel subjects will be randomly assigned in a 1:1 ratio (active: placebo), dosed, and followed for 48 hours to assess safety and tolerability before dosing the remaining 6 participants in the cohort.

Intervention Type
Drug

Phase
Phase I

Drug/device/biological/vaccine name(s)
BC-006

Primary outcome(s)
1. Incidence and severity of Adverse Events (AEs) measured using AE assessments from the time of BC-006 dosing through the End of Study (EOS, day 85 post-dose).
2. Incidence of laboratory abnormalities measured using hematology, serum chemistry, coagulation, and urinalysis test results, 12-lead ECG parameter.
Vital signs measurements. ECG done on day -28 -2 (screening), day -1 (check-in), day 1 (dosing), day 29, and day 85 (End of Study (EOS, day 85 post-dose)/ early termination (ET). Clinical Laboratory Assessments: day -28 -2 (screening) day -1 (check-in), day 3,8,15,22,29,36,43,57,29, and 85 post -dose.
3. Physical examination findings measured on day -28, -2 (screening) day -1 (check-in), day 3 and 85 post dose.
4. Suicide risk measured using the Columbia-Suicide Severity Rating Scale (C-SSRS) on Screening day -28 -2 and Day -1 (check-in), 29,57 and Day 85 post-dose.

Key secondary outcome(s)
1. Pharmacokinetics (PK) of SC doses of BC-006 in adults with obesity. Assessment pharmacokinetics (PK) parameters of BC-006, including but not limited to: AUCinf, AUClast, Cmax, tmax, Kel, t1/2, CL/F, and Vz/F in plasma Ae0-24, Fe%, and CLR in urine. Part 1 timepoints Day 1 (dose), 2, 8 and 15 (post-dose).
2. Pharmacodynamic (PD) response following SC doses of BC-006 in adults with obesity. Change from baseline of circulating biomarking proteins. Part 1 timepoints Day 1 (dose), Day 15, Day 29, Day 57 and Day 85 post-dose.
3. Pharmacokinetics (PK) of BC-006 metabolites following SC doses of BC-006 in adults with obesity. Pharmacokinetics (PK) parameters of BC-006 metabolites, including but not limited to: AUCinf, AUClast, Cmax, tmax, Kel, t1/2, CL/F, and Vz/F in plasma, Ae0-24, Fe%, and calculation of renal clearance (CLR) in urine. Part 1 timepoints Day 1 (dose), 2, 8 and 15 post-dose.

Completion date
28/11/2025

Eligibility

Key inclusion criteria
1. Male and female subjects aged 18 to 65 years, inclusive, at the time of signing the informed consent.
2. Subjects who are in good general health according to the judgment of the investigator per local guidance, eg, with no clinically relevant abnormalities based on medical history, physical examinations, neurological examinations, clinical laboratory evaluations (hematology, serum chemistry, coagulation, urinalysis), and 12-lead ECG that, in the opinion of the investigator would affect subject safety. Subjects may have well-controlled hypertension providing they have been on stable treatment for at least 3 months before screening.
3. Subjects with a BMI of greater than or equal to 30 to less than 40 kg/m at screening.
4. Self-reported stable body weight (plus or minus 5%) for at least 3 months prior to screening.
5. Male subjects are eligible to participate if they are permanently sterile by vasectomy (at least 6 months before screening, and confirmed by post-surgical sperm count [verbal confirmation by subject is acceptable]), or agree to the following during the study and for at least 90 days after the last dose of study drug:
5.1. Be abstinent from heterosexual intercourse as their preferred and usual lifestyle (abstinent on a long term and persistent basis) and agree to remain abstinent
or
5.2. Agree to use a male condom (contraception/barrier) and be advised of the benefit for a female partner to use an acceptable, highly effective method of contraception as a condom may break or leak when having sexual intercourse.
6. Female subjects are eligible to participate if they are not pregnant or breastfeeding, subject to 1 of the following during the study and for at least 90 days after the last dose of study drug:
6.1. WOCBP, defined as women physiologically capable of becoming pregnant, must have a negative serum pregnancy test at screening and Day -1; women of childbearing potential (WOCBP) must agree to be abstinent as their preferred or usual lifestyle or use an acceptable, highly effective contraceptive method (implant contraceptive or intrauterine device) from screening. WOCBP using an effective form of contraception (injectable contraceptive or oral contraceptive pill) must also agree to use a barrier method of contraception (male condom, female condom, or female diaphragm)
OR
6.2. Menopausal women (amenorrhea for greater than 12 months) must have an elevated serum FSH level at screening (greater than or equal to 40 mIU/mL); if the FSH is not elevated, they are

considered to be of childbearing potential (unless permanently surgically sterile by hysterectomy, tubal ligation, etc.).
7. Agree to abstain from sperm or egg donation through 90 days after last dose of study drug.
8. Legally and ethically capable of giving signed informed consent which includes compliance with the requirements and restrictions listed in the ICF and in this protocol.

Participant type(s)
Healthy volunteer

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 Years

Upper age limit
65 Years

Sex
All

Total final enrolment
32

Key exclusion criteria
1. Clinically significant infection and/or cardiovascular, hematological, renal, hepatic, pulmonary, endocrine, gastrointestinal, immunological, dermatological, neurological, or psychiatric disease which could interfere with, or the treatment for which might interfere with, the conduct of the study or which would, in the opinion of the investigator, unacceptably increase the subject's risk if he/she were to participate in the study.
2. Diagnosed with diabetes (Type 1, 2 or other forms of diabetes mellitus, excluding a history of gestational diabetes).
3. Have at least 1 laboratory value suggestive of diabetes during screening, including 1 or more of HbA1c greater than or equal to 6.5% (48 mmol/mol), fasting serum glucose greater than or equal to 126 mg/dL (7.0 mmol/L), or random glucose greater than or equal to 200 mg/dL (11.1 mmol/L). Participants with prediabetes are permitted.
4. If liver function tests (alanine aminotransferase, aspartate aminotransferase, or total bilirubin) and serum creatinine are 2.0 times ULN at screening; or if creatinine phosphokinase is 3 times ULN at screening; except subjects with Gilbert's syndrome at screening who are permitted if all other criteria are met.
5. History of renal disease at any time in the past or abnormal kidney function tests at screening (glomerular filtration rate less than 60 mL/min/1.73 m2 as estimated using the CKD-EPI 2009 equation).
6. History of acute or chronic pancreatitis from any etiology, including but not limited to gallstone pancreatitis, at any time in the past.
7. Clinically significant allergy to any type of drug (anesthetics, antibiotics) at the discretion of the investigator, or allergy to any constituents of BC-006. If there is any history of anaphylaxis /hospitalization due to drug reaction in the past, the site should discuss further with the medical

monitor, if needed.
8. Any of the following abnormalities on triplicate 12-lead ECG at screening:
8.1. PR (PR interval) greater than or equal to 210 msec
8.2. QRS (QRS complex) greater than or equal to 120 msec
8.3. QTcF (Fridericia's corrected QT interval) greater than 450 msec (males) and greater than 470 msec (females)
8.4. In addition to the above, any clinically significant abnormality on an ECG, at the Investigator' s discretion.
9. Sitting or semi-supine (for at least 5 minutes) systolic blood pressure less than 145 mmHg at screening, confirmed by repeat.
10. Sitting or semi-supine (for at least 5 minutes) diastolic blood pressure greater than 95 mmHg at screening, confirmed by repeat.
11. Clinically significant history of orthostatic hypotension at any time in the past.
12. Presence of birthmarks, tattoos, wounds, scars, blemishes, heavy hair, or other skin conditions (such as eczema) at the planned dosing site/s that could be expected to obscure the observation of injection site reactions.
13. Use of prescription drugs (other than anti-hypertension therapy and hormonal contraceptives), over-the-counter drugs (other than paracetamol and ibuprofen), food supplements, statins, fish oil supplements, or herbal medications within 7 days or 5 half–lives, whichever is longer, prior to BC-006 dosing on Day 1, and antibiotics and systemic steroids within 30 days prior to BC-006 dosing on Day 1. Anti-hypertension therapy must be stable for at least 3 months prior to screening; more than 1 anti-hypertension therapy is permitted at Investigator's discretion. The sponsor may allow exceptions only if the medication's administration is deemed unlikely to impact the PK results.
14. Use of any GLP-1-based therapy within 12 months of screening.
15. Smoking greater than 5 cigarettes per day (or nicotine equivalent) at the time of screening or anticipated use during the study, and unable to abstain completely from smoking/vaping during the inpatient stay.
16. Any vaccination within 14 days prior to screening or anticipated live vaccination while participating in the study.
17. Receipt of an investigational product or device, or participation in a drug research study, within a period of 60 days (or 5 half-lives of the drug, whichever is longer) before dosing on Day 1 for Part 1
18. Prior exposure to BC-006 at any time in the past.
19. Positive screen for hepatitis B surface antigen (HbsAg), hepatitis C antibody (if positive, amplification may be performed to confirm; cured hepatitis C can be enrolled), or HIV antibody.
20. Positive alcohol breath test or positive urine drugs of abuse screen at screening or Day -1.
21. Past or current history or evidence of drug or alcohol abuse, regular use of more than 3 units of alcohol per day (1 unit of alcohol = 150 mL of wine, 360 mL of beer, or 45 mL of alcohol 40%). Use of any illicit drugs (eg, amphetamines, benzodiazepines, cocaine, methamphetamine, opioids, cannabis, and synthetic cannabinoids) within 6 months of screening (brief use of benzodiazepines and opiates with appropriate medical history is permitted at Investigator discretion).
22. Donation of more than 500 mL of blood or plasma within 8 weeks prior to screening or planned blood or plasma donation through 90 days after last dose of study drug.
23. Any positive responses in the C-SSRS at Day -1 that indicate the subject may be at increased risk by participating in this study or may cause potential interference with study conduct or results, at Investigator discretion.

Date of first enrolment
27/03/2025

Date of final enrolment
12/06/2025

Locations

Countries of recruitment
New Zealand

Study participating centre
New Zealand Clinical Reseach
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8011

Sponsor information

Organisation
BaseCure Therapeutics Inc.

Funder(s)

Funder type
Industry

Funder Name
BaseCure Therapeutics Inc.

Results and Publications

Individual participant data (IPD) sharing plan
The datasets generated during and/or analysed during the current study are not expected to be made available due to confidentiality

IPD sharing plan summary
Not expected to be made available