

Clinical Trial Protocol

Iranian Registry of Clinical Trials

10 Jun 2026

A study to compare the relative bioavailability of Alborz Zagros and MerckSerono 100 mcg tablet formulations of levothyroxine in 24 healthy adult volunteers under fasting conditions

Protocol summary

Study aim

Bioequivalence evaluation of two formulations of levothyroxine tablets in healthy subjects under fasting conditions

Design

This randomized, single-dose, two-way, crossover study is conducted to compare the pharmacokinetics of levothyroxine and Euthyrox tablets in 24 healthy adult volunteers. Volunteers will be sorted and receive a number from 1 to 24. In the first phase of the study, 12 volunteers will receive levothyroxine manufactured by Alborz Zagros and the remaining 12 volunteers will receive Euthyrox produced by Merck Serono company. The administered drugs will be replaced to another group in the second phase of the study.

Settings and conduct

The dose administration and subsequent sample collection will be performed in Motahhari hospital (Gonbade Kavous, Iran).

Participants/Inclusion and exclusion criteria

Inclusion criteria: aged 18-55 years old; subject available for the entire study period; willingness to adhere to protocol requirements as evidenced by written informed consent; good health at screening. Exclusion criteria: History of use of any drug; hypersensitivity or intolerance; significant history or current evidence of chronic disease; receipt of any drug as part of a research study within 30 days prior to the present study.

Intervention groups

First intervention group: A single oral dose of 6 tablets of 100 mcg levothyroxine (600 mcg) manufactured by Alborz Zagros company to 12 subjects. Second intervention group: A single oral dose of 6 tablets of 100 mcg Euthyrox (600 mcg) manufactured by Merck Serono company to 12 subjects. Since in this study, the volunteers will receive both test and reference drugs, each volunteer will act as his own control.

Main outcome variables

Drug plasma concentration; Area under the plasma concentration-time curve

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20130626013776N113**

Registration date: **2023-12-18, 1402/09/27**

Registration timing: **prospective**

Last update: **2023-12-18, 1402/09/27**

Update count: **0**

Registration date

2023-12-18, 1402/09/27

Registrant information

Name

Hossein Amini

Name of organization / entity

Golestan University of Medical Sciences

Country

Iran (Islamic Republic of)

Phone

+98 17 1442 1651

Email address

hamini@sbmu.ac.ir

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2024-01-21, 1402/11/01

Expected recruitment end date

2025-01-20, 1403/11/01

Actual recruitment start date

empty

Actual recruitment end date
empty

Trial completion date
empty

Scientific title
A study to compare the relative bioavailability of Alborz Zagros and MerckSerono 100 mcg tablet formulations of levothyroxine in 24 healthy adult volunteers under fasting conditions

Public title
Bioequivalence study of levothyroxine 100 mcg tablets

Purpose
Basic science

Inclusion/Exclusion criteria
Inclusion criteria:
18-55 years of age The subject is able and willing to provide signed informed consent Willing to adhere to protocol requirements as evidenced by written informed consent The subject has a stable residence and telephone Good health as determined by lack of clinically significant abnormalities in health assessments performed at screening
Exclusion criteria:
History of allergy or sensitivity to levothyroxine History of any drug hypersensitivity or intolerance which, in the opinion of the investigator, would compromise the safety of the subject of the study Significant history or current evidence of chronic infectious disease, system disorder or organ dysfunction Presence of gastrointestinal disease or history of malabsorption within the last year History of a medical disorders occurring within the last year that required hospitalization or medication Use of pharmacologic agents known to significantly induce or inhibit drug-metabolizing enzymes within 30 days prior to dosing Receipt of any drug as part of a research study within 30 days prior to the present study Donation or significant loss of whole blood (480 ml or more) within 30 days prior to the present study

Age
From **18 years** old to **55 years** old

Gender
Male

Phase
Bioequivalence

Groups that have been masked
No information

Sample size
Target sample size: **24**
More than 1 sample in each individual
Number of samples in each individual: **2**
In a crossover design, each person is its own control and receives two different interventions

Randomization (investigator's opinion)
Randomized

Randomization description
A pot sampling method will be used in this study. 12 papers are labeled "Reference Product" and 12 papers are written as "Test Product". The papers are then placed in sealed envelopes, and participants randomly select a

paper and will be placed in the Reference or Test groups.

Blinding (investigator's opinion)

Not blinded

Blinding description

Placebo

Not used

Assignment

Crossover

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Golestan University of Medical Sciences

Street address

Shast cola road, Falsafi Building

City

Gorgan

Province

Golestan

Postal code

4934174515

Approval date

2023-11-14, 1402/08/23

Ethics committee reference number

IR.GOUMS.REC.1402.373

Health conditions studied

1

Description of health condition studied

ICD-10 code

ICD-10 code description

Primary outcomes

1

Description

Maximum serum drug concentration

Timepoint

At time -0.5, -0.25, zero and 0.5, 1, 1.5, 2, 2.5, 3, 4, 6, 8, 10, 24 and 48 h after drug administration

Method of measurement

Blood sampling and measurement of drug concentrations

2

Description

Area under serum concentration-time curve

Timepoint

At time -0.5, -0.25, zero and 0.5, 1, 1.5, 2, 2.5, 3, 4, 6, 8, 10, 24 and 48 h after drug administration

Method of measurement

Blood sampling and measurement of drug concentrations

Secondary outcomes

1

Description

Time to reach Cmax

Timepoint

At time -0.5, -0.25, zero and 0.5, 1, 1.5, 2, 2.5, 3, 4, 6, 8, 10, 24 and 48 h after drug administration

Method of measurement

Blood sampling and measurement of drug concentrations

2

Description

Serum half-life

Timepoint

By using concentration at time points of 6, 8, 10, 24 and 48

Method of measurement

Blood sampling and drug analysis

Intervention groups

1

Description

Intervention group 1: Oral administration of a single 600 mcg dose of levothyroxine manufactured by Alborz Zagros to healthy volunteers under fasting condition in the morning of the experiment day

Category

Treatment - Drugs

2

Description

Intervention group 2: Oral administration of a single 600 mcg dose of Euthyrox manufactured by MerckSerono to healthy volunteers under fasting condition in the morning of the experiment day

Category

Treatment - Drugs

Recruitment centers

1

Recruitment center

Name of recruitment center

Dialysis Center, Shahid. Motahhari Hospital

Full name of responsible person

Yahya Naserifard

Street address

Taleghani Street

City

Gonbade Kavous

Province

Golestan

Postal code

4916817693

Phone

+98 17 3252 5972

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+98 17 3252 5972

Email

haminhplc@yahoo.com

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Alborroz Zags Pharmaceutical Company

Full name of responsible person

Dr. Nahid Shafiei

Street address

Head Office: No 58, Street 8, Koye Nasr

City

Tehran

Province

Tehran

Postal code

1654713691

Phone

+98 21 4163 7000

Fax

+98 21 4163 7000

Email

info@alborzzagros.com

Web page address

http://alborzzagros.com

Grant name

Bioequivalence Study of Levthyroxine

Grant code / Reference number

Is the source of funding the same sponsor organization/entity?

No

Title of funding source

Alborz zagros Pharmaceutical Company

Proportion provided by this source

100

Public or private sector

Private

Domestic or foreign origin

Domestic

Category of foreign source of funding

empty

Country of origin

Type of organization providing the funding

Industry

Person responsible for general inquiries

Contact

Name of organization / entity

Gorgan University of Medical Sciences

Full name of responsible person

Hossein Amini

Position

Associate Professor

Latest degree

Ph.D.

Other areas of specialty/work

Medical Pharmacy

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Sharing plan

Deidentified Individual Participant Data Set (IPD)

No - There is not a plan to make this available

Justification/reason for indecision/not sharing IPD

There is not a plan to make this available

Study Protocol

No - There is not a plan to make this available

Statistical Analysis Plan

No - There is not a plan to make this available

Informed Consent Form

No - There is not a plan to make this available

Clinical Study Report

No - There is not a plan to make this available

Analytic Code

No - There is not a plan to make this available

Data Dictionary

No - There is not a plan to make this available