ISRCTN11075227 https://doi.org/10.1186/ISRCTN11075227

A study to assess the amount of active ingredient that reaches the blood circulation after administration in healthy men and women of a new ocular solution of DFL24498

Submission date
10/10/2025

Recruitment status
No longer recruiting

Registration date
30/10/2025

Overall study status
Completed

Last Edited
28/10/2025

Condition category
Other

[_] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[X] Results
[_] Individual participant data

Plain English summary of protocol
Background and study aims
The product DFL24498, administered to volunteers in this clinical trial, is a novel eye drop formulation developed to improve aqueous solubility of the product thus enhancing its bioavailability (the proportion of the substance which enters the circulation when introduced into the body and so is able to have an active effect) and its tolerability as compared to currently formulations already commercialised. This study was designed to investigate the amount of DFL24498 that reaches the blood circulation, after multiple ocular administrations of DFL24498 ophthalmic solution to male and female healthy volunteers, and evaluate the safety and tolerability of the product.

Who can participate?
Healthy men and women aged 18-55 years can participate. They must comprehend the full nature and purpose of the study, including possible risks and side effects, and cooperate with the investigator to comply with the requirements of the entire study.

What does the study involve?
The study was conducted at the CROSS Research S.A. Phase I Unit Clinical Centre, in Arzo, Switzerland. Study participants received six (6) doses in three days according to the following scheme:
- Day 1: 1 eye drop in each eye
- Day 2: 1 eye drop every 4 h in each eye
- Day 3: 1 eye drop in each eye
Participants had blood samples taken and vital parameters recorded at regular intervals.

What are the possible benefits and risks of participating?
Participating in this study did not have any direct benefit to participants, except for the medical tests that were performed during it.
The formulation under investigation, DFL24498 aqueous solution, has already been

administered to men and women in a previous clinical study: the observed adverse events did not give any safety concern. The dose proposed in this study was lower than that of current commercially available formulations, which have already been proven safe, following long-term use. However, as with all products, the appearance of allergic reactions or side effects that are known or not yet known cannot be ruled out.

Where is the study run from?
The CROSS Research S.A. Phase I Unit Clinical Centre, in Arzo, Switzerland.

When is the study starting and how long is it expected to run for?
October 2024 to December 2024.

Who is funding the study?
Dompé farmaceutici S.p.A., Italy

Who is the main contact?
Dr Milko Radicioni, clinic@croalliance.com

Contact information

Type(s)
Public, Principal investigator

Contact name
Dr Milko Radicioni

ORCID ID
https://orcid.org/0000-0002-3940-8375

Contact details
Via F.A. Giorgioli, 14
Arzo
Switzerland
6864
+41916404450
clinic@croalliance.com

Type(s)
Public, Scientific

Contact name
Mr Flavio Mantelli

ORCID ID
https://orcid.org/0000-0003-3459-4866

Contact details
c/o Dompé farmaceutici S.p.A.
Via San Martino, 12
Milano
Italy

20122
+39 338 4064 830
flavio.mantelli@dompe.com

Additional identifiers

Clinical Trials Information System (CTIS)
Nil known

ClinicalTrials.gov (NCT)
Nil known

Protocol serial number
ICY0124 / CRO-PK-24-371

Study information

Scientific Title
Phase I, multiple dose, pharmacokinetics study of DFL24498 ophthalmic solution on healthy volunteers of both sexes

Acronym
DFL24498 PK study

Study objectives
To investigate the pharmacokinetic profile of DFL24498 in blood after multiple ocular administrations of DFL24498 ophthalmic solution to male and female healthy volunteers

Ethics approval required
Ethics approval required

Ethics approval(s)
approved 15/10/2024, Canton Ticino Ethics Committee (c/o Ufficio di Sanità) (Via Orico, 5, Bellinzona, 6501, Switzerland; +41918143057; michaela.gutacker@ti.ch), ref: 2024-01965; Rif. CE 4690

Study design
Single-centre multiple-dose single-way open-label pharmacokinetic study

Primary study design
Interventional

Study type(s)
Other

Health condition(s) or problem(s) studied
DFL24498 ophthalmic solution was administered to healthy volunteers

Interventions

The subjects were confined at the Phase I Unit from the evening preceding the first investigational medicinal product administration (study Day -1) up to the afternoon of Day 4 after the ophthalmology visit.
During the treatment period, participants received six doses in 3 days according to the following scheme:
Day 1: one drop of DFL24498 0.08% instilled in each eye (i.e., 08:00 ± 1 h)
Day 2: one drop of DFL24498 0.08% instilled in each eye QID (every 4 hours) (i.e., 08:00 ± 1 h, 12: 00 ± 1 h, 16:00 ± 1 h and 20:00 ± 1 h)
Day 3: one drop of DFL24498 0.08% instilled in each eye (i.e., 08:00 ± 1 h)

Intervention Type
Drug

Phase
Phase I

Drug/device/biological/vaccine name(s)
DFL24498

Primary outcome(s)
Data permitting, pharmacokinetic parameters of DFL24498 from blood concentrations after single and multiple ocular administration of the investigational medicinal product on Days 1 and 3: Cmax, Tmax, λz, t1/2, AUC0-t AUC0-12 AUC0-%AUCextra. The following ones on Day 3 only: Cmax,ss, tmax,ss, Cmin,ss, Cave,ss, AUC0-t,ss, AUCτ,ss, ARAUC, Clast. These parameters were evaluated analysing venous blood samples collected from participants' forearm veins at the following times: Day 1: 0 (at pre dose), 1, 2, 3, 4, 6, 8, 10, and 12 h post dose; Day 3: 0 (at pre dose), 1, 2, 3, 4, 6, 8, 10, and 12 h post dose.

Key secondary outcome(s))
1. Data permitting, pharmacokinetic parameters of DFL24498 from plasma concentrations after single and multiple ocular administration of investigational medicinal product on Days 1 and 3: Cmax, Tmax, λz, t1/2, AUC0-t AUC0-12 AUC0-%AUCextra. The following ones on Day 3 only: Cmax,ss, tmax,ss, Cmin,ss, Cave,ss, AUC0-t,ss, AUCτ,ss, ARAUC, Clast. These parameters were evaluated analysing venous blood samples collected from participants' forearm veins at the following times: Day 1: 0 (at pre dose), 1, 2, 3, 4, 6, 8, 10, and 12 h post dose; Day 3: 0 (at pre dose), 1, 2, 3, 4, 6, 8, 10, and 12 h post dose.
2. Safety of the study treatment was evaluated through the following assessments:
2.1. Treatment-emergent adverse events
2.2. Physical examinations
2.3. Laboratory tests
2.4. Blood pressure and heart rate were evaluated through a sphygmomanometer approximately at each visit
2.5. Body temperature was assessed through a tympanic thermometer approximately at each visit.
2.6. The ECG, performed through an electrocardiograph, was done at screening and final visits. Physical examination, including height (through a stadiometer) and body weight (through an electronic weighing scale), were evaluated at screening and final visits.
2.7. Best Corrected Distance Visual Acuity was assessed by ETDRS chart at screening and final visits
2.8. Slit-lamp examination was performed with the slit-lamp microscope using white light. Slit-

lamp examination assessed adnexa (eyelids, lashes, conjunctival fornix, lacrimal gland and drainage) and anterior segment (cornea, conjunctiva, aqueous humour, iris, pupil, lens) at screening and final visits
2.9. Fluorescein corneal staining was assessed through the application of fluorescein to the lower conjunctival fornix; examination was performed at the slit-lamp using blue light at screening and final visits
2.10. Intraocular pressure was assessed by Goldman Tonometer in both eyes and values was expressed as mmHg at screening and final visits
2.11. Dilated fundus oculi exam was performed at screening and final visits through mydriatic drops instillation in both eyes and, once adequate dilation was achieved, a fundal exam was performed to examine the vitreous, retina and optic nerve for vitritis, vitreal or retinal haemorrhage, maculopathy, retinal tears or detachment, posterior vitreous detachment, optic nerve appearance, and optic nerve cup: disc ratio.

Completion date
20/12/2024

Eligibility

Key inclusion criteria
1. Sex and Age: males/females aged 18-55 years, inclusive
2. BMI: 18.5-30 kg/m2
3. Vital signs: systolic blood pressure 100-139 mmHg, diastolic blood pressure 50-89 mmHg, heart rate 50-99 bpm, measured after 5 min of rest in the sitting position, tympanic body temperature ≤37.5° C
4. Normal ocular evaluation (both eyes):
4.1. Absence of any ocular diseases
4.2. Best corrected distance visual acuity of 20/30 or better
4.3. Intraocular pressure ≥10 and ≤21 mmHg
4.4. Absence of corneal fluorescein staining
4.5. Slit lamp examination and fundus oculi within normal limits
5. Full comprehension: ability to comprehend the full nature and purpose of the study, including possible risks and side effects; ability to cooperate with the Investigator and to comply with the requirements of the entire study
6. Informed Consent: signed written informed consent before inclusion in the study
7. Contraception (for women): women of child-bearing potential must be using at least one reliable method of contraception, as follows:
7.1. Hormonal oral, implantable, transdermal, or injectable contraceptives for at least 2 months before the screening visit 1
7.2. A non-hormonal intrauterine device [iud] or female condom with spermicide or contraceptive sponge with spermicide or diaphragm with spermicide or cervical cap with spermicide for at least 2 months before the screening visit 1
7.3. A male sexual partner who agrees to use a male condom with spermicide
7.4. A sterile sexual partner
7.5. True abstinence (i.e., refraining from heterosexual intercourse when this is in line with the preferred and usual lifestyle of the subject). Periodic abstinence (e.g., calendar, ovulation, symptothermal, postovulation methods), lactational amenorrhea, and withdrawal are not acceptable. Women of non-child-bearing potential or in post-menopausal status for at least 1 year will be admitted. For all the women, the pregnancy test result must be negative at the screening visit 1 and on Day 1.
8. Contraception (men, if applicable only): men will either be sterile or agree to use one of the

following approved methods of contraception from Day -21 until the end of the study:
8.1. A male condom with spermicide
8.2. A sterile sexual partner or a partner in post-menopausal status for at least 1 year
8.3. Use by the female sexual partner of an IUD, a female condom with spermicide, a contraceptive sponge with spermicide, a diaphragm with spermicide, a cervical cap with spermicide, or hormonal oral, implantable, transdermal, or injectable contraceptives before the screening visit
8.4. True abstinence (i.e., refraining from heterosexual intercourse when this is in line with the preferred and usual lifestyle of the subject). Periodic abstinence (e.g., calendar, ovulation, symptothermal, postovulation methods), lactational amenorrhea of the female sexual partner, and withdrawal are not acceptable.

Participant type(s)
Healthy volunteer

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 years

Upper age limit
55 years

Sex
All

Total final enrolment
8

Key exclusion criteria
1. ECG (12-leads) (supine position): clinically relevant abnormalities
2. Physical findings: clinically relevant abnormal physical findings which could interfere with the objectives of the study
3. Laboratory analyses (including virology): clinically relevant abnormal laboratory values indicative of physical illness
4. Allergy: ascertained or presumptive hypersensitivity to DFL24498 and/or formulations' ingredients; history of hypersensitivity to drugs or chemically related compounds to the Study Product or a clinically significant allergy to drugs, foods, amide local anaesthetics or other materials and drugs used in this study or allergic reactions in general, which the Investigator considers may affect the outcome of the study;
5. Diseases: relevant history of renal, hepatic, cardiovascular, respiratory (including asthma), skin, haematological, endocrine, gastro-enteric and genitourinary tract or neurological and autoimmune diseases, that may interfere with the aim of the study
6. Ocular prosthetic devices: wearing contact lenses during the study, starting from screening visit 1
7. Eye surgery: ocular surgery within 6 months before the study
8. Medications: medications, including the use of any topical ocular treatment, over-the-counter

drugs and excluding the hormonal contraceptives for women, herbal remedies and food supplements taken 2 weeks before the start of the study
9. Investigative drug trials: participation in the evaluation of any drug in the 3 months before this study, calculated from the first day of the month following the last visit of the previous study
10. Blood donation: blood donations in the 3 months before the study started
11. Drug, alcohol, caffeine, tobacco: history of drug, alcohol [>1 drink/day for females and >2 drinks/day for males, defined according to USDA Dietary Guidelines 2020, caffeine (>5 cups coffee/tea/day) or tobacco (≥10 cigarettes/day) abuse
12. SARS-CoV-2 test: positive Covid-19 rapid test at screening (visit 1) or Day -1
13. Drug test: positive result at the drug test at screening (visit 1) or Day -1
14. Alcohol test: positive alcohol saliva test at screening (visit 1) or Day -1
15. Diets: abnormal diets (<1600 or >3500 kcal/day) or substantial changes in eating habits within the past 4 weeks; vegetarians
16. Pregnancy: positive or missing pregnancy test at screening (visit 1) or Day -1, pregnant or lactating women

Date of first enrolment
11/12/2024

Date of final enrolment
12/12/2024

Locations

Countries of recruitment
Switzerland

Study participating centre
CROSS Research S.A., Phase I Unit
Via F.A. Giorgioli, 14
Arzo
Switzerland
6864

Sponsor information

Organisation
Dompé farmaceutici S.p.A.

Funder(s)

Funder type
Industry

Funder Name
Dompé farmaceutici S.p.A.

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?
Basic results		22/10/2025	28/10/2025	No	No