



EVALUATION OF 2 MYDRIATIC DOSING REGIMENS DELIVERED BY MICRO-ARRAY PRINT TECHNOLOGY FOR COMPARISON OF PUPIL DILATION SPEED

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Unmet Needs with Topical Ophthalmic Drug Delivery

While standard of care, conventional eye drops have several caveats:¹⁻⁷



Ocular and Systemic side effects²⁻⁴



Excess medication volume causing over exposure to medication/preservatives⁴



Dependent on proper eye drop technique (head angle, squeezing force, etc.)⁵



Poor compliance⁶ and no remote monitoring



Risk of contamination from protruding tip of multiuse eye drop bottles⁷

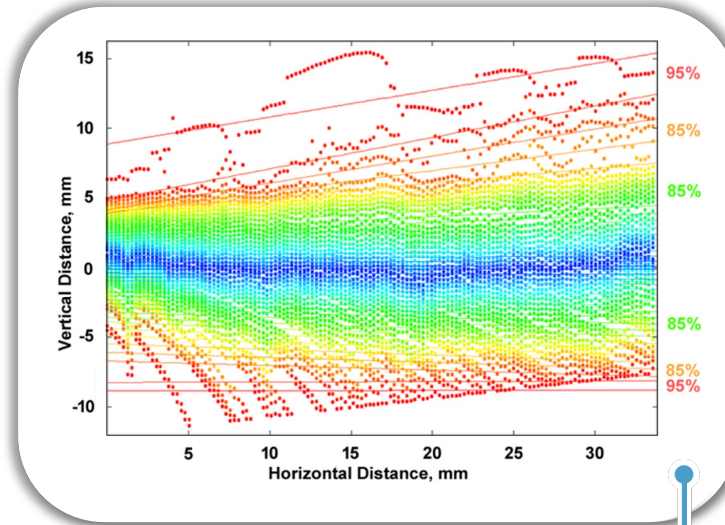


Optejet® Microdose Array Print (MAP™) Technology

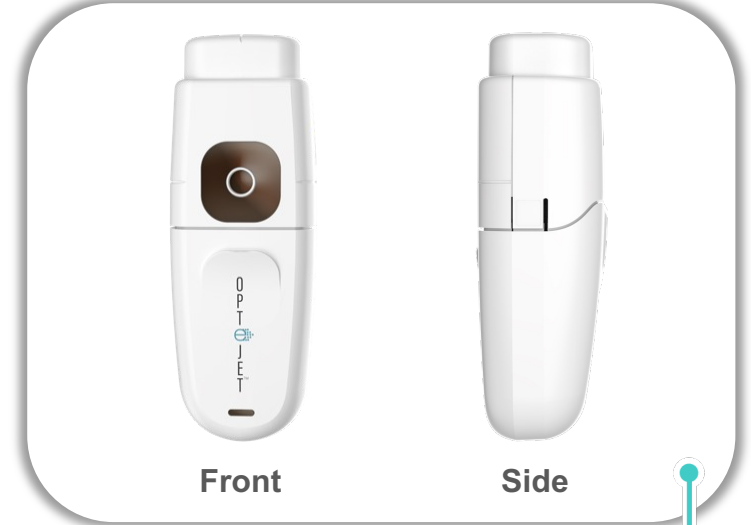
Administers a microdose volume (6-8 μL) very rapidly (in <100 ms) to deliver topical ophthalmic drug prior to the involuntary human blink¹



Piezoelectric element delivers a finely controlled microdroplet mist with precisely defined volume, velocity, geometry^{1,2}



Delivers ophthalmic drug in a horizontal direction as a columnar mist directly to the cornea^{1,2}



No protruding nozzle and shutter feature, designed to minimize the risk of touch during administration and therefore to reduce contamination¹

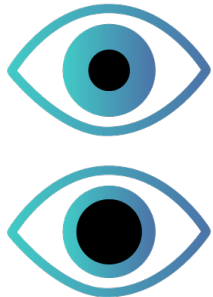
1. Ianchulev T, et al. Pharmacodynamic profile of mydriatic agents delivered by ocular piezo-ejection microdosing compared with conventional eyedropper. *Ther Deliv.* 2016;7(11):751-760

2. Wirta DL, et al. Mydriasis with micro-array print touch-free tropicamide-phenylephrine fixed combination MIST: pooled randomized Phase III trials. *Ther Deliv.* 2021;12(3):201-214.



The Need for SPEED*

Is one mist
as clinically
effective as
two?



Can dilation
be achieved
efficiently?



STUDY OBJECTIVE

To determine if 1 single
mist (~8 μ L) of MAP
dispenser administered
TR-PH FC** solution has
similar efficacy to 2 mists
(~16 μ L) for pupil dilation.

*A SINGLE-CENTER, ASSESSOR-MASKED, ACTIVE-CONTROLLED, PHASE 4 STUDY EVALUATING SPEED OF PUPIL DILATION WITH THE MICRO-ARRAY PRINT (MAP) DISPENSER WHEN COMPARING 2 DOSING REGIMENS OF TROPICAMIDE-PHENYLEPHRINE FIXED COMBINATION OPHTHALMIC SOLUTION (THE SPEED STUDY)

**Tropicamide-Phenylephrine Fixed Combination (TR-PH FC) = T-P OFTENOL 50 mg/8 mg/ ml, a commercially available mydriatic product.



SPEED Study Trial Design & Treatment Schedule

- **Single-center**
- Single masked
- Active-controlled
- Cross-over
- Non-inferiority trial
- **Randomized Tx**
 - TR-PH FC solution administered OU via Optejet MAP dispenser over 2 visits:
 - 1 mist OU (either Tx Day 1 or 2)
 - 2 mist OU (either Tx Day 1 or 2)

Screening Visit

Treatment Day 1

(1-14 Days after Screening Visit)
Randomization
Study drug administered
Efficacy and Safety Assessments

Treatment Day 2

(4-7 Days after Treatment Day 1)
Study drug administered
Efficacy and Safety Assessments

Study Exit

Meets inclusion/exclusion criteria

Key inclusion Criteria

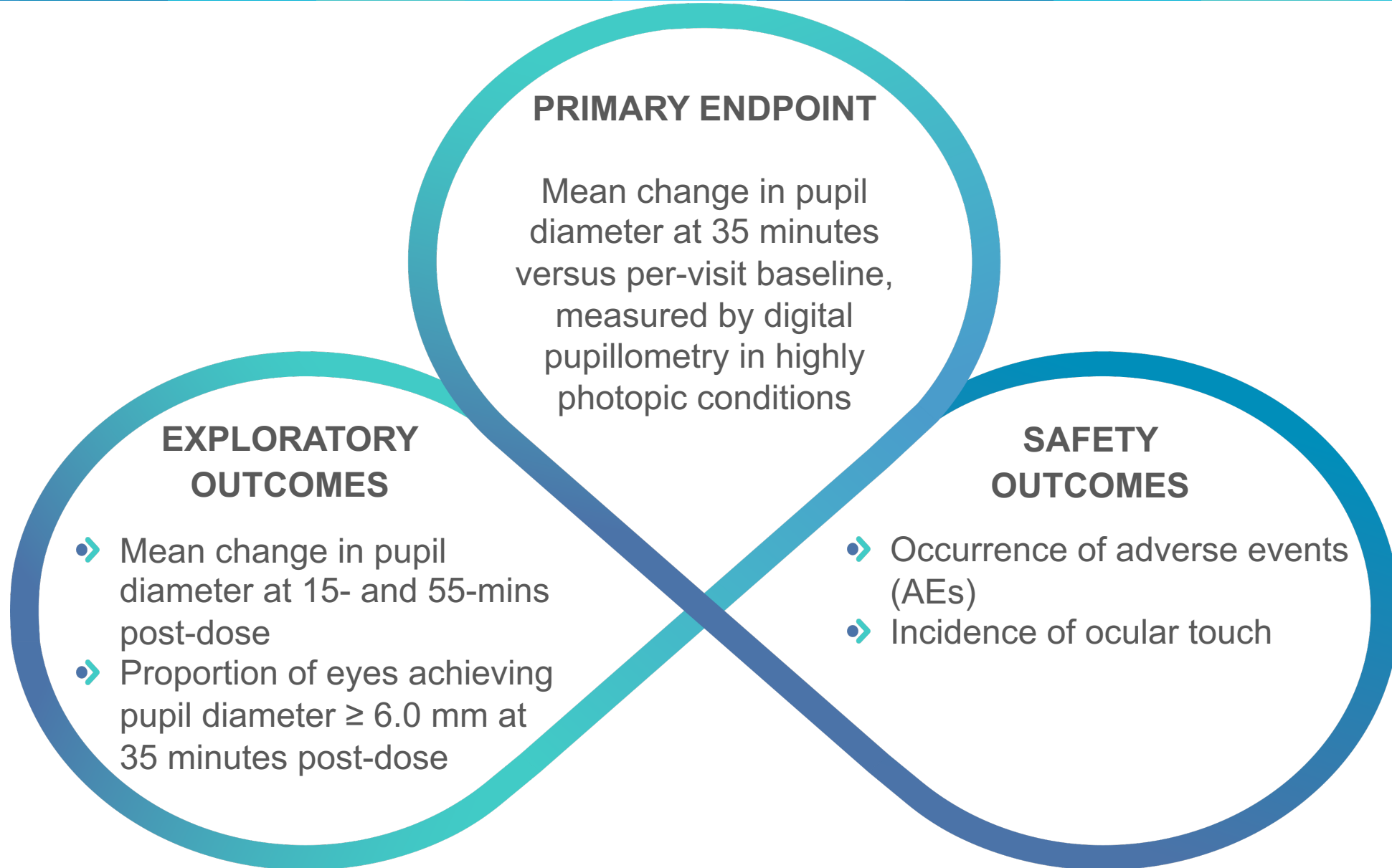
- ≥18 years old
- Photopic screening pupil diameter ≤ 3.5 mm in each eye

Key exclusion criteria

- Allergy to active ingredients of pharmaceutical treatment
- Anatomically narrow AC angles or closed-angle glaucoma
- Ocular surgery or laser treatment



SPEED Study Outcome Measures





SPEED Patient Demographics

| | n | % |
|------------------------|---------------|-------|
| N (subjects) | 60 (120 eyes) | |
| Age (Years) | | |
| Mean (SD) | 40.3 (14.2) | |
| Median | 37.0 | |
| Min, Max | [18.0, 69.0] | |
| Gender | | |
| Male | 23 | 38.3% |
| Female | 37 | 61.7% |
| Race | | |
| White | 60 | 100% |
| Ethnicity | | |
| Hispanic or Latino | 59 | 98.3% |
| Not Hispanic or Latino | 1 | 1.7% |

SPEED Primary Efficacy Endpoints

Primary Endpoint

Mean change in pupil diameter (mm) at 35 minutes versus per-visit baseline

Mean (SD)

1 mist/eye

4.55 (0.68)

2 mists/eye

4.88 (0.60)

- In this study, the **primary endpoint** of mean change in pupil diameter at 35 minutes post-dose of 4.55 mm and 4.88 mm for one mist and two mists using commercially available mydriatic T-P OFTENO SOLUCIÓN 50 mg/8 mg/ ml, respectively, was successfully achieved.
- The mean change in pupil diameter from baseline with a **single-mist was non-inferior to two-mists** (estimated difference -0.249 mm).

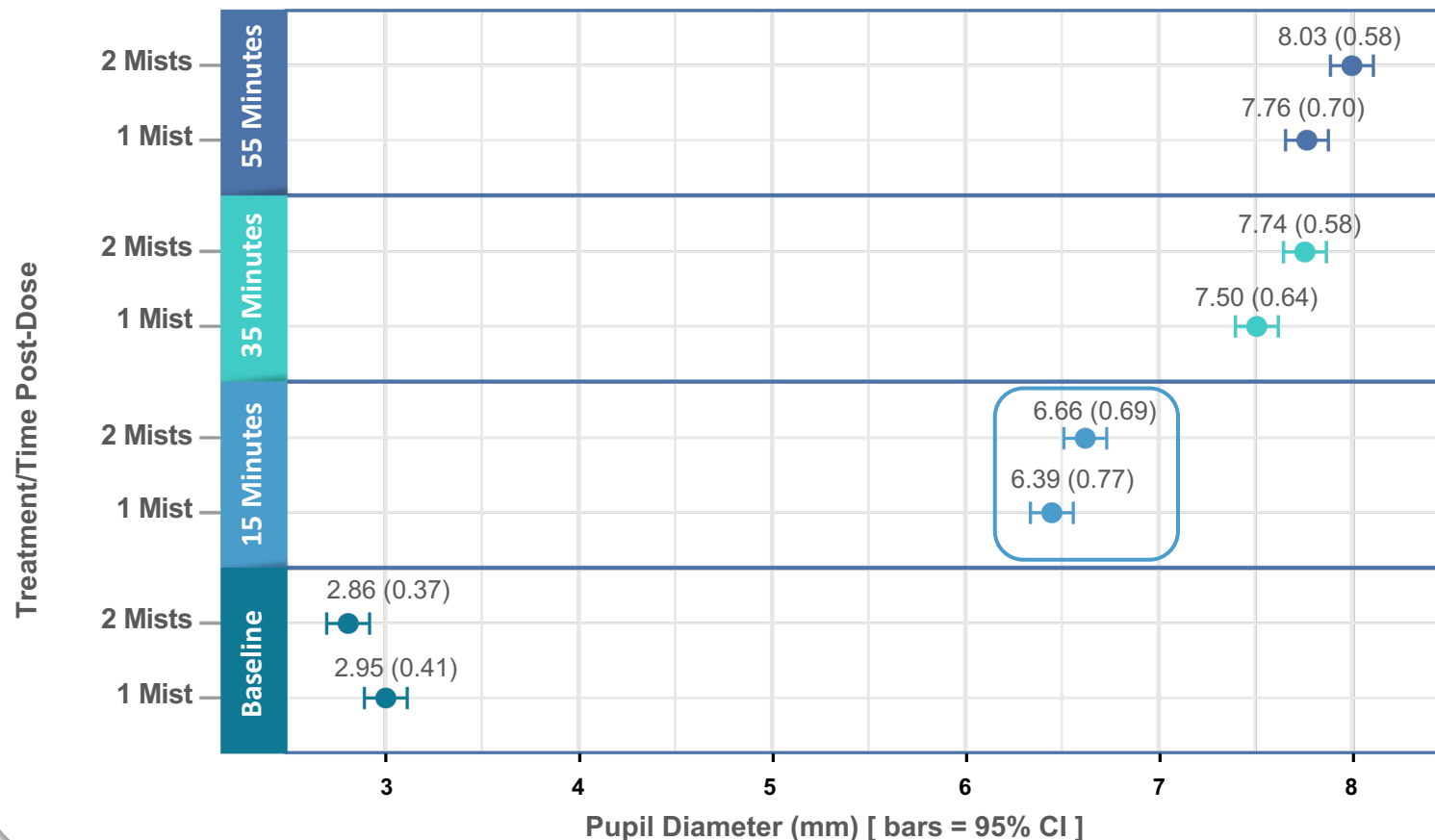
MIST¹

- A similar mean change in pupil diameter (SE) of 4.72 (0.04) was observed using the same primary endpoint in the MIST clinical trials at 35 min post-administration of 2 mists using a mydriatic investigational agent FC of Tropicamide 1%-Phenylephrine 2.5%.



SPEED Exploratory Results: Mean Pupil Diameter by Treatment and Time Post Dose

FOREST PLOT OF MEAN PUPIL DIAMETER BY TREATMENT AND TIME POST-DOSE (ITT AND PP POPULATION)



- Clinically relevant dilation was **achieved quickly** at 15 minutes post dose with no significant difference between 1 mist (6.39 mm) and 2 mists (6.66 mm).
- Dilation at 35 minutes was 7.50 mm for 1 mist and 7.74 mm for 2 mists.
- Dilation at 55 minutes was 7.76 for 1 mist and 8.03 for 2 mists.

No significant differences were observed in speed of dilation comparing 1 mist vs. 2 mists at all 3 time points.



SPEED Safety & Administration

SAFETY

- No Ocular or Systemic Adverse Events were reported during the study.
- Mydriatic delivered by Optejet® was well tolerated with a positive benefit/risk profile.

ADMINISTRATION

- There were no reports of ocular touch.

Proportion of Eyes Achieving Successful Administration on the 1st Attempt

1 mist

94%

2 mist

98%

*The Overall rate of successful mists per attempt was $360/369 = 98\%$ (95% CI = 96.8%, 99.4%).



Clinical Applications for an Eye Exam

Traditionally, dilation during an eye exam typically takes 20 to 30 min.¹



Rapid dilation was observed with most eyes in the SPEED study.



Proportion of Patients Achieving Pupil Dilation ≥ 6.0 mm

| | 1 mist |
|--------|--------|
| 15 min | 74% |
| 35 min | 98% |
| 55 min | 99% |



SPEED Summary

