UCSF Department of Ophthalmology



Phase 3 DRAGON Trial of Tinlarebant (LBS-008) for Stargardt Disease (STGD1)

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Tinlarebant is an investigational molecule and is not approved by the FDA or any other regulatory body. No conclusions regarding its safety or efficacy should be made from this information.

Financial Disclosure

- I have the following financial interests or relationships to disclose:
  - Abbvie: Grant Support
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  - PYC Therapeutics: Grant Support
  - Research to Prevent Blindness: Grant Support
  - THEA: Grant Support

Stargardt Disease Is a Rare, Inherited Retinal Disease

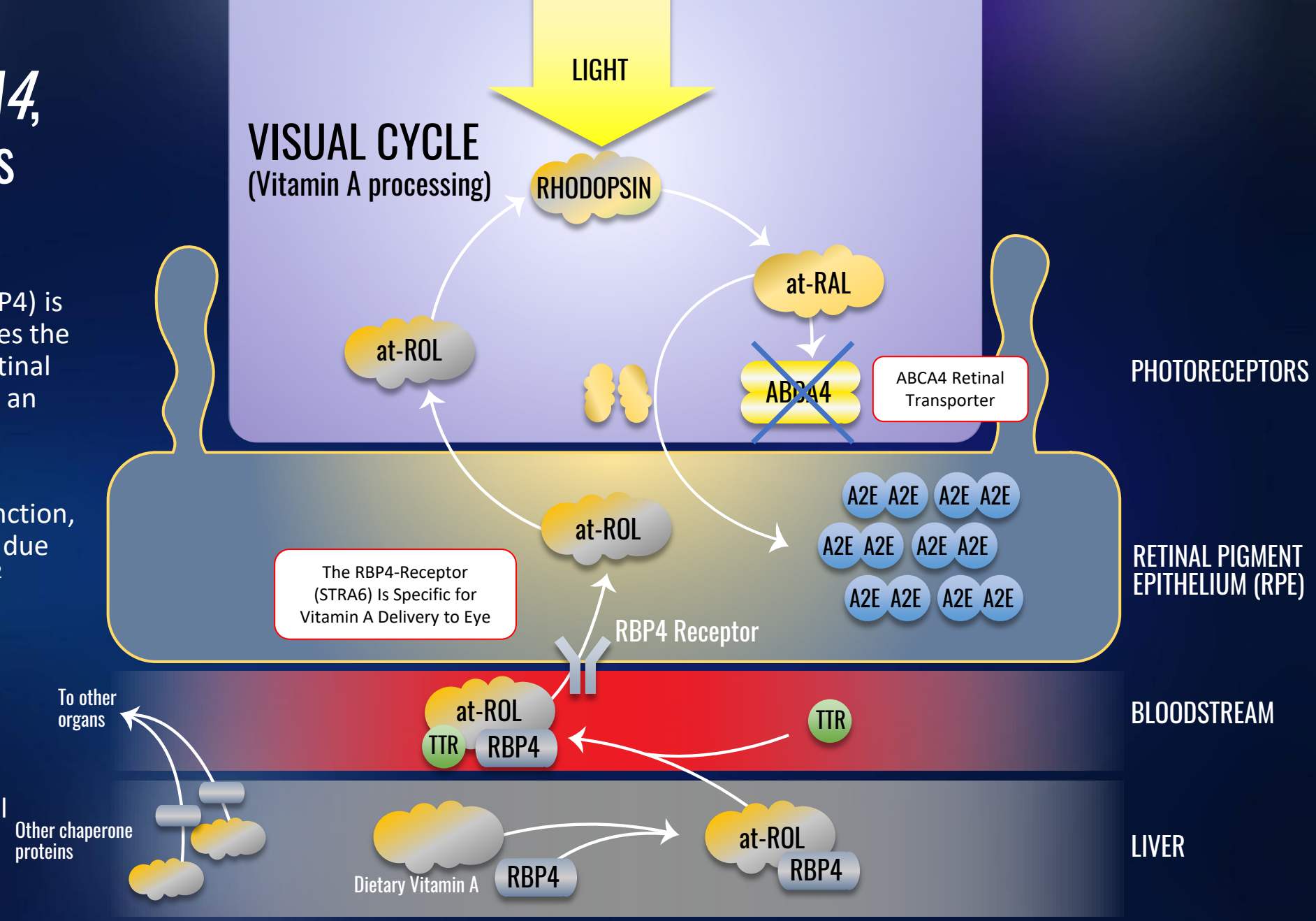
- Stargardt disease is a genetic condition, leading to **progressive photoreceptor degeneration and central vision loss** typically leading to legal blindness[1]
- The most common subtype of Stargardt disease is autosomal recessive, and is referred to as Stargardt disease type 1 (STGD1), which is caused by pathogenic variants in the ABCA4 gene[1-3]
- There are currently no FDA-approved treatments for STGD1[3]

ABCA4, ATP-binding cassette transporter subfamily A member 4; FDA, US Food & Drug Administration;
STGD1, Stargardt disease type 1.

1. Aziz K, et al. *Ophthalmic Epidemiol.* 2021;28(6):533-539. **2.** Strauss RW, et al. *Am J Ophthalmol*. 2023;250:157-170. **3.** Cremers FPM, et al. *Prog Retin Eye Res*. 2020;79:100861.

Mutation of *ABCA4*, in STGD1, Disrupts the Visual Cycle

- Retinol Binding Protein 4 (RBP4) is the only protein that facilitates the delivery of retinol into the retinal pigment epithelium (RPE) via an RBP4 receptor[1]
- Mutation of the ABCA4 gene causes loss of transporter function, driving bisretinoid formation due to increased all-*trans*-retinal[2]
- Over time, this causes accumulation of cytotoxic bisretinoid A2E, which drives degeneration of the RPE and photoreceptors[2]
- This eventually causes central vision loss

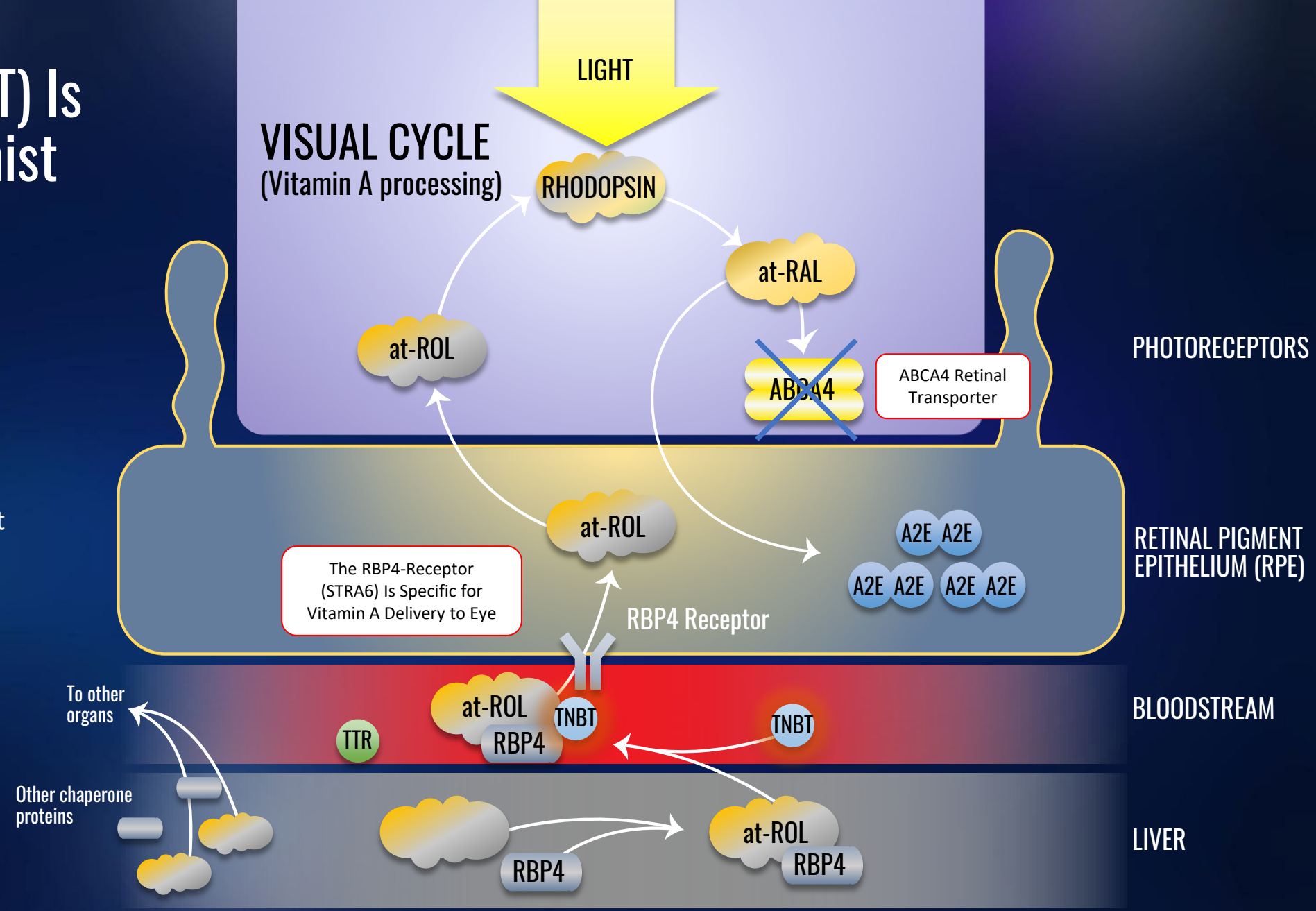


A2E, N-retinylidene-N-retinylethanolamine; *ABCA4*, ATP-binding cassette transporter subfamily A member 4; at-RAL, all-trans-retinaldehyde; at-ROL, all-trans-retinol (vitamin A); RBP4, retinol binding protein 4; STGD1, Stargardt disease type 1; TTR, transthyretin.

1. Zaluski J, et al. *Prog Retin Eye Res*. 2025;106:101360; **2.** Cremers FPM, et al. *Prog Retin Eye Res*. 2020;79:100861.

Tinlarebant (TNBT) Is an RBP4 Antagonist

- The RBP4 receptor is the primary pathway for retinol to enter the RPE
- Tinlarebant is an RBP4 antagonist that disrupts the binding of RBP4 to its receptor, inhibiting transport of retinol into the eye[1]
- Tinlarebant reduces retinol entry in the eye, slowing buildup of toxic A2E byproducts produced in the visual cycle[1]



A2E, N-retinylidene-N-retinylethanolamine; *ABCA4*, ATP-binding cassette transporter subfamily A member 4; at-RAL, all-trans-retinaldehyde; at-ROL, all-trans-retinol (vitamin A); RBP4, retinol binding protein 4; RPE, retinal pigment epithelium; TNBT, tinlarebant; TTR, transthyretin; STRA6, Stimulated by Retinoic Acid 6.

1. Polasek TM, et al. *Clin Pharmacol Drug Dev*. 2026;15(1):e70009.

The Multicenter Phase 3 DRAGON Trial Was Conducted in Adolescent and Adult Patients With STGD1[1]

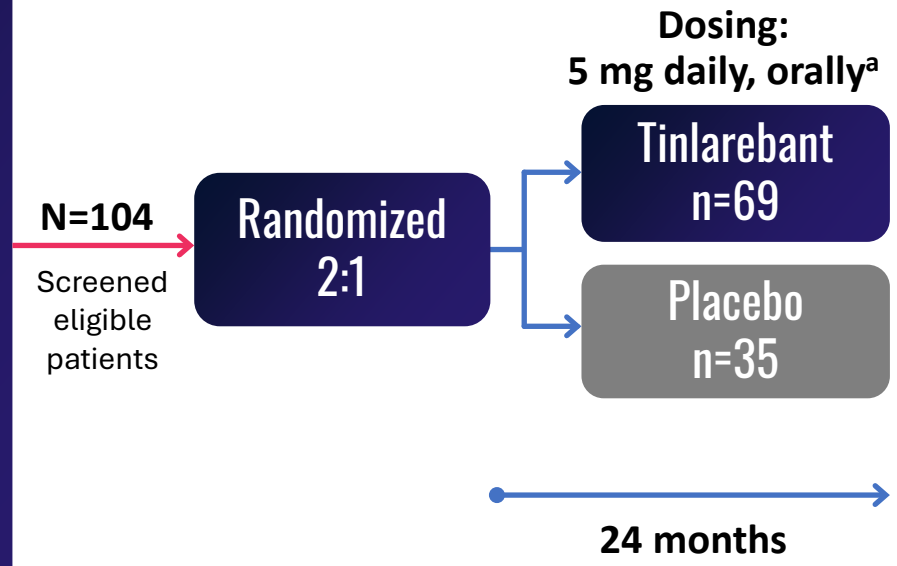
Randomized, Double-Masked, Placebo-Controlled Trial[2]

Key inclusion criteria:

- Age: 12-20 years
- Diagnosed STGD1 with ≥1 mutation in ABCA4 gene
- BCVA of 20/200 or better
- Atrophic lesion size within 3 disc areas (7.62 mm^2)

Key exclusion criteria:

- Other ocular diseases
- Prior gene therapy
- Vitamin A deficiency



Dosing: 5 mg daily, orally

Primary endpoint: Efficacy as measured through DDAF lesion growth rate

Secondary endpoints: DAF (calculated as the sum of DDAF and QDAF), BCVA, reduction in RBP4; safety and tolerability

Exploratory endpoints: Change in QDAF lesion size, retinal thickness by SD-OCT, retinal sensitivity (microperimetry), qAF level

ABCA4, ATP-binding cassette transporter subfamily A member 4; BCVA, best-corrected visual acuity; DAF, decreased autofluorescence; DDAF, definitely decreased autofluorescence; qAF, quantitative autofluorescence; QDAF, questionably decreased autofluorescence; RBP4, retinol binding protein 4; SD-OCT, spectral domain optical coherence tomography; STGD1, Stargardt disease type 1.

[a]Tinlarebant is still investigational and not yet commercially approved (as of September 2026). All dosing information comes from clinical trial protocols, not prescribing guidelines.[2]

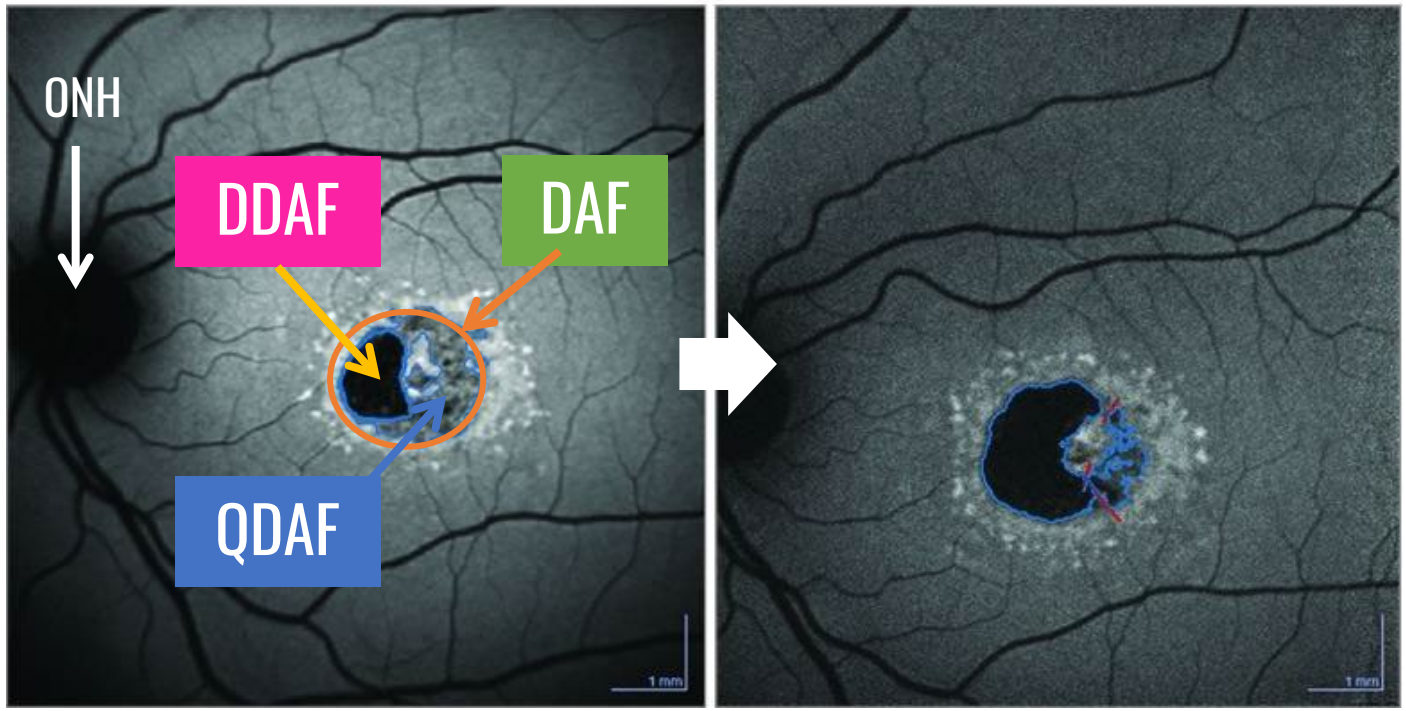
1. Phase 3, randomized, placebo-controlled study of tinlarebant to explore safety and efficacy in adolescent Stargardt disease (DRAGON). ClinicalTrials.gov identifier: NCT05244304. Updated October 31, 2025. Accessed June 26, 2026. https://clinicaltrials.gov/study/NCT05244304

DDAF Is an Accepted Primary Endpoint Used to Quantify and Track Progressive Loss of Photoreceptors and RPE in STGD1[1,2,a]

ProgStar Natural History Study

A Central DDAF lesion with adjacent area of QDAF

B Same eye 22 months later[b]



DDAF (definitely decreased autofluorescence): level of darkness close to 100% (at least 90%) in reference to the ONH[1]

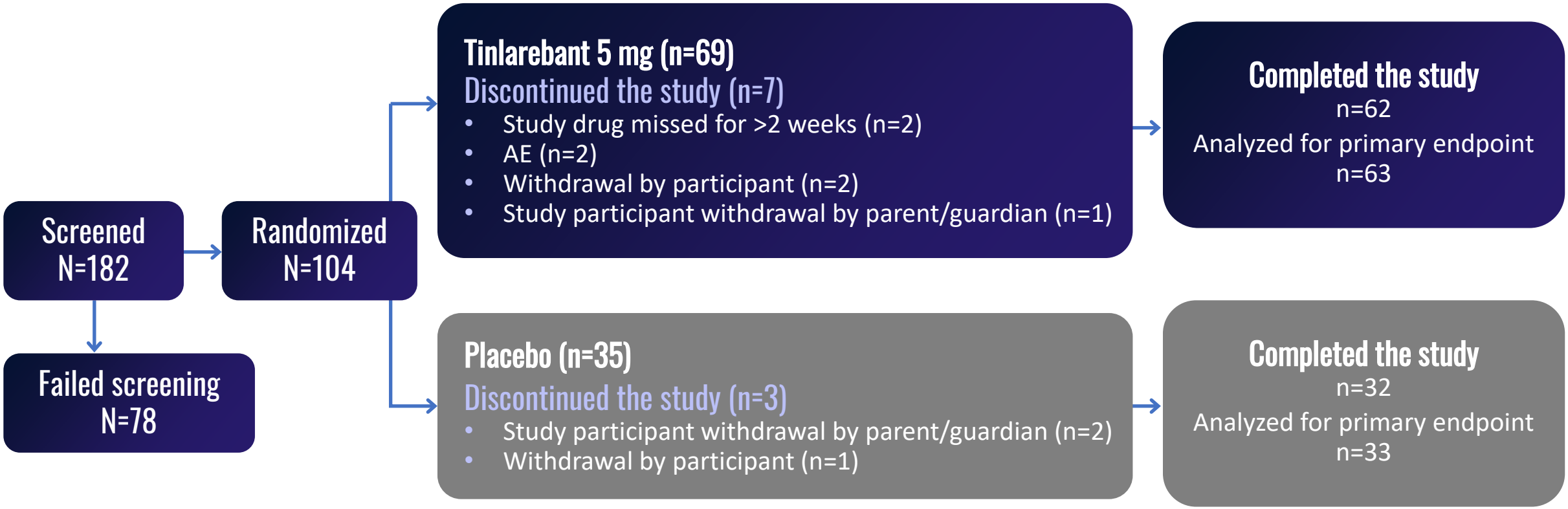
QDAF (questionably decreased autofluorescence): between 50% and 90% darkness[1]

DAF (decreased autofluorescence): DDAF + QDAF[1]

- The ProgStar study followed the natural history of STGD1 in 259 participants over 24 months using FAF imaging[2]
- DDAF represents well-demarcated areas of complete RPE and photoreceptor loss and grows predictably, making it an approvable primary endpoint[1,2]
- Measuring lesion growth via FAF has also been used in the approval by FDA of other therapies[3]

[a]DDAF and other endpoints are not standard in clinical practice. Not every clinic will have the ability to perform FAF imaging.
[b]Pink markings are from the reference image and are not descriptive.
FAF, fundus autofluorescence; FDA, US Food & Drug Administration; ONH, optic nerve head; RPE, retinal pigment epithelium; STGD1, Stargardt disease type 1.
1. Strauss RW, et al. *JAMA Ophthalmol*. 2017;135(11):1232-1241. **2.** Strauss RW, et al. *Am J Ophthalmol*. 2023;250:157-170. **3.** Lad EM, et al. *Annu Rev Vis Sci*. 2024;10(1):455-476.

Most Randomized Participants Completed the DRAGON Trial and Contributed to Primary Endpoint Analyses



1. Data on file. Belite Bio, Inc. 2026.

Baseline Characteristics of Study Population (Modified Full Analysis Set)[1,a]

	Tinlarebant 5 mg (n=63)	Placebo (n=33)	All (n=96)
Age			
Mean	15.4	15.4	15.4
SD	2.50	2.54	2.50
Median	15.0	15.0	15.0
Mix – Max[b]	12-21	12-20	12-21
Sex			
Male	38 (60.3%)	22 (66.7%)	60 (62.5%)
Female	25 (39.7%)	11 (33.3%)	36 (37.5%)
Race			
Asian	30 (47.6%)	23 (69.7%)	53 (55.2%)
Multiple	0	1 (3.0%)	1 (1.0%)
White	27 (42.9%)	8 (24.2%)	35 (36.5%)
Other	6 (9.5%)	1 (3.0%)	7 (7.3%)
Baseline BCVA (total letters) of study eye			
Mean	39.86	39.38	39.69
SD	7.03	4.52	6.26
Median	38.00	39.00	38.50
Min – Max	31.0-75.0	30.0-48.0	30.0-75.0
DDAF lesion size (mm^2)			
Mean	2.25	2.42	2.31
SD	2.09	2.21	2.12
Median	1.55	1.82	1.64
Min – Max	0.07-7.02	0.06-7.29	0.06-7.29

[a]The mFAS consisted of all participants who were randomly assigned to receive study drug and received at least 1 dose of study drug. In addition, the mFAS participants were to have defined DDAF lesion(s) meeting the eligibility criteria at baseline and at least 1 postbaseline assessment.[1]

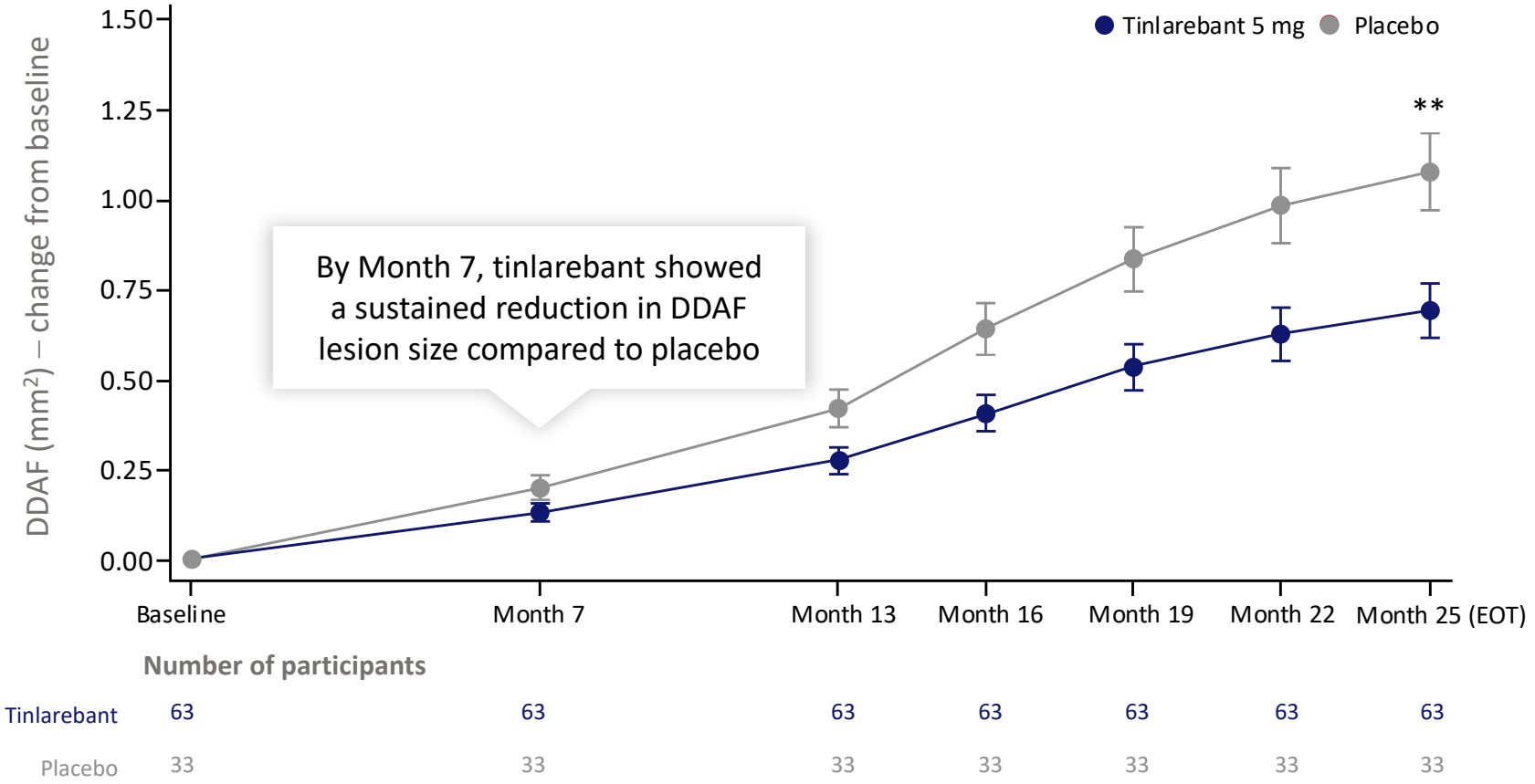
[b]One participant was 21 years old at study entry and was randomly assigned to tinlarebant 5 mg group despite not meeting age inclusion criteria. The participant was included in efficacy analyses.

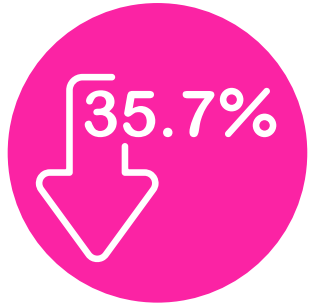
BCVA, best-corrected visual acuity; DDAF, definitely decreased autofluorescence; mFAS, modified full analysis set; SD, standard deviation.

1. Data on file. Belite Bio, Inc. 2026.

The DRAGON Trial Met Its Primary Endpoint[1]

N=96, mFAS – Study Eye[a,b]





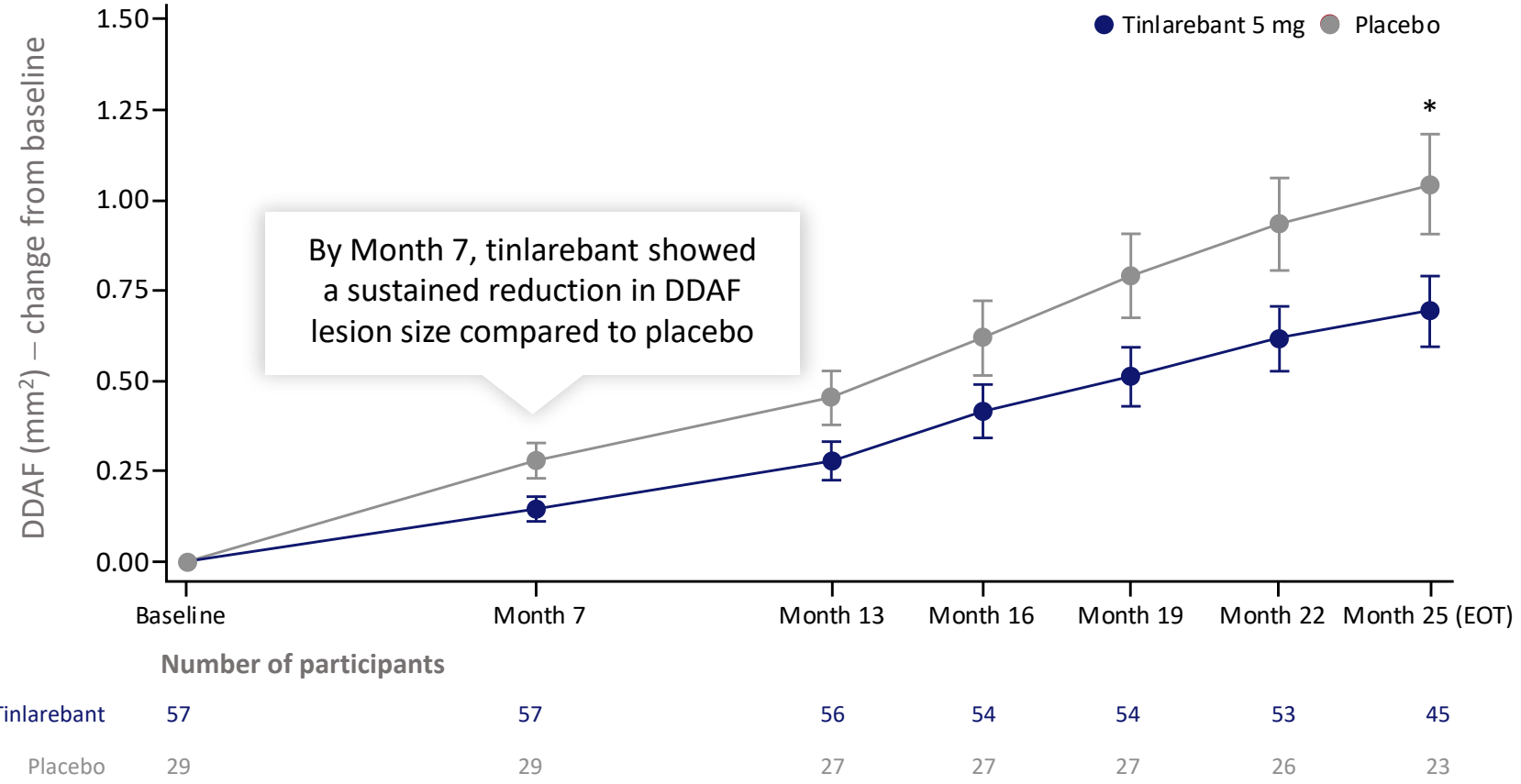
- By Month 25, tinlarebant demonstrated a statistically significant 35.7% annualized reduction in DDAF lesion growth compared to placebo (***P*=0.0033)[1]
- In patients treated with tinlarebant, DDAF lesion growth was slowed to 0.38 mm²/year vs 0.59 mm²/year for placebo[1]
- Baseline values from the ProgStar study show an average DDAF lesion growth of 0.74 mm²/year[2]

[a]Eligibility criteria and study power calculation were based on the study eye.[1]
[b]The mFAS consisted of all participants who were randomly assigned to receive study drug and received at least 1 dose of study drug. In addition, the mFAS participants were to have defined DDAF lesion(s) meeting the eligibility criteria at baseline and at least 1 postbaseline assessment.[1]
***P* =0.0033
Dataset represents the least squares mean change from baseline by visit. Missing data (eg, study discontinuation) were imputed.
Graphs show mean ± SEM.
DDAF, definitely decreased autofluorescence; EOT, end of trial; mFAS, modified full analysis set; SEM, standard error of mean.
1. Data on file. Belite Bio, Inc. 2026. **2.** Strauss RW, et al. *Am J Ophthalmol*. 2023;250:157-170.

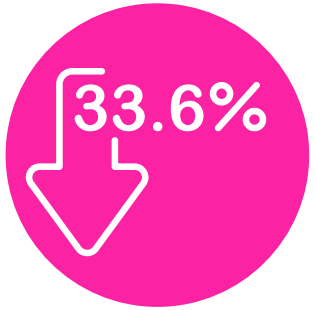
Supplemental Analysis of Primary Endpoint

Tinlarebant Demonstrated Similar Efficacy in the Fellow Eye[1]

N=86, mFAS – Fellow Eye[a]



Number of participants							
Tinlarebant	57	57	56	54	54	53	45
Placebo	29	29	27	27	27	26	23



- Tinlarebant slowed DDAF lesion growth in the fellow eye by 33.6% compared to placebo (*P=0.0411)[1]

[a]This was a prespecified analysis in the statistical analysis plan. The fellow eye did not have to meet the inclusion criteria and was not required to demonstrate statistical significance for efficacy. However, there was a significant reduction in DDAF size consistent with a systemic effect of an oral investigational treatment.[1]
*P =0.0411
Dataset represents the least squares mean change from baseline by visit. N decreases over time as a result of participant discontinuation or missing data.
Graphs show mean ± SEM.
DDAF, definitely decreased autofluorescence; EOT, end of trial; SEM, standard error of mean.

1. Data on file. Belite Bio, Inc. 2026.

DRAGON Study Results With BCVA Are Consistent With the Inadequacy of This Endpoint for Measuring Progression of STGD1[1,2]

- Despite progressive retinal degeneration, BCVA decline in clinical trials is non-linear and fluctuates significantly across patient groups[2-4]
- In the current study, the overall change of visual acuity was minimal over the 24 months in both treatment groups[1]
- Results are in line with the natural history of STGD1 that was observed in the ProgStar study, where overall rate of BCVA loss was 0.55 letters/year over 2 years[2]

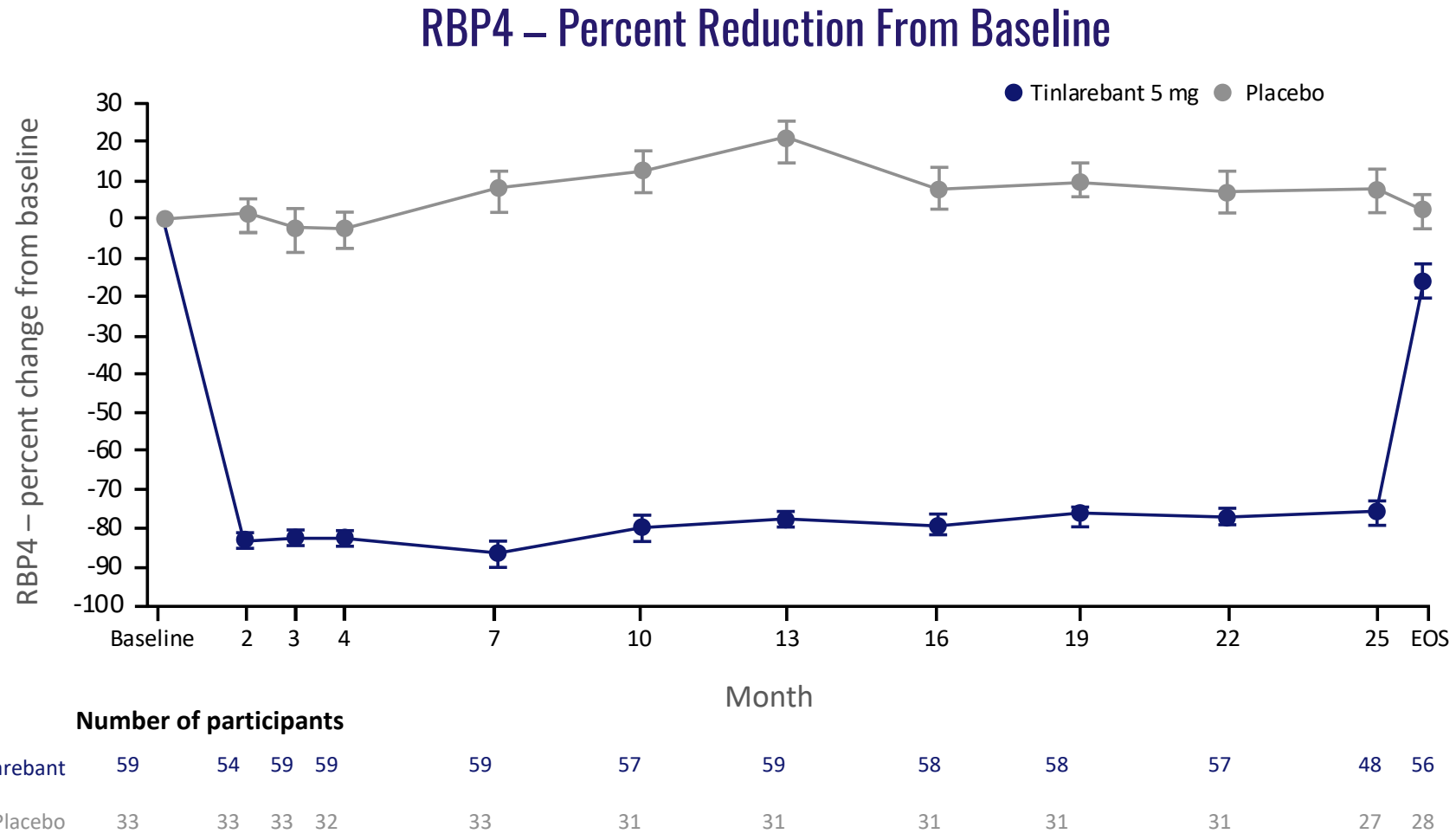
	Tinlarebant (Total letters)	Placebo (Total letters)
BCVA at baseline	39.9	39.4
BCVA at EOS	39.7	40.0

For short-term (≤2 years) clinical trials, BCVA is not a sensitive enough endpoint to reliably detect treatment changes in STGD1[2,4]

BCVA, best-corrected visual acuity; EOS, end of study; STGD1, Stargardt disease type 1.

1. Data on file. Belite Bio, Inc. 2026. **2.** Kong X, et al. *JAMA Ophthalmol.* 2018;136(8):920-928. **3.** Cremers FPM, et al. *Prog Retin Eye Res*. 2020;79:100861 **4.** Verbakel SK, et al. *Invest Ophthalmol Visual Sci*. 2017;58(8):2014.

In the Phase 3 DRAGON Study, Tinlarebant Caused an 80% Reduction of RBP4[1]



- Tinlarebant caused a reduction of RBP4 by Month 2, with a sustained effect throughout the study
- The effects of tinlarebant are reversible, as RBP4 levels recovered near baseline following cessation of administration[1]
- The data support the MOA of tinlarebant as a potent antagonist of RBP4

Dataset includes all subjects who received the study drug without interruption for 2 or more weeks.
Graphs show mean ± SEM.
EOS, end of study; MOA, mechanism of action; RBP4, retinol binding protein 4; SEM, standard error of mean.

1. Data on file. Belite Bio, Inc. 2026.

Non-ocular Adverse Events in the DRAGON Trial

Study Participants Who Experienced at Least 1 Nonocular TEAE, n (%)[a]		
Category	Tinlarebant 5 mg (n=69)	Placebo (n=35)
TEAE	59 (85.5%)	27 (77.1%)
Severe TEAE	2 (2.9%)	1 (2.9%)
Serious TEAE	2 (2.9%)	4 (11.4%)
Study drug-related TEAE	14 (20.3%)	4 (11.4%)
Study drug-related serious TEAE	0 (0.0%)	0 (0.0%)
TEAE leading to study drug discontinuation	0 (0.0%)	0 (0.0%)
TEAE leading to study discontinuation	0 (0.0%)	0 (0.0%)
TEAE leading to death	0 (0.0%)	0 (0.0%)

- 6 serious TEAEs were reported in the study – all events were non-ocular:
  - Tinlarebant: sialoadenitis, pulmonary embolism
  - Placebo: otitis externa, urinary retention, pneumothorax spontaneous, inguinal hernia

- Most common nonocular AEs (>5% of total participants) in tinlarebant 5 mg vs placebo groups, respectively: nasopharyngitis (34.8% and 34.3%), headache (23.2% and 8.6%), acne (17.4% and 2.9%), influenza (14.5% and 0%), abdominal pain upper (11.6% and 2.9%), upper respiratory tract infection (7.2% and 17.1%), cough (7.2% and 5.7%), pyrexia (5.8% and 8.6%), diarrhea (4.3% and 8.6%), and urine analysis abnormal (8.7% and 0%)

[a]A TEAE is defined as any event that is not present before exposure to study drug or any event already present that worsens in either intensity or frequency after exposure to study drug and starts within 28 days after the last dose of study drug (3 months for sites in France and Germany).
AE, adverse event, TEAE, treatment-emergent adverse event.
1. Data on file. Belite Bio, Inc. 2026.

The Majority of Ocular Adverse Events Were Mild (Grade 1)

- Most common ocular AEs (>5% of total participants) in tinlarebant 5 mg vs placebo groups, respectively:
  - Delayed dark adaptation (33.3% vs 11.4%)
  - Xanthopsia (37.7% vs 8.6%)
  - Night visual impairment (23.2% vs 0%)
  - Chromatopsia (10.1% vs 5.7%)
- There were 2 severe and no serious ocular TEAEs[b]
- 4 TEAEs led to study drug discontinuation (delayed dark adaptation [1], xanthopsia [1], and night vision impairment [2])
  - 2 of which caused patients to discontinue the study

Study Participants Who Experienced at Least 1 Ocular TEAE, n (%)[a]		
Category	Tinlarebant 5 mg (n=69)	Placebo (n=35)
TEAE	53 (76.8%)	8 (22.9%)
Severe TEAE	2 (2.9%)	0 (0.0%)
Serious TEAE	0 (0.0%)	0 (0.0%)
Study drug-related TEAE	49 (71.0%)	8 (22.9%)
Study drug-related serious TEAE	0 (0.0%)	0 (0.0%)
TEAE leading to study drug discontinuation	4 (5.8%)	0 (0.0%)
TEAE leading to study discontinuation	2 (2.9%)	0 (0.0%)
TEAE leading to death	0 (0.0%)	0 (0.0%)

[a]TEAEs with the relationship to the study drug of "possibly related," "probably related," and "definitely related" will be considered as study drug-related TEAEs. A TEAE with missing relationship will be considered a study drug-related TEAE. Ocular TEAEs that happen in both eyes will be counted once for each eye.[1]
[b]Mild refers to Grade 1, moderate refers to Grade 2, and severe refers to Grade 3.
AE, adverse event, TEAE, treatment-emergent adverse event.
1. Data on file. Belite Bio, Inc. 2026.

Summary

- The DRAGON trial met its primary endpoint with a treatment effect of ~36%
  - A statistically significant slowing in DDAF lesion growth was observed in subjects treated with 5 mg/day oral tinlarebant as compared to placebo
- The change in best-corrected visual acuity was minimal in both the treatment and the placebo group – and is in-line with natural history data
- The biomarker of tinlarebant treatment, RBP4 reduction, showed a sustained 80% reduction with very little variability
- Tinlarebant (5 mg orally each day) had a side effect profile consistent with its mechanism of action in adolescent and adult STGD1 patients

Questions?

STGD1 Prevalence Is Difficult to Estimate[1]

- In the United States, between 47,000 and 59,000 people are estimated to have STGD1[2]
- The prevalence is about 1 per 5,600-7,000 people[2]

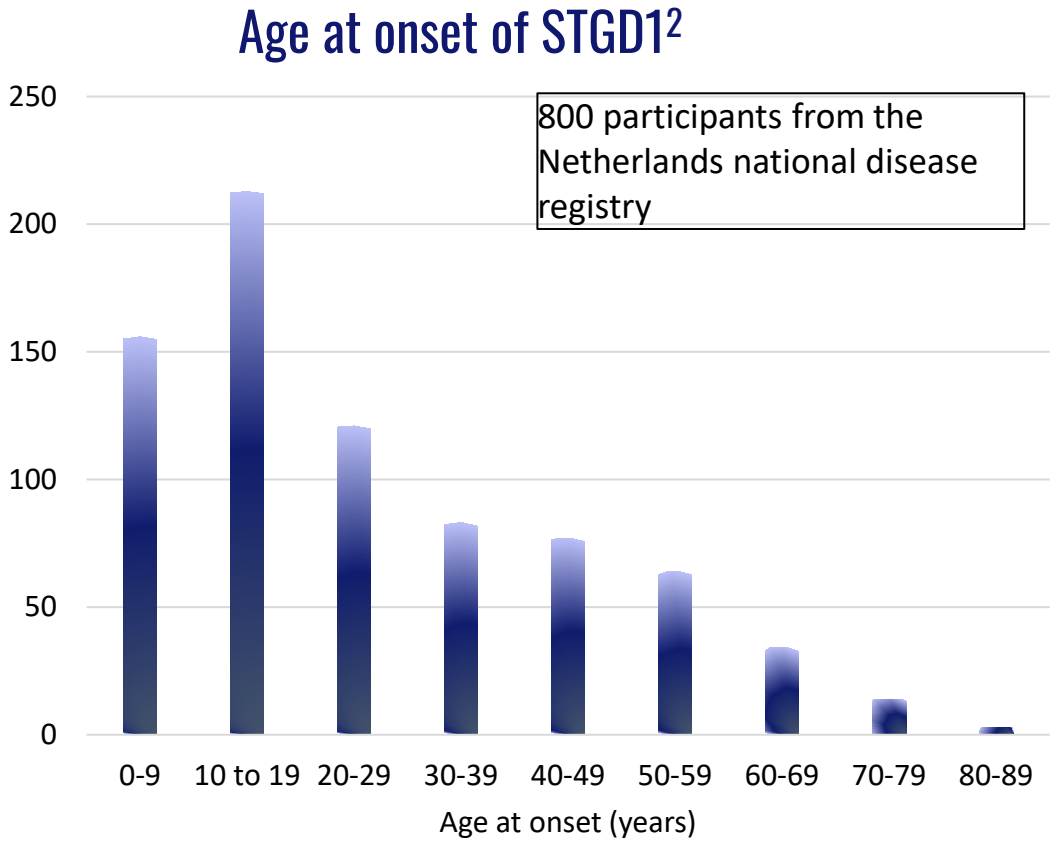
- **Prevalence can be confounded by[1-5]:**
  - Rarity of disease
  - Presence of disease phenocopies (PRPH2, PROM1, ELOVL4, and BEST1)
  - Misdiagnosis of other retinal diseases (AMD)
  - Highly polymorphic gene (over 2800 disease-associated pathogenic variants)
  - Clinical diagnosis without confirmatory genetic testing
  - Lack of specific ICD-10-CM code

AMD, age-related macular degeneration; BEST1, bestrophin-1; ELOVL4, elongation of very long-chain fatty acids protein 4; ICD-10-CM, International Classification of Diseases, Tenth Revision, Clinical Modification; PRPH2, peripherin-2; PROM1, prominin-1; STGD1, Stargardt disease type 1.

1. Cremers FPM, et al. *Prog Retin Eye Res*. 2020;79:100861. **2.** Mata NL, et al. *Ophthalmic Res*. 2025;68(1):555-572. **3.** Runhart EH, et al. *Acta Ophthalmol*. 2022;100(4):395-402. **4.** Cobos E, et al. *Invest Ophthalmol Vis Sci*. 2026;67(2):19. **5.** Centers for Disease Control and Prevention (CDC). ICD-10 Coordination and Maintenance Committee Meeting. March 17-18, 2020. Accessed July 13, 2026. https://www.cdc.gov/nchs/data/icd/march-2020-proposals.pdf

STGD1 Onset Is Variable, Though Most Frequent in Childhood and Adolescence

- Onset, clinical presentation, and disease course of STGD1 are highly variable due to vast heterogeneity of mutations within the ABCA4 gene[1]
- Early visual symptoms often occur in childhood and adolescence with progressive vision loss often noticed before age 20[1,2]
- Onset can also occur in adulthood, with documented cases as late as the 9th decade of life[2]



Data adapted and estimated from Runhart et al, 2022.

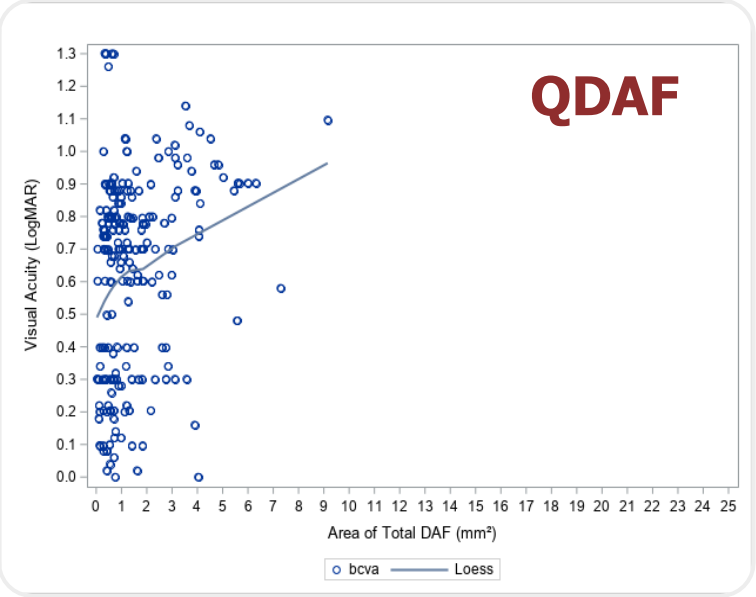
ABCA4, ATP-binding cassette transporter subfamily A member 4; STGD1, Stargardt disease type 1.

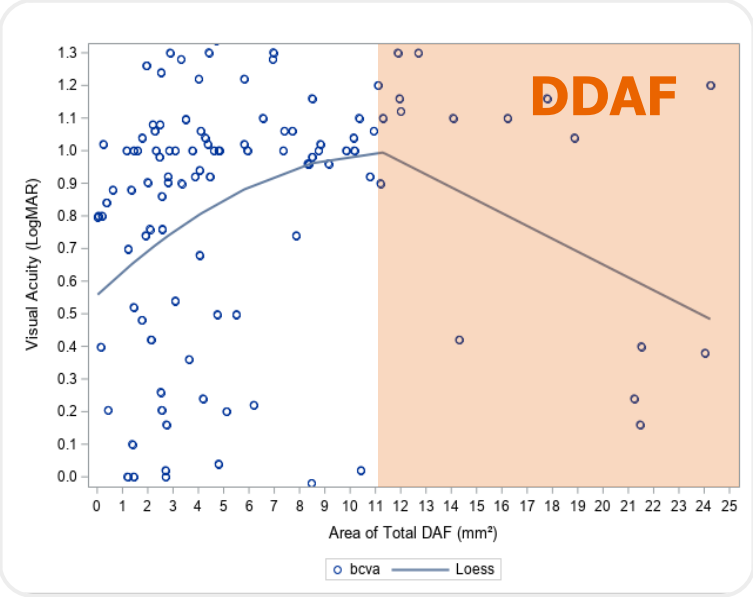
1. Delijani K, et al. *Georgetown Med Rev*. 2022;6(1). **2**. Runhart EH, et al. *Acta Ophthalmol*. 2022;100(4):395-402.

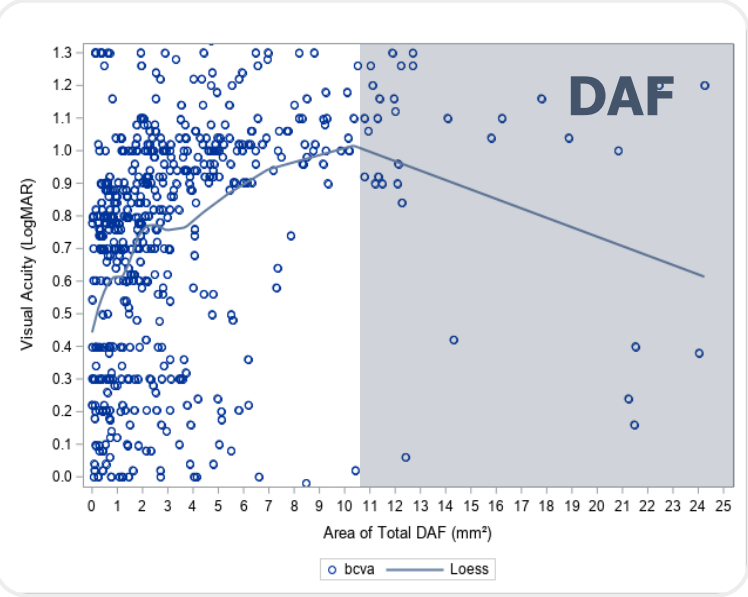
Association of QDAF, DDAF and DAF with Visual Acuity in Stargardt Disease

ProgStar Natural History Study

Secondary cross-sectional data analysis using data from 301 ProgStar Study participants (566 study eyes)





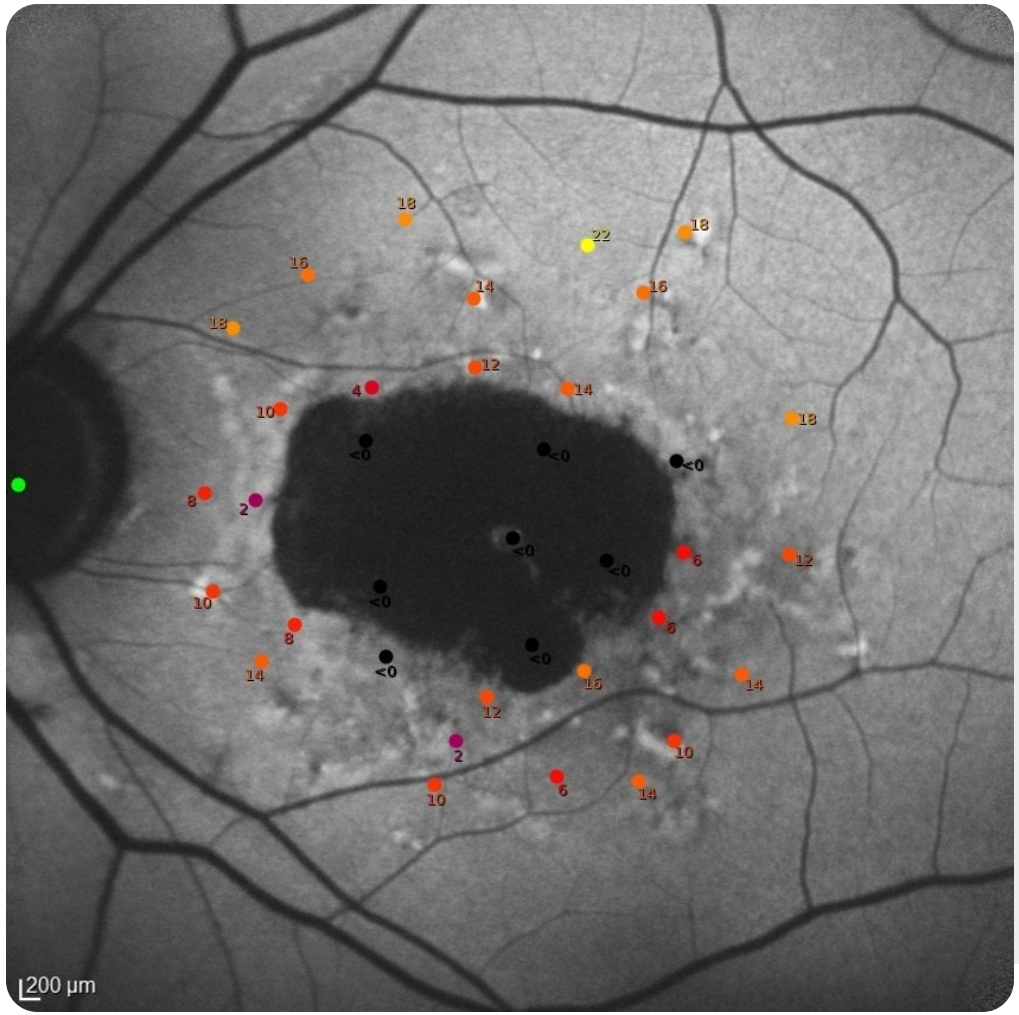


- For QDAF lesions, every 1mm^2 larger QDAF area was associated with **3.3 letters worse VA (p<0.001)**
- For DDAF lesions and lesion area <11mm^2, every 1mm^2 larger DDAF area was associated with **1.5 letters worse VA (p=0.02)**
- For DAF lesions (all eyes) and lesion area <11mm^2, every 1mm^2 larger DAF area was associated with **0.9 letters worse VA (p=0.003)**

Scholl HPN (2024) What's new in Retina and EVICR.net Developments in the Treatment of Retinal Dystrophies. EURETINA 2024, Barcelona – EVICR.net Retina Symposium. 22/09/2024

Severe Loss of Light Sensitivity within DDAF

Microperimetry as an exploratory outcome measure in the DRAGON trial



- Within DDAF lesions in the study eye, mean retinal sensitivity (at baseline) was **4.26 ± 5.59 dB** for the Tinlarebant group and 4.28 ± 7.07 dB in the placebo group
- This corresponds to a marked reduction of approximately 2.2-2.6 log units (up to 400-fold) compared with an unaffected retina

Data on file. Belite Bio, Inc. 2026.