Multimodal Imaging Analysis for Suprachoroidal Injection Across Species: A Retina Surgeon’s Perspective

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Financial Disclosures

• SH: Clearside Biomedical, Allergan, EyePoint Pharmaceuticals, Alimera Sciences, Novartis, Spark, Biogen, Graybug, Regeneron, Bausch & Lomb- Consultant or Speaker’s Bureau

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In-office suprachoroidal injections with a Microinjector are well tolerated in clinical trial patients to date.
The back of the eye is the location of many irreversible and debilitating visual impairments. Drug is compartmentalized in the suprachoroidal space, which helps keep it away from non-diseased tissues. Fluid spreads circumferentially and posteriorly when injected within the suprachoroidal space, bathing the choroid and adjacent areas with drug.

### Core Advantages of Treating Via the Suprachoroidal Space

**TARGETED**

The back of the eye is the location of many irreversible and debilitating visual impairments.

**COMPARTMENTALIZED**

Drug is compartmentalized in the suprachoroidal space, which helps keep it away from non-diseased tissues.

**BIOAVAILABLE**

Fluid spreads circumferentially and posteriorly when injected within the suprachoroidal space, bathing the choroid and adjacent areas with drug.

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**for efficacy**

**for safety**

**for durability**

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Clinical Characterization of Suprachoroidal Injection Procedure Utilizing a Microinjector across Three Retinal Disorders

Chen-rei Wan¹, Barry Kapik¹, Charles C. Wykoff², Christopher R. Henry², Mark R. Barakat³, Milan Shah⁴, Rafael V. Andino¹, and Thomas A. Ciulla¹

**Methods:** Datasets from six clinical trials across three diseases...

**Conclusions:** Both the user survey and the correlation analysis demonstrated that SC injection is well accepted by physician-investigators, and the two needle lengths accommodate a wide range of anatomic and demographic variables.

**Translational relevance:** These results...suggest that SC injection could be readily adopted in clinical practice for targeted compartmentalized delivery of ocular therapeutics.
OCT images show expansion of the SCS post injection, followed by a reduction to pre-injection levels one month following injection.
Novel imaging methodologies of suprachoroidal and IVT injections characterize injectate spread in ex vivo models

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**Intravitreal**

Porcine Model

**Patient Clinical Trials**
Fluorescing Dye under UV:
IVT injection shows no visible injectate;
Suprachoroidal injection shows circumferential, posterior spread
Post-Injection Cryofreeze and Sectioning:
IVT injection shows injectate bolus in vitreous;
Suprachoroidal injection shows circumferential, posterior spread

IVT Injection

Suprachoroidal Injection

For Reference:
Images oriented per cross-section diagram above
Vitreous View (Endoscopy):
IVT injection shows needle tip followed by injectate bolus;
Suprachoroidal injection shows localized tissue depression, then expansion.
Conclusion

• Imaging of suprachoroidal injections demonstrates
  – acute opening of the SCS
  – circumferential, posterior spread of injectate
  – compartmentalization of injectate to posterior tissues

• These multimodal imaging methodologies support the potential of suprachoroidal injections to target affected tissue layers in chorioretinal disorders.
THANK YOU