

The World Leader in Corneal Cross-Linking Science and Technology

A person in a red jacket is sitting on a rocky mountain peak. A blue flag with the Avedro logo is planted in the ground next to them. The background shows a vast mountain range under a clear sky.

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REACHING NEW HEIGHTS IN CORNEAL CROSS-LINKING

The Avedro logo features the word "avedro" in a lowercase, sans-serif font. Above the letter "e" are three stylized, overlapping blue waves of varying lengths, suggesting movement or a liquid surface.

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KXL: The First True Breakthrough in Corneal Cross-linking Technology in the Last Decade

The KXL System achieves accelerated cross-linking in just minutes by increasing the UVA power and reducing the exposure time while maintaining the same total energy on the eye as standard cross-linking. In addition, the KXL System is the first and only cross-linking system manufactured with:

- Highest power available, up to 45 mW/cm²
- Superior top hat beam profile
- Precise depth of focus
- Wireless control for beam alignment in the X, Y & Z axes
- Fully integrated stable delivery platform
- Touch screen programming & operation
- Untethered battery operation for enhanced mobility

The KXL System's higher power yields shorter UVA exposure times for increased patient safety, comfort and improved practice efficiency.

Procedures performed with the KXL System and Avedro's proprietary riboflavin formulations:

| Procedure Name: | Purpose: | Related to: |
|--------------------|--|---|
| Lasik Xtra™ | Corneal cross-linking in conjunction with Lasik | Restoring corneal strength |
| KXL™ Cross-linking | Accelerated cross-linking for keratoconus & ectasia | Halting progression of disease |
| | Accelerated cross-linking for forme fruste keratoconus | Slowing or eliminating the development of acute keratoconus |



KXL II is not yet commercially available.

KXL II: The Future of Cross-linking

Avedro has developed the KXL II System to integrate patient topography with real-time eye tracking, real-time riboflavin dosimetry imaging, and programmable UVA illumination patterns to provide a truly customizable procedure to the individual patient. It is expected that these features will assure safer, repeatable and more predictable treatment outcomes.

The KXL II stands alone in its approach by offering:

- Topography guided cross-linking
- Programmable illumination pattern
- Real-time eye tracking
- Significantly higher power output
- Integrated Scheimpflug imaging for real-time riboflavin dosimetry measurements

Procedures under investigation with the KXL II System include the potential treatment of myopia and astigmatism

VibeX™ Family of Riboflavin Products



Original

VibeX™ is Avedro's original formulation of riboflavin. VibeX is topically applied to the cornea after epithelium removal, then UVA light from the KXL System is applied to activate it for accelerated cross-linking.

Technical Information:

- Formulation
 - 0.1% Riboflavin
 - 20% Dextran
- Procedure - KXL for KC & Ectasia
- Application - Epithelium Off



For Faster Diffusion

VibeX Rapid™ is formulated with no dextran thus reducing corneal thinning. It has a diffusion rate of twice that of standard riboflavin. VibeX Rapid is topically applied to the cornea after epithelium removal, then UVA light from the KXL System is applied to activate it for accelerated cross-linking.

Technical Information:

- Formulation
 - 0.1% Riboflavin
 - Saline, HPMC
- Procedure - KXL for KC & Ectasia
- Application - Epithelium Off



For Lasik Xtra™

VibeX Xtra™ is formulated specifically for use during a Lasik Xtra procedure. VibeX Xtra is applied directly to the stromal bed prior to replacing the flap following excimer laser ablation. Formulated in an isotonic solution, VibeX Xtra diffuses quickly to minimize flap exposure time and deliver the appropriate concentration of riboflavin for cross-linking. Once the flap has been repositioned over the cornea, UVA light from the KXL System is applied to activate VibeX Xtra to restore biomechanical integrity to the cornea.

Technical Information:

- Formulation
 - 0.25% Riboflavin
 - Saline
- Procedure - Lasik Xtra
- Application - Stromal Bed

ParaCel™ Trans-Epithelial Riboflavin



For Trans-epithelial Cross-linking (Epi-on)

ParaCel™ is Avedro's trans-epithelial riboflavin specifically formulated for direct application on the intact epithelium. Its higher concentration of riboflavin and proprietary formulation allow for the fastest penetration and diffusion into the corneal stroma.

Intact epithelium diminishes cross-linking's effects when low powered UVA devices are used. Only Avedro's KXL System offers 45 mW/cm² of power for effective, accelerated cross-linking through the intact epithelium using ParaCel.

Technical Information:

- Formulation
 - 0.25% Riboflavin
 - HPMC, BAC, EDTA
 - TRIS
- Procedure - KXL for KC & Ectasia
- Application - Epithelium On

About Avedro

Avedro is a private company developing ophthalmic devices, drugs, and procedures using accelerated cross-linking. Avedro's KXL System, along with our proprietary VibeX and ParaCel riboflavin formulations, are fully commercialized outside the United States to perform multiple types of cross-linking procedures. Thousands of patients have been treated worldwide with the KXL System and our riboflavin formulations.

During 2011 Avedro completed the first two randomized, controlled, multi-site clinical trials designed to assess the safety and efficacy of riboflavin/ultraviolet-A light for the treatment of keratoconus and corneal ectasia following refractive surgery. Based on the positive results of those studies, in March 2012 Avedro submitted a New Drug Application (NDA) to the United States Food and Drug Administration (FDA) for its VibeX/KXL System for the treatment of keratoconus and corneal ectasia following refractive surgery, indications for which Avedro previously received US FDA Orphan Drug designation.

User Quotes

"Having been the first corneal surgeon to perform laser refractive surgery in Canada over 20 years ago, I have seen many innovations, and believe Lasik Xtra to be one of the simplest to perform and most beneficial to my Lasik patients."

- Howard Gimbel, M.D., Gimbel Eye Centre

"We are extremely pleased with the KXL System and with the Lasik Xtra procedure. Lasik Xtra now makes it possible for Shinagawa LASIK Center to provide enhanced treatments to our current Lasik patients."

- Minoru Tomita, M.D., PhD Shinagawa LASIK Center

"I feel there is an added benefit to having Lasik Xtra as its stabilizing effect "locks-in" a prescription after surgery. For certain people interested in having Lasik, it would almost be a disservice to not offer Lasik Xtra!"

- Christoph Kranemann, M.D., Clearview Institute

Quotes are from official Avedro press releases.



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The KXL™ System for performing Lasik Xtra™ and Accelerated Cross-linking is not for sale in the United States. VibeX™, VibeX Rapid™, VibeX Xtra™, and ParaCel™ are not for sale in the United States. The KXL II System is under development and not commercially available. MA-00163 Rev A