Avedro KXL 1B System
CORNEAL CROSS-LINKING

Clinical Practice Training Program
Photrexa® Viscous (riboflavin 5’-phosphate in 20% dextran ophthalmic solution) Photrexa® (riboflavin 5’-phosphate ophthalmic solution) and the KXL® System for Corneal Cross-Linking

The **only** FDA-approved system for use in corneal cross-linking for treatment of

- Progressive keratoconus
- Corneal ectasia following refractive surgery
When is Cross-Linking indicated?

• Progressive keratoconus
  • a naturally occurring ectatic corneal disorder in which the cornea progressively thins and steepens, resulting in myopia, irregular astigmatism, and eventually, loss of best spectacle-corrected visual acuity

• Corneal ectasia following refractive surgery
  • a similar disease presentation, which occurs postoperatively following refractive surgery
What is Corneal Cross-Linking?

- Cross-linking is a medical procedure in which a photosensitizer (topical ophthalmic solution) is activated with UVA light to cause the formation of additional covalent bonds within the corneal stroma.

- The goal of cross-linking is to increase the rigidity of the cornea and decrease the clinical progression of ectasia.

- Cross-linking is not intended to eliminate or reduce dependence on refractive correction.
Use in Specific Populations

- No contraindications
- Safety and effectiveness not established in patients below the age of 14 or over the age of 65
- Cross-linking should not be performed on pregnant women

Always refer to full Prescribing Information.
Maintenance and Storage

• Photrexa and Photrexa Viscous should always be stored according to package labeling.
  • LOT and date of shipment dictates labeling for storage condition

• Refrigerated Photrexa Viscous and Photrexa should be brought to room temperature prior to use by allowing to acclimate for 30 minutes
Avedro Corneal Cross-linking Products

**Photrexa® Viscous** (riboflavin 5’-phosphate in 20% dextran ophthalmic solution)

**Photrexa®** (riboflavin 5’-phosphate ophthalmic solution) are photoenhancers indicated

**KXL®** ultraviolet light delivery system
in corneal collagen cross-linking (CXL) procedures
Included in the Treatment Kit

- Photorexa Viscous
  - Active ingredient: 1.46 mg/mL riboflavin 5′-phosphate
  - Inactive ingredients: sodium chloride, sodium phosphates (monobasic & dibasic), sterile water for injection
  - Sterile; For single-patient use only; For Ophthalmic Use

- Photorexa® Viscous
  - Active ingredient: 1.56 mg/mL riboflavin 5′-phosphate
  - Inactive ingredients: 20% dextran 500, sodium chloride, sodium phosphates (monobasic & dibasic), sterile water for injection
  - Sterile; For single-patient use only; For Ophthalmic Use

- Activation Card

- KXL® System
  - Single-Use Treatment Activation Card

- NDC: 25367-022-01
  - Photorexa® Viscous (riboflavin 5′-phosphate in 20% dextran ophthalmic solution) 0.146%
  - Pouch contains: Each Tyvek® pouch contains a 3 mL glass syringe of Photorexa Viscous
  - Active ingredient: 1.56 mg/mL riboflavin 5′-phosphate
  - Inactive ingredients: 20% dextran 500, sodium chloride, sodium phosphates (monobasic & dibasic), sterile water for injection
  - For Single Patient Use Only; For Ophthalmic Use
  - Storage: Store at 2°-8°C (36°-46°F), Protect from light
  - For Use with KXL™ System
  - Use immediately upon opening package
  - Please see full prescribing information
  - Exp.: XX/XXXX
  - Mfg.: Avedro Inc., Waltham, MA 02451
  - LBL-00479

- NDC: 25367-023-01
  - Photorexa® (riboflavin 5′-phosphate ophthalmic solution) 0.146%
  - Pouch contains: Each Tyvek® pouch contains a 3 mL glass syringe of Photorexa
  - Active ingredient: 1.46 mg/mL riboflavin 5′-phosphate
  - Inactive ingredients: sodium chloride, sodium phosphates (monobasic & dibasic), sterile water for injection
  - For Single Patient Use Only; For Ophthalmic Use
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  - Mfg.: Avedro Inc., Waltham, MA 02451
  - LBL-00480

MA-01789A
Procedure Set-Up

• Both Photrexa® Viscous and Photrexa® riboflavin formulations

• Pre- & Post-op medications
  • Follow practice protocol for PRK

• Lid Speculum

• Epithelial Removal Tools

• KXL device

• Treatment activation card

• External Timer (if bypassing Internal Timer)

The contents of the syringe are sterile. Syringes are packaged under aseptic conditions and the syringe should not be placed on the sterile field.
Powering On the Device

1. Plug the main power cable into the wall AC Outlet
2. Turn on the main power switch at the base of the KXL
3. Momentarily press the power on switch on the side of the display
4. The User Interface will now boot on the device
Starting the procedure

- Press new treatment button
- Confirm settings
- Scan treatment card
- Sync remote
Starting the procedure

- Press new treatment button
- Confirm settings
- Scan treatment card
- Sync remote
Syncing the remote

• A window is displayed prompting user to sync remote (for 15 seconds)
• Press the “S” button on the remote to synchronize the remote during that time frame
• If remote goes out of sync, a pop-up message will notify the user
Syncing the remote

If the synchronization process is unsuccessful after a second attempt, the user may opt to continue the treatment without the remote by clicking “Continue Without Remote”
Timer options

**Use External Induction Timer**
Bypasses the initial 30-minute induction timer and begins the irradiation sequence. Only to be used when the patient has received the proper dose of Photrexa® Viscous and flare confirmed.

**Start KXL Induction Timer**
 Begins the 30-minute riboflavin saturation period followed by 30-minute irradiation period.
Timer options

The internal timer within the KXL software may be used to track the Photrexa® Viscous induction period, or the user may bypass this option and use an external timer.

Note:
• If choosing to bypass the timer, the user should have an external timer ready to track Photrexa® Viscous induction time.
• Do not select “Begin UV Treatment” button until yellow flare is obtained and corneal pachymetry reaches 400 µm.

Option to use external timer if desired
Notification that internal timer is disabled when user selects this option.
FDA-Approved Dosage and Administration

- Introduce the patient into the treatment area and have the patient lie flat

- Using topical anesthesia, debride the epithelium in a diameter of approximately 9 mm using standard aseptic technique
FDA-Approved Dosage and Administration

Induction Period

• Initiate 30-minute internal induction timer with audible indicator every 2 min (or start external timer)

• Instill 1 drop Photrexatriple® Viscous topically on the eye every 2 minutes for 30 minutes

• At the end of the 30-minute soaking period, examine the eye under the slit lamp for the presence of a yellow flare in the anterior chamber
After 30 min, Check Flare and Corneal Pachymetry

- If the yellow flare is not detected:
  - Instill 1 drop of Photrexa® Viscous every 2 minutes for an additional 2 to 3 cycles
  - Check again for the presence of a yellow flare.
  - Repeat process as necessary

- Once the yellow flare is observed, perform ultrasound pachymetry.
  - If corneal thickness is less than 400 μm, instill 2 drops Photrexa® every 5 to 10 seconds until the corneal thickness increases to at least 400 μm.
  - Irradiation should not be performed unless this 400 μm threshold is met and the yellow flare is seen
FDA-Approved Dosage and Administration

UV Irradiation

- Irradiate the eye for 30 continuous minutes at 3mW/cm² centered over the cornea, using the KXL system as per the instructions in the user manual.

- During irradiation, instill 1 drop Photrexa® Viscous every 2 minutes for 30 minutes.

- Use the remote to trace the cornea, maintaining a central illumination.
Post-op Considerations

• A bandage contact lens should be applied

• Surgeons may apply their standard of care for postoperative management of PRK patients

• This may include:
  – Antibiotic
  – Steroid
  – NSAID
  – Lubricating drops

• As always in the practice of medicine, it is up to the physician’s discretion regarding the most appropriate care for their patients
Patient Counseling

• Patients should be advised not to rub their eyes for the first five days after their procedure.

• Patients may be sensitive to light and have a foreign body sensation.

• They should be advised of possible discomfort in the treated eye and that sunglasses may help with light sensitivity.

• If patients experience severe pain in the eye or any sudden decrease in their vision, they should be advised to contact their eye care provider immediately.

• If the bandage contact lens that was placed on the patient’s eye on the day of treatment falls out or becomes dislodged, the patient should be advised not to replace it and to contact their eye care provider immediately.
Power Off

- Press “Power Off”
- Confirm
- Toggle main switch to “Off” position on the base of the KXL system above the power cord
Cross-Linking Procedure Summary

1. Remove 9 mm epithelium using aseptic technique

2. Press “Start KXL Induction Timer” on the device screen

3. Apply 1 drop of PHOTREXA® VISCOUS every 2 minutes for 30 minutes

4. Check for flare:
   a) If none, continue with 1 drop of PHOTREXA® VISCOUS every 2 minutes for an additional 2-3 drops and check again for flare
   b) Repeat until flare is detected

5. Measure corneal pachymetry:
   a) If less than 400 μm, add 1 drop of PHOTREXA® every 5-10 seconds and check pachymetry at 2-minute intervals
   b) Repeat until 400 μm thickness is reached

6. Irradiate for 30 minutes at 3 mW/cm² while continuing with PHOTREXA® VISCOUS drop every 2 minutes during the UV irradiation
This training does not replace the Prescribing Information/Operators Manual. Refer to the Prescribing Information/Operators Manual before performing Corneal Cross-Linking with the Avedro KXL System.
IMPORTANT SAFETY INFORMATION

Indications
Photrexa® Viscous (riboflavin 5’-phosphate in 20% dextran ophthalmic solution) and Photrexa® (riboflavin 5’-phosphate ophthalmic solution) are indicated for use with the KXL System in corneal collagen cross-linking for the treatment of progressive keratoconus and corneal ectasia following refractive surgery.

Corneal collagen cross-linking should not be performed on pregnant women.

Important Safety Information

Ulcerative keratitis can occur. Patients should be monitored for resolution of epithelial defects.

The most common ocular adverse reaction was corneal opacity (haze). Other ocular side effects include punctate keratitis, corneal striae, dry eye, corneal epithelium defect, eye pain, light sensitivity, reduced visual acuity, and blurred vision.

These are not all of the side effects of the corneal collagen cross-linking treatment. For more information, go to www.LivingWithKeratoconus.com/ to obtain the FDA-approved product labeling.

You are encouraged to report all side effects to the FDA. Visit www.FDA.gov/Medwatch, or call 1-800-FDA-1088.