Docket #: S21-314

Use of Verteporfin to Modulate Wound Healing After an Ocular Surgical Procedure or Ocular Injury

Researchers at Stanford have identified the use of the drug verteporfin to treat or reduce the risk of developing ibrosis after ocular procedures or ocular injury. Of interest is corneal injury, for example after refractive surgery or crosslinking, e.g. LASIK and PRK, and also after corneal infections and ulcers, such as bacterial, viral and fungal infections of the cornea. For example, burns and injury to the cornea can lead to permanent scarring of the cornea and loss of vision. In the case of burns and severe injuries, preserving vision requires preventing fibrosis during the healing process, and facilitating transparent, "scarless" tissue regeneration. Currently, there are no FDA approved treatments that addresses the main cause of corneal blindness after injury, which is the formation of fibrotic scars that degrade or completely block vision. A topical therapy that can blunt or eliminate the formation of scars may enable patients to avoid an invasive surgery such as a corneal transplant to remove the scar. Verteporfin, a benzoporphyrin derivative, was FDA approved more than two decades ago as an intravenous injection with photodynamic therapy to treat choroidal neovascularization in the eye, and has been shown to be safe for use with that indication. The drug has been shown to prevent fibrosis in several human organs including the lung, skin, liver and kidney and can be dosed safely in the skin in previous animal studies with minimal side effects. Researchers have shown that a single dose of verteporfin compounded in a carrier can prevent scar formation after corneal injury.

Stage of Development
-Preclinical animal models

Applications

- Treating or reducing the risk of fibrosis after corneal injury, glaucoma surgery, or after other ocular procedures and injuries

Advantages

- Unmet need for an improved approach to modulate wound healing after ocular injury or surgery
- Verteporfin was approved by FDA in 2000 for unrelated mechanism of action and mode of administration for use in ophthalmology

Patents

- Published Application: WO2023039168
- Published Application: 20240366565

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