Ethyl Pyruvate: A Novel Eye and Skin Wound Healing Agent

Case 1536

Background
Scarring is a natural fibrotic response to wound healing; however, excessive scarring not only is esthetically unpleasant, it also can affect vision if it occurs in the eyes. Reflective surgeries such as LASIK and PRK are very common and involve manipulation of the cornea. This manipulation can cause fibrotic response and result in complications such as corneal haze, which can be attenuated by ideal corneal wound healing. Currently used drugs that prevent fibrotic response or scarring after eye surgery are harsh and can irreversibly damage normal tissue. Hence, a less toxic option is highly desirable.

More than 900,000 Americans underwent refractive surgery in 2005. In the United States, 2.4 million people annually experience traumatic eye injury. The global market for the advanced treatment of skin wounds is in the billions of dollars and is growing at 10 percent per year.

Technology
This method of using ethyl pyruvate has been shown to prevent scarring/fibrotic response in wounds, such as eye wounds from refractive surgery and skin wounds.

Applications
• Prevention or treatment of fibrotic response following ocular tissue injuries resulting from surgeries or trauma
• Prevention or treatment of fibrotic response following skin injuries

Advantages
• Ethyl pyruvate is nontoxic and well tolerated in humans and may be safer than currently available treatment options for scarring after eye injury or surgery
• Wide therapeutic window for safe and easy dosing
• Stable compound

Stage of Development
In vitro data are available for the effects of ethyl pyruvate on wound healing.

Patent Status
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Joel Schuman cofounded the Tufts University School of Medicine’s New England Eye Center in 1991. He was professor and vice chair at Tufts University School of Medicine and director of the Glaucoma and Cataract Service of the New England Eye Center at Tufts-New England Medical Center in Boston, Mass. Schuman was a member of the faculty there from 1991 to 2003, and he was also a research professor of electrical engineering and computer science at Tufts University’s main campus in Medford, Mass.

Schuman has published more than 100 scientific journal articles and more than 100 abstracts, has authored or edited five books, and has contributed numerous book chapters. He is program chair of the American Glaucoma Society and cochair of the International Glaucoma Symposium. In 2002, he received the Alcon Research Institute Award as well as the New York Academy of Medicine’s Lewis Rudin Glaucoma Prize. In 2003, he received the Senior Achievement Award from the American Academy of Ophthalmology.

Research Interests
• Imaging of the eye
• Laser-tissue interactions
• Aqueous outflow
• Clinical pharmacology

Publications


