



02966: Corneal Cross-linking as Treatment for Corneal Ulceration – “Using Light to Save Sight”

University of Zurich: Simon Pot, DVM Total Grant

Amount: \$ 30,000

Grant Period: 2/1/2022 - 1/31/2026

The cornea is the transparent front window of the eye, predominately made of highly organized collagen fibers. A corneal ulcer can occur due to corneal injury and is a painful condition that can lead to eye rupture if not treated adequately. Ulcers can deteriorate quickly and turn into ‘melting ulcers’ when bacteria infect the wound, cause inflammation, and lead to the production of enzymes which dissolve the corneal collagen fibers.

Brachycephalic dog breeds are particularly susceptible to the development of corneal ulcers but all dogs can be affected. Corneal ulcer treatment aims to eliminate bacteria, stop the melting process, and allow normal healing to resume. First-line treatment involves medical therapy by frequent application of antibiotic and enzyme inhibitor eyedrops, as well as pain relief. Treatment success varies, and antibiotic resistance remains a concerning issue. If intensive medical therapy does not achieve this goal, surgery is often indicated.

Corneal cross-linking (CXL) was introduced in human medicine to increase tissue strength in weakened areas of the cornea and is used as corneal ulcer treatment to resist enzymatic digestion. CXL also effectively kills both antibiotic-resistant and sensitive bacteria. The 15- minute CXL procedure involves the application of Riboflavin (Vitamin B2) drops onto the cornea and illumination with ultra-violet (UV) light. Despite evidence suggesting that CXL helps heal patients with corneal ulcers, it is not clear that CXL works better than or equally well as existing medical therapy in dogs. In this study, 10 animal hospitals have joined efforts to launch a clinical trial to determine whether CXL will allow canine patients to heal more quickly and with a lower risk of deterioration compared to state-of-the-art medical therapy. The research project can lead to CXL becoming a routine clinical treatment modality with the potential to transform corneal ulcer treatment and increase treatment success rates and overall patient welfare.

Contribution: \$5,000

Commitment Date: 6/23/2022