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Introduction

Cornea is mostly composed of collagen and water and is enveloped by epithelium and endothelium. ese layers cooperate to ensure tissue homeostasis by providing adequate corneal transparency and reliability. A er injury, corneal epithelial cells regenerate and restore the physiologic tissue architecture. In addition, a concomitant nerve regrowth and a controlled neovascularization of the damaged surface may occur. Cellular loss needs replacement by cell growth and migration.

e mechanism driving the epithelialization involves a multiplicity of cells stimulated by serum growth factors (GFs), mostly contained in platelet-α granules and issued by the same GFs into the blood during stress and tissue repair. e great quantity and accessibility of GFs and other signaling proteins in platelets with a consequent inhibition of cell apoptosis and improvement of cell proliferation, di erentiation, and migration suggested the extensive use of platelet derivatives for clinical and surgical aims in regenerative medicine. Indeed, GFs, binding to tyrosine kinase or G protein-coupled receptor families, drive both the in ammatory process and the stroma remodeling through autocrine, juxtacrine, or, most commonly, paracrine means.

us, the transcription of critical proteins for cell cycle returning to prewounding levels a er the tissue healing occurs [1].

Toward this context, the lachrymal lm plays a critical role such as resource of GFs. since the lack of tear epitheliotropic support promotes corneal opacity onset with consequent visual impairment. On the other hand, tear upregulation drives corneal epithelial hyperplasia, excessive deposition of extracellular matrix, and hypervascularization with cornea conjunctivalization. Here, we report the di erent concentrations of each GF in the human serum with respect to tears.

Failure of the corneal repair mechanisms leads to a chronic pathologic condition as persistent epithelial defects (PED) or dry eye

proportion of complete corneal epithelialization in only 4 days with low rate of adverse reactions.

Case reports have been described about the use of SE in other corneal diseases like ocular gra versus host disease, bullous keratopathy, fulminant bilateral *Haemophil s in en ae* keratitis, neurotrophic corneal ulcer, anterior tissue necrosis a er porous orbital implant, and Mooren's ulcer. In all these cases, SE allowed a complete corneal healing with an e ective improvement of the clinical conditions.

Despite many promising results, some recent studies have questioned the validity of this treatment. A prospective cross-sectional study on 34 patients did not nd that SE could be e ective in secondary Sjogren's syndrome due to elevated serum proin ammatory cytokine levels. In conclusion, they advocated the need of recognized measures to de ne subjective symptoms and to assess the real e ect of SE therapy for DES. e use of SE was compared in randomized trials to unconventional biologic therapies [7], which have gained a growing anamniotphic vthy6(mipubilad, 6(ans ll34einesim bironls tpntep

However, the technical preparation of human serum for ocular instillation should require a well-equipped laboratory with specialized trained personnel as well as the respect of aseptic and quality procedures. In addition, methods for SE production including the proper additive and GF doses should be optimized according to well-established guidelines and standardized quality controlled protocols. Additionally, informed consent should be obtained from each patient in case of allogenic somministration to avoid ethical and juridical implications owing to blood transfusion practices and legislative restrictions should be carefully respected to minimize the immunological and infectious risks [10].