Postoperative scarring of the filtering bleb is the most crucial factor in determining the short and long term outcome of modern glaucoma filtration surgery. Trabeculectomy (TE) is the preferred operation. However, in conventionally performed trabeculectomy, a large retrospective study has shown a failure rate of up to 30% within 3 months after surgery (***Diestelhorst , 1998)***.

To lower the incidence of this detrimental complication, various methods have been investigated in order to avoid the naturally occurring scarring of the filtering bleb, mostly dealing with the intraoperative or postoperative application of antimetabolic drugs—that is, 5-fluorouracil (5-FU) or mitomycin C (MMC), the two most widely used cytotoxic agents **(*Khaw , 2001)***.

BCECF-AM (2,7,-bis-(2-carboxyethyl) -5- (and -6) - carboxyfluorescein, acetoxymethyl-ester) is an intracellularly acting photosensitiser. It is applied locally in its inactive form, diffuses into adjacent cells, and is then cleaved and rendered fluorescent by intracellular esterases ***(Loon,1999)***. After additional illumination (activation) with blue light, it exerts a photo-oxidative effect that is only cell destructive within the targeted cells. Further, this effect is strictly limited to the local restriction of the illuminated area ***(Grisanti, 2000).***

In vitro, carboxyfluorescein was shown to be phototoxic for human Tenon fibroblasts ***(Grisanti, 2000)***. In vivo, in a rabbit model of filtration surgery, its potential to significantly delay postoperative scarring has also been demonstrated ***(Grisanti,1999)***. A first clinical pilot study comprising 10 eyes with end stage glaucoma and poor clinical prognosis has

underlined the impact of cellular photoablation on postoperative fibrosis in glaucoma patients undergoing trabeculectomy, mediated by BCECF-AM based photodynamic therapy ***(Diestelhorst, 2002)*** .