Aim

To compare the effect of aflibercept (VEGF-Trap) to PIGF inhibition on the surgical outcome after glaucoma filtration surgery

Material and Methods

1. Introduction
We previously showed that inhibition of placental growth factor (PIGF) was more effective than anti-VEGF-R2 treatment in improving surgical outcome of glaucoma filtration surgery (GFS) (Van Bergen T et al. 2013). In this study, we compared the effect of PIGF inhibition to aflibercept (VEGF-Trap, inhibition of VEGF and PIGF) on surgical outcome after GFS.

2. Study design
The effect of PIGF inhibitor (SD11D4; ThromboGenics NV) and aflibercept on surgical outcome was investigated in a mouse model of GFS. The 1st group received an intracameral (IC) injection of SD11D4 (1 μl; 5.4 μg), while IC administration of aflibercept (1 μl; 3.4 μg; Eylea) was given to the 2nd group. The 3rd group was used as positive control and was treated during surgery with MMC 0.02% for 2 minutes. The 2 first groups were also included in combination with MMC 0.02% for 2 minutes. Treatment outcome was studied by clinical investigation of the bleb every other day. Fibrosis was investigated on postoperative day 52 by performing a Sirius Red staining.

Conclusion

In conclusion, this study indicates that PIGF inhibition is as efficacious as aflibercept, known to inhibit both VEGF and PIGF, in reducing scar formation after GFS. Moreover, PIGF inhibition can enhance the beneficial effects of MMC, which might open new perspectives for the future to investigate whether combination therapy can lower the dose of MMC and anti-PIGF and whether this can improve the safety profile of MMC.