



DUAL SUPPRESSION OF GROWTH FACTORS IN THE TREATMENT OF AGE-RELATED MACULAR DEGENERATION

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Age-related macular degeneration (AMD) affects more than two million Americans every year. AMD is caused by growth factors, leading to angiogenesis in the retina, destroying the membrane and causing blindness. Current treatment methods involve inhibiting those growth factors, but they do not have long term viability. To improve this, we hypothesized that suppressing the two separate growth factors in eye, Vascular Endothelial Growth Factor (VEGF) and Platelet Derived Growth Factor (PDGF) would increase the decreased size of induced lesions in a mouse model.

First, we injected mice adeno-associated virus (AAV) and a plasmid gene for each of the inhibitors. Next, laser lesions were induced on the mice eye before final volume images were calculated. We found that dual suppression of VEGF and PDGF was not associated with a significant decrease in lesion volume ($p > 0.05$) in both timepoint trials (1 month and 4 month). We concluded that a) dual suppression with genes localized on the same virus is not viable compared to current treatment methods, b) all treatment methods, including dual suppression group, exhibited decreased activation in the later time point group, and c) subretinal injections and using AAVs as a transport vector are a viable option for treatment of AMD ($p < 0.05$ for positive controls compared to negative controls). Over all, these findings suggest that despite our dual suppression method not returning the desired results, a clear direction has been established in the future treatment for patients with AMD.

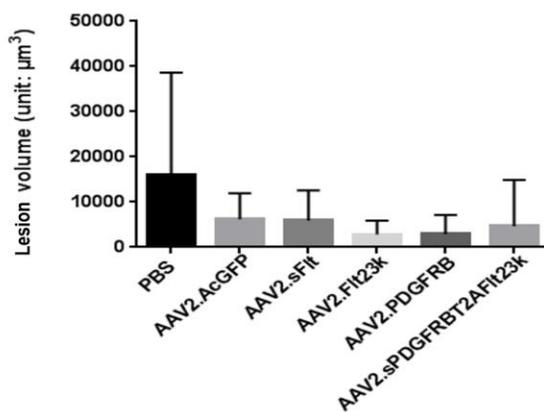


Figure 1. 1 Month Lesion group, group 6 (experimental) was not statistically significant to either of the positive controls (Flt23k and PDGFRB)

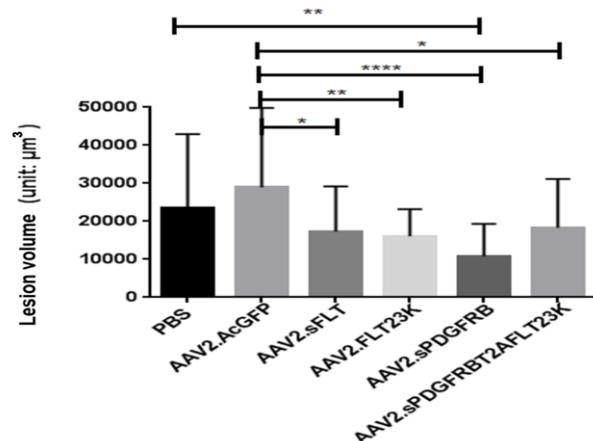


Figure 2. 4 Month Lesion group, the experimental group 6 did not have significant smaller volumes than the positive controls. P values: *p < 0.05; ** p < 0.01; **** p < 0.0001