Reviewer's report

Title: Evaluation of variants in the selectin genes in age-related macular degeneration.

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Reviewer: Abbot Clark

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Mullins and colleagues used RT-PCR and immunohistochemistry to evaluate the expression of 3 selectin genes/proteins (E-, L-, and P-selectins) in the human retina and choroid. They also genotyped 34 SNPs spanning the genes for these 3 selectins, looking for potential allele frequency differences in normal (n=400) and AMD (n=341) populations. They report the expression of all 3 selectins in the retina and choroid. Although these selectins are interesting candidates as AMD risk genes, there were no SNPs that were significantly associated with AMD after adjustment for multiple measures.

Overall, the manuscript is well-written and generally scientifically sound. However, there are several issues that when addressed would further improve this manuscript.

Major Compulsory Revisions:

(1) No details are given for the donor tissue used in the real-time PCR and immunohistochemical studies. It is assumed that AMD eyes were used for Figure 1 because drusen is shown. Please specify the donor status and ages for these experiments. Did the authors compare selectin gene and protein expression between the normal and AMD eyes?

(2) Figures 1-2: It appears that the sections were also stained for nuclei (blue), but there is no mention of this in either the Methods section or the figure legends. The authors should also mention the considerable autofluorescence seen in the RPE cells. The authors state that selectin staining was seen in retinal microglia, but there is no real data to support this statement. The staining morphology is very difficult to see at the arrows in Figure 1A-B. The authors should consider co-staining with a microglial marker. The authors should also specify all the abbreviations used in these figures in the figure legends.

(3) The authors state that the AMD population used for the genotyping study as patients with an “AREDS grade of 2 or higher”. What percentage of patients had dry AMD vs wet AMD? Although the AMD cohort used in this study may be too small, did the authors attempt to evaluate AMD subpopulations based on phenotype?

Level of interest: An article of importance in its field
Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests