Reviewer's report

Title: CD58 polymorphisms associated with the risk of neuromyelitis optica in a Korean population

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Reviewer: Nada Starcevic Cizmarevic

Reviewer's report:

The authors performed a case-control study aimed at investigating whether six polymorphisms of the CD58 gene are associated with Neuromyelitis Optica (NMO). They genotyped 99 patients and 237 controls from Korea, perform haplotype analyses, and found significant differences in allele and genotype distribution between the two groups, suggesting an association with the disease. Furthermore, the authors deduced the functional background of the association between rs 2300747 and rs1016140 polymorphisms with NMO.

CD58 gene was investigated in Multiple Sclerosis as a susceptibility gene, but this study presents first investigation in NMO and there is a rationale for studying it. Therefore, this paper adds an useful contribution to the NMO association literature.

However, there are some areas in which the manuscript may be improved (minor essential revisions):

ABSTRACT:
In Abstract some language corrections could be made (page 2, line 11,14,16.)
Page 2, line 5: insert „multiple sclerosis (MS)“ instead of „MS“;
Page 2, line 4: „analysis“ instead of „analyses“

INTRODUCTION:
Introduction is correctly written and concise.
Page 3, line 5: In MS symptoms could be added also disturbance of vision such as double vision.

METHODS:
NMO is, like MS, inflammatory demyelinating disease which is more frequent in women than in man, therefore, for further studies, it would be desirable to well-matched control group by gender (Table 1. Characteristics of study subjects). Therefore, in this paper, the authors adjusted gender using logistic model.

Hardy-Weinberg equilibrium could be mentioned in chapter Statistics.
Page 5, line 3: insert longitudinally extensive transverse myelitis
Page 6, line 1: „healthy controls“ instead of „normal controls subjects“
Page 6, line 3: In Supplementary Table 1. instead of „Primer“ and instead of
„Probe“ should be written „Primer/probe“

RESULTS:
Did the authors take into account the fact that the polymorphism RS 17426456 is not in HWE for statistical analysis?

Figure legend 1, line 8: whole study subjects number is 336, not „(n=415)“

Supplementary Table 2: The table could be better organized. It is correct to show genotype frequencies of CD58 gene in Korean population that including 237 healthy controls instead of patients and healthy cases together (N=336).

DISCUSSION
Discussion is rather relevant. However, in this chapter should be reported and discussed some limitation of the study such as a relatively small number of patients and differences in gender distribution between patients and controls.

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:
I declare that I have no competing interests.