Reviewer's report

Title: Studies of association of AGPAT6 variants with type 2 diabetes and related metabolic phenotypes in 12,068 Danes

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Reviewer: Maggie CY Ng

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Snogdal and colleagues examined 11 SNPs from a candidate gene, AGPAT6, for association with T2D and related traits in 12068 Danes, including 4638 T2D and 5934 control subjects. No significant associations were found for any traits after multiple comparisons correction, suggesting that genetic polymorphisms at AGPAT6 do not have significant contribution to the studied traits.

The paper is well written. While the results are negative for this study of moderate sample size, additional analysis would be useful to refute the test hypothesis.

Minor Essential Revisions

1. AGPAT6 encodes GPAT4 which is involved in triglyceride synthesis, which may in turn associated with obesity and insulin resistance. Since not all diabetic subjects have high triglyceride level and not all subjects with hypertriglyceridemia will develop diabetes, it may be useful to perform a subset analysis for T2D using T2D subjects with hypertriglyceridemia and control subjects without hypertriglyceridemia to exaggerate the effect, if present.

2. Four variants are nominally associated with T2D which may or may not be in weak LD. It will add depth to the paper by performing haplotype and conditional analyses of these 4 SNPs for association with T2D.

Level of interest: An article of limited interest

Quality of written English: Acceptable

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

Declaration of competing interests:

I declare that I have no competing interests