Reviewer's report

Title: The PTPN22 C1858T gene variant is associated with changes in residual beta-cell function in new-onset type 1 diabetes

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Reviewer: Takuya Awata

Reviewer's report:

In this concise manuscript, the authors have verified the possible association of the established susceptibility PTPN22 nsSNP (C1858T) with residual beta-cell function in patients with recent-onset type 1 diabetes. The aim of the manuscript is clear, the sample size is moderate, the results are intriguing but debatable. However, I recommend several revisions as follows.

Major Compulsory Revisions:
1. I feel that the 3rd paragraph of the discussion is not logically uncertain. Please rewrite it more evidently. As mentioned by the authors, the higher proinsulin levels at 6 or 12 months despite significant reductions of C-peptide may indicate that the proinsulin levels were fairly modified by IA's that might be mainly produced against exogenous insulin. Although the authors mentioned that "…, however, not affect the association between proinsulin and the PTPN22 variant in the statistical analysis", it appears that the higher proinsulin levels were related to the higher IA levels at 12 months but not at 6 months. Can the authors demonstrate the results of the statistical analysis as a graph or table?

Minor Essential Revisions:
2. More details of the total proinsulin assay should be described.
3. What about the mixed-meal? Was it constant among patients?
4. In Figure 1 and Figure 2, it may be better to change the labels of x-axis (month) to "0, 6, and 12"; and the kinds of lines (solid and broken) should be unified for PTPN22 genotypes.
5. How about the effects of HLA and INS genotypes on the levels of proinsulin and IA?

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

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