Reviewer's report

Title: Effects of Diabetes and Hypertension on Macrophage infiltration in the rat kidney

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Reviewer: Nicholas Topley

Reviewer's report:

General
This is an interesting study that attempts to address both the impact of hypertension and diabetes in the induction of macrophage infiltration in a rat model. The data are well presented and although the association of MCP-1 and renal inflammation is not novel the implication of adding hypertension to diabetes in exacerbating disease provides new data.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)
Whilst the data as they stand seem to provide evidence of (at best) an additive effect of diabetes and high blood pressure in driving macrophage infiltration associated with increased MCP-1 synthesis there remain a number of issues to address.
1. The degree of MØ infiltration and MCP-1 synthesis are only marginally and in some cases not significantly elevated in the presence of both diseases, could it be therefore that when the induction of both diabetes with STZ and the spontaneous hypertension are maximal that a threshold is reached. What would be the effect with a smaller elevation of blood pressure (perhaps controlled therapeutically) in the face of diabetes or vice versa, mild diabetes (again controlled therapeutically) in a face of elevated blood pressure. Whilst these might be considered further studies they would add significantly to the impact of the paper particularly given the borderline significance of the combined effects of hypertension and diabetes.
The link between MCP-1 and MØ infiltration is not absolute, the authors should consider either other chemokines/chemoattractants that might be important in this process or perhaps the expression of adhesion molecules as it is important to address if the impact of hypertension and diabetes are global rather than specific for MCP-1.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)
The figures are presented as mean±sem when in fact data from individual animals would be more appropriate as the variability in the data is important.
There is significant variability in the GAPDH mRNA levels between animals, whilst this does not affect the result it needs an explanation.
Why are there two band in the MCP-1 blot and why is there no loading control?

Discretionary Revisions (which the author can choose to ignore)
The data is Fig 5 could be presented in a fashion that better represents the fact that the TGR and combined group have the highest severity, as it stands it gives (falsely) the impression of the opposite.

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article whose findings are important to those with closely related research
interests

**Quality of written English:** Acceptable

**Statistical review:** No

**Declaration of competing interests:**

I declare that I have no competing interests