Reviewer’s report

Title: Protective effects of heme oxygenase-1 against severe acute pancreatitis via inhibition of tumor necrosis factor-α and augmentation of interleukin-10

Version: 0 Date: 25 Mar 2017

Reviewer: Jannette Dufour

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This is a nice study by Zhang et al., testing the effect of heme oxygenase-1 (HO-1) on severe acute pancreatitis (SAP). The authors were able to demonstrate a decrease in TNF-alpha and increase in IL-10 in serum, pancreas and liver after HO-1 stimulation compared to the SAP group. Likewise, this group showed improved pancreas and liver histology. In opposite, HO-1 inhibition increased TNF-alpha and decreased IL-10 in serum, pancreas and liver as well as showed pancreas and liver tissue damage compared to the SAP group. Overall the results are very interesting. I have several comments provided below.

Specific Comments

1. Grammar should be checked throughout the manuscript.

2. Abstract, line 32: do you mean examine or analyze the role of HO-1 on systemic inflammation? The word "improve" does not fit here.

3. Second page of Abstract, line 4: How do you know this is the main mechanism? HO-1 could also affect other pathways.

4. Background line 20-22: this sentence (It is clear … in severe cases) is a little confusing. Maybe reword.

5. Background line 43: add "activities to protect" to the sentence. For example, "perform a variety of activities to protect cells against stressful".

6. Background lines 49-56, state HO-1 plays an important role in SAP, while the next page, lines 7-9 indicate the role is unknown. How can it be important and unknown at the same time.

7. Results, line 54, pancreatic histology: should this be the pancreas not the pancreatic duct? The duct is not shown in the images or described in the SAP group. Also, this sentence should be split into 3 sentences rather than describing all of the treatments in one run on sentence.

8. Figure 3: the treatments are not labeled in the figure or indicated in the figure legend. This should be added. Also, the image resolution is too low to confirm the description in the text. Higher resolution images should be included.
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
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Yes

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I am able to assess the statistics

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