Reviewer's report

Title: Pulmonary immune responses to 2009 pandemic influenza A (H1N1) virus in mice

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Reviewer: Florian Krammer

Reviewer's report:

In their manuscript Lv and colleagues compare the immunological/virulence profile of a pandemic H1N1 virus isolate from Beijing with the one of A/PR/8/34. Although the work is not really novel it is technically well done and the data could be useful for the field.

Major points:

1) The authors need to calculate LD50 values for both viruses in order to compare the pathogenicity of the viruses.

2) The results paragraph "Molecular analysis of 2009 H1N1 viruses" should be deleted. The authors just made a list of sequence differences between strains - these differences are widely known in the field and are not really 'results'. I would recommend keeping the Table 1 since it gives a quick overview.

3) Discussion, line 338-340: The authors should either show experimentally that the lysine in PB2 position 627 is causing the higher virulence in mice (by introducing the mutation into BJ501) or they should remove this statement.

4) The pH1N1 isolate that the authors used was passage in eggs. It is widely known that egg passage changes residues near the receptor binding site in pH1N1 viruses. The authors should sequence the HA gene of the virus they used last passage) and compare it to the sequence of the original isolate.

5) Figure 1B: It looks like the mice had to suffer severe weight loss of up to 40% of their initial body weight. IACUC protocols usually call for a humane endpoint at 25% weight loss and mice that cross this line have to be euthanized. Nothing about pre-defined humane endpoints is stated in the materials and methods section.

Minor points:

1) The quality of Figures 1, 2, 4 and 5 is pretty bad, the authors should consider to replace them by figures with a higher resolution.

2) The manuscript needs major editing by a native English speaker (or a commercial editing agency).

3) Line 30: the pandemic is over, the virus strain is now seasonal, it lost its
pandemic potential

4) Line 45 and throughout the text: BALB/c, not BALB/C

5) Line 71: The authors should explain what they mean with 'associated with its 2.6 glycan binding properties'.

6) Line 143: matrix, not metrix

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

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

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests