Reviewer’s report

Title: Toxoplasma gondii cathepsin proteases are undeveloped prominent vaccine antigens against toxoplasmosis.

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Reviewer: João Luis Garcia

Reviewer’s report:

I reviewed the manuscript entitled “Toxoplasma gondii cathepsin proteases are undeveloped prominent vaccine antigens against toxoplasmosis.” My suggestions are:

Introduction

1) This sentence needs a reference: An important design principle of DNA vaccines is the selection of key proteins involved in the host cell invasion process by T. gondii; therefore, many researchers are working to identify the related proteins that can effectively against toxoplasmosis(???? References??)

2) The aim of the work needs to be better stated. I could not read this in the manuscript.

Material & Methods (M&M)

1) The cells were then lysed… (What protocols the authors used for? Native or denaturing one?)

2) The authors should add a section specific for WB

Results

1) The section Prediction of secondary structure and linear-B cell epitopes, Modeling three-dimensional structures, and Prediction of Th-cell epitopes of TgCPB and TgCPL are not part of the results section. This should be part of the M&M if the authors did not use whole gene for cloning. Thus if this was the case the authors need state this in M&M.

2) Fig. 1-3 are unnecessary

3) In Fig. 6, I’m concern about pics B1,C2, and D2 no background from the cells is seen. I suppose at least a shadow from the cells, however, it is black?????

4) Fig 7, I missed a negative control.

5) Whether serum samples (antibodies) from mice recognized rTgCPB and rTgCPL by WB why not to try to use these proteins in ELISA instead STAg?

Discussion

1) This statement is not necessary: “Th cells play an important role in cellular
immunity, which participates in antigen recognition as well as regulation (helper and suppressor) functions. According to its function, the Th cells can be divided into two subpopulations: Th-1 cells and Th-2 cells. Th-1 cells help activate cytotoxic T cells (Tc cells) by producing IL-2 and initiate the delayed hypersensitivity response by producing primarily IL-2 and IFN-#, whereas Th-2 cells perform the B cell helper function by producing primarily IL-4, IL-5, IL-6 and IL-10. One important regulator of the balance between Th-1 cells and Th-2 cells is IL-12, which is produced by macrophages [44]. IFN-# is also a key mediator of resistance to T. gondii and promotes multiple complex intracellular mechanisms to kill the parasite and inhibit its replication [45]."

2) There is just one reference in discussion????? This part of the manuscript needs to be improved.

**Level of interest:** An article of importance in its field

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

**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'