Reviewer's report

Title: Differential in vivo expression of mycobacterial antigens in Mycobacterium tuberculosis infected lungs and lymph node tissues

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Reviewer: Petros C Karakousis

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Major compulsory revisions:
1. How were the antigens selected for immunohistochemical analysis?
2. No information is provided about the controls. Since many control samples yielded positive signal, it is important to ascertain if the controls had latent TB infection (positive tuberculin skin test or IGRA). If there is no evidence of Mtb exposure, this would suggest that the signal is non-specific.
3. How many sections and high-power fields were examined per case for immunostaining? The “+” system does not seem very quantitative and the cutoffs for number of cells infected are arbitrary.
4. Antigen expression is not normalized based on mycobacterial number. Given that acid-fast bacilli could not be detected in the lymph nodes, while large numbers of bacilli were present in lung lesions, it is likely that differences in levels of antigen expression reflect different bacterial loads rather than different metabolic states of the organisms, as the authors suggest.
5. Simply because antigen are detected in the tissues does not mean these are protective and could be useful for informing vaccine studies. On the contrary, the high levels of expression in the lung tissue with large numbers of bacilli would suggest otherwise. Also, it is not clear how these findings could be “important for the development of new anti-mycobacterial drugs” (lines 107-108). Rather, their utility seems more for diagnostic purposes. The Introduction and Discussion should be modified accordingly.

Minor essential revisions:
6. Extrapulmonary TB accounts for approximately one-fifth of TB cases among immune-competent individuals and up to one-half in HIV-infected individuals (line 75).

Level of interest: An article of limited interest

Quality of written English: Acceptable

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.