Reviewer's report

Title: Delayed-type hypersensitivity responses to mimotopes from Mycobacterium leprae in guinea pigs

Version: 2 Date: 10 June 2012

Reviewer: Annemieke Geluk

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Major Compulsory Revisions

• Figure 3: it would be more informative if the authors would link the responses for each peptide and the M, ML and C to each other so it would be clear what the responses in each guinea pig are.
• Why is the response to the pool completely negative for all guinea pigs?
• Legend: indicate the number of guinea pigs tested.
• Indicate in the legend what exactly is meant with: pool.

Minor Essential Revisions:

Use line numbering everywhere in the text.

Abstract:
Research line 5: suggested change in to: “investigated “or “analyzed”.

Background:
• Page 4, line 8: should be: lepromin can not be used. Only MB sera were used whereas also sera of PB can be used for Ab screening (e.g. Immunologically reactive M. leprae antigens with relevance to diagnosis and vaccine development. Sampaio LH, Stefani MM, Oliveira RM, Sousa AL, Ireton GC, Reed SG, Duthie MS. 2011).
• Why were PB sera not addressed as well? This would have broadened the use of the peptides.

Methods/ materials:
Page 7, the colonies were picked at random: explain why and how exactly this was performed?
Page 8: could the number of bacteria be enumerated from the sensitized guinea pigs: The authors should elaborate on how this sensitization does reflect infection in vivo as M.leprae infection probably does not proceed through the skin. How sure is it that the same DTH occurs after aerosol infection.
Can the peptides be tested in e.g. naturally infected armadillo’s?
Using M. tuberculosis (aerosol) infected mice as second check for specificity is very important and should be performed, since this will also be a control on the
procedure of this study using the phage libraries.

Results and discussion:

Page 10: humoral response also depends on T helper cells

Page 10, 2nd paragraph, line 9 and 16: are the animals immunized or sensitized?

General comment: what are the sequences of these peptides and from which M. leprae antigens are they derived: this should be included in the paper. Are the M. leprae antigens specific or is only the induced Ab response specific?

Page 11, 2nd paragraph, line 2: HLA should here be MHC.

Page 11, 2nd paragraph, line 9: or can the peptides be applied as mix of peptides? Data for this can and should be easily generated using the available sera.

Page 12, line 1: it is not always the case that the detection of IFN-gamma levels cannot be assessed in the field. In fact, the authors should include a field friendly assay for measuring cytokines (e.g. Corstjens, PLAM, et al. 2011. Lateral flow assay for simultaneous detection of cellular- and humoral immune responses. Clinical Biochemistry 44: 1241-1246.)

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

**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