Reviewer's report

Title: Gene expression analysis of a Helicobacter pylori-infected and high-salt diet-treated mouse gastric tumor model: Identification of CD177 as a novel prognostic factor in patients with gastric cancer

Version: 1 Date: 27 December 2012

Reviewer: Thomas Wex

Reviewer's report:

To authors:

The study addresses a relevant clinical and scientific topic, the development of gastric cancer. The general study design combining an animal model with ex vivo analysis of patients with gastric cancer is appreciated. However, there are some shortcomings in respect to presentation and analysis of data that need to be addressed.

Major Issues:

- The animal model combines chemically induced (MNU) and H. pylori-triggered gastric carcinogenesis. Therefore, it does not reflect human disease. The authors should discuss this issue in more detail.
- The mouse model has several disadvantages (e.g. stability of cagPAI) that should be addressed appropriately. Furthermore, authors need to explain the usage of largely differing numbers in the four groups (21, 4, 14 and 9) that most likely affect final conclusions.
- Statistical analyses for the gene expression study (array analysis) is lacking completely. Furthermore, the authors present quite numerous of sub analyses (e.g. Table 2) pairwise without any global analysis before. Based on the data distribution, data needs to be generally assessed by Kruskal Wallis or ANOVA. Chi2 tests (like Table 2) need to be adjusted for multiple testing. Please identify these aspects in figure or table legend.
- Where are the data for the correlation analysis between CD177 expression and clinicopathological factors (as stated in “Statistical analysis”)? The qualitative comparison between CD177+/- samples alone is not appropriate. The evaluation of CD177 staining should be done be semiquantitative scoring system (number of positive cells and strength of signal (e.g. Remmle score).
- Data from Table 3 and the overall changes of gene expression (array) should be additionally presented as scheme (e.g. overlapping circles) to allow better assignment of altered gene expression in relation to the risk factors (MNU, H. pylori, salt).
- Data of figure 2A need to be explained in more detail. What does the relative mRNA expression represent? What condition/setting was used for normalization to express x-fold change since all four groups were shown?
- Histopathological data of patients and multivariate analysis should include type of tumor based on Lauren classification. If available, serological H. pylori status could be included as well.

Minor Issues:
- Authors should describe the two study parts (animal and ex vivo study) clearly in the abstract.
- Please include ethical vote for ex vivo analysis.
- Include Table 2, 4 and 5 in the manuscript and not as supplementary data. Check for dots instead of commas for figures (e.g. (fold change, p values))

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

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**
'I declare that I have no competing interests'