Reviewer's report

Title: Increased tartrate-resistant acid phosphatase (Trap) expression in several malign tumors, patients sera and cell lines, an investigational study.

Version: 2 Date: 23 April 2006

Reviewer: Wolfgang Janni

Reviewer's report:

General

The authors A. Hoenig et al. investigated the enzyme tartrate resistant acid phosphatase (TRAP) in breast cancer patients with and without bone metastases as marker of bone disease, and also in pts. with visceral disease only. They detected a marked increase of TRAP serum values in patients without bone disease in breast and ovarian cancer patients. In additional analyses of the primary tumors, they also found that the cancer cells themselves express TRAP. This interesting paper could be a major contribution to generate hypotheses, potentially leading to a novel tumor marker.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

English language, grammar and terminology has to be substantially improved (e.g.: title: ...expression in several malignant tumors... [and not 'malign'], or 'progress' instead of 'progression' in the abstract).
Numerous example could be given throughout the text.

The abstract lacks a meaningful methodology part and also any number on which the authors' allegations are confirmed.

General design: the authors have not convincingly argued, why they report finding in the very heterogeneous patient group, ranging from different neoplasms to pregnant women. The lack of a major focus of the paper makes it difficult for the authors and for the reader to reach meaningful conclusions.

Methods: like in other parts of the manuscript, the authors mix different sections of structured paper. In the methodology section of the manuscript, they report on the characteristics of the investigated women, as well on the TRAP-findings, which belongs to the result part of the paper.

What is the cut-off for the IHC?

Why did they investigate ascites and pleural effusions in addition to serum and tumor tissue? Even cell lines were tested, increasing the impression of the lack of a major focus of this investigation.

What is the RT-PCR cut-off?

Results: No quantitative evaluations and statistical tests are given for the IHC-findings. The entire results sections appears to be very descriptive, even including comments on the design (e.g. We also used stimulated dendritic cells (DC) with known and well documented TRAP expression (Janckila et al. 2005) as positive control for our RT-PCR experiments (data not shown)). More precise and stringent reporting of the results would make the interesting findings considerably more convincing.

Discussion: The authors comment on results on malignant melanoma, which obviously are not integral part of this study.
The discussion should be structured better. Critical hypothesis like 'TRAP could serve as a marker for active growth of malign cells' are not developed thoroughly, while the focus of the discussion jumps from different entities to different means of investigation, again lacking a concise focus and a 'red stripe'.
The closing statement 'Nevertheless, our findings reveal that any new marker needs very careful and meticulous evaluation before it can be routinely used as marker of disease activity in cancer patients during follow-up.' is quite weak, not really supported by the results (besides the confusion of the paper) and a general remark, which is true about almost all scientific activity. Critical aspects are largely neglected, such as: why to healthy persons express TRAP? Which method in
which patient group could lead in which setting to a helpful tumor marker? What could be the clinical implications? And others aspects, which would not only adress the thorough reader's thoughts, but could also increase the paper's level of interest.

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

The tables have to be clearly separated in characteristics and findings.

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Discretionary Revisions (which the author can choose to ignore)

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article of importance in its field

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

Statistical review: No

Declaration of competing interests:

None