Reviewer's report

Title: Genomic expression and single-nucleotide polymorphism profiling discriminates chromophobe renal cell carcinoma and oncocytoma

Version: 1 Date: 29 October 2009

Reviewer: Barbara Seliger

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Major Compulsory Revisions

The paper by Tan and co-authors employed high throughput SNP genotyping for the characterization and differentiation of biological properties of chromophobe renal cell carcinoma and oncocytoma. They identified a distinct signature of both renal tumors associated with a dysregulation of relevant signal transduction pathways in chromophobe RCC, loss of chromosome 1p in both tumor entities, but variable other cytogenetic alterations distinguishing these tumor types. Three novel markers were described which allowed the discrimination between chromophobe RCC and oncocytoma. The experimental approach of this study using SNP analysis is state of the art and allows to identify chromosomal loss as well as distinct expression pattern. However a number of issues have to be addressed by the authors:

• The two clinical pathways HER-2 and mTOR have to be defined in more detail regarding their differential expression in both tumor entities. Please confirm the data by proper validation and provide the results.
• Concerning the differential markers identified the genes proteins involved in the cellular metabolism have to be discussed.
• Based on the score (x-fold change) it is not clear why the authors used aquaporin for validation. Other markers exhibiting a bigger change would have been more suitable.
• It is not obvious why CK7 was integrated in table 4 and used for immunohistochemistry.
• Parafibromin appeared not to be differentially expressed, please provide an explanation.
• Information regarding the oncocytoma and chromophobe RCC cell lines used have to be provided regarding their characteristics and source.

Level of interest: An article whose findings are important to those with closely related research interests

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