Reviewer's report

Title: CD 9 and vimentin distinguish clear cell from chromophobe renal cell carcinoma

Version: 1 Date: 7 July 2009

Reviewer: Andrew Young

Reviewer's report:

The authors identify candidate expression biomarkers for clear cell and chromophobe RCC based on previous gene expression microarray studies, and attempt to verify several candidates by immunohistochemistry in an independent tissue microarray.

The question posed by the authors is reasonably well defined, and is assessed using appropriate, well described methods, resulting in reasonably sound data. The manuscript adheres to relevant standards for reporting and data deposition. The discussion and conclusions are balanced, clearly state limitations, and are adequately supported by the data, but would benefit from further information (see below). The authors acknowledge work upon which they are building. The title and abstract accurately convey what has been found. The writing is acceptable.

The most serious limitation of this work is lack of novelty in terms of study design and findings. Also, vimentin has been described in several sources as a biomarker for clear cell RCC (often with better sensitivity than that described in this manuscript), while CD9 has been described in chromophobe RCC. The current paper just provides confirmatory performance of these markers in other cases. Nevertheless, the need for additional diagnostic biomarkers for RCC continues to exist. The authors explore numerous potential novel candidates but do not select them for extensive analysis or discussion.

With focus on CD9, the discussion would be strengthened by mention of CD9 and other tetraspanin's possible roles in kidney biology and malignancy, or it's potential as a therapeutic target.

The paper might also be more novel in attention on how to increase the verification rate from microarray data. Like all of us in the field, the authors are limited to some degree by what antibodies are available for IHC. However, are there any suggestions on what might make certain candidates more promising from a large list? Would analysis at the RNA level by QRT-PCR be revealing as a diagnostic tool, or simply as a way to winnow down the list of candidate biomarkers?

Discretionary Revisions: none
Minor Essential Revisions: none
Major Compulsory Revisions: add information in discussion on CD9 and other
markers to increase new information.

**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