Reviewer's report

Title: ST3Gal.I sialyltransferase relevance in bladder cancer tissues and cell lines

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Reviewer: Wun-Jae Jae Kim

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Comments to Authors

This manuscript investigated the regulation of the sialyltransferases, able to sialylate the T antigen, in bladder cancer progression. These findings suggest that ST3Gal.I plays the major role in the sialylation of the T antigen in bladder cancer and its overexpression, as part of the initial oncogenic transformation of bladder, could be considered when predicting cancer progression and recurrence. There are a several issues that need to be addressed:

This paper has several critical points.

Major Compulsory Revisions

1. Non-muscle invasive bladder cancer (NMIBC) is comprised of both Ta and T1 tumors. Ample evidence now exists that these tumor stages represent distinctly diverse disease processes, with varied pathogenesis, molecular alterations, prognosis and therapeutic management needs (Wu XR. Nat Rev Cancer 2005). A fundamental flaw in the study is the authors' decision to categorize all (NMIBC) as a single entity. Non-muscle invasive bladder cancer is a heterogeneous group including patients with low and high grade Ta, carcinoma in situ, and T1 (invasive into lamina propria). The risk for recurrence and progression is substantially different between each subgroup and collapse into one category is inappropriate, although frequently done in the past. Definition of recurrence and progression is uncertain. Additionally, progression in T1 cancers is frequently due to incomplete initial resection as evidenced by a 20-40% persistent cancer rate when an immediate re-resection is done.

2. Sample size is too small to analyze the efficacy of the bladder cancer prognosis.

3. This reviewer had concerns regarding the regarding the scientific strength of the study (short follow-up time) and the methods of the study (lack of multivariate and univariate analysis).

4. The authors have not presented basic and fundamental clinical data including information on tumor stage, grade, number, size, and intravesical therapy status of the patients. What is the association of these basic pathological features with outcome?
5. The patients in both sub-cohorts have been treated differently – some with TUR with/without intravesical treatment. Such differences in management, which does affect final outcome, have not been accounted for in the analysis.

**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