

## **Reviewer's report**

**Title:** Tight Associations Between Transcription Promoter Type and Epigenetic Variation in Histone Positioning and Modification

**Version:** 2 **Date:** 26 January 2011

**Reviewer number:** 1

### **Reviewer's report:**

#### Major Compulsory Revisions:

1. I have some issue with the analysis on page 5 ("Accessibility of transcription factor Sp1"). The authors do indeed demonstrate a suggested paucity of nucleosomes near the TSS of broad promoters which coincides with an increase in SP1 binding sites. However, I'd like to see further evidence from other transcription factors. What of the transcription factors that are known to target your genes of interest? Do they show the same relationship? There isn't really a control, since the authors don't show a counter for Sp1.

2. Figure 1C is not convincing to me. I see a definite difference in variance of position but not a difference in the average distance. The authors should restate their claim based on this observation or provide further evidence for their claim.

#### Minor Essential Revisions:

3. How did you demarcate the location of peak and broad promoters? I am assuming that you use the middle of the promoter? Is this correct? Can you clarify this?

4. The authors state in the discussion: "... the nucleosome position has a stronger impact than in peak promoters on determination of TSSs by transcription factors in the cells." Based on availability of data, it would be nice to compare pairs of genes that were closely related (e.g. paralogs) to see if the nucleosome positions have evolved to reflect biological changes in transcriptional regulation. This is a minor point and may or may not be possible, but it's a thought.

#### Discretionary Revisions:

5. Page 5, 3rd paragraph, "positions around broad promoters". "promoter" should be plural.

6. Page 6, last paragraph, "described" should be "described."

7. Page 7, first paragraph, "positioning only around broad promoters." "promoter" should be plural.

All in all, an interesting paper tackling an interesting hypothesis. I look forward to the revision.

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

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.