Reviewer’s report

Title: Identification of a Myometrial Molecular Profile for Dystocic Labor

Version: 1 Date: 8 September 2011

Reviewer: Radek Bukowski

Reviewer’s report:

Dear Editors,

This is a case-control study comparing transcriptomes of lower uterine segment in patients with labor dystocia and controls, who had cesarean delivery in the second stage of labor. The transcriptomes of both groups were evaluated using high throughput gene expression profiling using microarrays. Authors performed internal validation of selected findings using quantitative RT PCR.

This is a hypothesis generating study addressing an important problem which is well defined. Its main strength is a novel approach to a significant clinical problem allowing insight into molecular mechanism of labor dystocia. The methodology and analysis are sound and well established. The strengths of this study lie also in careful selection of the subjects and standardized method of management of their labor. The transcripts analysis was also performed in a structured manner previously validated.

Major Compulsory Revisions:

1. The main limitation of this study is a small number of samples analyzed. It is especially important in view of a very large number of comparisons made resulting in substantial false positive rate. This is a common problem in high throughput gene expression profiling. This weakness could be address by external validation. The methods section does not state if the results were deposited in one of data repositories. If they were, this would enhance contribution to knowledge on genomics of pregnancy labor and dystocia, allowing for metaanalysis of multiple studies and external validation of presented findings.

2. Other limitations of this study relate to sampling of myometrium. The methods section does not state if the decidua was included in the samples. This should be clarified to allow interpretation of the findings.

3. The lower segment samples have been shown to have a different transcriptomic profile than fundus of the uterus and thus the findings may represent a part of the mechanism of dystocia.

4. Additionally, samples of lower segment in labor dystocia and in the second stage of labor, after complete cervical dilatation and effacement occurred, may not be comparable. A discussion of those points would enhance the manuscript.

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

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:
I declare that I have no competing interests.