

# Cytokines expression patterns effect on endometrial repair and receptivity after hysteroscopic adhesiolysis

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## Aim

In a previous study, we reported that amnion promotes growth of endometrial cells through regulation of cytokines. The aim of this study is to explore expression patterns of various cytokines after hysteroscopic adhesiolysis and role of IL1B on endometrial repair and receptivity.

## Measures (continued)

After surgery, patient follow-up was done for a year. Uterine exudates were collected every day for seven days after surgery, and analyzed by enzyme-linked immunosorbent assays. Hierarchical cluster analysis was performed to compare expression patterns of each cytokine. Single-gene gene set enrichment analysis and differentially expressed genes enrichment analysis of IL1B were performed using NCBI GEO (N=151) to evaluate its potential mechanisms and impact on endometrial receptivity.

## Results

Compared to the control group, cytokine expression patterns of the amnion group revealed significant stratifications, which were highly correlated with the expression levels of IL1B on the sixth to seventh day after surgery, improving the pregnant rate.

**Figure 2:** Cytokine expression patterns and clinical outcomes.

## Results (continued)

Moreover, gene set enrichment analysis showed that lysosomes, cell cycle, and calcium signaling pathways were associated with the biological processes in which IL1B plays a role. Screening and enrichment analyses of differentially expressed genes further verified the mechanisms of action of IL1B on endometrial repair and receptivity recovery.

## Measures

A total of 30 patients were recruited in this clinical trial (NCT02496052) of hysteroscopic adhesiolysis. They were randomly allocated into an amnion grafts group (amnion group) and a control group. After hysteroscopic adhesiolysis, a Foley catheter covered with a sterilized freeze-dried amnion graft was inserted into the uterine cavity of the participants in the amnion group, whereas for the control group, a Foley catheter without amnion graft was inserted.

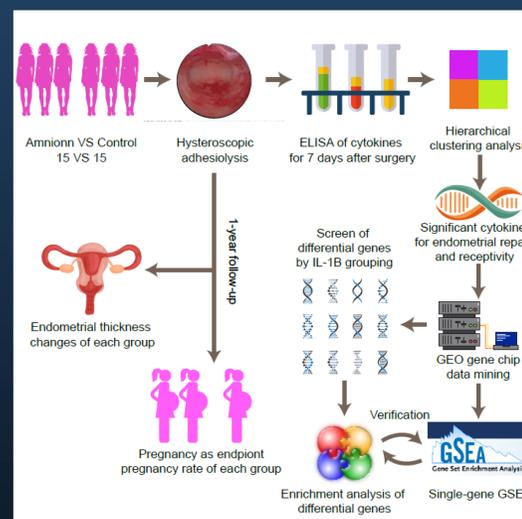
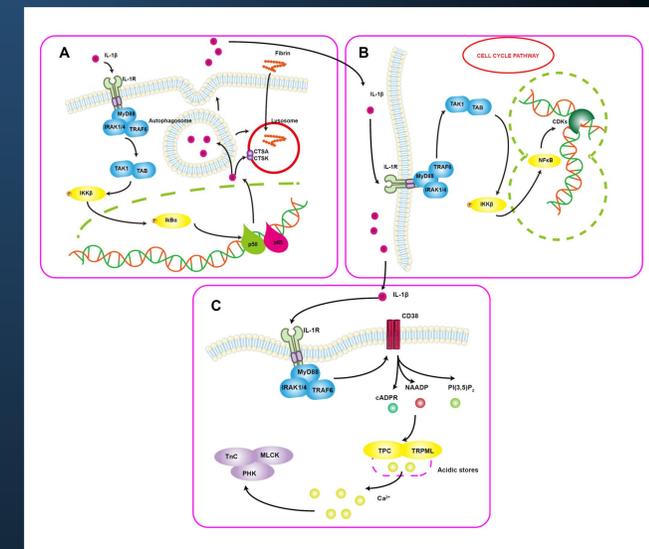
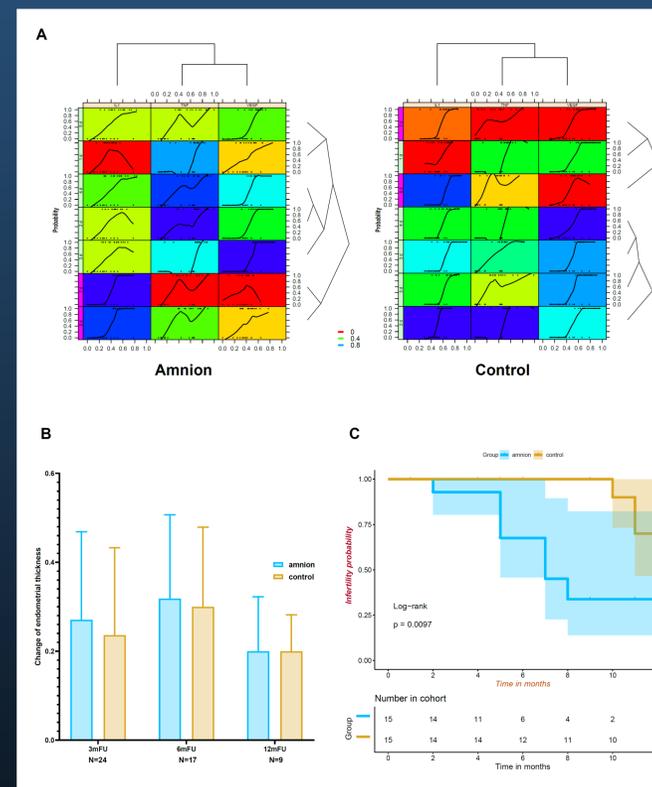


Figure 1: Flow diagram of the study design



## Discussion

Amnion promotes endometrial repair and receptivity by changing expression levels and pattern of cytokines, especially IL1B. Further, regulation of IL1B which affects lysosome, cell cycle, and calcium signaling pathways may lead to the corresponding clinical effects.

The study was approved by Research Ethics Committee of the Beijing Obstetrics and Gynecology Hospital. Experiments were performed (under protocol number 2017-KY-082-02) according to the Helsinki Declaration of 1975 (revised in 2008).

There is no competing interest and financial relationships