

## PO-14

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### **Paeoniflorin increases the adhesion of trophoblast to the endometrium by upregulating the expression of Integrin $\alpha\text{V}\beta 3$ and $\alpha\text{V}\beta 5$**

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Successful implantation requires uterine receptivity which is determined by diverse biological factors such as adhesion molecules, cytokines, growth factors, and receptors. In our previous study, water extract of *Paeonia lactiflora* enhanced embryo implantation in vitro and in vivo via induction of the leukemia inhibitory factor (LIF)-dependent expression of Integrin  $\alpha\text{V}\beta 3$  and  $\alpha\text{V}\beta 5$ . To investigate which one is the major component, we performed high-performance liquid chromatography (HPLC) analysis. Next, we tested these five compounds to confirm whether these single compounds enhance the adhesion of human trophectoderm-derived JAr cells to the endometrial Ishikawa cells. In addition, we checked the expression of adhesion molecules in mRNA and protein levels and performed *in vivo* study using the implantation failure model mice by treating RU-486. Paeoniflorin, the most abundant molecule among tested five major compounds of *P. lactiflora*, showed enhancing effect on cellular interaction between JAr and Ishikawa cells. Paeoniflorin increased the expression of Integrin  $\alpha\text{V}\beta 3$  and  $\alpha\text{V}\beta 5$  in LIF-dependent manner. Furthermore, *in vivo* study showed that paeoniflorin significantly improved the number of implantation embryos. Therefore, our results suggest that paeoniflorin, a major compound of *P. lactiflora*, is a potent agent for enhancing endometrial receptivity.

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