Objective. Evaluate the endometrium of infertile women exposed to stimulation cycles express integrin \(\alpha v \beta 3\) and its correlation with Mullerian inhibition substance (MIS) serum concentration.

Methods. We study 13 patients with implantation failure and determine MIS serum concentrations, also endometrium biopsy was performed in a Mock cycle at the implantation window (day 17). Integrin \(\alpha v \beta 3\) expression evaluated by immunohistochemistry. An index that results from the addition of the MIS concentration and the integrin percentage was developed as a marker to determine endometrial functionality.

Statistical Analysis. Rho-Spearman and Pearson-correlation were used to evaluate statistical significance (p < 0.05).

Results. Percentage of endometrial gland cell expressing integrin \(\alpha v \beta 3\) showed a wide variation that ranged from < 1% to 70% correlated to MIS. The number of patients that got pregnant was 3. One of them had low MIS values and low integrin \(\alpha v \beta 3\) expression but achieved pregnancy through egg donor; the remaining two patients had a high MIS value and low percentage of cell expressing integrin. When the above-mentioned results were evaluated as an index, that excludes the entire male factor, we observed that the patients that managed to get pregnant had a value below 20, and the differences between values amongst pregnant and non-pregnant women were statistically significant (p< 0.001).

Conclusion. Expression of peripheral blood MIS, and measurement of integrin mean that the patients who achieve pregnancy and had a lower MIS/integrin index suggest that the implantation process requires on top of a "healthy" endometrium an as yet unknown immunological an biochemical control mechanism, possibly regulated through TGF and the MAPK and ERK pathways.