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Integrins in the human endometrial cell lines, RL95-2 and AN3 CA.

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During the initial phase of embryo implantation the trophoblast has to attach to the apical plasma membrane of the uterine epithelium. However, little is known about the molecular features of uterine epithelial cells that allow trophoblast attachment to occur and that are presumably specifically gained at "receptivity".

Using an in vitro assay, we have recently identified human uterine epithelial cell lines that allow (RL95-2) or do not allow (AN3 CA) attachment of trophoblastic cells. We are now demonstrating differences in the integrin expression of these cell lines employing immunohistochemistry and Western blotting. Both, RL95-2 and AN3 CA showed expression of alpha 6, beta 1 and beta 4 integrin subunits. However, RL95-2 showed higher levels of integrin subunits than AN3 CA. With regard to the distribution of integrin subunits RL95-2 cells showed strong staining of lateral, basal and apical surface membranes whereas AN3 CA cells showed no staining of apical and basal surface membranes and only weak staining of lateral membranes. That is, in AN3 CA integrin subunits were localized predominantly within the cytoplasm rather than on surface membranes.

Further experiments will have to show whether alpha 6, beta 1 and beta 4 integrin subunits are functionally involved in the attachment of trophoblast to uterine epithelium in vitro and in vivo.