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Cell surface molecules of trophoblast cells involved in
adhesion of *Toxoplasma gondii*

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Toxoplasma gondii is an ubiquitous obligate intracellular protozoan parasite. When first-time infection of women occurs during pregnancy the parasite is often transmitted to the unborn with a high risk of fetal malformations. It is thought that the parasite is transferred hematogeneously to the placenta where it has to invade across the trophoblast epithelial lining of placental villi to finally reach the embryo. Although several molecules of *T. gondii* have been implicated to be involved in parasite-to-cell adhesion little is known about adhesion molecules of host cells and, specifically, about trophoblast molecules mediating adhesion of *T. gondii*. We have shown that *T. gondii* (BK-strain) can attach to and invade cultures of human trophoblast cells isolated from first trimester placentae, as well as malignant human trophoblast (BeWo, Jeg-3, and JAr choriocarcinoma cell lines). While *T. gondii* invaded into normal trophoblast and BeWo cells easily within 2 h, invasion of Jeg-3 and JAr cells appeared to lag behind by about an hour. In order to identify host tissue molecules involved in attachment, trophoblast or choriocarcinoma cell surfaces were biotinylated and extracted with detergent. Such extracts were then incubated for 2 h with suspensions of *T. gondii* (in PBS plus Ca²⁺/Mg²⁺) that had been fixed with 0.025% β glutaraldehyde. Biotinylated molecules binding to *T. gondii* were co-precipitated with the parasites and visualized after SDS-polyacrylamide gel electrophoresis and transferred onto Immobilon™ Q PVDF membranes using a streptavidin/alkaline phosphatase system. A variety of molecules was detected with no major differences between the different choriocarcinoma cell lines. A different pattern was observed in normal trophoblast cells with a prominent band appearing at approximately 110 kDa. These results imply that adhesion of *T. gondii* to trophoblast involves surface molecules that may in part be different in normal and malignant trophoblast cells. Further studies are being performed to identify these molecules.