PROJECT RESUME

Preeclampsia and intrauterine growth restriction are important complications of pregnancy for which the course of action is often elective preterm delivery. Abnormalities in trophoblast turnover of placental villi have been implicated in both conditions. Evidence suggests that, in association with placental pathologies, syncytiotrophoblast nuclei are aligned at the surface of the villi in arrangements called wave-like syncytial knots. Further evidence suggests that links may exist between these nuclear alignments and the control of trophoblast cell turnover. SUN-KASH proteins are nuclear-envelope bridges physically linking nuclei to the cytoskeleton and are required for nuclear organisation in a variety of cells where they also play a role in turnover and have been implicated in human diseases. This project aims to examine normal human placentas to describe the morphological characteristics and structural basis of nuclear organisation patterns in syncytiotrophoblast and study the presence and interaction of the SUN-KASH protein family with the syncytiotrophoblast cytoskeleton.