

Mother, fetus and placenta, this trio constitutes the functional equilibrium during the perinatal period. Shallow cytotrophoblast migration towards uterine spiral arterioles leads to inadequate vascular remodeling and a hypoperfused placenta, marking the first stage of preeclampsia. In anchoring villi, cytotrophoblast also fuse, they aggregate into columns of mononuclear cells that attach to and then invade the decidualized endometrium and the first third of the myometrium (interstitial invasion), as well as the associated portions of uterine (spiral) arterioles (endovascular invasion). The transformation of uterine spiral arteries leads to the creation of a low-resistance arterial network, facilitating a substantial increase in blood flow to meet the metabolic demands of the developing uteroplacental unit. Cell migration, including trophoblast invasion, relies significantly on adhering to extracellular matrix proteins for anchoring and traction.