

## Presence of erythrocytes in the villous trophoblast cell layer of normal first trimester and term human placentae

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### SUMMARY

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Light and electron microscopic examination of first-trimester and term human placental tissues were performed to identify erythrocytes containing hemoglobin in the villous trophoblast cell layer. Erythrocytes were not identified in chorionic villous epithelium at week 7 of gestation. These cells first appeared in the villous cytotrophoblast at week 8, and continued to be present in the villous cytotrophoblast until week 9, as shown by benzidine staining. At week 12 gestation, a cluster of erythrocytes was present in a villous syncytial sprout. At 40 and 41 weeks gestation, erythrocytes were located in the villous cytotrophoblast cell layer. Electron microscopic observations focused on the cytoplasm of villous cytotrophoblast at week 8, the syncytial sprout at week 12 and the cytotrophoblast cell layer at term, confirmed the presence of erythrocytes at an extravascular location, as observed by light microscopy.

### INTRODUCTION

In mammals as well as in humans, the earliest hematopoietic activity is indicated by the appearance of large nucleated erythroblasts in blood islands of the extraembryonic yolk sac wall. This observation set the basis for the idea that yolk sac could be a unique provider of hematopoietic stem cells, since yolk sac-derived stem cells migrate and seed the intraembryonic organs (Moore and Owen, 1967). This transient and protagonist role of the yolk sac is subsequently replaced by the fetal liver in a gradual yolk sac/fetal liver hematopoietic progenitor transition (Hann et al., 1983; Migliaccio et al., 1986). The identification of hematopoietic foci