

Abstract

Enzymic dispersion and density gradient separation were used for the isolation of enriched populations (60-90%) of cells from the corpus luteum, placenta and peripheral blood of pregnant sheep and goats. Analysis of the steroids produced from radioactive pregnenolone demonstrated that placental binucleate cells can produce progesterone and 5 beta-pregnanediol whereas white blood cells were relatively inactive. Thus, sheep binucleate cells converted pregnenolone predominantly to progesterone as did sheep luteal cells. However, goat binucleate cells produced 5 beta-pregnanediol as the major metabolite, which is consistent with its production in vivo during pregnancy. Production of progesterone (sheep) or 5 beta-pregnanediol (goat) by binucleate cells was shown to be proportional to the number and viability of the cells. In contrast with the binucleate cells there was no evidence that trophoblastic uninucleate cells play a significant role in placental progesterone or 5 beta-pregnanediol synthesis in either species