

197 HYSTRICOMORPH SUBPLACENTA: THE COMPARATIVE ASPECTS

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Placentae of four hystricomorph rodents – capybara (*Hydrochaerus hydrochaeris*), agouti (*Dasyprocta aguti*), paca (*Agouti paca*), and rock cavy (*Kerodon rupestris*) – were examined by conventional histology, transmission electron microscopy, and scanning electron microscopy. In all of these animals, the subplacenta comprised cytotrophoblasts, supported on lamellae of allantoic mesoderm, and syncytiotrophoblasts. The subplacenta of paca, agouti, and rock cavy had a structure similar to that of capybara, although it was not clearly separated from the main placenta by a layer of mesenchyme. The subplacenta of agouti was examined by conventional histology and found to have a structure similar to that in capybara and paca. The cytotrophoblasts were separated by true extracellular spaces; these cells were characterized by the presence of numerous mitochondria, a large-size nucleus relative to the cytoplasm, and absence of glycogen and lipid (PAS-negative). Also, the morphology of the syncytiotrophoblasts was similar in all of these animals; these cells were PAS-positive, and were characterized by the presence of numerous spherical electron-dense granules distributed throughout the cytoplasm, presence of large accumulations of glycogen, few mitochondria, golgi apparatus and granular ER. In addition, the syncytium contained lacunae lined by microvilli, observed only by transmission electron microscopy. The subplacenta is supplied by a single fetal artery. The vessels within the subplacenta pursue a tortuous course with dilatations and constrictions as in an endocrine gland. In mid-to-late gestation, the subplacenta is supplied largely by fetal vessels. A large branch of the umbilical artery follows the central band of fetal mesenchyme to the base of the main placenta and then branches to supply the subplacenta. The subplacental vessels pursue a tortuous course with dilatations and constrictions as in an endocrine gland such as the ovary. A few branches of the maternal artery supply the subplacenta, at least in capybara and paca, where they can be demonstrated by latex injection.

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198 DISTRIBUTION OF SPERMATOZOA AND COPULATORY PLUG IN RELATION TO THE TIME OF MATING AND OVULATION IN THE FEMALE TAMMAR WALLABY (*MACROPUS EUGENII*)

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In the monovular macropodid marsupial, the tamar wallaby (*Macropus eugenii*), the cervixes are the primary selective barrier to spermatozoa, resulting in differential transport to the non-gravid uterus where a sperm reservoir is established (Tyndale-Biscoe CH and Rodger JC 1978 J. Reprod. Fertil. 52, 37–43). However, due to limited sample size, the dynamics of sperm transport could not be thoroughly examined. In this study, the distribution of spermatozoa, the size of the copulatory plug in the reproductive tract at various times after mating, and the timing of ovulation were characterized in 28 naturally mated female tammars. After the first postpartum (p.p.) mating, adult females were isolated and their reproductive tracts dissected at 0.5, 6, 18, 36, and 40 h post-coitum (p.c.). Each tract was ligated into 13 major anatomical sections, and spermatozoa and eggs were recovered by flushing. Mating occurred 21.7 ± 2.5 h p.p. (mean \pm SEM; $n = 20$) in these animals that were checked frequently and lasted 7.8 ± 0.7 min ($n = 15$). Within 0.5 h after a single mating ($n = 5$) the tract contained $2.6 \pm 1.0 \times 10^7$ spermatozoa and 21.6 ± 8.8 g of copulatory plug, 96 and 70% of which was lost within 6 h p.c., respectively. Spermatozoa reached the uterus, isthmus, and ampulla of the oviduct ipsilateral to the developing follicle within 0.5, 6, and 18 h p.c. respectively, and a uterine population of $2.6 \pm 1.2 \times 10^4$ spermatozoa ($n = 24$) was maintained for over 40 h (ANOVA, $P > 0.05$). Sperm numbers were reduced at the cervix (up to 57-fold) and utero-tubule junction (8-fold), and only 1 in ~7600 ejaculated spermatozoa ($3.4 \pm 0.9 \times 10^3$; $n = 14$) reached the oviduct on the side of ovulation. Although sperm numbers were reduced in the gravid uterus ($n = 24$), differential transport of spermatozoa was not observed (ANOVA, $P > 0.05$). Ovulation and recovery of sperm-covered eggs from the isthmus of the oviduct occurred 36–41 h p.c. (49–72 h p.p.) ($n = 8$). Like many eutherian mammals, but in contrast to polyovular dasyurid and didelphid marsupials, the tamar ejaculates large numbers of spermatozoa, but transport is relatively inefficient and sperm storage in the tract before ovulation is limited.

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199 BASIC CHARACTERISTICS AND CRYOBANKING OF BARBARY SHEEP (*AMMOTRAGUS LERVIA*) SEMEN

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Barbary sheep (*Ammotragus lervia*) are considered vulnerable species by the World Conservation Union (IUCN). The purpose of this study was to describe the basic characteristics of fresh semen, test the efficacy of commercial extender Triladyl, and collect necessary data that may help