

Quantitative analysis of spermatogenesis in capuchin monkey (*Cebus apella*)

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The *Cebus apella* monkey is a neotropical primate commonly used in biomedical research, as well as a human model. However, there is a little information in the literature regarding *C. apella* spermatogenesis. Spermatogenesis is characterized by the proliferation of spermatogonial cells, recombination of the genetic information during meiosis, and spermiogenesis. Although the sequence of those events is almost the same among all mammals, the germ cell associations, the function between the germ cell and Sertoli cells, and the efficiency of spermatogenesis may vary in a species-specific manner. The objective of the present study is to quantify the spermatogenic stage system in *Cebus apella* by identifying the presence of human six-stage system in a non-human primate. Testes ($n = 6$) from 6 adults *C. apella* males were used. All testes were obtained from animals that came naturally to death at Centro Nacional de Primatas (Ananindeua-Pa). Each whole testis was submitted to histological analysis. The testes were fixed in formaldehyde 10% and sectioned serially at thickness of 5 μm . Each 10th section of testis tissue was mounted and stained with hematoxylin-eosin. All testes were characterized by the presence of more than one spermatogenic stage per tubular cross section and few tubules contained a single stage. Stages of the spermatogenesis in *C. apella* were investigated based on the human six-stage system, as follows: stage I, presence of spermatogonia, Sertoli cells, primary spermatocytes and beginning of spermatid nuclei elongation; stage II, beginning to the end of spermiation within presence of sperm; stage III, newly formed round spermatid; stage IV, presence of elongated spermatids; stage V, presence of spermatids bundles located close to the Sertoli cells; and stage VI, presence of spermatids bundles located close to the Sertoli cells nuclei. Sixty seminiferous tubules were analyzed. Tubules with many stages were seen including repetition of the same stage. Although the different stages could be recognized, the boundaries between the different stages could not be delineated precisely in all testes. Stage frequency (mean \pm SE) were 15,4 \pm 1,4% for stage I, 4,8 \pm 1,7% for stage II, 26,0 \pm 2,1% for stage III, 22,7 \pm 2,3% for stage IV, 16,3 \pm 2,7% for stage V, and 14,6 \pm 1,7% for stage VI. The results revealed that seminiferous tubular cross sections contained more than one spermatogenic stage and that the human six-stage system can be applied to capuchin monkey (*C. apella*) spermatogenesis.

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