cells which may be regarded as prospective tumor cells show, until the 90th day, but little proliferation, not exceeding that of the residual parenchyma, if there is no special growth stimulus. Yet if a growth stimulus is provided by partial hepatectomy, their proliferation becomes extraordinary (Figure 2).

The phase of inducible proliferation in the enzyme-deficient liver cell groups is followed by another characteristic period: Endogenous proliferation starts gradually in some enzyme-deficient areas even without an additional growth stimulus, while other areas of deficiency lag behind in this development. In some enzyme-deficient cell groups the labelling index rises above 40% the 100th to 120th day after start of DEN feeding, whereas it is only about 5% in other deficient areas. From the 120th to 130th day onwards the labelling indices rise more steeply (Figure 2).

Simultaneously with the rise of endogenous proliferation, the inducibility of DNA synthesis after partial hepatectomy is lost. On the 130th day, the labelling index of enzyme deficient areas, even after partial hepatectomy, is not significantly higher than without preceding liver resection. These findings suggest that in the course of carcinogenesis liver parenchymal cells become capable of endogenous proliferation in the same degree as they lose their dependence on higher, organ specific, homeostatic control mechanisms.

Transformation of a prospective tumor cell into an autonomous hepatoma cell would, in view of these findings, be completed only after a prolonged period of latency, when the cell has passed through the following phases: 1. Period of weakening of the activities of glucose-6-phosphatase and adenosine triphosphatase activity of acinocentral hepatocytes coincidently with loss of ability to proliferate even after organ specific stimulation of growth. 2. Period of complete loss of the activities of glucose-6-phosphatase and adenosine triphosphatase within circumscribed acinocentrally localized groups of hepatocytes, coincidently with return of ability to proliferate, but for almost all hepatocytes of the enzyme-deficient cell groups only after specific stimulation by partial hepatectomy. 3. Period of autonomous proliferation of these enzyme-deficient cells without an additional growth stimulus, accompanied by a loss of response to organ specific homeostatic control.

Zusammenfassung. Die Latenzperiode bis zum Auftreten Diaethylnitrosamin-induzierter Hepatome ist in 3 spezifische Perioden zu unterteilen: Hemmung der Leberzellproliferation; Enzymverlust mit gleichzeitiger Induzierbarkeit der Proliferation durch partielle Hepatektomie; autonome Proliferation mit Verlust der Stimulierbarkeit durch partielle Hepatektomie.

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Variation between Species in the Innervation of Intra-Testicular Blood Vessels

The innervation of the testicle in mammals is sparse, and considerable differences have been reported in its extent and distribution in a number of common laboratory species[1–7]. In particular, the occurrence of nerves to intra-testicular blood vessels and their pattern of distribution appears to be very variable[1,6,7], despite physiological evidence for the existence of nervous pathways which can affect the testicular circulation[8].

The intra-testicular sympathetic innervation of rats (Wistar strain), rabbits (Flemish Giants), guinea-pigs, cats and dogs has been examined by fluorescence microscopy. Testicles were obtained from 5 mature animals of each species after they had been anaesthetized with ether or Halothane, and transverse and longitudinal sections were prepared by the method of Falck and Owman[9] for the demonstration of catecholamine-containing nerve fibres.

Green-fluorescent, sometimes beaded nerve fibres were seen to form a moderately dense plexus around the main

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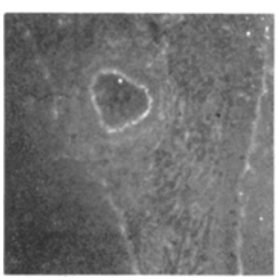

Fig. 1. Rat. Lack of fluorescent, sympathetic nerve plexus around major intratesticular artery. ×100.

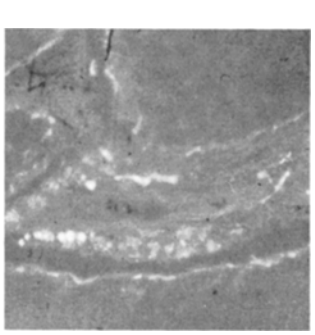

Fig. 2. Rabbit. Fluorescent nerve fibres forming a plexus around an artery deep in the testis. ×100.

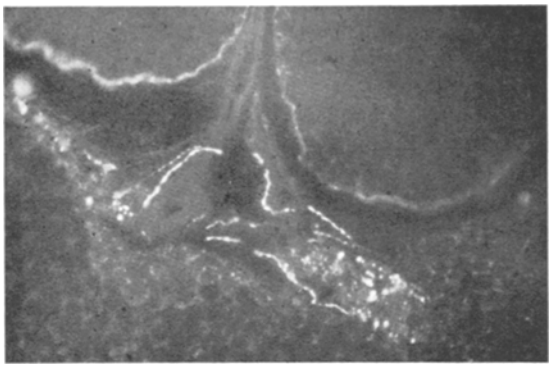

Fig. 3. Guinea-pig. Beaded fibres of perivascular nerve plexus adjacent to seminiferous tubules. ×100.

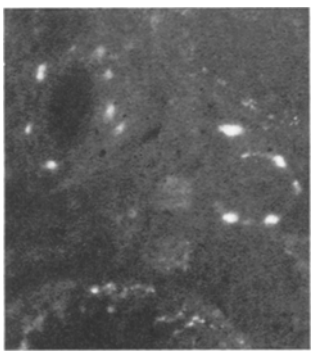

Fig. 4. Cat. Perivascular nerves are seen in 2 transverse sections of an intratesticular artery. ×100.

testicular artery in all the species, and a similar, less dense plexus was present around its major branches in the tunica albuginea and mediastinum testis. In the rats such fibres were not found on even the largest arterial branches distal to the hilum of the testicle. In the other animals brightly fluorescent fibres were present around major branches of this vessel, and also formed a loose network around larger arterioles throughout the body of the testicle. In no species were nerves seen ending in relation to interstitial cells or within semiferous tubules.

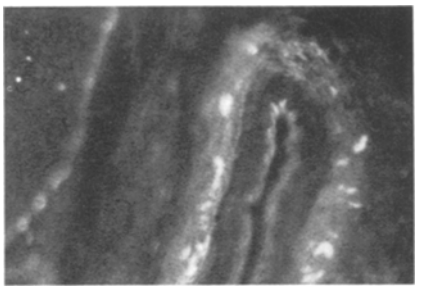

Fig. 5. Dog. Brightly fluorescent nerve fibres of perivascular plexus within the testis. ×100.

The greatest density of innervation of small distal vessels was seen in dogs and cats, but perivascular nerves were readily apparent in the rabbits and guinea-pigs.

The present observation agrees with those of Norberg et al.[6] on the rat and cat, but differ in showing some innervation of distal vessels in the rabbit, guinea-pig and dog. The significance is unknown of this inter-species variations but it may be related to some of the complex circulatory mechanisms which exist for regulating the temperature and blood supply of intra-scrotal testicles, the maintenance of which is necessary for normal spermatogenesis[8]. Possibly in accord with this hypothesis are the observations of impairment of spermatogenesis in some species after ablation of the lumbar sympathetic nerves[10–12].

Zusammenfassung. Mittels Fluoreszenzmikroskopie wird die adrenergische Innervation der Hodenblutgefässe bei Kaninchen, Meerschweinchen, Hunden und Katzen untersucht. Es wurden auffallende Speciesunterschiede gefunden.

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Un nouveau système polymorphe robertsonien chez une nouvelle espèce de «Leggada» (*Mus goundae* Petter)

Aux environs de N'Délé en République Centrafricaine, le Dr F. Petter a capturé quatre Leggadas dont une ♀ portante, qui donna naissance à deux petits. Ces 6 Leggadas, que leur apparence seule permettait de distinguer de toutes les autres Souris africaines, sera décrite par le Dr Petter sous le nom de *M. goundae*. L'analyse cytologique confirme l'indépendance spécifique de ces *Mus* et révèle l'existence d'un nouveau système polymorphe robertsonien.

Chez *M. goundae*, j'ai observé quatre types de formules chromosomiques $2N = 16$, 17, 18 ou 19 avec un *N.F.* très bas constamment égal à 30 (Figures 1–4). Si $2N = 16$ représente le plus petit nombre diploïde observé et concevable dans ce groupe, tous les chromosomes étant métacentriques (MC) à l'exception d'une paire, la sixième par ordre de taille, il n'est pas exclu de supposer l'existence de nombres chromosomiques supérieurs à 19, chaque MC étant l'équivalent de deux acrocentriques (AC).

L'étude de la meïose chez deux ♂♂, l'un doté de 18 chromosomes, l'autre de 17, permet d'identifier à la métaphase I le complexe sexuel résultant de l'association de deux submétacentriques (SM), dont l'un, l'*X* (I.C. = 0,33) mesure de 2,2 à 3,8 µm et l'autre, l'*Y* de 1,5 à 2,0 µm (I.C. = 0,25); les mesures de longueur varient d'un caryogramme à l'autre en fonction du stade de la division et de la qualité de la fixation, c'est pourquoi je donne les deux valeurs extrêmes que j'ai établies.

Les 3 premières paires d'autosomes sont identiques chez les quatre formes observées: la paire I est constituée de deux MC de même que la paire III (l'alignement des