Myofibroblasts vs. smooth muscle cells - peritubular contractile cells in the testis of the dog

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Contractile cells in peritubular tissue of the mammalian testis are supposed to contribute to the initial transport of spermatozoa from testis to epididymis. These cells are usually referred to as myoid cells without further classification. However, in some species such as cattle and humans, they have been termed myofibroblasts (Böck et al. 1972; Wrobel et al. 1979; Hees et al. 1989). The aim of this study was to assess the distribution of peritubular contractile cells in the canine testis by immunohistochemistry and transmission electron microscopy and to classify them with respect to their possible physiologic function. The complete tubular system of the canine testis, including seminiferous tubules, rete channels, efferent ducts and ductus epididymidis, is surrounded by contractile cells expressing smooth muscle actin, smooth muscle myosin and desmin. Contractile cells of seminiferous tubules and efferent ducts represent smooth muscle cell (SMC)/myofibroblast intermediates with different morphology, but both showing structural characteristics of SMC (e.g. spindle shape and nucleus with smooth surface) as well as of myofibroblasts (e.g. incomplete basement membrane). Contractile cells surrounding rete channels represent typical stellate myofibroblasts with incomplete basement membrane, stress fibres and lobated nucleus, those of the ductus epididymidis spindle-shaped SMC with complete basement membrane, spindle-shaped nucleus and uniformly distributed microfilaments. Differences in structure and arrangement of these peritubular contractile cells suggest different functions. Myofibroblasts and contractile cells similar to them, which surround seminiferous tubules, rete channels and efferent ducts, are probably mainly responsible for maintenance of an appropriate tissue turgor, whereas contraction of SMC of the ductus epididymidis might cause true peristaltic movement and therefore propulsion of spermatozoa. Experimental studies with isolated tubular segments would be helpful to prove this hypothesis.

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Ultrastructural analysis in human gingival fibroblasts after exposure to hema

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Polymerized resin-based dental materials can release monomers from their matrix due to an incomplete polymerization or degradation processes. Released monomers can diffuse in the oral cavity and induce adverse effects to biological tissues. Although there are many data about the effects of lethal concentrations of resin monomers, a few studies have been conducted to investigate morphological modifications of cells exposed to sub lethal concentrations of dental monomers.

The aim of this study is to analyze ultrastructural modifications in human gingival fibroblasts exposed to a sub lethal concentration of HEMA and to analyze the influence of dental monomers on the expression of the protein procollagen $\alpha 1$ type I. A primary culture of gingival fibroblasts were exposed to 3 mM HEMA for 24 h, 72 h, 96 h. Morphological investigations were performed by scanning electron microscopy and transmission electron microscopy, while an immunostaining for fluorescence microscopy was carried out to visualize the protein procollagen $\alpha 1$ type I.

A strong modification in cell morphology from a fibroblastic shape to a round shape due to HEMA treatment was demonstrated by scanning electron microscopy. These results correlate with the transmission electron microscopy data which showed

deep changes in the cytoplasm after 72 h and 96 h. Immunofluorescence demonstrated an high signal of procollagen α1 type I around nucleus. This localization and the intensity of the signal decreased with the treatment and are in agreement with our molecular biology data which demonstrated a decrease of procollagen α1 type I both in its synthesis and expression.

These findings suggest that the sub-lethal concentration of HEMA tested has toxic effects on gingival fibroblasts which are generally underestimated by standard cell viability assays. A combination approach of morphological and immunolabeling methods could provide more valuable information about the toxic effect of resin monomers.

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Meat efficiency and interior Simmental and Red-Motley Swedish bovines at fattening of low concentrates dilts in conditions of intensive agriculture

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The purpose of this work is studying of degree of display of a genotype of meat efficiency Simmental and Red-Motley Swedish bovines at limited use and absence of concentrates with introduction in their diet of the high-energy and vegetative forages prepared on special technologies. On the basis of complex experimental investigations the "know now" of a high quality beef is proved by use of genetic potential zoned import breeds on low concentrate diet in a condition of intensive breeding. Dynamism of changes and level methobolises in farding bag and in blood of animals is shown during all cycle of final fattening (180 days) at replacements in diets of grain forages by other vegetative components. The theoretical substantiation of preservation of high meat efficiency is given at rational use of grain forages that in comparative aspect is a theoretical basis at development of a work cycle intensive fattening of bovines on meat from partial and full indemnification forage fodder the forages prepared from Lucerne, Corpo and Sunflower, economic efficiency fattening of Simmental and Red-Motley Swedish bovines is determined. Real opportunities of decrease in the change of grain forages on the fattening final period (225-450 kg on one animal) are revealed.

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Feature of growth, development, meat efficiency of boviness Simmental and Limusin beeds and their hybrids

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The purpose of work was the comparative estimation of economic-useful attributes of bovines Simmental and Limusin breeds and their hybrids. For achievement of this purpose the following tasks have been put: to determine actual consumption of forages on the period of growing of experimental animals, to study frature of growth and development thoroughbred and hybreed bovines up to 18 monthly age, to investigate hematological parameters of young growth of genotypes, to estimate meat efficiency of bovines, qualities of meat in view of efficiency of conversion of nutrients of a forage in food efficiency, to establish optimum age of realization of bovines on meat on the basis of parameters of meat efficiency and qualitative