

Brush-like cells within bronchial epithelia of chicken lung (*Gallus gallus*)

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Abstract of:

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Summary: The secondary and primary (mesobronchus) bronchi of chicken lung are lined by a typical respiratory epithelium: pseudostratified columnar ciliated with goblet cells. Up to date, four constituting epithelial cell types have been identified: ciliated, mucosecretory, basal and endocrine cells. In this study a putative new epithelial cell type, the brush-like cell, is described. The avian brush-like cells have only been found in

the bronchial epithelia but never in the gas-exchange areas. They are scattered among the other epithelial cells, mainly ciliated cells, and their number is extremely low. The characteristic morphological feature of these cells is an apical protruding cytoplasm with microvilli. This cell type is similar to that found in the lung of some mammalian and non-mammalian species. The functional role of these cells is not yet clear; they could carry out absorptive processes.

Key words: Brush-like cells, Bronchi, Lung, Chicken.

Treatment of experimental brucellosis with gentamicin entrapped in liposomal and microsphere formulations

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Abstract: The intracellular localization of *Brucella* species renders treatment difficult, since most antibiotics known to be efficient *in vitro* do not actively pass through cellular membranes. Hence, suitable delivery systems, such as liposomes or biodegradable, microparticles, should be developed to reach these intracellular sites. Here, we describe preparation methods for liposome formulations potentially useful for efficient treatment of brucellosis. Gentamicin sulfate was incorporated into positively charged and

stable plurilamellar vesicles. *In vitro*, the formulations eliminated completely the intracellular *Brucella* in infected monocytes. *In vivo*, these gentamicin loaded cationic liposomes produced a protective effect when administered in mice one day after lethal challenge with *B. abortus*. Further, gentamicin sulfate was microencapsulated into poly (lactic acid) (PLA) and its copolymers with glycolic acid (PLGA). *In vitro*, this particulate delivery system activated monocytes. In conclusion, our results suggest that gentamicin sulfate microencapsulated into PLA/PLGA microspheres prepared by spray-drying may be an appropriate delivery system for the treatment of *Brucella* infections.

Mechanical analysis of healing of different types of fractures. Experimental study in sheep

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Abstract: Under standard conditions the left tibia was osteotomized in nine sheep. The osteotomy was transverse in six, and oblique in three. The osteotomies were fixated using a strain-gauge-monitored unilateral external fixator. The fixation was rigid in three sheep with a transverse osteotomy (group 1)

and also in three with an oblique osteotomy (group 2). The fixation was dynamic in three sheep with a transverse osteotomy (group 3) using a roller-bearing mechanism allowing 1mm of axial displacement. The bone callus stiffness increased progressively with time. One month after osteotomy the load force through the fixator in groups 1 and 2 was more than 20%, whereas the equivalent load force in group 3 was only about 5%.