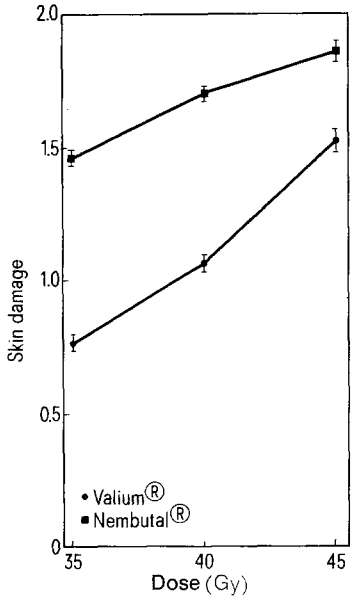

The effect of Valium® anaesthesia on the radiation induced skin damage as compared to the Nembutal® anaesthesia. Skin damage: average skin reaction over 22 days ± SEM. The radiation dose is expressed in gray: 1 gray (Gy) = 100 rad.

effect rather than a main cause of the radioprotection. The radioprotective action of Valium could also be attributed to other indirect physiological changes which ultimately may alter the tissue oxygenation. It is generally accepted that a reduction of oxygen supply diminishes the radiosensitivity of a tissue. In several pharmacological studies involving different animal species it has been shown that Valium potentially decreases the oxygen supply of the tissues by lowering the arterial blood pressure[12-14], by decreasing the heart frequency[13] or by depressing the respiration[15].

But analogous findings are also known to be produced by Nembutal, which as a potent cardiodepressor in mice, for example, causes a fall in blood pressure to about 50% of the resting value[11].

Since neither the hypothermia nor the potentially decreased oxygen supply seems to be an unequivocal cause of the radioprotective effect, a direct action on the irradiated cells of the skin cannot be excluded and is therefore suggested.

In the case of a selective action on normal tissues, the Valium-induced radioprotection would be of clinical interest in certain radiotherapeutical procedures. Further investigation, especially on malignant tissues, is necessary before any conclusion concerning clinical application can be made.

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Caveolated cells observed in the duodenal glands of the white-tailed deer

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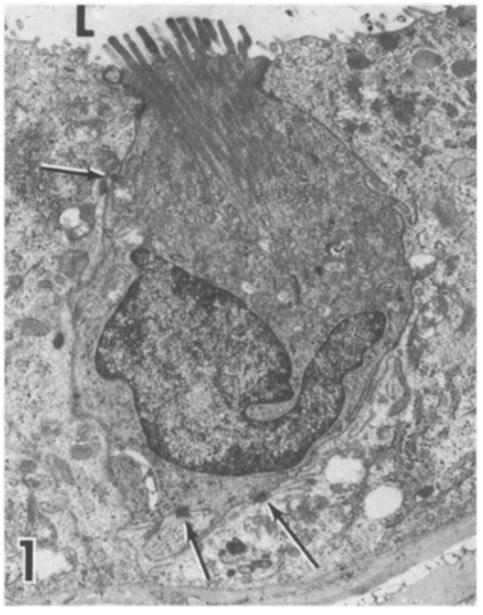
Summary. This study reports the presence of caveolated cells in the duodenal glands of the white-tailed deer. Caveolated cells have not been observed previously in the duodenal glands of other species studied to date.

Although widely distributed the caveolated cell is thought to be limited to derivatives of the entoderm. They are not numerous and are reported to make up less than 1.0% of the epithelial cells in the intestinal glands of the descending colon[1]. Caveolated cells have been observed in the mucosa of the small intestine[2] and colon[3] of the mouse and in the gastric mucosa of man, dog[4], and the opossum[5]. Caveolated cells also have been reported in the epithelium lining the bile duct and gall bladder[6,7] as well as in the trachea[8] and alveoli of the lung[9].

Materials and methods. Portions of the proximal duodenum of 5 white-tailed deer *(Odocoileus virginianus)* were taken for study. All animals were from the central Missouri area and all appeared healthy and free of disease. Tissues were fixed for 4 h at 0 °C in 3.5% glutaraldehyde buffered in 0.1 M phosphate to a pH of 7.4. They were washed in buffer, osmicated in 1.0% osmium tetroxide at 0 °C for 2 h, passed through propylene oxide, infiltrated with and embedded in Epon 812. Thin sections of this material were cut, mounted on uncoated grids and stained with uranyl acetate and lead citrate. The sections were examined in a Phillips 300 electron microscope operated at 60 kV.

Results and discussion. Caveolated cells were observed scattered with the epithelium of the duodenal glands of the white-tailed deer. The cells appear pear-shaped, exhibit a narrow apex that protruded slightly into the lumen and have a wide base (figure 1). Like the remainder of epithelial cells comprising the duodenal glands, they are limited basally by a delicate basal lamina. The apex is held in close apposition to neighboring epithelial cells by tight junctions and desmosomes are found along the lateral cell membranes. The caveolated cells exhibit longer microvilli than adjacent epithelial cells and their cytoplasm is characterized by bundles of filaments that extend from the core of



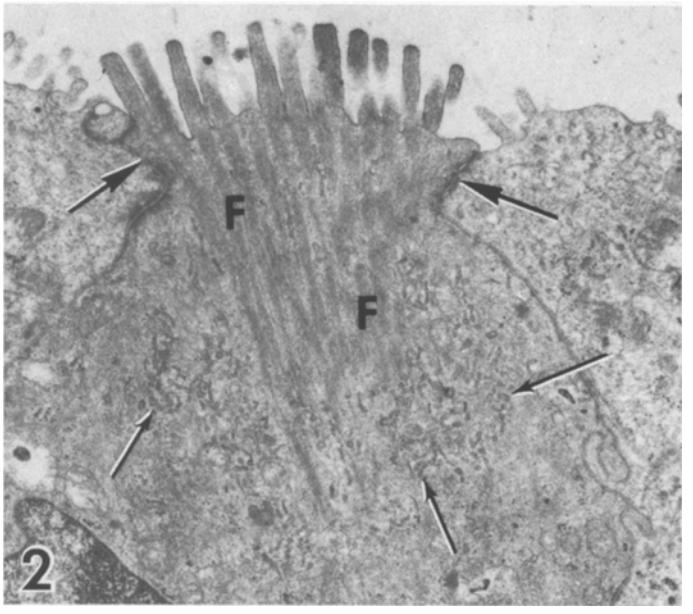


Fig. 1. A caveolated cell taken from the duodenal glands of a white-tailed deer. Note the general pear-shape of this cell type with the narrow apex bordering the lumen (L) of the gland. Scattered desmosomes (arrows) are observed along the lateral cell membranes. × 4000.

Fig. 2. Increased magnification of the apex illustrates bundles of filaments (F) extending from the microvilli and the tight junctions (large arrows) between cells. The caveolae are observed as small tubules and vesicles (small arrows). × 8000.

each microvillus to deep within the supranuclear region (figures 1 and 2). The caveolae appear as small vesicles and/or small irregular tubules coursing through the supranuclear cytoplasm (figure 2). They are, in fact, long tortuous channels that extend from the apical cell membrane between microvilli to deep within the cytoplasm.

The caveolated cells observed in the duodenal glands of the white-tailed deer appear very similar to those reported previously in a variety of entodermal derivatives. Although this cell type has been reported in the mucosa of the stomach, small intestine and colon of a variety of species, it has not been observed previously in the duodenal glands. The caveolated cells of the duodenal glands were observed only infrequently as reported in other regions of the gastrointestinal tract. The function of this unusual cell type is unknown, but it has been suggested that it may function as a chemoreceptor in the respiratory system[8].

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Rosette formation of tumor cells with concanavalin A treated erythrocytes

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Summary. Trypsinized human erythrocytes were incubated with concanavalin A at 4 °C. After removal of free concanavalin A, the erythrocytes were incubated with Ehrlich ascites tumor cells at 37 °C. The erythrocytes formed rosettes with the tumor cells.

It has become apparent that erythrocytes could be useful as carriers of drugs and other biologically active agents[1-3]. We have reported the effectiveness of daunomycin entrapped erythrocytes against mouse L_{1210} leukemic cells[3]. It is clear, however, that the effectiveness of drug entrapped erythrocytes specifically against tumor cells will demand targeting of the erythrocytes to tumor cells.

Concanavalin A (Con A) preferentially agglutinates Ehrlich ascites tumor cells, rather than other tumor cells[4]. Human erythrocytes are usually not agglutinated by Con A but trypsinized erythrocytes are highly agglutinated. Con A-mediated cell agglutination is temperature dependent. We studied the rosette formation of trypsinized and Con A treated erythrocytes with Ehrlich tumor cells.