In this presentation the results of the co-operation between the School of Arts and the Faculty of Veterinary Medicine to develop a haptic interface to practice rectal examination will be shown.

The goal of the project was to develop a device that can be used between the classes of our regular course of topographical anatomy and the rectal examination in the clinical phase of the veterinary school teaching program. The major learning goal was to achieve the 3D orientation in the cow. The result is the Sensa cow which has wax elements with sensors. After evaluation it appears that Sensa is very useful in learning the first 3D orientation in the cow.

DIFFERENCES IN SKIN COMPONENTS INSIDE REPTILIAN AND AMPHIBIAN GROUPS

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Reptiles and amphibians became increasingly popular pets. In recent years the knowledge on medicine of these animals is improving; however there is a gap between general knowledge on morphology and detailed studies of certain organs on selected species. Comparative study of integument of conventionally kept species, dissected at student practical work was performed. Both reptiles and amphibians demonstrate skin shedding or slough and commonly histology slides show the upper, shedding layer of skin.

While amphibians in terrestrial phase show slightly more prominent keratinisation, the skin is very thin. In dermis there are prominent poison (serous) and mucous glands, and secreting Leydig cells are occasionally encountered in epidermis. While axolotl was not known to posses toxic or irritating skin secretion, we found prominent poison glands. Buffonidae are supposed to have poison glands concentrated on warts. We did find numerous poison glands also on other parts of the body but the size of them increased from abdomen through legs and was greatest at warts on dorsum. In Ranidae the size of poison and mucous glands was approximately the same. In aquatic species Leydig cells were more numerous.

While snakes have similar strength and distribution of scales, in lizards seemingly the skin toughness varies a lot. However, the epidermis on flank skin (excluding ornamental scales) was only twice as thick in green iguana (or tortoise red-eared slider) compared to leopard chamelon, tocke gecko and leopard gecko. The main difference is in dermis. Geckos are colloquially known as scaleless lizards, nevertheless, typical overlaps and hinges were also found.

The black and white subcutaneous glandsî that students found on the neck region in tocke gecko and Rana frog turned out to be at least in part lymphatic tissue.

EPIDERMAL SHEETS - PREPARATION, QUALITY CONTROL, IMUNOHISTOCHEMISTRY AND VISUALISATION BY CONFOCAL MICROSCOPY

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Epidermal sheets are often used for studies regarding exclusively the outer skin layer. They can be prepared with inorganic salt solutions or enzymes and used subsequently e.g. for tissue culture and immunohistochemistry. The aim of this study was to test selected methods for preparation of epidermal sheets and to assess conservation of histological structure, stainability including immunohistochemical staining and the possibility of visualisation of staining results by confocal microscopy. Punch necropsy samples (diameter 3 mm) of shaven neck skin of an eight days old piglet euthanised for another study were taken and stored in a moist chamber at 4°C before processing. Epidermal sheet preparation was attempted after incubation with 2 M CaCl2 solution (20 min, 37°C), with 20 mmol/l EDTA-solution (3 hours, 37°C), or with 0.1% trypsin solution (30-120 min, 37°C). Whole mount immunohistochemistry and/or nuclear staining with DAPI was performed without permeabilisation of the sheets, after permeabilisation with chilled acetone, or after permeabilisation with 0.1% Triton X-100. Staining results were visualised using a laser scanning confocal microscope. For quality control, selected samples were embedded in paraffin and epoxy resin for light and electron microscopy, respectively. The easiest and least time consuming method for epidermal sheet preparation was incubation in a CaCl2 solution. The epidermis was firm enough to handle and peeled of the corium without difficulties, including epithelial root sheaths of hairs. Preparation of epidermal sheets with trypsin was unsuccessful, even after prolonged incubation. Only a 0.5†mm margin of the epidermis could be detached from corium, both corium and epidermis were very brittle. CaCl2 as well as EDTA sheets stained well without differences regarding different pretreatment methods. Morphology of epithelium and corium was conserved satisfyingly in all samples. Interestingly, basement membrane material (laminin, PAS-positive material) could be found on both epithelium and corium, indicating a splitting of the membrane itself during preparation. Connective tissue did never remain on epidermal sheets. If the basement membrane was split incompletely during preparation, basal epithelial cells remained on the surface of corium. Confocal microscopy could be used successfully to visualise individual cell layers of the epidermal sheets. However, epithelial root sheaths of hairs caused a wavy appearance of the epidermis and impaired the assessment of e.g. cell numbers and stratification. In conclusion, skin epidermis can be easily detached from corium after incubation in a CaCl2 solution. Whole mount immunohistochemical staining as well as routine histology and staining of sections are possible without disruption of the sheets. For hairy skin removal of root sheaths from the epidermis should be attempted for confocal microscopy.

CONFOCAL MICROSCOPY – A TOOL TO STUDY 7TM RECEPTOR CHIMERAS OF GHRELIN RECEPTOR WITH GABAB RECEPTOR TAIL-SWAP

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Seven transmembrane receptors (7TM-Rs) also designated as G protein-coupled receptors (GPCRs), were traditionally thought