(MP), between the longitudinal and circular muscle, and the submucosal plexus (SP) associated with the mucosal epithelium. Both plexuses are composed of ganglia (contain neurons and glial cells) and interconnecting nerve fibre strands, which consist of the axons of myenteric neurons, the axons of extrinsic neurons that project to the gut wall and glial cells. Over the last decades, several studies dealing with the ENS of different species have revealed that the architecture of the enteric plexuses is more complex in larger animals, including man, than in small animals. The MP forms a continuous network that is continuous around the circumference and extends from the upper oesophagus to the anal sphincter. Its texture and ganglionic density show regional differences in the same individual, and differences between species. The submucous plexus exhibits a limited number of neurons in the oesophagus and gastric compartments, with a more complex intramural structural organization in the ruminant forestomach, and a continuous plexus in the intestine, that is situated on one plane in small animals, and multilayered and functionally distinct in large animals.

GI neurons release a plethora of substances that are chemically different but only partially have been identified functionally.

Combined morphological, electrophysiological, pharmacological, neurochemical and retrograde labelling, has led to identification of GI neurons into different functional classes, i.e., sensory neurons, interneurons, excitatory and inhibitory motor neurons. These neurons are interconnected by chemical synapses into intrinsic neuronal circuits that generate functional reflexes: they are partly independent of the central nervous system (CNS). In the intestine reflex functions arise even if the segment has been isolated from the body.

FLOURESCENT IMMUNOCYTOCHEMISTRY – A METHOD FOR STUDYING GENE EXPRESSION IN A MOUSE BRAIN

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Fluorescent microscopy techniques are excellent tool for studying cell identity and micro-circuitry in the brain. We are using Steroidogenic factor 1 knockout mice (SF-1 KO) and mice expressing GFP under the influence of SF-1 promotor as models to study neuroendocrine brain development. In the SF-1 KO mice, a very specific disorganization of the ventromedial hypothalamic nucleus (VMH) occurs, with all other parts of the brain being intact.

For studying gene expression in the mouse brain, immunocytochemistry on free-floating sections is used. To obtain brain tissue, mice are perfused with 0.05M PBS and 4% paraformaldehyde. 50?m thick coronal brain sections are cut on an Integraslice vibrotome (Campden instruments) and further processed for immunocytochemistry. For the present study, primary antibodies against calbindin D-28k raised in mouse, estrogen receptor alpha and green fluorescent protein both raised in rabbits, were used. For fluorescent detection of bound antibodies, sections were incubated with secondary antibodies conjugated with Cy2 or Cy3 fluorophores. Bound Cy2 and Cy3 flourophores were visualized under specified excitation wavelengths using confocal microscope. Primary mouse and rabbit antibodies (anti GFP/anti calbindin, anti ERalpha/anti calbindin) were used simultaneously while labelling of GFP/ER alpha coexpressing cells was performed by sequential incubation with each antibodies.

Immunocytochemistry with all three antibodies produced a strong fluorescent signal. Examination of sequential sections revealed that calbindin and ER-alpha are expressed in the same cells both in WT and SF-1 KO mice, even though the location of these cells is altered in SF-1 KO mice, while GFP cells (SF-1 expressing cells) do not co-express either ER-alpha or calbindin.

THE INFLUENCE THROUGH FEEDING ON THE FAT PADS IN THE BOVINE DIGITAL CUSHION

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The effect of an intensive respectively extensive feed on the fat content and the fatty acid profile of the bovine digital cushion was tested by examining the claws of 32 feedlot animals. In addition, it was examined if, respectively how the fatty acid profiles can affect the claw health. Samples from subcutaneous adipose tissue and the claws of 9 cows served as comparison. Furthermore, the microscopic structure of the fat pads was analyzed and the results were compared with those from previous studies.

The fat pads as well as the subcutaneous adipose tissue showed obvious differences in the fat content and the fatty acid profile between the two different feeding-groups. The fat pads of the intensive fed animals contained a lot less fat and noticeable more omega-6-fatty acids, above all Linoleic and Arachidonic acid. In addition, these animals showed the highest proportion of Eicosapentaenoic acid (EPA) and Docosahexapentaenoic acid (DHA), two omega-3-fatty acids. The extensive fed animals contained more omega-3-fatty acids, mainly α- Linoleic acid. Also the subcutaneous adipose tissue of the intensive fed animals showed a much higher proportion of omega-6-fatty acids, whereas the extensive fed group had a higher proportion of omega-3-fatty acids. The differences in the fatty acid profile are for sure due to the different composition of the feeds.

The claws of the intensive fed animals showed post mortem a significant better claw health than the extensive fed group.

THE SENSA COW, A HAPTIC MODEL FOR RECTAL EXPLORATION TO BRIDGE THE GAP BETWEEN ANATOMY AND CLINICAL WORK: PRESENTATION OF THE WORK OF THE COWBOYS EMMA PROJECT GROUP

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