

**B 13**

**SORBIN AND ITS C-TERMINAL DECAPEPTIDE INCREASE WATER, Na AND Cl ABSORPTION IN CATS AND RATS.** D. Pansu, M. Vagne, H. Guignard, and A. Chikh-Issa, Unité 45 INSERM Hôpital E. Herriot 69374 Lyon France.

Sorbin, (MW 17.5kD) is a peptide isolated from porcine small intestine and recently sequenced. In the cat sorbin administered IV at the dose of 5 to 25  $\mu\text{mol}\cdot\text{Kg}^{-1}\cdot\text{h}^{-1}$  increased water, Na and Cl absorption during NaCl (155 mM) luminal perfusion of duodenum and jejunum. In the rat sorbin induced the absorption of 25% of the lml test solutions (NaCl 80mM, Mannitol 136 mM) instilled in the ligated duodenal loop when intravenously perfused at the dose of 25  $\mu\text{mol}\cdot 100\text{ g}^{-1}\cdot\text{h}^{-1}$ . The induced absorption is equivalent to that observed with 9 nmol metenkephalinamid. The synthesized C-terminal amidated heptapeptide increased water, Na and Cl absorption at the dose of 50  $\mu\text{mol}\cdot 100\text{ g}^{-1}\cdot\text{h}^{-1}$  in the rat and represents the minimal active sequence. The synthesized C-terminal amidated decapeptide induced the same increase of absorption as the extracted sorbin in the rat and could be considered as the minimal sequence for full activity. The action is not related with a vasoactive change because sorbin increases also water absorption in the isolated guinea pig gallbladder.

**B 15**

**LUMINAL MUCUS LAYER AS THE DIFFUSION BARRIER IN RAT COLON.** T. Sakata and W. v. Engelhardt Yakult Central Inst, Kunitachi and Dept. of Physiology, Hannover Veterinary School, Hannover.

Mammalian colonic surface is coated with a luminal mucus layer. The influence of this layer on net disappearance rates of water, Na, K, Cl and short chain fatty acids was studied by a single perfusion technique with the simultaneous enzymic degradation of the mucus. Hyaluronidase (200 U/ml) suppressed the net appearance of water in the proximal colon, but increased the net disappearances of water and above mentioned solutes except for K by approximately 50%. Pepsin decreased the net disappearance of Na and the net appearance of Cl and increased the net appearance of K in the proximal colon. In the distal colon pepsin treatment increased the net disappearance of water. Above results suggest that the luminal mucus layer functions as a diffusion barrier in mammalian colon.

**B 14**

**DISTRIBUTION OF CARBONIC ANHYDRASE IN PORCINE GENITAL EPITHELIA.** H. Rodriguez-Martinez, E. Ekstedt, Å. Jansson, Y. Ridderstråle \* and L. Plöen. Depts of Anatomy and Histology and of Animal Physiology\*, Swedish Univ. of Agricultural Sciences, S-750 07 Uppsala, Sweden.

Carbonic anhydrase (CA) is important in the generation of acid and alkaline secretions by tissues throughout the mammalian body. Here, the surface epithelia of male and female genital tracts in pigs were studied for localization of CA activity using a postembedding cobalt precipitation technique. Substantial membrane bound enzymatic activity was found in the principal cells of the cauda epididymidis and in the secretory cells of the utero-tubal junction and isthmus region of the oviduct in the female during oestrus. These regions of the pig genitalia are considered as natural sperm reservoirs. This particular enzymatic localization suggests that CA might provide a suitable intraluminal microenvironment that ensures the survival of viable spermatozoa prior to ejaculation and ovulation in the pig.

**B 16**

**STRUCTURE AND FUNCTION OF THE INTESTINAL VILLI IN THE SEAWATER EEL.** V. Simonneaux, W. Humbert, R. Kirsch. Lab. Zoologie, 12 r de l'Université, 67000 Strasbourg, France.

The gut of the marine teleosts is essential to compensate the water deficit in hypoosmotic regulation. The intestinal surface is increased by epithelial folds which form numerous high and narrow serosal compartments. These villies contain lymphocytes, fibrocytes, collagen fibers, smooth muscle fibers, blood capillaries with a fenestrated endothelium sometimes closely in contact with the basal lamina. Distribution of  $\text{Na}^+$ ,  $\text{Cl}^-$  and  $\text{K}^+$  was recorded from basal to apical part of the villies with ion-selective microelectrodes.  $\text{Na}^+$  and  $\text{Cl}^-$  activities at the tip of the villies were 15% less than in the basal serosal fluid, and  $\text{K}^+$  activities 120% higher. These results are strengthened by parallel observations with X-ray microanalyses on freeze-dried tissues concerning  $\text{Cl}^-$  and  $\text{K}^+$ . The villous columnar epithelium lies on a thick basal lamina. The apical part of the enterocytes is typical with microvillies and a mitochondria-rich cytoplasm, the basal membrane shows infoldings in close association with densely packed mitochondria. These observations are discussed as a possible result of an efficient hypoosmotic water absorption linked to basolateral ion recycling in the enterocytes.