the fluorescing properties of the reacting mast cells. According to BARTER and PEARSE[7], a similar golden-yellow fluorescence, after formalin fixation, is exhibited by enterochromaffin cells, the physiological cellular source of 5-hydroxytryptamine as well as by a gelatin model of 5-hydroxytryptamine *in vitro*. BENDITT and WONG[8] found that the lack of fluorescence of normal mast cells can be ascribed to a 5-hydroxytryptamine content lower than the minimum required for the histochemical visibility of 5-hydroxytryptamine.

As the results are in good agreement with those obtained in the mouse[5], they must undoubtedly be regarded as being of more general significance.

Zusammenfassung. Beschreibung der Mastzellenreaktion während der chemisch-induzierten Carcinogenese bei der Eidechse *Lacerta agilis*.

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Localized Areas of High Alkaline Phosphatase Activity in the Endothelium of Arteries in the Axolotl

Activity of phosphatases in the alkaline pH range has been known for a long time in the adventitia of medium-sized arterioles, in the endothelium of blood vessels and in the endothelium of capillaries[1,2], whereas differences in the activity of this enzyme were observed in capillaries of various organs. BARROWS and CHOW[3], LEHNINGER[4], and ZWEIFACH[5] could demonstrate no specific localization of alkaline phosphatase activity in the vascular tree. An intense alkaline phosphatase activity was observed by ROMANUL and BANNISTER[6] in the endothelium of arterioles and small arteries of rat, rabbit and human at their origin from larger vessels; we personally obtained corresponding results with the axolotl *Ambystoma mexicanum*.

The experiments were carried out in skeletal muscles, and also the skin, the spinal cord and the mesentery were surveyed. Fresh-frozen specimens were sectioned in the cryostat and placed in substrate solutions for the demonstration of the alkaline phosphatase activity. As in the rat, rabbit and human[6], two methods were used, *viz.* a modified coupling azo dye method at pH 9.5, using α-naphthyl phosphate and blue *BBN*[7], and that of Gomori with the substrate solution at pH 9.0[1]. The sections were afterwards fixed, counterstained and mounted in 50% polyvinyl pyrrolidone.

The endothelium of the larger arteries showed no alkaline phosphatase activity. The primary branches of such arteries demonstrated moderately intense phosphatase activity, starting abruptly at the point of origin and fading gradually distally. The activity of the secondary branches, which stained identically at the point of origin, continued for a greater length distally, and was more intense. The small arterioles also stained abruptly and intensely at the origin and continued staining with lesser intensity throughout the course, whereas the capillaries appeared to stain with even intensity. The staining at the point of branching of the arterioles started earlier during the incubation of the tissue section and was usually more intense than in the capillaries. In many arterial branchings, the enzymatic activity was restricted to the endothelium, the circular muscular layer being clearly visible around it. In several such branchings the lumen of the arterial branch, as well as the outside diameter of the branch were decreased over the most proximal portion of the vessel near its origin, the endothelial cells bulging inside the lumen of the blood vessel. In the endothelium of arteries at y-shaped bifurcations, no staining was observed, even when their side branches originating proximally showed an intense staining of the endothelium. No staining was observed at the point of branching of veins. The findings in the vascular tree with the azo dye method and with the Gomori technique were identical. The high alkaline phosphatase activity in the endothelium of the arterioles and the arteries at the point of origin from larger blood vessels, if present *in vivo*, may indicate some active transport functions at such points. According to ROMANUL and BANNISTER[6] transport of chemical from the blood stream through the endothelium at these locations in the vascular tree is most unlikely to serve the purpose of supply to tissues surrounding the arteries. It seems more likely that such transport through the endothelium at these sites might serve as a system for sampling continuously the chemical content of the blood for purpose of regulation of the lumen of the artery.

As these results obtained in the axolotl correspond very well with the results obtained in the rat, rabbit and human[6], a general significance may be attached to them.

Zusammenfassung. Es werden lokalisierte Regionen von grosser alkalischer Phosphataseaktivität im Endothelium der Arterien beim Axolotl beschrieben.

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