by the administration of radiolabeled 3-MC and TCDD. A third possibility is that some skates may already have been partially induced by pollutants in the water and partial induction may have blocked response to other inducers.

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PRELIMINARY STUDIES OF BILE SECRETION IN THE ISOLATED PERFUSED LIVER OF THE SMALL SKATE, *Raja erinacea*

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Previous studies in the free-swimming small skate indicate that this species may be a useful model for the study of bile secretion and the hepatic uptake and excretion of organic anions (Bulletin, MDIBL, 1973). In the present report we describe our initial attempt to study these processes under more controlled conditions in the isolated perfused skate liver.

The gills of anesthetized 1 Kg skates were perfused with cold sea water while the common duct and portal vein collaterals were ligated and the gall-bladder cannulated with PE 260 tubing. A portal vein cannula was inserted (PE 260) which led from a reservoir containing Elasmobranch Ringers, pH 7.6 (Forster and Goldstein, Comp. Biochem. Physiol. 424: 3-12, 1972), that was oxygenated with 100 percent O_2.

After cutting away hepatic and portal vein attachments the liver was rapidly removed and placed on a perforated petri dish. Perfusion pressure was regulated by adjusting the level of the perfusate reservoir and the hepatic effluent was returned to the reservoir by means of a peristaltic pump. Twenty studies were carried out at ambient temperature (22-25°C).

Both perfusate flow and bile secretion were linearly related to the height of the portal vein pressure over a range from 1 to 10 cm of H_2O. Organ perfusion and bile secretion were negligible at portal vein pressures below 1 cm. At 4 cm, perfusion flow rates averaged 0.4 ml per min per g liver while bile secretion averaged 4.8 µl per hr per g liver, a value that approximated flow rates reached previously *in vivo*. Bile plasma ratios of ^{3}H-inulin averaged 0.83±.23 in 6 studies in contrast to *in vivo* studies where inulin ratios averaged .37±0.1, suggesting that the permeability of the junctions between cells was increased in the livers perfused at ambient temperatures. However, electronmicroscopic examination indicated that the junctions between the intercellular spaces and bile canaliculi exhibit widened terminal junctions and zona adherens both before and after four hours of perfusion (Doyle and Boyer, MDIBL, 1974). When 10 µCi ^{35}S-BSP were added to the perfusate together with 0.35 mg of unlabelled BSP, 71 to 88 percent of the organic anion was taken up by the liver at the end of four hours although at that time no more than 0.5 percent was excreted into bile.

These studies indicate that the isolated skate liver forms bile in proportion to the level of portal vein pressure when perfused at 22-25°C, presumably by hydrostatic filtration through patent intercellular junctions. Hepatic uptake of organic anions occurs although biliary secretion is minimal by four hours. Further studies of bile secretory function in the isolated perfused skate liver are indicated where perfusate and organ temperature can also be controlled.