1964 #1

BROMINATION OF FLUORESCEINS BY THE UTERUS OF THE DOGFISH

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It has been reported that various phthalein dyes are brominated by the pregnant dogfish uterus in vivo. We have also shown that fluorescein was readily brominated to eosin, thus the sulfonic acid moiety could be replaced by the carboxylic group without adverse effect. The following bromofluoresceins were found to be brominated to eosin 48 hours after instillation in the uterus: 4-bromo, 2,4-dibromo, 2,7-dibromo, 4,5-dibromo, 2,4,5-tribromo, and 2,4,7-tribromofluorescein. After intrauterine administration of fluorescein, various bromofluoresceins could be recovered in 6, 12, and 24 hours and after 48 hours only eosin could be recovered, implicating a stepwise bromination. The role of the bromination system in the physiology of the dogfish is obscure and is being further investigated.

1964 #2

TRANSPORT OF ORGANIC DYES BY THE ISOLATED CHOROID PLEXUS OF ELASMOBRANCHII

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Recent observations have shown that isolated dogfish choroid plexus moved chlorphenol red an organic acid dye from an external artificial salt medium, representing the CSF, across the choroidal epithelial cells into the capillary lumen in a manner consistent with an active transport process (Rall and Sheldon, Biochemical Pharmacology, 1961, 11, 169). We have shown that fragments of choroid plexus (1 mm square) from dogfish pups (also lemon sharks, N. brevirostris) when placed into a dogfish or shark ringers media containing chlorphenol red also transported the dye into the capillary lumen. Various organic acidic and basic dyes were used in experiments with isolated fragments from adult dogfish choroid plexus (S. acanthias). The table below reports that acidic dyes such as phenol red, chlorphenol red, bromcresol green, indigo carmine and the basic dye neutral red were concentrated in the capillary lumen. On the other hand, both bromphenol blue and bromcresol green were taken up both by the cells and the lumen. Also both these dyes were taken up in the presence of 2,4-Dinitrophenol (DNP) whereas DNP inhibited the uptake of phenol red, chlorphenol red, bromcresol purple, and indigo carmine. The basic dye neutral red seemed to be taken up in the presence of DNP. These experiments are similar to those reported for dye uptake by the isolated proximal tubule of the flounder kidney (Forster and Hong, J. Cell. Comp. Physiol., 1958, 51, 259).