Aucune différence significative n'apparait dans les valeurs des flux entrant ou sortant pour les deux conditions expérimentales étudiées. Il faut remarquer toutefois qu'à l'effet du CO_2 peut se superposer un deuxième effet du au changement de pH de l'eau des aquariums, qui n'était pas tamponnée. Le pH passe de 7,9 à 6,5 sous l'effet du CO_2. Seul le renouvellement de ces expériences en milieu tamponné permettra de préciser s'il y a un lien direct entre les flux entrant de sodium et le CO_2 dissout dans le milieu ambiant. Notons qué à pH 7,9,l'eau de l'aquarium contenait 0,03 mM de CO_2 et 2,47 mM de HCO_3^-, tandis qu'à un pH de 6,5 ces valeurs étaient respectivement de 2 mM et de 4,4 mM. Des autres experiences avec des concentrations variables de CO_2 ensolutions tamponnées sont en progrès. Nous remercions Mr. P. Lahitette pour sa collaboration technique.

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AQUEOUS HUMOR FORMATION IN FISH: THE ROLE OF Na-K ATPase IN THE *Squalus acanthias* EYE

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Aqueous humor formation in mammals is dependent upon active sodium transport across the ciliary processes. Na-K ATPase has been demonstrated in the mammalian ciliary body, and multiple attempts have been made to inhibit aqueous formation with the cardiac glycosides which directly inhibit this enzyme. Little is known about the site or mechanism of formation of fish aqueous humor. We have studied the anatomy of both teleost and elasmobranch ciliary bodies, and measured Na-K ATPase in various portions of the *Squalus acanthias* eye in an attempt to localize the site of aqueous formation.

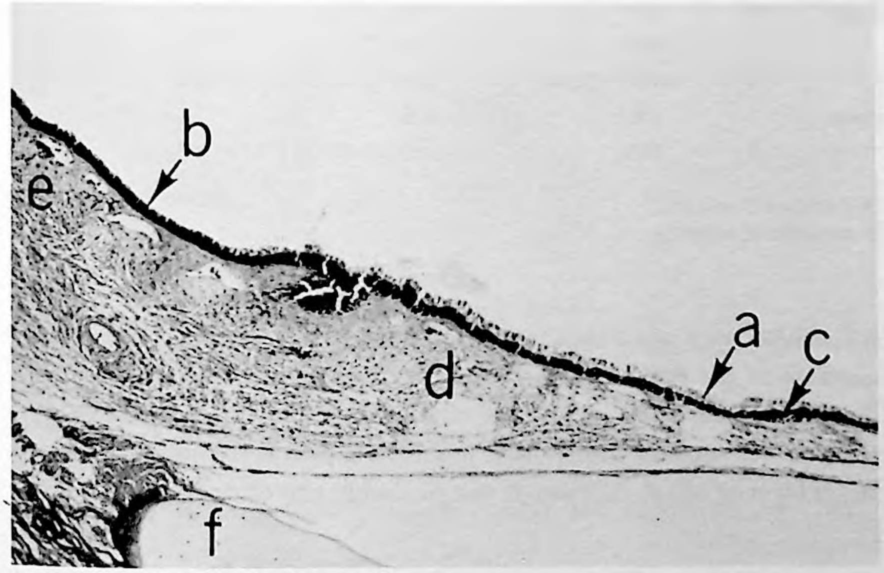

Figure 1: A low power view of the *Squalus* ciliary body and iris showing the transition from nonpigmented ciliary epithelium (a) in the ciliary zone to pigmented epithelium (b), on the back of the iris. (c) ciliary body pigment epithelium (d) ciliary stroma with abundant blood vessels (e) root of the iris (f) cartilage separated from overlying stroma. (Hematoxylin and eosin, x40).

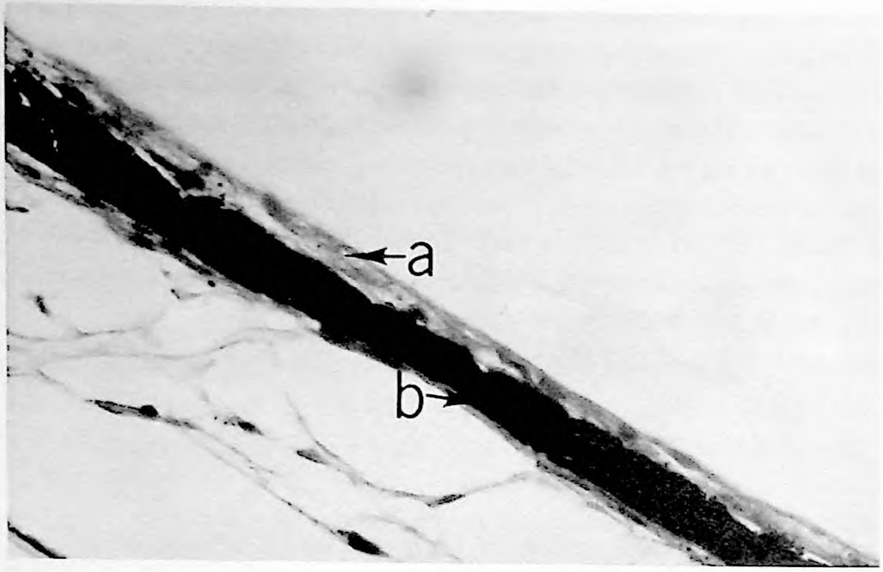

Figure 2: The ciliary zone of the marine teleost *(Hemitripterus americanus)*. (a) non-pigmented ciliary epithelium (b) ciliary body pigment epithelium. (Hematoxylin and eosin, x400)

Histopathologic examination (Figure 1) showed the *Squalus* to have a clearly demarcated ciliary body consisting of an inner non-pigmented epithelium that was continuous with neural retina and an outer pigment epithelium. There was a variable amount of underlying stroma. The teleost ciliary body (Figure 2 was much less apparent macroscopically, but again a non-pigmented epithelium and pigment epithelium were present.

Table 1

Na-K ATPase in the Eye and Brain of the Spiny Dogfish
(μ moles Pi per mg. of protein per hour)

Tissue	N	Na-K ATPase*	Mg ATPase*
ciliary body	6	2.3 ± 0.5	4.0 ± 1.1
iris	4	<0.5	4.5 ± 2.1
retina	5	10.7 ± 1.8	11.7 ±1.6
lens capsule	1	<0.5	3.8
brain	1	12.8	19.0

*mean ± standard deviation
N equals number of animals

Table 1 shows the Na-K ATPase activity of various tissues of the *Squalus* eye and brain. The retina had a high activity, comparable to the fish brain and other nervous tissues that have been studied. The lens capsule and iris had little activity, while the ciliary body showed a considerable amount. These data suggest that if active sodium transport is involved in fish aqueous formation, the ciliary epithelium, with its high level of Na-K ATPase, is the probable site of transport.