In vitro Expression and Pharmacology of the 5-HT7-like Receptor Present in Tracheolar Cells and Hindgut-associated Nerves of the Mosquito *Aedes aegypti*

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A 5-hydroxytryptamine receptor (*Aedes* 5-HT7-like receptor) gene was cloned from adult *Aedes aegypti*. For functional expression of the *Aedes* 5-HT7-like receptor, CHO-K1 cells were stably transfected with a receptor expression construct, pC5-HT7. The *Aedes*5-HT7-like receptor positively coupled to Gs protein, increasing intracellular cAMP in response to 5-HT; adenylyl cyclase activity was induced in a concentration-dependent, saturable manner. Only 5-HT , but not octopamine, dopamine or tyramine, caused the induction of adenylyl cyclase activity. At 10 nM of 5-HT a weak synergism was observed between octopamine and 5-HT. Other known agonists of the mammalian 5-HT7 receptor were tested to show their potency in the order of 5-HT >> 5-CT = 8-OH-DPAT >> Pimozide. This is the first report on the functional expression of a mosquito neurohormone receptor.