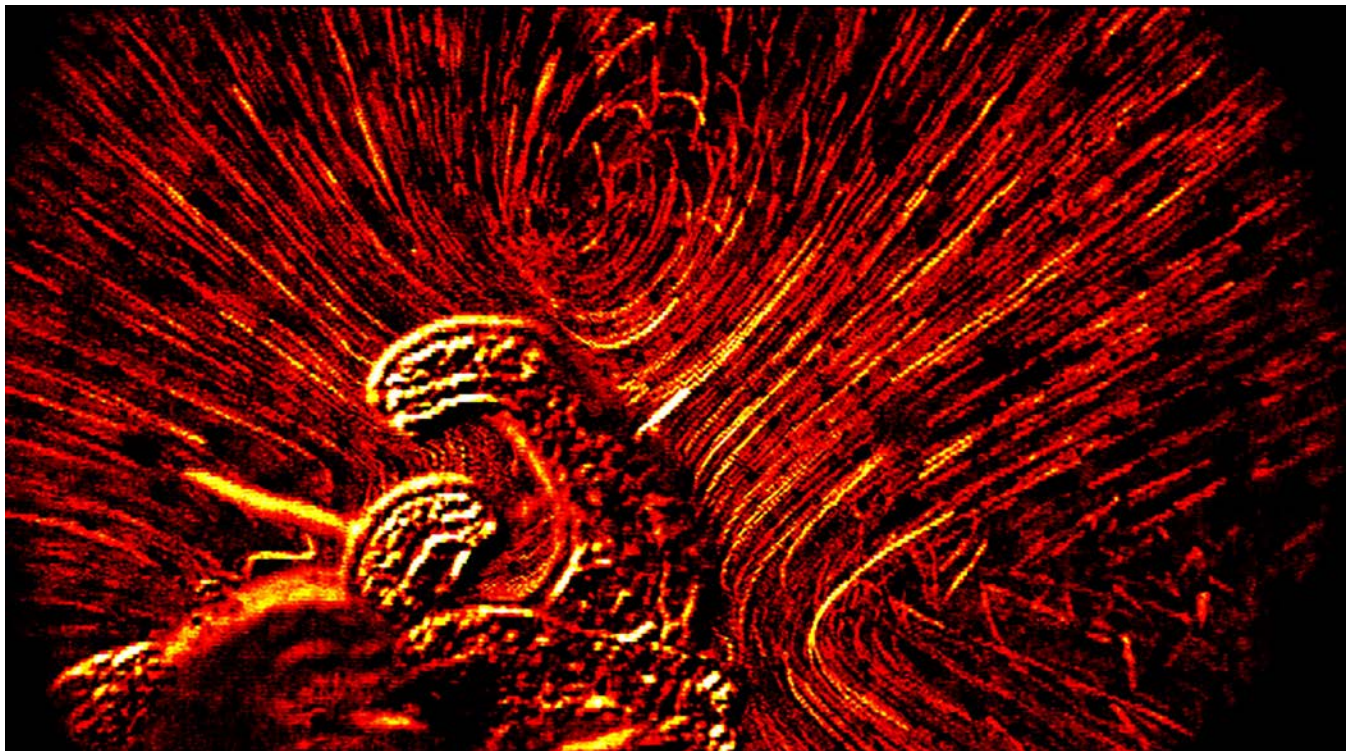


BOBTAIL SQUID



LIGHT ORGAN



BACKGROUND INFORMATION

The Hawaiian bobtail squid, a walnut-sized relative of the octopus, can be found in the shallow coastline waters of the Hawaiian island of Oahu. Juvenile bobtail squid filter luminescent bacteria from seawater into an internal pouch called the light organ. Amazingly, only one type of bacteria, typically bioluminescent *Aliivibrio fischeri* (formerly *Vibrio fischeri*) is able to stay in a developing light organ; all other species are washed back out into the ocean. Once established in the fully developed light organ, bacteria emit a blue light that matches the moonlight entering the ocean, rendering the squid virtually invisible to predators from below—a phenomenon called counterillumination. Thus, the light provides camouflage to squid hunting at night at the ocean surface. The relationship between squid and bacteria is a classic example of symbiosis: the squid provide the bacteria with food and shelter, and the bacteria provide a luminous glow that conceals the squid from predators and prey. Understanding the biology of squid-bacteria symbiosis can provide insights into other symbiotic relationships.