

Special MCB Seminar



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TITLE: Old dogs teaching us old tricks: Alkaline phosphatase modulation of Lipid A signaling in the squid/ *Vibrio* symbiosis.

ABSTRACT: Lipopolysaccharide (LPS), a potent antigen, can act as a signal promoting beneficial host-bacterial interactions. Hosts therefore have to utilize LPS as a signal while ameliorating its potential for causing inflammation. We explored the role of host-derived alkaline phosphatases in transforming the lipid A moiety of symbiont LPS into a form that changes its signaling properties to host tissues using the *Euprymna scolopes/Vibrio fischeri* (squid/*Vibrio*) symbiosis. We obtained full-length open-reading frames for two host alkaline phosphatase (AP) mRNAs (*esap1* and *esap2*). Transcript levels suggested that the dominant light-organ isoform is EsAP1. Levels of total EsAP activity increased with symbiosis, but only after the lipid A-dependent morphogenetic induction at 12 h, and were regulated over the day-night cycle. Inhibition of total EsAP activity impaired normal colonization and persistence by the symbiont. EsAP activity localized to the internal regions of the symbiotic juvenile light organ, including the lumina of the crypt spaces where the symbiont resides. These data provide evidence that EsAPs change the signaling properties of bacterial products and thereby promote persistent colonization by the mutualistic symbiont.

Weds 9th December

SSC 3317

3-4pm

All are welcome

(Dr. Rader is the external examiner for the PhD defense of Mike Toh, December 10th 9am)