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***In vitro* assessments of the molecular response of *Cancer pagurus* haemocytes to infection with the dinoflagellate parasite *Hematodinium* sp. using quantitative real-time PCR**

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Pink crab disease (PCD), caused by the dinoflagellate parasite *Hematodinium* sp., is an economically damaging and fatal disease affecting a number of commercially important crustacean species globally. In the UK, *Hematodinium* has been identified in *Nephrops norvegicus* populations from the Clyde Sea and has recently been found in English Channel populations of *Cancer pagurus*. The parasite is known to reduce fecundity, cause metabolic disruption and reduce locomotor activity of the host. Mortality is generally associated with a significant decrease in circulating haemocyte numbers; however, to date, pathological investigations have indicated little or no immune response of crustaceans to the presence of the *Hematodinium* parasite.

In a previous *in vitro* study exposing *C. pagurus* granulocyte or hyalinocyte primary cultures to *Hematodinium* sp., haemocyte viability and gross morphology remained similar in both experimental and control cultures. Data are now presented on changes in gene expression of immune-related and differentially expressed genes in haemocyte cultures using quantitative real-time PCR. Total RNA was extracted from each culture and examined for variations in prophenoloxidase expression as well as other genes identified using a technique of differential display (GeneFishing™, Biogene).

These studies will further our understanding of immune mechanisms used during parasite invasion within this system and contribute to our knowledge of molecular host/parasite interactions. Continuing studies are quantifying the *in vivo* expression of homologous genes in wild populations of *N. norvegicus* from the Clyde Sea with varying intensities of *Hematodinium* sp. infection.

Keywords: *Hematodinium*, *Cancer pagurus*, immune function, qPCR