Bivalve transmissible neoplasia in *Macoma balthica* clams: immune-based susceptibility to neoplastic cells uptake and BTN development

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Bivalves transmissible neoplasia (BTN) is a form of disseminated neoplasia (DN) of haemocytic origin, distinguished by the ability of neoplastic cells (NCs) to migrate between individuals of a single species by horizontal transfer and able to develop tumorigenesis in healthy individuals, eventually leading to their death. It affects marine organisms of great ecological and economic importance, including *Macoma balthica*. Currently, the knowledge about pathophysiology as well as etiology of the disease is scarce, and thus remains the area of intensive research. Environmental factors may potentially be involved in an increase of susceptibility of individuals to invasion of neoplastic cells. Chemical pollution of anthropogenic origin as well as drastic shifts in seawater parameters have been ascribed with immunomodulatory potential in bivalves. Yet, no direct link between environmental disturbances and development as well as spread of BTN has been established. Thus, we hypothesize that bivalves exposed to immunosuppressive factors are more susceptible to NCs uptake and BTN development. Here, we present preliminary results of a new experimental approach conducted to assess susceptibility of *M. balthica* clams to horizontal transmission of neoplastic cells in the presence of immunosuppressive drug - dexamethasone (DEX). The experiment featured exposure of *M. balthica* individuals to DEX followed by inoculation with neoplastic cells. Histological analyses revealed presence of NCs within exposed and inoculated clams. In addition, transcriptomic analyses of tissue RNA isolated from highly diseased individuals are expected to exhibit alterations in expression of genes associated with immunocompetence.