乳鐵蛋白抗白點症病毒作用機制之研究

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摘 要

蝦類白點症病毒（white spot syndrome virus, WSSV）是養殖蝦重要的病原之一，到目前為止尚無有效的方法可治療此病毒所引起的疾病。乳鐵蛋白（Lactoferrin, Lf）為一種多功能性醣蛋白，具有免疫調節和提升防禦機制的作用，以抵抗細菌、真菌、病毒的感染。本實驗室先前的研究中指出牛乳鐵蛋白（bovine Lactoferrin, bLf）處理可提高蝦類對WSSV的抗性；本論文利用苜蓿夜蛾核多角體病毒（Autographa californica multiple nuclear polyhedrosis virus, AcMNPV）於秋行軍蟲（Spodoptera frugiperda, Sf9）細胞進行的體外研究中顯示，牛乳鐵蛋白也會干擾AcMNPV對Sf9細胞的感染。免疫螢光分析顯示，在經牛乳鐵蛋白處理的Sf9細胞以及蝦血球細胞均可在其核內和細胞表面偵測到牛乳鐵蛋白的存在；基因表現分析顯示牛乳鐵蛋白處理會誘導蝦體內一些免疫相關的基因表現增加；免疫電子顯微鏡、遠西方墨點法(Far-Western blot)和共免疫沉澱分析，牛乳鐵蛋白也會與白點症病毒顆粒表面直接結合，而其結合的對象可能為套膜（envelope）蛋白質VP28。本研究之結果推論，牛乳鐵蛋白抗白點症病毒感染作用可能具多重的機制包括（一）經由牛乳鐵蛋白進到細胞內進而促進免疫基因的表現，（二）與病毒競爭細胞表面受體或與病毒結合有關的細胞表面多醣體，以及（三）直接包覆白點症病毒顆粒進而干擾病毒辨識與結合至細胞等。

關鍵詞 : 白點症病毒、乳鐵蛋白、蝦類、抗病毒作用

目錄

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