吳郭魚第一型及第三型肝細胞核因子於繁殖系統之調控研究

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摘 要

吳郭魚為淡水養殖魚類中最普遍之魚種，且其具成長快速及抗病力強之特性，故為魚類養殖相關研究之重要模式魚種。而肝細胞核因子(hepatocyte nuclear factors, HNFs)為富含於肝臟中之轉錄因子，其能活化組織專一性之基因表現，並與胚胎之生長與發育極具相關性。而本研究室先前於吳郭魚之性腺發現肝細胞核因子之存在，且其表現可受固醇類荷爾蒙所調控，因此推測吳郭魚之繁殖系統可能存在另一異於傳統之內分泌路徑。為探討吳郭魚肝細胞核因子於繁殖系統之調控作用，本研究以性成熟之吳郭魚性腺進行體外(in vitro)試驗，先將性腺以未添加固醇類荷爾蒙之培養液預培養6小時後，續分別添加0, 0.1, 1, 10, 100及1000 nM等6組不同濃度之β-estradiol及hydrocortisone再培養6小時，經抽取其total RNA進行反轉錄?-聚合?連鎖反應(reverse transcriptase-polymerase chain reaction, RT-PCR)後以半定量(semi-quantitative)方式分析HNFs於各組之表現，另以添加類固醇後0, 6, 12, 18, 24, 30及36 h等7組時間點做相同之分析。結果顯示，HNF1-α及-β之表現並未受前述兩者固醇類荷爾蒙之影響，但HNF-3β之表現量則與荷爾蒙劑量呈正相關之趨勢，且以β-estradiol作用較佳，其最佳作用濃度為10 nM，並於作用12 h後HNF-3β之表現量可達至高原期。另以免疫組織化學法(immunohistochemistry)偵測1周、2周及1月齡之吳郭仔稚魚體內肝細胞核因子之表現，結果顯示，於所觀察之不同年齡之魚體內皆可偵測HNF-1α、-1β及-3β在肝臟及其他消化道上皮組織中表現。由上述之結果証實，吳郭魚性腺中之HNF-3β表現可受固醇類荷爾蒙所調控，並可能參與性腺之發育及配子生成，而HNFs是否於幼魚階段即對其生長及發育有所影響，仍需試驗證實之。

關鍵詞 : 吳郭魚 ; 性腺 ; 肝細胞核因子 ; 固醇類荷爾蒙

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