利用體內轉錄之短鏈髮夾式核糖核酸抑制斑馬魚之促黃體激素與濾泡刺激素基因表現之分析

謝榮振、陳志毅 ; 黃尉東

E-mail: 9418529@mail.dyu.edu.tw

摘 要

促性腺激素(gonadotropins; GtHs)為控制生殖之主要荷爾蒙，其含促濾泡激素(follicle stimulating hormone, FSH)及促黃體激素(luteinizing hormone, LH)，二者均含共同之醣蛋白分子α次單元GtHα (common α)及個別之荷爾蒙專一性之β次單元，如FSHβ (GtHⅠβ)及LHβ (GtHⅡβ)。本研究以斑馬魚為試驗動物，並藉由核糖核酸干擾技術(RNA interference, RNAi)抑制此三種促性腺激素次單元蛋白之合成。就於3個次單元基因分別構築3個short hairpin RNA (shRNA)及其控制組表現載體，經以顯微注射之活體試驗，並以RT-PCR檢測其結果，結果顯示GtHα及FSHβ之表現有減弱之情形。另以其次單元基因構築綠螢光蛋白(green fluorescent protein)表現載體並與shRNA表現載體作共同注射(co-injection) 檢測於蛋白質階層之改變，結果顯示，shRNA表現載體之抑制能力依構築而異，如於GtHα-shRNA最高可抑制約89.53%之GtHα表現。試驗另以morpholino行GtHα基因之抑制，結果顯示，GtHα morpholino會延遲斑馬魚之胚胎發育，且與GtHα-shRNA一致的會導致胚胎發育異常，於共同注射之結果則可抑制94.32%之基因表現。然該表現載體是否造成斑馬魚生殖能力之喪失，仍需進一步結合專一性啟動子之研究始能明瞭。

關鍵詞 : 促性腺激素 ; RNA干擾技術 ; 基因轉殖 ; 表現載體 ; 不孕化

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