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黄鳝激素敏感性脂肪酶基因Hsl染色体原位杂交定位 Chromosomal Localization of the Hormone-sensitive Lipase Gene (Hsl) in Rice Field Eel

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摘要　动物脂肪组织中的甘油三酯在数量上是最重要的储存能源。Hsl基因所编码的激素敏感性脂肪酶是一种多功能酶。它通过催化水解储存在脂肪组织中的甘油三酯，以及卵巢、肾上腺、睾丸和胎盘中的胆固醇酯，在机体能量供应和类固醇生成作用中发挥重要作用。本研究以放射性同位素和地高辛标记重组质粒pBS中所含猪Hsl基因作为探针，分别与Pst Ⅰ酶切的黄鳝基因组总DNA和有丝分裂染色体标本进行Southern杂交和荧光原位杂交(FISH)。结果显示，Southern杂交呈现一条带，片段长度约为11.5kb。同时，应用FISH定位Hsl基因于黄鳝5号染色体，相对着丝粒距离为78.35±1.26。该定位结果与应用“特定染色体DNA池”定位黄鳝Hsl基因结果相符，且定位结果更为精细。表明在淡水鱼类黄鳝基因组中存在Hsl基因，另一方面也首次提供黄鳝5号染色体上FISH杂交信息，从而为增加黄鳝染色体组中已知的遗传标记和建立高精度遗传图谱奠定基础。

Abstract:Adipose tissue triacylglycerols are the quantitatively most important source of stored energy in animals.Hormone-sensitive lipase encoded by hormone-sensitive lipase gene (Hsl) is a multifunctional enzyme that catalyzes the hydrolysis of triacylglycerol stored in adipose tissue and cholesterol esters in the adrenals, ovaries, testes and macrophages.Using pig Hsl gene inserted into pBS labeled by the radioactive isotope and the digoxigenin as the probes respectively, one band, 11.5kb, has been shown to hybridized with total DNA of rice field eel digested with Pst Ⅰ by Southern blotting and Hsl gene has been assigned to metaphase chromosome 5, at the position of 78.35±1.26 from the c entromere in rice field eel by fluorescent in situ hybridization (FISH).The mapping results are corresponding to that of “specific-chromosomal DNA pool” obtained by chromosome microisolation used to map gene and the mapping result is more accurate.The results of the study further illustrate the importance of the presence of Hsl gene in rice field eel genome and provide the first FISH mapping data for rice field eel chromosome 5.The current studies would advance the addition of known genetic markers and the construction of high resolution genetic map in rice field eel genome.

关键词　黄鳝　Hsl基因　Southern杂交　FISH Key words　rice field eel　Hsl gene　Southern blotting　FISH

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