

鸡L-FABP基因全长cDNA克隆表达及与杂种鸡脂肪沉积的关系

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摘要 肝脏脂肪酸结合蛋白(L-FABP)与脂肪运输及沉积关系密切。文章以8周龄丝羽乌鸡(CC)、农大褐蛋鸡(DD)及其正反杂交组合鸡(CD和DC)为试验材料,利用mRNA差异显示技术,在肝脏组织中获得一条阳性差异表达片段。通过片段回收、测序及序列比对发现,该差异表达片段为鸡L-FABP基因的全长cDNA编码序列(NCBI登录号:AY321365)。Northern杂交和半定量RT-PCR结果显示,该基因在正反杂交组合CD及DC的肝脏组织中表达量均明显高于亲本CC和DD,与杂种鸡的高腹脂及较大肌间脂宽表型趋势相同。鉴于L-FABP基因的高表达可能导致杂种鸡的脂肪沉积高于亲本,有必要针对鸡L-FABP基因进行深入的功能研究。

关键词: L-FABP 脂肪性状 丝羽乌鸡 农大褐蛋鸡 正反杂交组合

Abstract: Liver fatty acid-binding protein (L-FABP) is closely related to intracellular transportation and deposition of lipids. A positive differential displayed fragment was found in the liver tissue among Silkie (CC), CAU-brown chicken (CD), and their reciprocal hybrids (CD and DC) at 8 weeks-old using differential display RT-PCR techniques (DDRT-PCR). Through recycling, sequencing, and alignment analysis, the fragment was identified as chicken liver fatty acid-binding protein gene (L-FABP, GenBank accession number AY321365). Reverse Northern dot blot and semi-quantitative RT-PCR re-vealed that the avian L-FABP gene was over-expressed in the liver tissue of the reciprocal hybrids (CD and DC) compared to their parental lines (CC and DD), which was consistent with the fact that higher abdomen fat weight and wider inter-muscular fat width observed in the reciprocal hybrids. Considering the higher expression of L-FABP may contribute to the increased lipid deposition in the hybrid chickens, the functional study of avian L-FABP is warranted in future.

Keywords: L-FABP, fatty trait, Silkie, CAU-brown chicken, reciprocal hybrids

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