

文章摘要

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一个奥利亚罗非鱼雌性特异性SCAR标记的建立

Establishment of a female specific SCAR marker in blue tilapia *Oreochromis aureus*

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英文关键词: [Blue tilapia](#) [Oreochromis aureus](#) [Sex](#) [Molecular marker](#) [RAPD](#) [SCAR](#)

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中文摘要:

以奥利亚罗非鱼*Oreochromis aureus*为实验材料,通过对800多条随机引物的筛选,获得了1个奥利亚罗非鱼雌性特异性的、长度为1 488 bp的RAPD标记片段RAPD71699-1 488,经琼脂糖凝胶电泳后回收、克隆、测序,并根据测序结果设计PCR特异引物,再经PCR条件优化,成功地将该RAPD标记片段转化为实验结果稳定、操作简便的SCAR标记,即SCAR_{0aF1488}。采用双重PCR技术,以mtDNA 16S rRNA基因片段为PCR扩增阳性对照,对该标记的有效性在两个群体共200个个体(雌、雄各100个)中进行验证。结果显示,标记检测结果与表型性别的符合度为100%。SCAR_{0aF1 488}标记的获得为奥利亚罗非鱼遗传性别鉴定及标记辅助选择提供了有效工具,为深入研究鱼类性别相关基因及性别决定机制提供了重要线索和新的思路。

英文摘要:

A female specific random amplified polymorphic DNA (RAPD) marker was obtained in blue tilapia *Oreochromis aureus* through screening 800 random primers. The female specific DNA fragment with a length of 1 488 bp was cloned, sequenced, and converted into a SCAR (Sequence Characterized Amplified Region) marker, SCAR_{0aF1488}. A duplex PCR method was developed to amplify SCAR_{0aF1488} together with a 509-bp-long mtDNA 16S rRNA gene fragment which served as a positive control. Two hundred individuals originated from 2 populations, including 100 males and 100 females, were used to verify the reliability of the SCAR marker by using the duplex PCR method. The sex identification test results of 200 fish showed 100% accordance with their phenotypic sex. SCAR_{0aF1488} was successfully amplified in all female but not in male individuals. By contrast, the control fragment was amplified in all

phenotypic sex. SCAR0aF1408 was successfully amplified in all female but not in male individuals. By contrast, the control fragment was amplified in all the males and females. The female-specific marker SCAR0aF1488 developed in the present study can be used for molecular identification of genetic sex in blue tilapia. In addition, this work will provide an important tool for screening and isolation of the sex-determining locus and sex manipulation in this tilapia.

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