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版纳微型猪近交系新生猪成纤维细胞的体外培养及其生物学特征研究

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In Vitro Culture and Biological Characteristics of Piglet Fibroblast Cell in Banna Mini pig Inbred Line

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摘要

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摘要 试验以版纳微型猪近交系新生猪耳部皮肤组织为材料, 采用胰蛋白酶消化法培养成纤维细胞, 并对其进行细胞形态观察、细胞冻存前和复苏后存活率测定、生长曲线绘制和染色体核型分析等生物学特征检测。结果表明: 版纳微型猪近交系新生猪成纤维细胞呈典型的成纤维细胞形态; 细胞冻存前和复苏后存活率分别为98.0%和94.07%; 生长曲线呈“S”型, 倍增时间为33 h; 对所制备的染色体核型分析显示2n=38(XY), 并在体外培养14代后仍能保持正常核型。本研究建立了稳定的版纳微型猪近交系新生猪成纤维细胞的培养方法, 将为体细胞克隆、转基因和异种器官移植等相关的研究提供技术基础

关键词: 版纳微型猪近交系 成纤维细胞 细胞培养 生物学特征

Abstract: In this study, the fibroblast cell which isolated from a newborn piglet ear skin of Banna mini pig inbred line was used as the study materials to establish a fibroblast cell line by using the cold trypsinization method. The present research was designed to examine the characteristics of piglet fibroblast which involved the observations of cell morphology, determination of the cell viability before freezing and after thawing, dynamic growth curve and the chromosome nuclear type analysis. The results showed that the cells was morphologically consistent with fibroblasts shaped, cell viabilities before freezing and after thawing were 98.00% and 94.07%, respectively. Additionally, the dynamic growth curve showing a sigmoid curve with population doubling time (PDT) for cells growth was approximately 33h, the karyotype result gave a 2n=38(XY) and the karyotype was normal after cultured up to passage 14 in vitro. In conclusion, the present study has successfully established the newborn piglet ear fibroblast cell line in Banna minipig. It not only can preserve the resource on the cell level but also can be used as donor karyoplast for somatic cell nuclear transfer; produce transgenic animals, and xenotransplantation as well as related research in the future.

Keywords: Banna mini pig inbred line fibroblast cell culture biological characteristics

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