عنوان مقاله:

Comparison and Optimization of RNA Extraction from Formalin-Fixed Paraffin-Embedded Tissues of Hepatocellular Carcinoma

محل انتشار:

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خلاصه مقاله:

Detection of a new molecular marker for diagnosis and treatment of cancer is a growing field of recent research. The main challenge for molecular investigation is nucleic acid extraction from formalin-fixed, paraffin-embedded tissue (FFPE) of fine-needle aspiration (FNA) samples. In this research, we have compared four different commercially available RNA isolation kits by evaluating the quality and quantity of total RNA. RNA extraction of ۱۰ FNA-FFPE of hepatocellular carcinoma and ۱۰ normal tissue samples were compared and optimized using four commercially available kits: Isol-RNA lysis Reagent (۵-PRIME), Cinna Pure RNA kit (SinaClon BioScience), Denazist RNA extraction kit (DENAzist Asia Biotechnology), and RNeasy FFPE Kit (Qiagen) to use in downstream applications. Evaluation of RNA extracting was done by spectrophotometer and electrophoresis. Also, quantitative reverse-transcription PCR was used for assessing the expression of SOX۲. RNeasy FFPE Kit had the highest concentration of RNA between the four commercial kits (۱۰۶.۲ ± ۱۷.۱۵) and also, the highest RNA integrity with some modification. The most preferred kit for RNA extraction based on gene amplification was the RNeasy FFPE Kit, which has the lowest CT due to the high quality and integrity of RNA compared to the other three kits with the same modification. Our results suggested that RNeasy FFPE Kit with some modifications in temperature and incubation time was the best kit for RNA extraction from FNA-FFPE issues to a considerable extent with high purity and maintaining the integrity of RNA.

کلمات کلیدی:

Comparison, optimization, FFPE, RNA isolation, HCC