

SPACE LIFE SCIENCES SYMPOSIUM (A1)  
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ChinaTHE RESEARCH ON THE SURFACE PASSIVATING TREATMENT OF NOA81 MICROFLUIDIC  
GENE AMPLIFICATION CHIP**Abstract**

This article describes the static passivating treatment of NOA81 microfluidic chip channel employing bovine serum albumin, resulting in less inhibitory actions of the NOA81 materials to the gene amplification. With the physical properties of greater mechanical strength, easy to shape and fabricate, NOA81 is one of the outstanding microfluidic-chip materials for gene amplification in space. However, owing to the characteristics of the material itself and the surface flatness in fabricating the enzyme and template DNA is easily desorbing on the surface of the chip channel in the polymerase chain reaction (PCR) process, leading to decreased amplification efficient. The author employed bovine serum albumin to modify the chip channel before the gene amplification, then optimized the different BSA concentration and the different BSA treating time, the following is the optimization treatment condition: O<sub>2</sub> plasma treatment to the NOA81 chip channel for 3min, then injecting 10mg/ml BSA to the chip channel, and sealing the channel and putting the NOA81 chip in 60 for the all night. We also had an application for STR amplification on the modified NOA81 chip, the amplification results is close to the commercial PCR instrument. Therefore the NOA81 microfluidic chip with BSA passivating treatment is competent for most complex gene amplification. This paper is the basic research on the surface modification against to the NOA81 chip but it has great significance to improve the amplification efficient on the BSA pre-treated NOA81 chip and it make the NOA81 microfluidic chip more reliable application in the genetic analysis, even the gene amplification in space in the future.