AB079. A next generation sequencing parallel biopsy protocol

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Background: Prostate biopsy is a main way for cancer detection and management, which is commonly performed in clinic and over 1 million procedures performed per year in Europe and the united states. The potential for biobanking of these specimens as valuable addition

Methods: After informed consent as part of an IRB approved protocol, ultrasound-guided biopsies of prostate cancer loci were performed on 18 consecutive cancer patients. Each locus is repeated biopsy and fresh tissues were transported on wet ice to Pathology and Center for Translational Medicine. After confirmation and evaluation of tumor content by professional pathologist, a minimum of 30 ng DNA of repeated biopsy loci was extracted for sequencing. Corresponding germline DNA from blood is extracted and used to prepare sequencing libraries for

different purpose. Sequencing was performed using Illumina NextSeq500 under rapid run mode (average duration 1.5 days).

Results: We achieved 100% success rate in obtaining highquality material for next-generation sequencing (NGS) using biopsy prostate sites. The amount of extracted DNA ranged between 0.302 and 2.292 µg. On average, 99.5% of paired-end reads generated have been mappable, confirming the high quality of extracted DNA and RNA, respectively.

Conclusions: We have developed a reliable approach to validate an effective biopsy protocol that increases the efficiency and quality of tumor samples for NGS sequencing. The essential role of the pathologist is highlighted. This protocol has been implemented for Precision Medicine Project in our institute, thus demonstrating wide applicability.

Keywords: Prostate

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