Comparing the NextSeq 2000 to the MiSeq sequencer for amplicon-based reads

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Illumina recently released a new NextSeq 2000 600-cycle sequencing kit targeting amplicon-based libraries. The NextSeq 2000 uses 2-color chemistry instead of 4-color chemistry used by the MiSeq sequencer, the most employed sequencer for amplicon-based libraries. Given the low sequence diversity of amplicons, the 2-color chemistry has not yet been used and thus its efficiency and compatibility to the 4-color chemistry is unknown. We conducted a study to observe if the NextSeq 200 600-cycle sequencing kit could produce ten times as many reads while maintaining the quality expected by the MiSeq. Over 200 DNA samples from human feces, mouse gut, and mixed cultures were prepared, and the same pool was sequenced on both the MiSeq and NextSeq 2000. We compared read quantity, read quality, population diversity, and population makeup to observe the differences between sequencers. We also did a cost analysis of each method. While the NextSeq provided a larger quantity and lower cost per read, the MiSeq reads had a higher average quality score and less diversity of the samples.

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