Poster TT071

Performance Comparison of Invivoscribe's B-cell and T-cell LymphoTrack® Assays[1] between MiSeq™ and MiSeq i100

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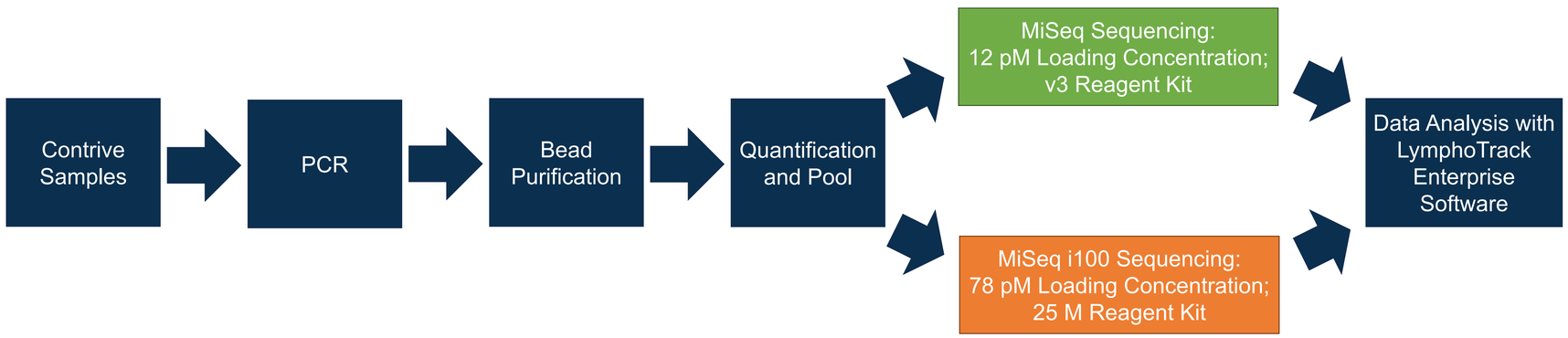
Introduction

The suite of LymphoTrack (LT) Assays[1] on the Illumina® MiSeq™ (Invivoscribe, San Diego, CA) are established next-generation sequencing (NGS)-based immunoglobulin (Ig) and T-cell receptor (TCR) assays, which enable sensitive and comprehensive detection of clonal rearrangements in lympho-proliferative diseases. The Illumina MiSeq i100 represents a significant upgrade to the original MiSeq, producing 25 M reads in less than half the run time (14 hours vs. 56 hours for an equivalent 2x301 read length run). Here we present a performance comparison between the MiSeq i100 and MiSeq using identical combination libraries generated from all 7 LymphoTrack (LT) Assay[1] targets (IGHV Leader, *IGH* FR1/FR2/FR3, *IGK*, *TRG*, *TRB*).

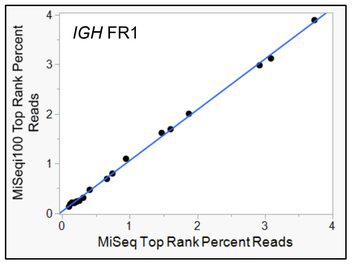
Methods and Materials

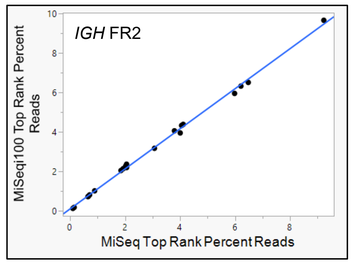


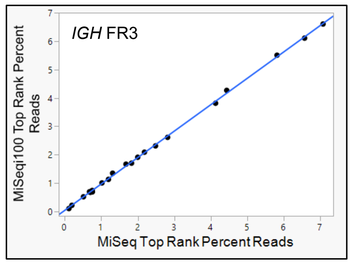
Results

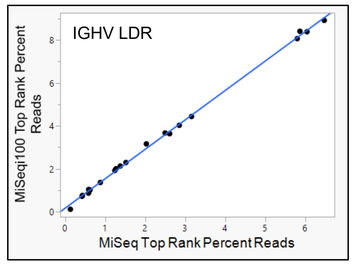
Metric	MiSeq i100	MiSeq
Yield (GB)	20.73	19.59
Total PF Reads (M)	34	32
Q30 (%)	96.89	77.02
N	168	168
Sequencing Time (Hours)	14	56

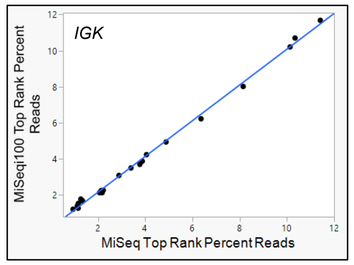
- The MiSeq i100 generated 34 M total PF reads with a Q30 of 96.89%, while the MiSeq generated 32 M with a Q30 of 77.02%.
- The MiSeq i100 and MiSeq exhibited 100% concordance in top ranked V/J-gene sequences observed across all 7 targets.
- Correlation analysis demonstrated strong linearity ($R^2 \geq 0.997$) across all seven targets, indicating no significant difference in performance between the MiSeq and MiSeq i100 platforms in clonality assessment.

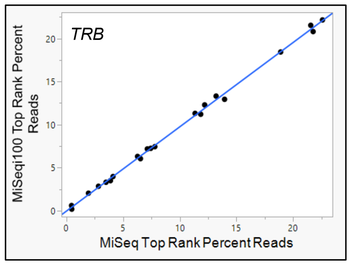


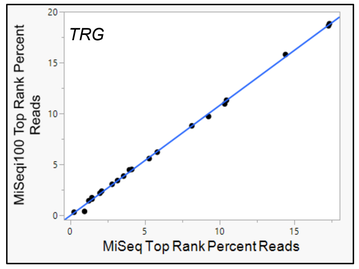




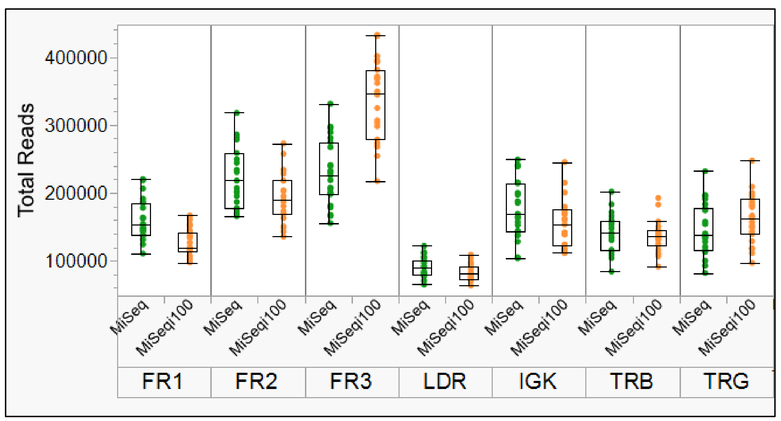








Result	*IGH* FR1	*IGH* FR2	*IGH* FR3	IGHV Leader (LDR)	*IGK*	*TRB*	*TRG*
R^2 Value	0.999	0.998	0.999	0.999	0.997	0.998	0.999
V-gene	IGHV1-46_03	IGHV1-46_03	IGHV1-46_03	IGHV1-46_03	IGKV3D-20_01	TRBV12-4_01	TRGV8_01
J-gene	IGHJ4_02	IGHJ4_02	IGHJ4_02	IGHJ4_02	IGKDEL	TRBJ1-2_01	TRG1_02/TRGJ2_01
N	20	21	21	20	21	21	21



- Both the MiSeq and MiSeq i100 produce total reads ≥ 20,000 (Assay minimum amount for a sample to be valid).
- Total read distributions across all seven targets were comparable between the MiSeq and MiSeq i100, indicating consistent sequencing performance across instruments.
- *IGH* FR3 shows a notably higher amount of reads relative to the other targets with the MiSeq i100 than with the MiSeq, indicating a potential bias towards shorter-length DNA fragments.

Conclusion

- Sequencing the 7-target LymphoTrack Assay[1] Library on the MiSeq i100 produced passing run metrics (PF Reads, Q30) while reducing overall turn-around time and cost.
- The strong correlation in top % reads values and 100% concordance in identified top rank sequences with the MiSeq results demonstrate the MiSeq i100 as a suitable platform for sequencing the 7 LymphoTrack Assays.[1]

[1] For Research Use Only (RUO)

Association For Molecular Pathology (AMP), Nov 11-15, 2025, Boston, Massachusetts – Invivoscribe, Inc.