

Atm2: We explored the benefits of nanopore sequencing for HLA typing in a beta testing study in collaboration with Omixon Lid. and Oxford Nanopore Technologies (ONT) Lid. Methods: Ninety-nine genomic DNA samples extracted from peripheral bodo and buccal samples, previously typed at a high resolution level using a 2 generation NGS method, were tested using the Omixon NAROTYPE ⁺ multiplex kit. Protocols with enzyme-based and magnetic beads purification were also compared. Results: Results for class I lod (HLA-A: -BC) were 99% concordant at three-field typing. One new allele was detected and one HLA-B blocus dropout (HLA-B'51:01:02) was observed. For two samples, typing of HLA-DRB'104/25 short HLA-DDB1 types also 99% concordant with previous results. We observed two HLA- DB1'04:01:01 dropouts: one HLA-DDB1 types also 99% concordant with previous results. We observed two HLA- BOB1'03:01:01 dropouts: one HLA-DDB1 types also 99% concordant with previous results. The library preparation in place of magnetic beads. We also typed three samples in a mock decreased donor typing contains to sequencing times, to test the accuracy and reprodubility of the results. NanOTYPE ⁺ was able to deliver three-field, high-resolution typing with 100% concordance for magnetic beads. We also typed three samples in a mock decreased donor typing scenario, with adjustments to sequencing times, to test the accuracy and reprodubility of the results. NanOTYPE ⁺ was able to deliver three-field, high-resolution typing with 100% concordance for magnetic beads. We also typed three samples in a mock decreased donor typing scenario. with adjustments to sequencing times, to test the accuracy and reprodubility of the results. NanOTYPE ⁺ was able to deliver three-field, high-resolution typing with 100% concordance for magnetic beads. We also typed three samples in a mock decreased to deliver three-field, high-resolution typing with 100% concordance for these samples. Conclusion: Nanopore-based HLA typing using the NanOTYPE ⁺ kit is advanta	Cumulative reads &
Methods: Methods:Ninety-nine generation NS Smithol, were lested using a generation NSS method, were lested using a generation NSS method, were lested using and magnetic bead purification were also compared.12 samples 30 minutesDNA Extraction30 minutes30 minutes40 minutes3	Percentage of Pass/Fail reads Nanotype Lumulative Output Reads ² trays 87cdeb70-20e9-47da-9fe7-c555629df990 FAR77500 Lumulative Output Reads
the Omixon NanoTYPE* multiplex kit. Protocols with enzyme-based and magnetic bead purification were also compared. <i>Results</i> : Results for class I loci (HLA-A, -B, -C) were 99% concordant at three-field typing. One new allele was detected and one HLA-B locus dropout (HLA-B*51:01:02) was observed. For wo samples, for got HLA-B*4:336. Results for class I loci (HLA-DGB1/3/4/5 and HLA-DQB1 were also 99% concordant with previous results. We observed two HLA- DQB1*03:01:01 dropout, sone HLA-DDB1*03:19 dropout, and one HLA-DQB1*04:02 dropout. We observed one instance of an incorrect typing of HLADRB1*04:58N, resulting from low amplification of HLA- DB1*03:01:01. Results for HLA-DQB1*03:19 dropout, and one HLA-DQB1*04:02 dropout. We observed one instance of an incorrect typing of HLADRB1*04:58N, resulting from low amplification of HLA- DB1*03:01:01. Results. Norther asamples in a mock deceased donor typing scenario, with adjustments to sequencing times, to test the accuracy and reproducibility of the resultis. NanoTYPE** was able to deliver three-field, high-resolution typing with 100% concordance for these samples. Conclusion: Nanopre-based HLA typing using the NanoTYPE** kit is advantageous in allowing shorter turnaround times for multiple samples	2 samples 1 Sample 30 minutes 30 minutes 30 minutes 10
Results: Results for class I loci (HLA-A, -B, -C) were 99% concordant at three-field typing. One new allele was detected and one HLA-B locus dropout (HLA-B*51:01:02) was observed. For two samples, typing of HLA-B*51:01:02) was observed were also 99% concordant with previous results. We observed two HLA- DQB1*03:01:01 dropouts, one HLA-DQB1*03:19 dropout, and one HLA-DQB1*04:01:01. Results for HLA-DQB1*03:19 dropout, and one HLA-DQB1*04:01:01. Results for HLA-DQA1, -DPA1, and -DPB1 loci were towas significantly reduced using enzyme-based purification in place of magnetic beads. We also typed three samples in a mock deceased donor typing scenario, with adjustments to sequencing times, to test the accuracy and reproducibility of the results. NanoTYPE ^w was able to deliver three-field, high-resolution typing with 100% concordance for these samples. 2 min 2 min Float S 2 min 2 min 2 min Float S Priming and Loading 9 ming advantageous in allowing shorter turnaround times for multiple samples 5 min 5 min Float S	$\frac{2}{10^{4}} = \frac{1}{10^{4}} = \frac{1}$
Conclusion: Nanopore-based HLA typing using the NanoTYPE™ kit is advantageous in allowing shorter turnaround times for multiple samples• 5min • 5min• 5min • 5minPriming and LoadingOther ImitationsAberrant splice sites intron DRB4*01:03:01N Exon 5 for all DRB1/3/5	ZhoursZ hoursHLA Amplification 11 lociSmin 10 min 10 minmin • 1 min • 1 min• Amplicon Purification • Quantitation • Normalization• Amplicon Purification • Ragmentation • Barcoding • Barcoding • Ragmentation • Preparation of Sequencing reactionDiscrepancies Allele drop- • B*51:01:02 (1); DQB1*03:01:01 (2); DQB1*03:19 (1); outsDiscrepancies Allele drop- 0 QB1*04:02:01 (1)Missed Call: DRB1*04:02:01 (1)Call: DRB1*04:58N; actual: DRB1*04:01 Call: DQA1*05:01, 05:23; actual: DQA1*05:01 Call: B*44:03 (1) or 44:336; actual: B*44:03Zmin• ZminFlow cell checkEther of the optic the
and is more cost-effective than traditional NGS methods. With refinements to the method to prevent allele dropouts, it will constitute a	Smin • Smin Smin • Smin • Smin • Smin • Smin • Smin • Smin • Smin • Smin • Smin • Smin • Smin • Smin • Sequencing
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high-resolution HLA typing of deceased donors, resulting in greater availability of organs for highly sensitized patients. -DRB1 DRB345 -DQA1	16 hours ~ 5 hours -DRB1 DRB345 -DQA1
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HLA TYPING USING NANOPORE TECHNOLOGY: A BETA TESTING STUDY Alison J. Gareau¹, Ana Lazaro-Shiben¹, Lisa Creary², Maria Bettinotti¹ ¹ Immunogenetics Laboratory, Johns Hopkins University, Baltimore, MD, United States ²Omixon, Beverly, MA, United States JOHNS HOPKINS

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Q-score : Range between **Q7** and **Q15**

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