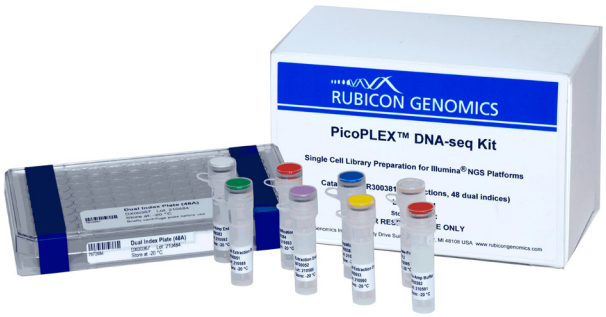
PicoPLEX® DNA-seq Kit

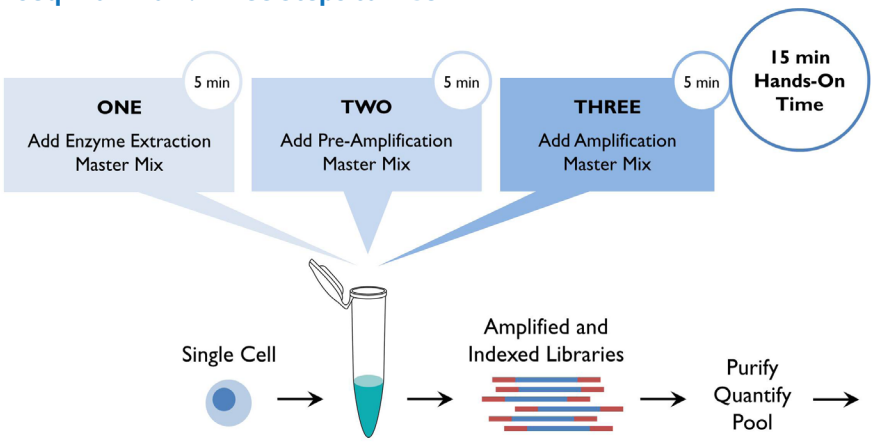
Single Cell Library Preparation for Illumina® NGS Platforms



PicoPLEX®, the technology used by IVF clinics worldwide for pre-implantation genetic screening in detecting chromosomal aneuploidies and copy number variations, is available for use on your Illumina® NGS platform! PicoPLEX DNA-seq Kit streamlines library preparation; the entire process is performed in a single tube or well – reducing error and contamination, speeding time to results, and reducing costs. PicoPLEX DNA-seq Kit contains 48 reactions and includes everything necessary to convert 48 individual cells or DNA (6 pg to 60 pg) to NGS libraries, including dual barcodes. Barcoding oligonucleotides are provided in a single-use microwell plate.

- Reduce ambiguity - highly reproducible CNV and aneuploidy detection
- Reduce workflow steps - from a single cell to a sequencing-ready library in three steps
- Reduce cost - a single kit contains everything needed to prepare a sequencing-ready library
- Reduce contamination and error - prepare in a single tube or well, no transfers necessary
- Reduce time to results - Illumina® NGS libraries in less than 3 hours

PicoPLEX DNA-seq Workflow: Three Steps to NGS

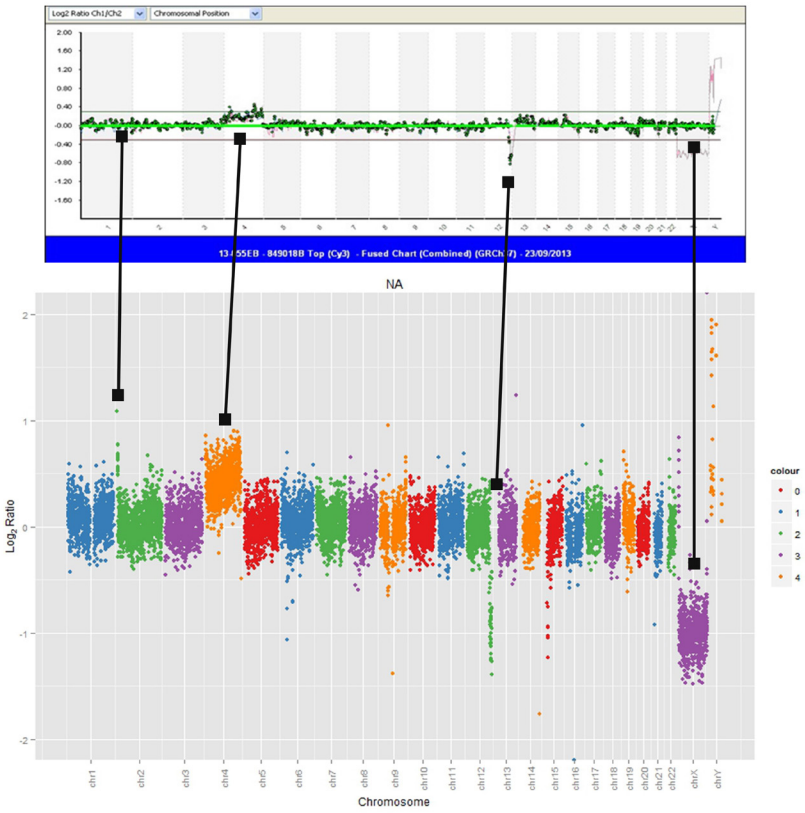


PicoPLEX DNA-seq Kit utilizes a three-step protocol that includes cell lysis, pre-amplification and final amplification. A special formulation lyses the cell and fragments the DNA. Next, a proprietary set of quasi-random primers pre-amplify the DNA selectively with minimal amplification of the product to generate a highly reproducible library. Finally, the resulting library is PCR amplified with primers that contain Illumina dual barcodes to create a sequencing-ready library.

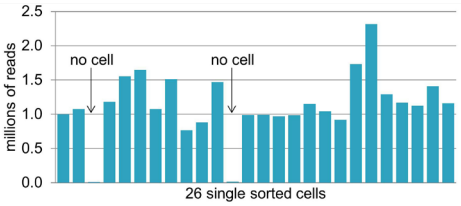
"REMARKABLY, THE SEQUENCING DATA FROM THE PICOPLEX DNA-SEQ LIBRARIES OF PGD EMBRYOS CLEARLY SHOWED TWO SMALL, UNBALANCED SEGMENTS CONSISTENT WITH THE PREDICTED PATTERNS FROM HIGH RESOLUTION FISH RE-TESTING OF A MATERNAL BLOOD SAMPLE THAT WAS INITIALLY SCORED AS NORMAL. THIS IS A SIGNIFICANT EXAMPLE OF THE SEQUENCING DATA FROM EMBRYOS EXPOSING A CRYPTIC TRANSLOCATION MISSED BY MICROARRAYS."

—BRIAN MARIANI, PH.D. , CHIEF SCIENTIST, SCIENTIFIC DIRECTOR, GENETICS & IVF INSTITUTE

PicoPLEX® DNA-seq Provides Results Concordant to Arrays



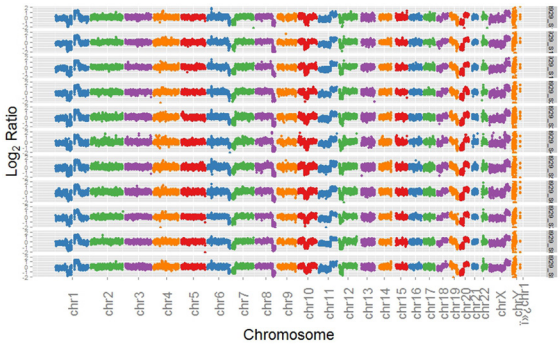
Individual Library Quantification Eliminated

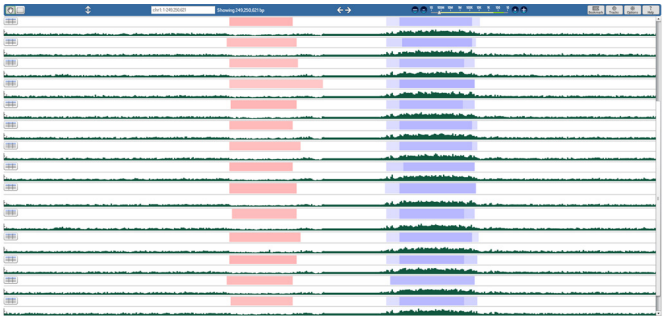


Above. Flow-sorted unsynchronized H929 cells were amplified, pooled with constant volume, and loaded onto a MiSeq® v3 flow cell. Quantification of the libraries was unnecessary before pooling due to the highly reproducible amount of product produced by PicoPLEX DNA-seq reactions. The columns which provided no reads were wells in which the cell was absent.

Left. PicoPLEX DNA-seq Kit was tested for equivalency to 24sure™ arrays (Illumina) by using the same single cell library for array and NGS testing. Sequencing gave analogous results to arrays and, in some cases, provided more accurate results than the arrays. (Data provided by GIVF)

Highly Reproducible CNV Detection





Amplified libraries from flow-sorted H929 cells were sequenced on an Illumina MiSeq and downsampled to 100,000 total reads. Thirty-five base single-end reads were mapped to human over the entire genome (left). In chromosome 1, a 22 Mb loss and 30 Mb gain were consistently detected as indicated by the pink or blue bars (right).

Ordering Information

PicoPLEX® DNA-seq Kit contains everything needed to do 48 reactions, including 48 dual indexes in a single use 96-well plate.
Cat. # R300381 PicoPLEX DNA-seq Kit 48 reactions
Order on-line at www.rubicongenomics.com. For custom orders, contact busdev@rubicongenomics.com.

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