Adaptive

MEDICARE COVERED

clonoSEQ®

THE FIRST & ONLY FDA-CLEARED ASSAY FOR MRD DETECTION

In bone marrow samples from multiple myeloma and B-cell acute lymphoblastic leukemia (ALL) patients

MRD: A powerful way to assess response and predict patient outcomes

Measurable (or minimal) residual disease (MRD) refers to the small number of cancer cells that may remain in a patient's body during and after treatment. Clinical practice guidelines recognize that MRD status is a reliable indicator of clinical outcome and response to therapy in MM and ALL patients.[1,2]

The clonoSEQ Assay detects and monitors MRD

in bone marrow samples from patients with multiple myeloma or B-ALL. Clinical outcomes are strongly associated with MRD levels as measured by clonoSEQ.[3]

Clinicians who leverage the latest advances in personalized medicine use clonoSEQ to:[3]

- ✓ **Help Predict** clinical outcomes
- ✓ **Assess** treatment response
- ✓ **Monitor** remission status
- ✓ **Detect** potential relapse

Why choose clonoSEQ?[3]

Deep sensitivity: Able to detect one cancerous cell in 1 million normal cells*

Reliable results: First MRD assay to demonstrate accuracy, precision and reproducibility that meets FDA standards

Easy to order: Ordered through a central reference lab with 7-day turnaround

Broad patient experience: >10,000 patients tested to date

Widely utilized by experts: 27 of 28 NCCN institutions currently using in clinical trials and/or clinical practice

How clonoSEQ works[3]

Clonality (ID) Test

Identifies trackable malignant DNA sequence(s) in a high-disease load sample collected at the time of diagnosis or relapse

Tracking (MRD) Test

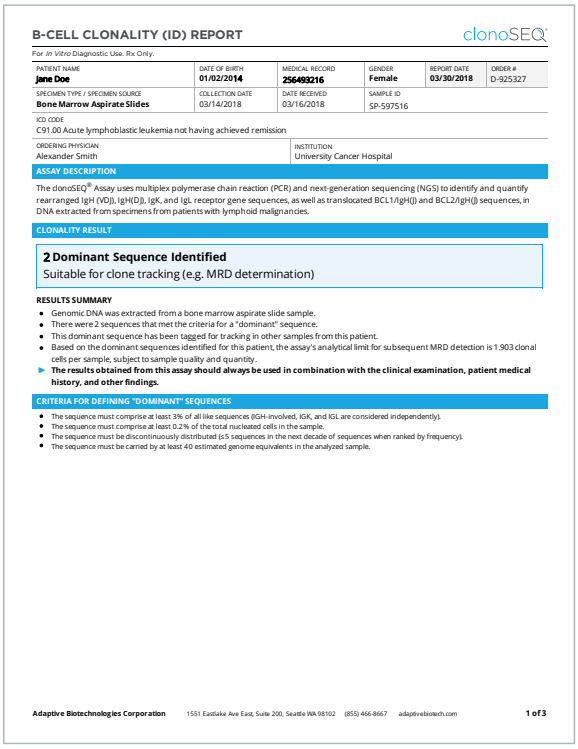
Quantifies and tracks MRD during or after treatment in a freshly-drawn bone marrow or blood† sample

Remember: A successful ID test is required BEFORE an MRD test can be completed

*With sufficient input material; †Blood-based MRD testing is available as a CLIA-regulated laboratory developed test (LDT) service provided by Adaptive Biotechnologies. This use of clonoSEQ has not been approved or cleared by the FDA.

clonoSEQ is an FDA-cleared in vitro diagnostic (IVD) test service provided by Adaptive Biotechnologies for use in B-cell acute lymphoblastic leukemia and multiple myeloma patients to detect and monitor measurable residual disease (MRD) in bone marrow samples. clonoSEQ is also available for use in other lymphoid cancers as a CLIA-regulated laboratory developed test (LDT) service provided by Adaptive Biotechnologies. clonoSEQ is available by prescription only. clonoSEQ results should always be used in combination with clinical examination, patient medical history, and other findings. For important information about the FDA-cleared uses of clonoSEQ, including test limitations, visit clonoSEQ.com/technical-summary.

clonoSEQ Clonality (ID) and Tracking (MRD) reports



B-CELL CLONALITY (ID) REPORT clonoSEQ

For *In Vitro* Diagnostic Use. Rx Only.

PATIENT NAME	DATE OF BIRTH	MEDICAL RECORD	GENDER	REPORT DATE	ORDER #
Jane Doe	**01/02/2014**	**256493216**	**Female**	**03/30/2018**	D-925327

SPECIMEN TYPE / SPECIMEN SOURCE	COLLECTION DATE	DATE RECEIVED	SAMPLE ID
Bone Marrow Aspirate Slides	03/14/2018	03/16/2018	SP-597516

ICD CODE
C91.00 Acute lymphoblastic leukemia not having achieved remission

ORDERING PHYSICIAN	INSTITUTION
Alexander Smith	University Cancer Hospital

ASSAY DESCRIPTION

The clonoSEQ® Assay uses multiplex polymerase chain reaction (PCR) and next-generation sequencing (NGS) to identify and quantify rearranged IgH (VDJ), IgH(DJ), IgK, and IgL receptor gene sequences, as well as translocated BCL1/IgH(J) and BCL2/IgH(J) sequences, in DNA extracted from specimens from patients with lymphoid malignancies.

CLONALITY RESULT

2 Dominant Sequence Identified
Suitable for clone tracking (e.g. MRD determination)

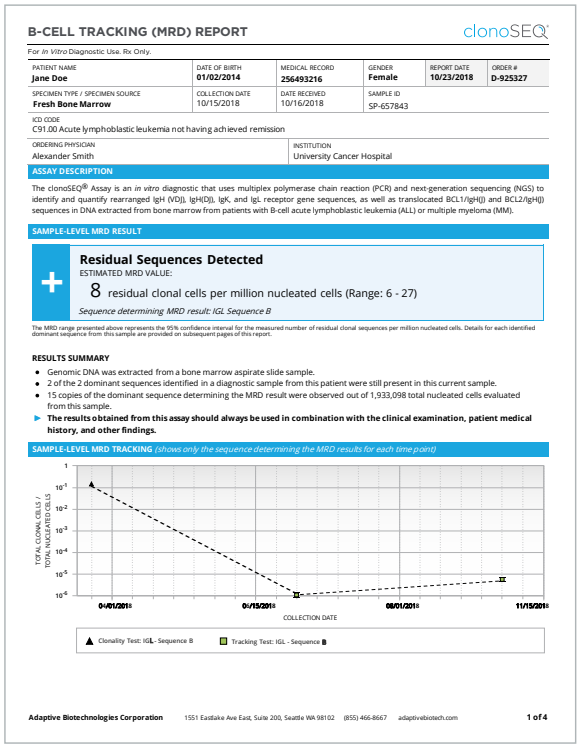
RESULTS SUMMARY

- Genomic DNA was extracted from a bone marrow aspirate slide sample.
- There were 2 sequences that met the criteria for a "dominant" sequence.
- This dominant sequence has been tagged for tracking in other samples from this patient.
- Based on the dominant sequences identified for this patient, the assay's analytical limit for subsequent MRD detection is 1.903 clonal cells per sample, subject to sample quality and quantity.
- ► **The results obtained from this assay should always be used in combination with the clinical examination, patient medical history, and other findings.**

CRITERIA FOR DEFINING "DOMINANT" SEQUENCES

- The sequence must comprise at least 3% of all like sequences (IGH-involved, IGK, and IGL are considered independently).
- The sequence must comprise at least 0.2% of the total nucleated cells in the sample.
- The sequence must be discontinuously distributed (≤5 sequences in the next decade of sequences when ranked by frequency).
- The sequence must be carried by at least 40 estimated genome equivalents in the analyzed sample.

Adaptive Biotechnologies Corporation 1551 Eastlake Ave East, Suite 200, Seattle WA 98102 (855) 466-8667 adaptivebiotech.com **1 of 3**



B-CELL TRACKING (MRD) REPORT clonoSEQ

For *In Vitro* Diagnostic Use. Rx Only.

PATIENT NAME	DATE OF BIRTH	MEDICAL RECORD	GENDER	REPORT DATE	ORDER #
Jane Doe	**01/02/2014**	**256493216**	**Female**	**10/23/2018**	**D-925327**

SPECIMEN TYPE / SPECIMEN SOURCE	COLLECTION DATE	DATE RECEIVED	SAMPLE ID
Fresh Bone Marrow	10/15/2018	10/16/2018	SP-657843

ICD CODE
C91.00 Acute lymphoblastic leukemia not having achieved remission

ORDERING PHYSICIAN	INSTITUTION
Alexander Smith	University Cancer Hospital

ASSAY DESCRIPTION

The clonoSEQ® Assay is an *in vitro* diagnostic that uses multiplex polymerase chain reaction (PCR) and next-generation sequencing (NGS) to identify and quantify rearranged IgH (VDJ), IgH(DJ), IgK, and IgL receptor gene sequences, as well as translocated BCL1/IgH(J) and BCL2/IgH(J) sequences in DNA extracted from bone marrow from patients with B-cell acute lymphoblastic leukemia (ALL) or multiple myeloma (MM).

SAMPLE-LEVEL MRD RESULT

Residual Sequences Detected
ESTIMATED MRD VALUE:
8 residual clonal cells per million nucleated cells (Range: 6 - 27)
Sequence determining MRD result: IGL Sequence B

The MRD range presented above represents the 95% confidence interval for the measured number of residual clonal sequences per million nucleated cells. Details for each identified dominant sequence from this sample are provided on subsequent pages of this report.

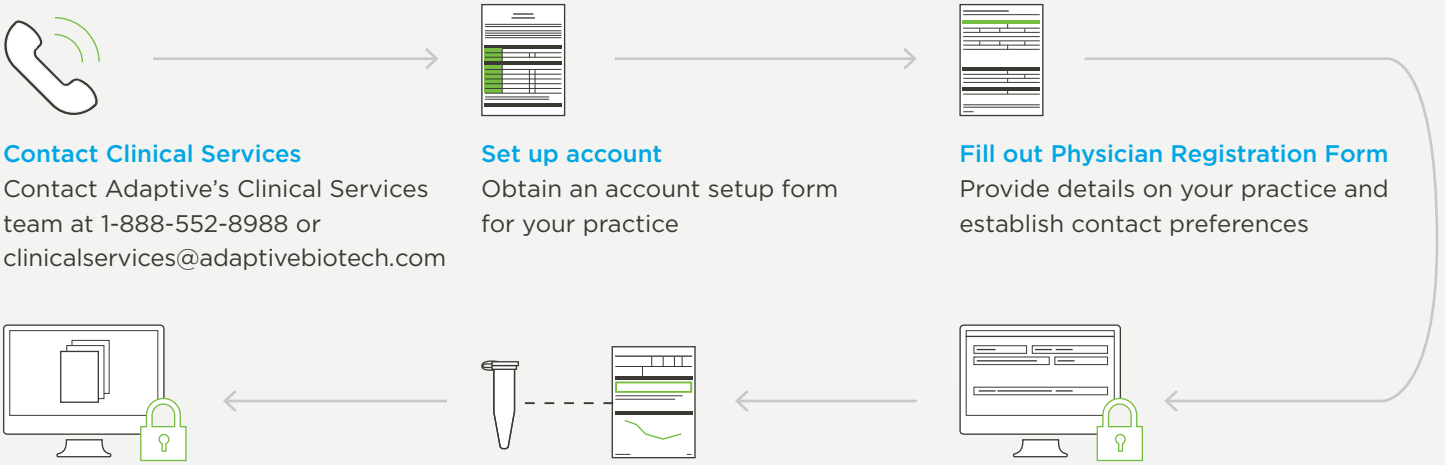
RESULTS SUMMARY

- Genomic DNA was extracted from a bone marrow aspirate slide sample.
- 2 of the 2 dominant sequences identified in a diagnostic sample from this patient were still present in this current sample.
- 15 copies of the dominant sequence determining the MRD result were observed out of 1,933,098 total nucleated cells evaluated from this sample.
- ► **The results obtained from this assay should always be used in combination with the clinical examination, patient medical history, and other findings.**

SAMPLE-LEVEL MRD TRACKING *(shows only the sequence determining the MRD results for each time point)*

Adaptive Biotechnologies Corporation 1551 Eastlake Ave East, Suite 200, Seattle WA 98102 (855) 466-8667 adaptivebiotech.com **1 of 4**

I want to order clonoSEQ. How do I get started?



Contact Clinical Services
Contact Adaptive's Clinical Services team at 1-888-552-8988 or clinicalservices@adaptivebiotech.com

Set up account
Obtain an account setup form for your practice

Fill out Physician Registration Form
Provide details on your practice and establish contact preferences

Order online
Our secure online Diagnostic Portal reduces data entry errors and makes repeat ordering easy

Samples processed
Turnaround time is approximately 7 days for fresh specimens and 14 days for stored/archived specimens

Access reports online
Patient reports are available through the Diagnostic Portal or secure fax

1. Referenced with permission from the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) for Multiple Myeloma V.1.2019. © National Comprehensive Cancer Network, Inc. 2018. All rights reserved. Accessed July 20, 2018. To view the most recent and complete version of the guideline, go online to NCCN.org.*
2. Referenced with permission from the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) for Acute Lymphoblastic Leukemia V.1.2018. © National Comprehensive Cancer Network, Inc. 2018. All rights reserved. Accessed March 12, 2018. To view the most recent and complete version of the guideline, go online to NCCN.org.*
3. clonoSEQ®. [technical summary]. Seattle, WA: Adaptive Biotechnologies Corporation; 2018.

* NCCN makes no warranties of any kind whatsoever regarding their content, use or application and disclaims any responsibility for their application or use in any way.

PM-US-cSEQ-0145-1

clonoseq.com