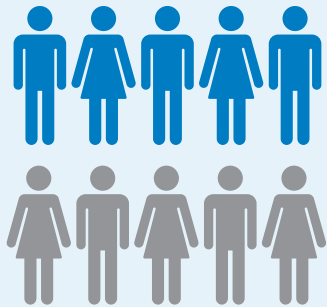


Get deeper and test for measurable residual disease (MRD)

MRD IS ASSOCIATED WITH RELAPSE AND POORER SURVIVAL IN PATIENTS WITH ALL.⁴

Up to 50% of adult patients with ALL who achieve CR after chemotherapy may relapse^{5,6}



Relapse after frontline therapy generally leads to poor long-term outcomes and fewer treatment options⁷

CR
MRD

Bone marrow microscopy cannot identify the presence of leukemic cells if there are fewer than 5% in the total cell population^{1,2}

5%

Over a 10 year period, patients who achieved MRD negativity had a greater chance of survival vs patients who remained MRD(+)^{4,*}



*According to a meta-analysis of 5 studies evaluating 806 adult patients with ALL.

Sensitivity of cancer cell detection in 3 testing methods

FLOW CYTOMETRY

1 in 10,000 normal cells⁸

POLYMERASE CHAIN REACTION

1 in 100,000 normal cells⁸

NEXT-GENERATION SEQUENCING

1 in 1,000,000 normal cells⁹

NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines[®]) for ALL recommend MRD testing at diagnosis, upon completion of initial induction therapy, and continued monitoring every 3–6 months for at least 5 years as clinically indicated.^{3,†}

[†]While there is insufficient evidence to guide MRD monitoring for Ph-negative patients following completion of maintenance therapy, the approval of blinatumomab, and potentially future therapies for the MRD-positive⁸ relapse, may warrant testing in this regard. Alternatively, for patients showing evidence of symptomatic relapse, the diagnostic workup should be repeated as per ALL-1 in the NCCN Guidelines[®] for ALL.



“MRD is an essential component of patient evaluation over the course of sequential therapy.”³

To learn more about MRD visit <https://www.amgenoncology.com/minimal-residual-disease.html>



To find an MRD testing facility see reverse side.

In both children and adults with ALL, MRD testing as early as induction therapy has been shown to have prognostic significance³

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Facilities Conducting MRD Testing

The following is a list of facilities that are CLIA-certified and accept external MRD samples. CLIA certification was validated using the CDC website* and acceptance of external samples was confirmed by reviewing facility websites and/or contacting facilities directly. Amgen neither recommends nor endorses, and may or may not have financial relationships with, any facility that appears on this list. This list is not intended to be a comprehensive list nor as a referral to any provider listed. If you would like to suggest a facility to be added to this list, please contact Amgen MedInfo at 800-77-AMGEN.

LOCATION	FACILITY NAME	MRD TEST	WEBSITE	PHONE NUMBER
Seattle, WA	Adaptive Biotechnologies	NGS	https://www.clonoseq.com	(855) 466-8667
Royal Oak, MI	Beaumont Health	Flow Cytometry	http://www.beaumontlaboratory.com	(888) 552-8988
Seattle, WA	CellNetix	Flow Cytometry, PCR [Ph(+)] only	http://cellnetix.com	(844) 344-4209
Cincinnati, OH	Cincinnati Children's Hospital (Immunopathology Laboratory)	Flow Cytometry	https://www.cincinnatichildrens.org/service/c/cancer-blood/hcp/clinical-laboratories/immunopathology-lab	(513) 803-2567
Aurora, CO	ClinImmune Labs	Flow Cytometry	http://www.clinimmune.com	(303) 724-7203
Durham, NC	Duke University (Molecular Diagnostics)	Flow Cytometry	https://clinlabs.duke.edu/molecular-diagnostics-laboratory	(919) 684-2698
Seattle, WA	Fred Hutchinson Cancer Research Center (Molecular Oncology Laboratory)	Flow Cytometry, PCR [Ph(+)] only	https://research.fhcrc.org/molecular-oncology/en.html	(206) 667-2592
Carlsbad, CA	Genoptix	Flow Cytometry, PCR [Ph(+)] only	https://www.genoptix.com	(800) 755-1605
Seattle, WA	Hematologics, Inc.	Flow Cytometry, NGS	http://www.hematologics.com	(206) 223-2700
Indianapolis, IN	IU Health (Pathology Laboratory)	PCR [Ph(+)] only	https://iuhealth.org/pathology-lab-services	(317) 491-6654
Baltimore, MD	Johns Hopkins Medicine (Pathology)	Flow Cytometry	http://pathology.jhu.edu/department/services/labservices.cfm	(800) 997-5475
Boston, MA	Massachusetts General Hospital (Pathology)	Flow Cytometry	http://www.massgeneral.org/pathology	(617) 643-0800
Rochester, MN	Mayo Clinic	Flow Cytometry	https://www.mayocliniclabs.com	(800) 533-1710
Houston, TX	MD Anderson Cancer Center (Molecular Diagnostics Laboratory)	Flow Cytometry, PCR	https://www.mdanderson.org/research/research-resources/core-facilities/molecular-diagnostics-lab.html	(713) 794-4780
National	NeoGenomics	Flow Cytometry, NGS	https://neogenomics.com	(866) 776-5907
Columbus, OH	Ohio State University (Pathology)	Flow Cytometry, PCR	https://pathology.osu.edu/divisions/clinical.html	(614) 292-2064
National	Quest Diagnostics	PCR [Ph(+)] only	https://www.questdiagnostics.com	(866) 697-8378
Grand Rapids, MI	Spectrum Health Advanced Technology Laboratory	Flow Cytometry, PCR [Ph(+)] only	https://www.spectrumhealth.org/for-health-professionals/for-providers/spectrum-health-regional-laboratory/about-advanced-technology-laboratories	(866) 989-7999
Chapel Hill, NC	UNC Medical Center (McLendon Clinical Laboratories)	Flow Cytometry, PCR [Ph(+)] only	https://www.uncmedicalcenter.org/mclendon-clinical-laboratories/	(919) 966-2361
Kansas City, KS	University of Kansas Cancer Center	Flow Cytometry	http://www.kucancercenter.org	(913) 588-1227
Ann Arbor, MI	University of Michigan (Department of Pathology)	Flow Cytometry	https://www.pathology.med.umich.edu/handbook/#/details/5337	(800) 862-7284
Dallas, TX	UT Southwestern Medical Center (Department of Pathology)	Flow Cytometry	https://www.utsouthwestern.edu/education/medical-school/departments/pathology/	(214) 648-4088
Seattle, WA	University of Washington (Hematopathology)	Flow Cytometry, PCR [Ph(+)] only, NGS	https://lwilliam87.wixsite.com/hemepath	(206) 606-7060
Nashville, TN	Vanderbilt (Pathology Lab Services)	Flow Cytometry	https://www.vumc.org/vpls	(800) 551-5227
New Haven, CT	Yale Cancer Center (Laboratory Medicine)	Flow Cytometry, PCR [Ph(+)] only	https://www.yalecancercenter.org	(203) 785-4095

This information is current as of July 2020. Amgen does not guarantee the accuracy of this information, and it is up to the individual physician to conduct his/her own research.

CDC, Centers for Disease Control and Prevention; CLIA, Clinical Laboratory Improvement Amendments; MRD, measurable residual disease; NGS, next-generation sequencing; PCR, polymerase chain reaction; Ph, Philadelphia chromosome.

*<https://www.cdc.gov/clia/LabSearch.html>

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