



# DxH 520 Analyzer Is Able to Identify (flag) Specimens From Patients with Leukemia and Lymphoma with High Sensitivity

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## Introduction

Laboratory diagnosis of Myeloproliferative neoplasms (**MPN**), Myelodysplastic syndrome (**MDS**), and other Leukemia and Lymphoma (**L&L**) relies on cytogenetic, molecular, and microscopic analysis. Use of the complete blood count (**CBC**) and differential parameters along with suspect flagging messages on the DxH 520 ( a small bench top analyzer) can be used to identify patients who require reflex testing for L&L diagnosis.

## Methods

41 Whole blood samples from patients with L&L were collected from three sites and tested on the DxH 520. Manual slide review of two 200 cell count slides was performed. The samples were de-identified and part of a larger group (Table 2) evaluated for clinical sensitivity so diagnosis was blinded at the time of testing. The analysis used both morphological (suspect flagging) and distributional anomalies (CLSI H20 A2:2007) to determine clinical sensitivity.

## Conclusions

The DxH 520 analyzer is able to help identify samples from patients with L&L that need to be reflexed for manual slide differential and additional testing.

## Leukemia & Lymphoma

Test	Reference	
	Positive	Negative
Frequency		
Positive	33	3
Negative	0	5
Total	33	8

**Table 1:** 2x2 analysis of L&L samples DxH 520 vs manual differential.

## All Samples Enrolled

Test	Reference	
	Positive	Negative
Frequency		
Positive	193	63
Negative	30	138
Total	223	201

**Table 2:** 2x2 analysis of all samples from three sites. DxH 520 vs manual differential. The DxH 520 showed overall sensitivity of 0.865 and specificity of 0.687.

SID	Diagnosis	Clinical agreement
CLS-006	Acute Myeloid	TP
CLS-031	Chronic Myelomonocytic	TP
CLS-044	Acute Myeloid	TP
CLS-056	Acute Myeloid	TP
CLS-071	Multiple Myeloma	FP
CLS-089	Acute Myeloid	FP
CLS-092	Chronic Myeloid	TP
CLS-114	Chronic Lymphocytic	TP
CLS-148	Acute Myeloid	FP
IUH-087	Acute Lymphoblastic	TN
IUH-091	Acute Lymphoblastic	TP
IUH-094	Acute Lymphoblastic	TP
IUH-098	Acute Lymphoblastic	TP
IUH-099	Acute Lymphoblastic	TP
IUH-101	Acute Lymphoblastic	TP
IUH-102	Acute Lymphoblastic	TP
IUH-108	Acute Myeloid	TP
IUH-112	Acute Myeloid	TP
IUH-113	Acute Myeloid	TP
IUH-126	Acute Lymphoblastic	TP

SID	Diagnosis	Clinical agreement
IUH-127	Chronic Lymphocytic	TP
IUH-145	Other Cancer	TP
IUH-158	Acute Myeloid	TP
IUH-162	Acute Lymphoblastic	TP
IUH-163	Acute Myeloid	TP
IUH-166	Acute Lymphoblastic	TP
IUH-178	Acute Lymphoblastic	TP
IUH-182	Acute Lymphoblastic	TP
IUH-187	Acute Lymphoblastic	TP
IUH-188	Acute Lymphoblastic	TP
IUH-191	Acute Lymphoblastic	TN
LHS-035	Acute Lymphoblastic	TP
LHS-040	Chronic Myeloid	TN
LHS-052	Acute Myeloid	TP
LHS-058	Acute Myeloid	TP
LHS-079	Acute Lymphoblastic	TP
LHS-080	Other Leukemia	TN
LHS-088	Acute Lymphoblastic	TP
LHS-095	Acute Lymphoblastic	TP
LHS-117	Acute Lymphoblastic	TP
LHS-128	Chronic Myeloid	TN

**Table3:** Diagnosis and Agreement Table by Sample.

## Results

When a clinical sensitivity analysis was performed comparing the 41 L&L samples to manual microscopy there were no false negative samples. There were 3 false positive samples where the DxH 520 indicated slide review when microscopy did not reveal an abnormality. The overall clinical sensitivity included 424 samples and showed a false negative rate of 13.5% and a false positive rate of 31.3%