

## EVALUATION OF THE LIQUI-PREP™ ENCAPSULATION SYSTEM BY COMPARISON WITH THE SUREPATH™ PREP

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### ABSTRACT

The **Liqui-PREP™** encapsulation system is a liquid-based cytology procedure manufactured by LGM International, Inc. (Fort Lauderdale, FL).

A trial was conducted to compare the **Liqui-PREP™** to the SurePath Prep (TriPath Imaging, Inc. Burlington, NC, USA).

For the study, two hundred gynecologic cytology specimens collected in SurePath preservative were randomly selected. Initially, 8 ml of the cellular suspensions were processed with the SurePath method. The remainder of the samples (approximately 2 ml) were reconstituted in 10 ml **Liqui-PREP™ Preservative Solution** (room temperature for a minimum of 24 hours) and processed by the **Liqui-PREP™ System**. All visibly bloody specimens were treated with Acetic Acid prior to processing. Briefly, the samples were mixed and centrifuged through the **Liqui-PREP™ Cleaning Solution** (1000 x g for 10 minutes). Supernatants were decanted and the size of the cellular pellets estimated and suspended in the encapsulating (**Liqui-PREP™ Cellular Base**) reagent. The amount of Cellular Base added was kept proportional to the size of the pellets; thus promoting uniform cellularity. A 50µl aliquot of each homogeneous suspension was transferred to clean microscope slides and spread into 17±4 mm circles. After drying, the slides were stained and covered slipped. In this, on going study, SurePath Prep and **Liqui-PREP™** slides will be examined and reported in a masked protocol. Results will be compared, discrepant interpretations noted and reviewed. These data will be presented along with high-resolution photomicrographs.

## INTRODUCTION:

The objective of this study is to compare the preparation quality and detection rate of PAP abnormalities in **Liqui-PREP™** and SurePath liquid-based cytology systems.

## METHODS:

For the study, 200 cervical-vaginal cytology specimens collected in SurePath preservative were randomly selected. Patient samples originated from a small well-defined geographic area and had been submitted for routine screening. Initially, 8 ml of the samples were processed with the SurePath method. The remainder of the samples (approximately 2ml) was centrifuged at 1000 x g for 10 minutes and the cell pellets transferred into **Liqui-PREP™ Preservative Solution**. These samples were stored at room temperature for a minimum of 24 hours before processing with the **Liqui-PREP™** system. All visibly bloody specimens were treated with 25% acetic acid in **Liqui-PREP™ Preservative Solution** prior to processing. Briefly, the samples were mixed and centrifuged through the **Liqui-PREP™ Cleaning Solution** (1000 x g for 10 minutes). Supernatants were decanted and the size of the cellular pellets estimated and suspended in encapsulating (**Liqui-PREP™ Cellular Base**) reagent. The amount of Cellular Base added was kept proportional to the size of the pellets; thus promoting uniform cellularity. A 50µl aliquot of each homogeneous suspension was then transferred to a clean microscope slide and spread with the pipette tip into a 17±4 mm circle. After drying, the slides were stained and cover slipped. Experienced cytologists and Pathologists screened slides without knowing the interpretation of the corresponding preparation. Presented here are the masked results of the first 75 slides, [Table I](#). An additional 125 slides are still in process; consensus review to resolve disagreements and follow up will be held at the end of the study.

**Table I. Diagnoses for the Liqui-PREP™ and SurePath™ Methods**

<b>Liqui-PREP™</b> \ <b>SurePath™</b>	<b>Negative</b>	<b>ASC-US</b>	<b>AGUS</b>	<b>LSIL</b>	<b>HSIL</b>	<b>Cancer</b>	<b>Liqui-PREP™ Totals</b>
<b>Negative</b>	64	2	0	2	0	0	68
<b>ASC-US</b>	2	0	0	0	0	0	2
<b>AGUS</b>	0	0	0	0	0	0	0
<b>LSIL</b>	3	1	0	0	0	0	4
<b>HSIL</b>	1	0	0	0	0	0	1
<b>Cancer</b>	0	0	0	0	0	0	0
<b>SurePath Total</b>	70	2	0	2	0	0	75

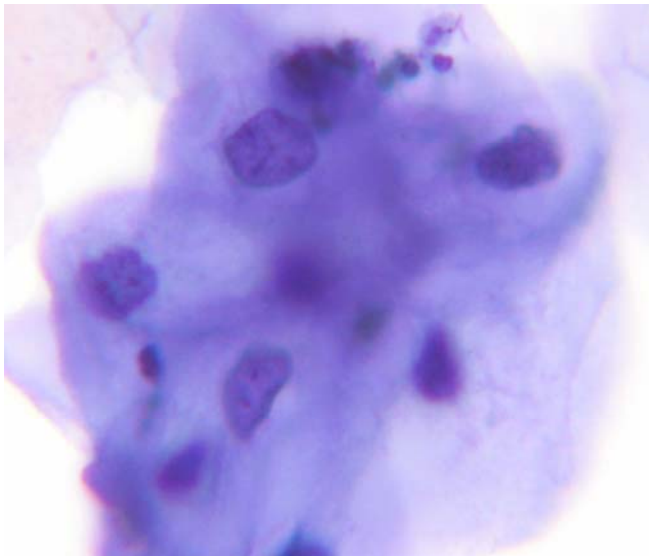
## RESULTS:

SurePath and **Liqui-PREP™** thin layer slides were remarkably similar in their overall appearance. Both preparations displayed a uniform layer of cells across their respective cellular areas. Mucus and red cells were removed, and the number of leukocytes were reduced (SurePath) or distributed randomly throughout the preparation (**Liqui-PREP™**).

There were no significant differences in the quality of preservation, cellularity, infectious agents and specimen adequacy. Neither sample set had an unsatisfactory slide. Table I compares the masked SurePath and **Liqui-PREP™** diagnoses to date. Although the numbers of patients compared is still small, there is at least one significant discrepancy outside two diagnostic categories. Initial **Liquid-PREP™** screening reported a HSIL that was not reported on the matched SurePath. Discrepancies are not uncommon in comparisons of this nature and usually result from screening errors. Follow up on this case is underway.

## CONCLUSIONS:

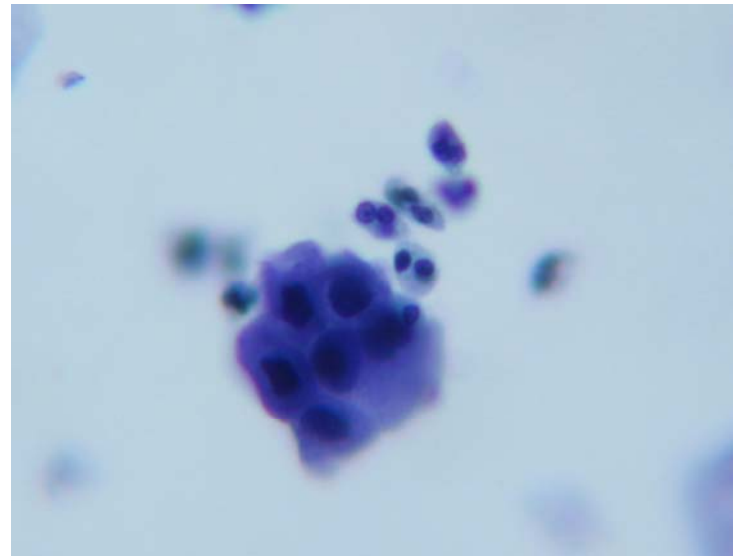
SurePath and **Liqui-PREP™** liquid-based cytology preparations appear to be very comparable in their respective diagnostic presentations and initial screening results.



**#1007-1:**

**Low Grade Squamous Intraepithelial Lesion  
( Mild Dysplasia, CIN I)**

Cells in group, intermediate type, well defined cellular borders, abundant, pale, transparent cytoplasm, central and enlarged nuclei (3 to 4 times the normal intermediate cell nucleus), nuclear membrane is smooth to irregular, the chromatin is fine. The nucleolus is absent. The N/C ratio is slightly increased.



**#1003-2:**

**High Grade Squamous Intraepithelial Lesion  
( Moderate Dysplasia, CIN II)**

Cells in groups of parabasal type, ovals, medium sized, well defined cell borders, dense cytoplasm, nuclei enlarged (2.5 to 3.5 times normal intermediate squamous cells), prominent nuclear membrane with coarsely granular chromatin. Nucleoli are absent. N/C ratio is 1/3 to 1/2 (increased)